

POLICY ISSUE Information

July 24, 2012

SECY-12-0103

FOR: The Commissioners

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

SUBJECT: SIXTH REPORT ON THE STATUS OF REACTIVATION OF
CONSTRUCTION AND LICENSING FOR WATTS BAR NUCLEAR
PLANT, UNIT 2

PURPOSE:

This paper is the sixth status report informing the Commission about the U.S. Nuclear Regulatory Commission (NRC) staff's activities, accomplishments, and challenges related to the reactivation of construction, licensing, and inspection for Watts Bar Nuclear Plant (WBN), Unit 2. This paper updates the status information in SECY-12-0020, "Fifth Report on the Status of Reactivation of Construction and Licensing for Watts Bar Nuclear Plant, Unit 2," dated February 1, 2012. This paper does not address any new commitments or resource implications.

SUMMARY:

On March 4, 2009, the Tennessee Valley Authority (TVA) submitted an updated operating license (OL) application for the unfinished WBN Unit 2. TVA originally expected to complete Unit 2 by April 2012 based on its initial detailed scoping, estimating, and planning study completed and approved by the TVA Board of Directors in 2007. However, in a press release dated April 5, 2012, TVA announced the findings of a 7-month construction review at WBN Unit 2, detailing cost and time estimates to complete the facility. In this announcement, TVA stated that the emerging estimate to complete Unit 2 would require additional funding of \$1.5 billion to \$2 billion and estimated completion between September and December of 2015. As part of its rationale for the cost and delay, TVA management stated that "walk downs to

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support the initial estimate were not completed. Management was misaligned, and planning was poor.” In its revised time and cost estimates, TVA stated that it has “added contingency and an allowance for addressing Fukushima impacts.”

The NRC staff has completed a major portion of its safety and environmental review of the OL application. Because of the extension in the project schedule and the resultant reduction in the projected staff workload, NRC management has decided to disestablish the Watts Bar Special Projects Branch. One branch resource will be placed in another branch to maintain continuity and to continue processing activities. Dedicated resident inspectors (RIs), with assistance from other regional inspectors, continue to inspect TVA’s construction activities. The staff has met periodically with the Advisory Committee on Reactor Safeguards (ACRS) Subcommittee on Plant Operations and Fire Protection to discuss the results of the staff’s ongoing review. In addition, the OL application proceeding has been contested, but the Atomic Safety and Licensing Board (ASLB) panel has not yet held a hearing.

DISCUSSION:

As discussed in the fifth status report, the NRC staff has made significant progress in its review of the items that were open for staff review in the WBN Unit 2 Final Safety Analysis Report (FSAR). The staff began the review in 2009 with Amendment 92 to the FSAR, which is now at Amendment 108. The staff continues to document the results of its review in supplements to NUREG-0847, “Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Unit 1 and 2” (SSERs). In SSER 21, issued February 2009, the staff identified the open items that the applicant must resolve before the NRC can issue an OL. Since then, the staff has issued SSERs 22 through 25. The staff continues to review the remaining FSAR open topic areas, along with specific open and confirmatory items documented in the SSERs, for closure.

[Enclosure 1](#) provides a summary status of the major work activities associated with the safety review of WBN Unit 2. In addition, [Enclosure 2](#) provides a pictorial depiction of future activities and milestones, along with the expected periods for accomplishment.

The information below outlines the current status of the staff’s review of the OL application, including inspection activities.

Licensing Activities

Construction Permit

In an order dated July 7, 2008, the NRC granted an extension to the latest completion date for WBN Unit 2 until March 31, 2013, in Construction Permit (CP) No. CPPR-92. On May 17, 2012, TVA requested that the NRC extend the CP to September 30, 2016. TVA stated that the extension request was the result of project performance not meeting the original estimated budget and schedule as well as unanticipated additional work (e.g., work related to regulatory responses to and lessons learned from the events at Fukushima Dai-ichi in Japan). The staff is currently reviewing the request and is scheduled to complete the review in December.

Safety Evaluation Report

- With the completion of SSER 25, the review of the FSAR topics is 95 percent complete. The remaining topic areas of review are fire protection and hydrologic engineering. Also, SSER 25 documented some open items related to FSAR topics that will require confirmation, inspection verification, receipt of final technical specifications information, or submission of additional information for the staff's evaluation (i.e., open and confirmatory items in SSER Appendix HH). TVA is addressing the remaining open issues as the construction progresses.
- In a letter dated July 19, 2012, TVA stated that it would provide its revised Unit 1 and Unit 2 as-designed fire protection report on September 13, 2012. The revised fire protection report will incorporate changes to better evaluate and document the fire protection report strategies and support the analyses that have been revised to eliminate certain operator manual actions. If found acceptable, the staff plans to complete its review and issue a safety evaluation, which will be incorporated as an attachment to SSER 26. The fire protection report will also be subject to future "as-built" validation.

Generic Communications

- With regard to post-1995 generic communications (i.e., bulletins, generic letters, or orders), the staff has completed the review of TVA responses to all but two required generic communications:
 - NRC Bulletin 2011-01, "Mitigating Strategies," dated May 11, 2011, required addressees to provide a comprehensive verification of their compliance with the regulatory requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(hh)(2) in light of the recent events at Japan's Fukushima Dai-ichi facility. In a letter dated July 18, 2011, TVA stated that it will respond as appropriate to the information requested in this bulletin consistent with the approach provided by WBN Unit 1 before licensing Unit 2. In a safety evaluation dated April 23, 2012, the NRC staff verified that TVA provided the information requested in Bulletin 2011-01 for WBN Unit 1. The NRC staff also concluded that TVA has completed all of the requirements of the bulletin for WBN Unit 1. The staff will review TVA's response after its submission for WBN Unit 2 and will take appropriate action should it deem that further regulatory action is necessary based on the ongoing evaluations of this event.
 - The review for Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," dated September 13, 2004, is still in progress. On May 17, 2012, TVA submitted updated information based on the "clean plant" guidelines and methodology developed by the Nuclear Energy Institute. Should the staff find TVA's results satisfactory, it will prepare a safety evaluation to close out this item.
- The staff is addressing its review of responses to pre-1995 generic communications, including Three Mile Island Action Plan items, as part of the FSAR review. This effort is still in progress and includes evaluation of certain changes to the proposed technical specifications.

Corrective Action Programs

TVA instituted a nuclear performance plan, which included corrective action programs (CAPs) and special programs (SPs), to resolve certain concerns about the quality of construction at WBN in the 1970s and early 1980s. The staff completed its review of TVA's approach for implementing the CAPs and SPs at WBN Unit 2. The Region II inspection of TVA's implementation of CAPs and SPs remains underway.

Final Environmental Statement

As part of its updated OL application in early 2009, TVA submitted a supplement to its final environmental impact statement for the completion and operation of WBN Unit 2. The staff completed its review and published draft Supplement 2 to the final environmental statement for public comment in October 2011. On December 8, 2011, a public meeting (two sessions) was held to also obtain comments on the document. A group of concerned citizens made short presentations, asked questions, and provided comments with several individuals requesting that the NRC grant an extension to the 45-day comment period. The comment period was subsequently extended by staff until January 24, 2012.

The staff and its contractor are evaluating and developing responses to the written and verbal comments received.

Emergency Preparedness

On October 19, 2011, the NRC and the Federal Emergency Management Agency (FEMA) evaluated TVA's WBN Unit 1 emergency preparedness exercise. The NRC inspection team examined activities as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of the license. Based on the results of this inspection, no findings were identified.

FEMA's evaluation of the offsite portion of the response found no areas requiring corrective actions. The Homeland Security Exercise and Evaluation Program Report for the WBN Plant Radiological Emergency Program Exercise was published in February 2012.

Because TVA may make changes to its corporate Radiological Emergency Program before WBN Unit 2 is granted an OL, the NRC staff will assess any future changes to determine if further staff evaluation may be needed.

Security

- The changes to the physical security programs for the WBN site were reviewed and the staff's conclusions were documented in Section 13.6 of the SSER 22.
- By letter dated June 10, 2011, TVA updated its cyber-security implementation plan and schedule, which takes into account common systems that are shared between WBN Units 1 and 2. During the week of May 7, 2012, the staff conducted an on-site assessment at WBN to dry-run a draft version of the temporary inspection instructions. TVA continues to make progress towards completing milestones in its cyber-security implementation plan, and the staff is working with TVA to coordinate the timing of the

actual cyber-security inspection at WBN Unit 2, considering the impact of the overall construction project schedule delays.

Materials Licenses

- On June 14, 2011, the Office of Nuclear Material Safety and Safeguards issued a license to TVA under 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," to receive, possess, inspect, and store special nuclear material in the form of fresh nuclear fuel assemblies at WBN Unit 2. As of August 2011, TVA received all 193 fuel assemblies that will comprise the complete core for WBN Unit 2. Because this license was set to expire in June 2013, TVA will be submitting a request to renew the license to extend the expiration date and to update certain other information that has changed since the NRC issued the initial license.
- On February 16, 2011, Region I issued licenses under 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," and 10 CFR Part 40, "Domestic Licensing of Source Material."

Antitrust Determination

The staff has coordinated with the Department of Justice (DOJ) regarding the staff's antitrust review. On December 16, 2010, the DOJ informed the staff that no significant changes requiring an antitrust hearing have occurred. On March 21, 2011, the NRR Director issued a Director's Decision and concluded that no significant changes have occurred that would require an antitrust review. On March 22, 2011, a copy of this Director's Decision was filed with the Secretary of the Commission for the Commission to review. On March 28, 2011, the staff issued a notice of the Director's Decision in the *Federal Register* (FR) (76 FR 59 pages 17160 – 17163) to provide an opportunity for the public to request for reevaluation of the no significant change determination. The NRC did not receive any requests from the public.

Advisory Committee on Reactor Safeguards (ACRS) Review

As part of its statutory responsibilities, ACRS reviews and reports on applications for construction permits and facility OLS and advises the Commission on the hazards of proposed reactor facilities. The staff has met periodically with the ARCS Subcommittee on Plant Operations and Fire Protection to discuss significant topics as the staff completes its reviews. Recent meetings with the ACRS subcommittee took place on October 5 and December 15, 2011; with a future ACRS subcommittee meeting scheduled for October 2012 to discuss the fire protection program. A full committee meeting is tentatively scheduled for December 2012. On the basis of discussion with the ACRS staff, the ACRS has agreed to prepare an interim review letter to document the findings to date after the full committee meeting in December.

Hearing Process

As directed by the Commission, the staff published on May 1, 2009, in the FR a "Notice of Receipt of Update to Application for Facility Operating License and Notice of Opportunity for Hearing and Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation" (74 FR 20350). In

response to the FR notice, the NRC received a petition to intervene and a request for hearing filed jointly by five organizations led by the Southern Alliance for Clean Energy (SACE). The request for hearing involved seven contentions. On November 19, 2009, the ASLB issued its memorandum and order that granted the request for hearing on behalf of SACE (SACE Contentions 1 and 7 were admitted, and the others were denied). Contention 1 (TVA's compliance with necessary Federal and State permits for WBN Unit 2), was dismissed by agreement among the parties in June 2010. On November 21, 2011, TVA filed a motion for summary disposition of Contention 7 with the ASLB (TVA's consideration of the aquatic impacts of WBN Unit 2), which the ASLB denied on March 6, 2012. The Board stated that "there remains a genuine dispute over the material facts put in issue by the Contention, namely, the adequacy of TVA's analysis of aquatic impacts in its Final Supplemental Environmental Impact Statement (FSEIS)."

SACE filed an additional Contention with the ASLB challenging the adequacy of TVA's FSEIS on the basis that it fails to address the extraordinary environmental and safety implications of the findings and recommendations in the report by the NRC's Near-Term Task Force on the Fukushima Dai-Ichi Accident, which was denied in an order dated March 30, 2012.

In addition, on July 9, 2012, SACE filed a new Contention with the ASLB challenging the failure of staff's draft final environmental statement for WBN Unit 2, to address the environmental impacts of spent fuel pool leakage and fires as well as the environmental impacts that may occur if a spent fuel repository does not become available.

Construction Inspection Activities

Construction Inspection Resources and Planning Activities

The amount of Region II construction inspection for WBN Unit 2 decreased during the first half of 2012. This was based on a corresponding decrease in safety-related construction activities caused, in part, by a shift in TVA's resources to accurately determine the status of WBN Unit 2 construction and estimate the remaining work to complete the project. The number of dedicated WBN Unit 2 construction RIs was reduced from four to three. Region II plans to monitor the pace of construction activities, with the option of assigning a fourth RI when the inspection workload increases. The fourth RI position would be filled with long term rotations because of the uncertainty in the length of the assignment. Region II, Division of Construction Projects, Branch 3, continues to manage the overall WBN Unit 2 construction inspection program and, in addition to the RIs, is staffed with a senior construction inspector, a construction inspector, and a team leader. Inspectors from the Division of Construction Inspection continue to perform inspections at WBN Unit 2.

The Region II construction inspection management team continues to place increased emphases on ensuring the integrity of the WBN Unit 2 integrated construction inspection schedule. This effort is somewhat difficult because several of TVA's open items do not have clearly identified completion dates at this time. Additionally, inspection plans are being modified to reflect the delay in WBN Unit 2 construction.

Based on continuing planning and resource estimating for the remaining open WBN construction inspections, Region II has sufficient inspection resources (full-time equivalent and contract support) to accomplish the construction inspection program for WBN Unit 2.

Communication with Stakeholders

Region II continues to hold periodic information meetings with interested stakeholders in the vicinity of WBN Unit 2. At these meetings, TVA typically provides the status of construction activities and the NRC describes the status of the construction inspection program at WBN Unit 2. Current technical topics are also routinely discussed. The public has time to ask questions and provide comments related to the WBN Unit 2 construction project. Typically about a dozen members of the public attend these meetings and have asked many questions. Several members of the media have also attended these meetings. The last meeting took place on May 22, 2012, in Spring City, TN, to discuss TVA's revised construction schedule for WBN Unit 2.

Construction Inspection Program Completion Progress

The NRC continues to use the Region II Inspection Planning and Scheduling (IP&S) database to track the completion of inspection items for WBN Unit 2. As of July 2012, Region II had closed approximately 217 of the 538 items in IP&S. Many of the remaining IP&S items have been partially inspected and the inspectors are waiting on either additional information or completion of field activities prior to closing the items. Construction delays have further hampered progress in completing many of the planned inspections.

Emergent Issues

Any emergent issues that may arise between now and issuing the OL for WBN Unit 2 will be evaluated individually by the staff, but should be resolved for WBN Unit 2 consistent with other operating reactors and commensurate with the safety significance of the issues. In general, due to the advanced stage of construction and licensing of WBN Unit 2, any emergent issues should not delay issuing an OL for WBN Unit 2.

- In an order dated March 12, 2012, licensees and CP holders under 10 CFR Part 50 must have a reliable means of remotely monitoring wide-range spent fuel pool levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis external event.
- In a separate order also dated March 12, 2012, licensees and CP holders are required to have a three-phase approach for mitigating beyond-design-basis external events. The initial phase requires the use of installed equipment and resources to maintain or restore core cooling, containment and spent fuel pool cooling capabilities. The transition phase requires providing sufficient, portable, onsite equipment and consumables to maintain or restore these functions until they can be accomplished with resources brought from off site. The final phase requires obtaining sufficient offsite resources to sustain those functions indefinitely.
- In a request for information pursuant to 10 CFR 50.54(f) dated March 12, 2012, regarding recommendations 2.1, 2.3, and 9.3 of the "Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," licensees and CP holders were requested to reevaluate the seismic and flooding hazards at the sites against current requirements and guidance. Because of the co-located nature of the site and the sharing of certain mitigation systems, along with the use of the WBN Unit 1 licensing

basis as the reference basis for Unit 2, the evaluation for WBN Unit 2 should be consistent with that done for Unit 1.

Future Actions and Milestones

As previously stated, [Enclosure 2](#) provides a pictorial depiction of future activities and milestones, along with the expected periods for accomplishment. Not included, but available upon request from the Commission, the staff has created a detailed diagram of the process work flow for those areas remaining to be completed before the Commission can consider granting an OL. The representation of these activities and milestones should not be taken as any predisposition of findings or conclusions by the staff.

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/

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Enclosures:

1. Statistical Status Report
2. Watts Bar Unit 2 Reactivation Project Plan

Statistical Status Report (Status as of June 2012)

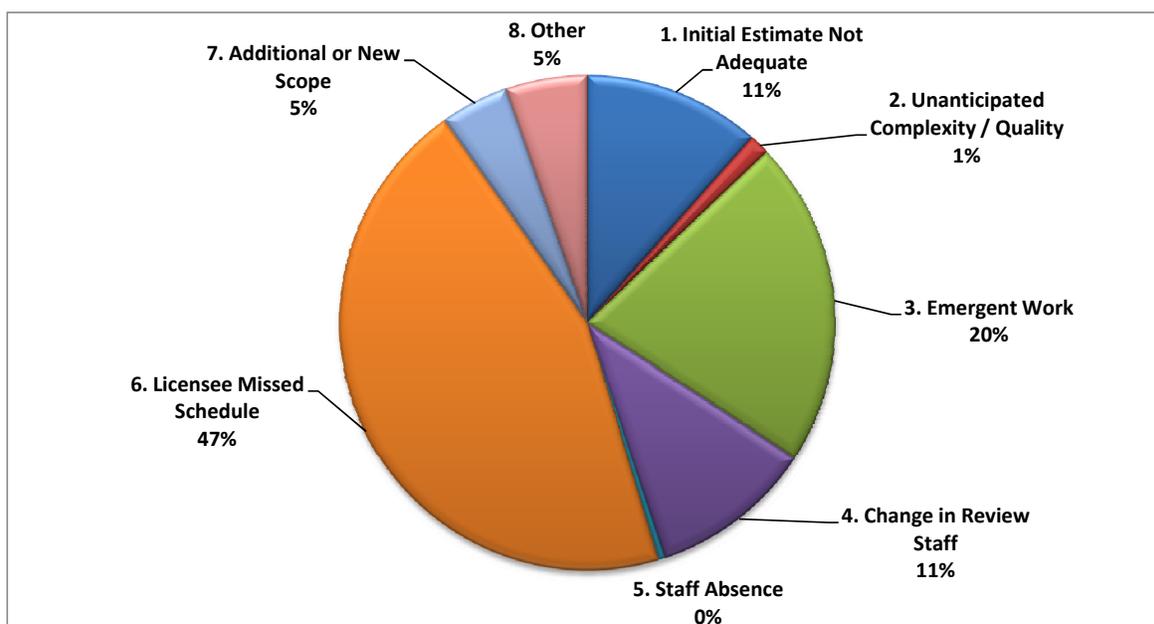
<u>Project Milestones:</u>	<u>Total Items Identified</u>	<u>Items Completed to Date</u>	<u>Completed vs. Total</u>
FSAR Review Sections	309	307	99%
Corrective Actions Program	29	29	100%
Generic Communications*	57	55	96%
TMI Action Items	42	42	100%
Open Items Requiring Staff Review**	71	31	44%
Confirmatory Items**	53	10	19%
<u>Special Programs:</u>			
Emergency Preparedness	1	1	100%
Physical Security	1	1	100%
Cyber Security Plan	1	1	100%
IPE/IPEEE	2	2	100%
Financial Qualifications	1	1	100%
Anti-Trust	1	1	100%
<u>Other Licenses:</u>			
Part 30/40 Byproduct and Source Material	1	1	100%
Part 70 Special Nuclear Material***	1	1	100%

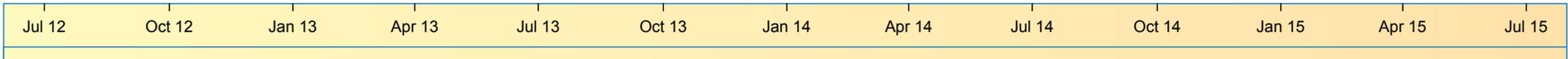
Region II Inspection Program:

Inspection Items In Progress

Notes: * GL-2004-02 and BL 2011-01 remain open. ** As of SSER 25. *** SNM license to be renewed by June 2013.

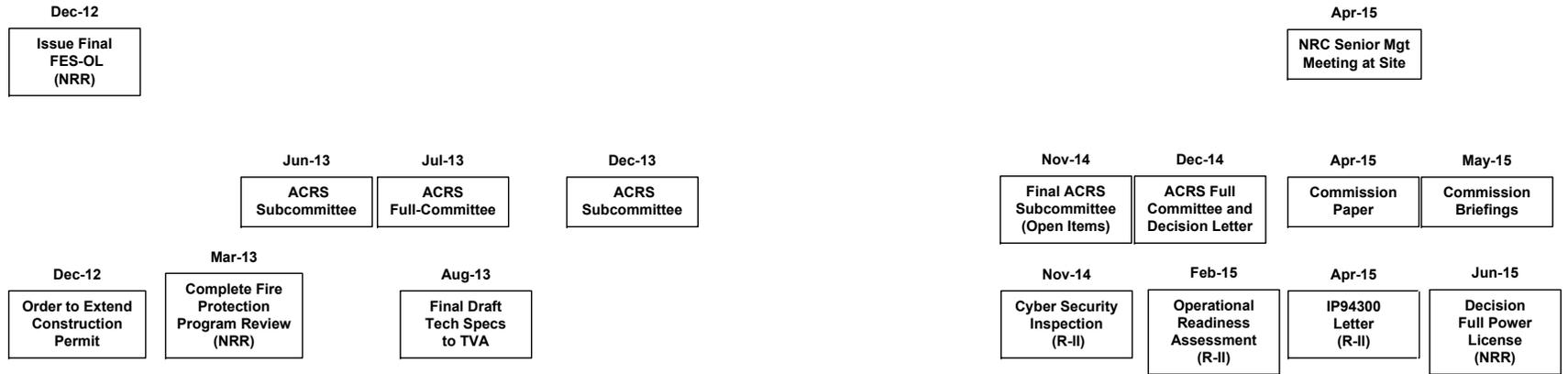
Past Project Influences On Today's Schedule





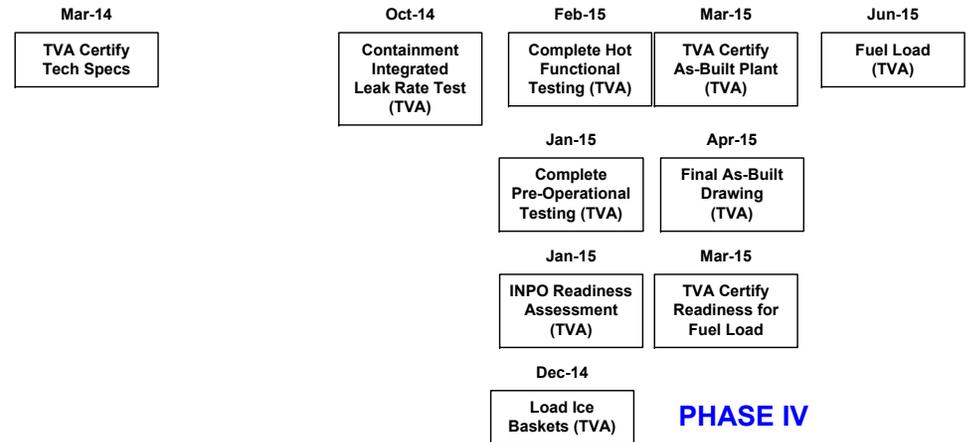
2012

2015



Reviews, Hearings, and Briefings

Operating License



PHASE II and III

PHASE IV

WATTS BAR UNIT 2 REACTIVATION PROJECT PLAN
U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation

As of **July 24, 2012**
 Center for Planning and Analysis Branch
 Control Number:
 171273_DP_TMLN_Rev22.vsd