



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

CNL-16-159

September 30, 2016

10 CFR 50.90

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

Watts Bar Nuclear Plant, Unit 2
Facility Operating License No. NPF-96
NRC Docket No. 50-391

Subject: **Application to Modify Watts Bar Nuclear Plant Unit 2 Technical Specifications to Extend Surveillance Requirement (SR) Intervals for SRs 3.6.11.2 and 3.6.11.3 (WBN-TS-16-022)**

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.90, "Application for amendment of license, construction permit, or early site permit," Tennessee Valley Authority (TVA) is submitting for Nuclear Regulatory Commission (NRC) approval, a request for an amendment to Facility Operating License No. NPF-96 for the Watts Bar Nuclear Plant (WBN), Unit 2.

The proposed change revises Technical Specification (TS) Surveillance Requirement (SR) 3.0.2 to extend, on a one-time basis, the surveillance intervals for SRs 3.6.11.2 and 3.6.11.3 that are normally performed on an 18-month frequency in conjunction with a refueling outage. These SRs verify the operability of the ice bed in TS 3.6.11. Specifically, SR 3.6.11.2 verifies that the total weight of stored ice is greater than or equal to the specified limit and SR 3.6.11.3 verifies that the azimuthal distribution of ice is reasonably uniform. The proposed change extends the due date for SRs 3.6.11.2 and 3.6.11.3 from February 1, 2017 (i.e., 18 months from the last surveillance plus the allowable 25 percent extension in SR 3.0.2) to October 31, 2017, and allows these SRs to be performed during the first refueling outage for WBN Unit 2.

Approval of the requested surveillance interval extensions will prevent a plant shutdown solely to perform these surveillance tests. In addition, these surveillances would need to be repeated during the next refueling outage to synchronize their performance with the refueling outage schedule. Furthermore, a cold shutdown (i.e., Mode 5) surveillance outage would result in an unnecessary transient to the plant.

Approval of this request allows TVA to continue with the startup of WBN Unit 2 to commercial operation and then operate the unit as originally planned and analyzed without a mid-cycle shutdown to perform these surveillances. The proposed changes do not affect the overall safe operation of WBN Unit 2, nor do they adversely affect the safe operation of WBN Unit 1.

TVA initially planned to perform SRs 3.6.11.2 and 3.6.11.3 during the first refueling outage for WBN Unit 2 that was scheduled to occur in September 2016. However, because of delays in the startup of WBN Unit 2, commercial operation was delayed. This delay resulted in a change to the date for the first refueling outage for WBN Unit 2. Therefore, TVA re-assessed the SRs that were scheduled to be performed during the rescheduled outage. The complete list of SRs that will need to be extended is currently being compiled. This SR extension request is being submitted separately due to the near term due date of February 1, 2017 for SRs 3.6.11.2 and 3.6.11.3. Additional amendment requests will be submitted to address additional SRs that require an extension.

Enclosure 1 to this letter provides a description of the proposed TS change, a technical evaluation of the proposed TS change, regulatory evaluation, and a discussion of environmental considerations. Attachments 1 and 2 to Enclosure 1 provide the existing TS and Bases pages marked-up to show the proposed changes. Attachments 3 and 4 to Enclosure 1 provide the existing TS and Bases pages retyped to show the proposed changes.

Changes to the existing TS Bases are provided for information only and will be implemented under the Technical Specification Bases Control Program.

The WBN Plant Operations Review Committee and the TVA Nuclear Safety Review Board have reviewed this proposed change and determined that operation of WBN Unit 2 in accordance with the proposed change will not endanger the health and safety of the public.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the TS change qualifies for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Tennessee State Department of Environment and Conservation.

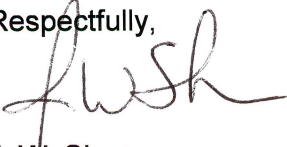
TVA requests approval of this proposed license amendment by January 25, 2017, with implementation within seven days following NRC approval. Approval of this proposed license amendment by the requested date precludes the risk of an additional plant shutdown solely to perform these surveillance tests.

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Enclosure 2 lists the new regulatory commitment associated with this submittal. Please address any questions regarding this request to Gordon Arent at (423) 365-2004.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 30th day of September 2016.

Respectfully,

A handwritten signature in black ink, appearing to read 'JWSH', written over the word 'Respectfully,'.

J. W. Shea
Vice President, Nuclear Licensing

Enclosures:

1. Evaluation of Proposed Technical Specification Change
2. New Regulatory Commitment

cc (Enclosures):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Watts Bar Nuclear Plant
NRC Project Manager – Watts Bar Nuclear Plant
Director, Division of Radiological Health - Tennessee State Department of
Environment and Conservation

Enclosure 1

Watts Bar Nuclear Plant, Unit 2 WBN-TS-16-022 Evaluation of Proposed Technical Specification Change

Subject: Application to Modify Watts Bar Nuclear Plant Unit 2 Technical Specifications to Extend Surveillance Requirement (SR) Intervals for SRs 3.6.11.2 and 3.6.11.3 (WBN-TS-16-022)

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ATTACHMENTS

1. Proposed TS Changes Mark-Ups for WBN Unit 2
2. Proposed TS Bases Page Changes (Mark-Ups) for WBN Unit 2 (For Information Only)
3. Proposed TS Changes (Final Typed) for WBN Unit 2
4. Proposed TS Bases Changes (Final Typed) for WBN Unit 2 (For Information Only)

Enclosure 1

Watts Bar Nuclear Plant, Unit 2 WBN-TS-16-022

Evaluation of Proposed Technical Specification Change

1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend Facility Operating License No. NPF-96 for the Tennessee Valley Authority (TVA) Watts Bar Nuclear Plant (WBN), Unit 2. The proposed amendment revises the Technical Specifications (TSs) to allow a one-time extension to the 18-month TS Surveillance Requirements (SRs) 3.6.11.2 and 3.6.11.3. These SRs verify the operability of the ice bed in TS 3.6.11. Specifically, SR 3.6.11.2 verifies that the total weight of stored ice is greater than or equal to 2,750,700 pounds (lb) and SR 3.6.11.3 verifies the azimuthal distribution of ice at a 95 percent confidence level.

The proposed change would extend the completion date for SRs 3.6.11.2 and 3.6.11.3 from February 1, 2017 (i.e., 18 months from the last surveillance plus the allowable 25 percent extension in SR 3.0.2) to October 31, 2017, and would allow these SRs to be performed during the first refueling outage for WBN Unit 2.

SRs 3.6.11.2 and 3.6.11.3 cannot be performed online and are normally performed during a refueling outage with the unit in the Cold Shutdown (CSD) (Mode 5), Refueling (Mode 6), or defueled condition. Approval of the request allows TVA to continue with the startup of WBN Unit 2 to commercial operation and operate the unit as originally planned without a mid-cycle shutdown to perform these surveillances.

TVA requests an expedited review of the proposed change in order to preclude the risk of an additional plant shutdown solely to perform these surveillance tests. Specifically, TVA is requesting the Nuclear Regulatory Commission (NRC) approval by January 25, 2017, which is one week prior to the current due date of February 1, 2017, for SRs 3.6.11.2 and 3.6.11.3, with implementation within seven days following NRC approval.

2.0 DETAILED DESCRIPTION

2.1 PROPOSED CHANGES

TVA is proposing a change to WBN Unit 2 TS SR 3.0.2 adding information stating that the specified frequency of SRs 3.6.11.2 and 3.6.11.3, as shown in proposed TS SR Table 3.0.2-1, is met if the SRs are performed prior to the dates listed in SR Table 3.0.2-1. The proposed extension of the test intervals for these SRs is on a one-time basis.

Attachments 1 and 2 to this enclosure provide the existing WBN Unit 2 TS and Bases pages marked-up to show the proposed changes. Attachments 3 and 4 to this enclosure provide the existing WBN Unit 2 TS and Bases pages retyped to show the proposed changes.

The proposed Bases changes are provided to the NRC for information only.

2.2 CONDITION INTENDED TO RESOLVE

The proposed amendment to the WBN Unit 2 Operating License (OL) permits a one-time extension of the test intervals for SRs 3.6.11.2 and 3.6.11.3 that are performed in Mode 5, 6, or when defueled.

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The final construction activity for WBN Unit 2 is the power ascension testing. This activity includes the milestones of fuel load, pre-critical tests, initial criticality, low power tests, power ascension, and declaration of commercial operations. At the beginning of 2015, WBN was nearing completion of construction and intended to transition Unit 2 to full commercial operation in 2015. Accordingly, TVA completed surveillance testing to allow the mode changes to start up WBN Unit 2. Because the declaration of WBN Unit 2 commercial operations was delayed, the first refueling outage was also delayed to fully utilizing the initial fuel load.

To preclude the risk of an additional plant shutdown solely to perform surveillance tests, TVA is requesting an extension to SRs 3.6.11.2 and 3.6.11.3 to the dates specified in TS Table SR 3.0.2-1. With the extension of these surveillance requirements, TVA plans to continue WBN Unit 2 operation until October 2017, when the first refueling outage is currently scheduled.

2.3 CONDITION BACKGROUND

On October 22, 2015, WBN Unit 2 received the NRC approved Facility OL NPF-96. After the WBN Unit 2 OL was received, TVA began the process of starting up the unit that included completion of required TS equipment surveillances prior to entry into the Mode of applicability. In addition to completing the SRs required to enter each specific mode, TVA is performing power accession testing to confirm that the unit operates as designed. Initial plans for WBN Unit 2 were to obtain an OL and declare WBN Unit 2 ready for commercial operation by the end of 2015. With commercial operation originally projected in 2015, TVA planned the first refueling outage to occur in September 2016. Based on the completion of the 18-month SRs that required the unit to be in CSD, the SRs would still be within required periodicity when the September 2016 shutdown was to occur. However, because of delays in the startup of WBN Unit 2, commercial operation was delayed.

Declaration of commercial operation is now estimated for the Fall of 2016 with the first refueling outage currently planned to commence on October 14, 2017.

TVA initially planned to perform SRs 3.6.11.2 and 3.6.11.3 during the first refueling outage for WBN Unit 2 that was scheduled to occur in September 2016. However, because of delays in the startup of WBN Unit 2, commercial operation was delayed. This delay resulted in a change to the date for the first refueling outage for WBN Unit 2. Therefore, TVA re-assessed the SRs that were scheduled to be performed during the rescheduled outage. The complete list of SRs that will need to be extended is currently being compiled. This SR extension request is being submitted separately due to the near term due date of February 1, 2017 for SRs 3.6.11.2 and 3.6.11.3. Additional amendment requests will be submitted to address additional SRs that require an extension.

To support continuous plant operation until the October 2017 refueling outage, a one-time change is requested to extend the surveillance intervals for the SRs 3.6.11.2 and 3.6.11.3. These SRs are due prior to the beginning of the WBN Unit 2 refueling outage and cannot be conducted during power operations. TVA proposes to amend the TS to allow the subject surveillance tests to be performed during the planned WBN Unit 2 refueling outage (RFO)

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(i.e., U2R1). The applicability of the extension is through the dates specified in TS Table SR 3.0.2-1.

The proposed expiration date specified in TS Table SR 3.0.2-1 for SRs 3.6.11.2 and 3.6.11.3 is October 31, 2017. This allows sufficient time to complete the SRs during the first WBN Unit 2 refueling outage that is scheduled to start on October 14, 2017. Requesting an expiration date of October 31, 2017 allows some flexibility in the shutdown schedule.

Approval of the requested surveillance interval extensions will prevent a plant shutdown solely to perform surveillance tests that would otherwise exceed the surveillance interval of 18 months plus the allowable 25 percent extension to the interval specified in TS SR 3.0.2. In addition, these surveillances would need to be repeated during the next refueling outage to synchronize their performance with the refueling outage schedule. Furthermore, a cold shutdown (i.e., Mode 5) surveillance outage would cause an unnecessary transient on the plant.

TVA will, as applicable, perform SRs 3.6.11.2 and 3.6.11.3 prior to their extended due date, if WBN Unit 2 enters Mode 5 of sufficient duration such that the SRs can be performed.

2.4 EVALUATION OF ABILITY TO PERFORM SURVEILLANCES ONLINE

SRs 3.6.11.2 and 3.6.11.3 involve weighing of the ice baskets that can only be performed with WBN Unit 2 in either Mode 5, 6, or defueled.

TS 3.6.11 requires the ice bed to be operable in Modes 1, 2, 3, and 4. TS 3.6.12 requires the ice condenser doors to be operable in Modes 1, 2, 3, and 4. Weighing ice baskets involves either use of an overhead hoist or a hydraulic rig. Both of these methods require the ice basket pins to be removed to allow the baskets to be lifted for weighing. Removing an ice basket pin renders the ice bed inoperable. In addition, access to the top side of many of the ice baskets requires the intermediate deck doors and door frames be removed, rendering the intermediate deck doors inoperable. Lastly, weighing the ice baskets requires access to the lower containment inside the crane wall. This area of the containment is restricted during plant operation due to radiation levels.

3.0 TECHNICAL EVALUATION

3.1. SYSTEMS DESCRIPTION

The ice bed consists of over 2,750,700 lb of ice stored in 1944 baskets within the ice condenser. Its primary purpose is to provide a large heat sink in the event of a release of energy from a design basis accident (DBA) in containment. The ice would absorb energy and limit containment peak pressure and temperature during the accident. Limiting the pressure and temperature reduces the release of fission product radioactivity from containment to the environment in the event of a DBA.

The ice baskets contain the ice within the ice condenser. The ice bed consists of the total volume from the bottom elevation of the ice baskets to the top elevation of the ice baskets. The ice baskets position the ice within the ice bed in an arrangement to promote heat

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transfer from steam to ice. This arrangement enhances the ice condenser's primary function of condensing steam and absorbing heat energy released to the containment during a DBA.

As ice melts, the water passes through the ice condenser floor drains into the lower compartment. Thus, a second function of the ice bed is to be a large source of borated water (via the containment sump) for long term Emergency Core Cooling System (ECCS) and Containment Spray System (CSS) heat removal functions in the recirculation mode.

A third function of the ice bed and melted ice is to remove fission product iodine that may be released from the core during a DBA. Iodine removal occurs during the ice melt phase of the accident and continues as the melted ice is sprayed into the containment atmosphere by the CSS. The ice is adjusted to an alkaline pH that facilitates removal of radioactive iodine from the containment atmosphere. The alkaline pH also minimizes the occurrence of the chloride and caustic stress corrosion on mechanical systems and components exposed to ECCS and CSS fluids in the recirculation mode of operation.

It is important for the ice to be uniformly distributed around the 24 ice condenser bays and for open flow paths to exist around ice baskets. This distribution is especially important during the initial blowdown so that the steam and water mixture entering the lower compartment do not pass through only part of the ice condenser, depleting the ice in some bays while bypassing the ice in other bays.

Two phenomena that can degrade the ice bed during the long service period are:

- a. loss of ice by melting or sublimation; and
- b. obstruction of flow passages through the ice bed due to buildup of frost or ice.

Both of these degrading phenomena are reduced by minimizing air leakage into and out of the ice condenser.

3.2. SAFETY ANALYSIS

The limiting DBAs considered relative to containment temperature and pressure are the loss of coolant accident (LOCA) and the steam line break (SLB). The LOCA and SLB are analyzed using computer codes designed to predict the resultant containment pressure and temperature transients. The limiting DBA analyses show that the maximum peak containment pressure results from the LOCA analysis and is calculated to be less than the containment design pressure. In accordance with the WBN dual-unit Updated Final Safety Analysis Report (UFSAR) Section 6.2.1.3.3, the analytical limit for the mass of ice assumed in the WBN Unit 2 ice condenser to limit the maximum containment peak pressure from a LOCA to below the containment design pressure is 2,585,000 lb of ice.

TS Limiting Condition for Operation (LCO) 3.6.11 requires a quantity of stored ice that exceeds the analytical value to account for the assumed loss of ice during the operating cycle due to sublimation. Sublimation of ice in the ice bed is discussed in Section 3.5.

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3.3. ICE BED SURVEILLANCE REQUIREMENTS

The weighing program for SR 3.6.11.2 is designed to obtain a representative sample of the ice baskets. The representative sample includes six baskets from each of the 24 ice condenser bays and consists of one basket from radial rows 1, 2, 4, 6, 8, and 9. If no basket from a designated row can be obtained for weighing, a basket from the same row of an adjacent bay is weighed. The rows chosen include the rows nearest the inside and outside walls of the ice condenser (rows 1 and 2, and rows 8 and 9, respectively), where heat transfer into the ice condenser is most likely to influence melting or sublimation. Verifying the total weight of ice ensures that there is adequate ice to absorb the required amount of energy to mitigate the DBAs. The surveillance frequency of 18 months is based on ice storage tests and the allowance built into the required ice mass over and above the mass assumed in the safety analyses.

SR 3.6.11.3 verifies that the azimuthal distribution of ice is reasonably uniform, by verifying that the average ice weight in each of three azimuthal groups of ice condenser bays is within the limit. The surveillance frequency of 18 months is based on ice storage tests and the allowance built into the required ice mass over and above the mass assumed in the safety analyses. As noted in the SR 3.6.11.3 Bases, operating experience has verified that, with the 18-month frequency, the weight requirements are maintained with no significant degradation between surveillances.

3.4 TECHNICAL ANALYSIS

3.4.1 Evaluation Method

The proposed one-time surveillance extension was evaluated, in part, using the guidance provided in NRC Generic Letter (GL) 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. In GL 91-04, the NRC provided guidance for evaluating the impact of adopting a 24-month surveillance test interval. This guidance was utilized, as appropriate, in the technical evaluation performed to justify the one-time surveillance extensions discussed herein. Specifically, history reviews were performed to determine typical ice sublimation rates. Consideration was given to other testing that would continue to be performed on the affected equipment or components during the extended portion of the SR intervals. The results of this review are discussed in Section 3.5.

3.5 BASIS FOR EXTENSION OF THE SURVEILLANCE REQUIREMENTS

3.5.1 Discussion of Ice Bed Longevity

As discussed in the WBN dual unit UFSAR Section 6.7.14.3, the TS 3.6.11 surveillance acceptance criteria contains a sublimation allowance of six percent (6%). Historical data for WBN Unit 1 and Sequoyah Nuclear Plant (SQN) Units 1 and 2 have shown cycle-to-cycle sublimation rates of around 3%. The selection of 6% sublimation provides a conservative margin.

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At the 6% per cycle sublimation rate assumed in the UFSAR, the TS 3.6.11 minimum ice mass is intended to provide sufficient ice to last for a typical 18-month fuel cycle, as shown in Figure 1. The first WBN Unit 2 fuel cycle is currently planned for October 2017, which is approximately 32 months from the initial ice weighing surveillance that was initiated on March 17, 2015.

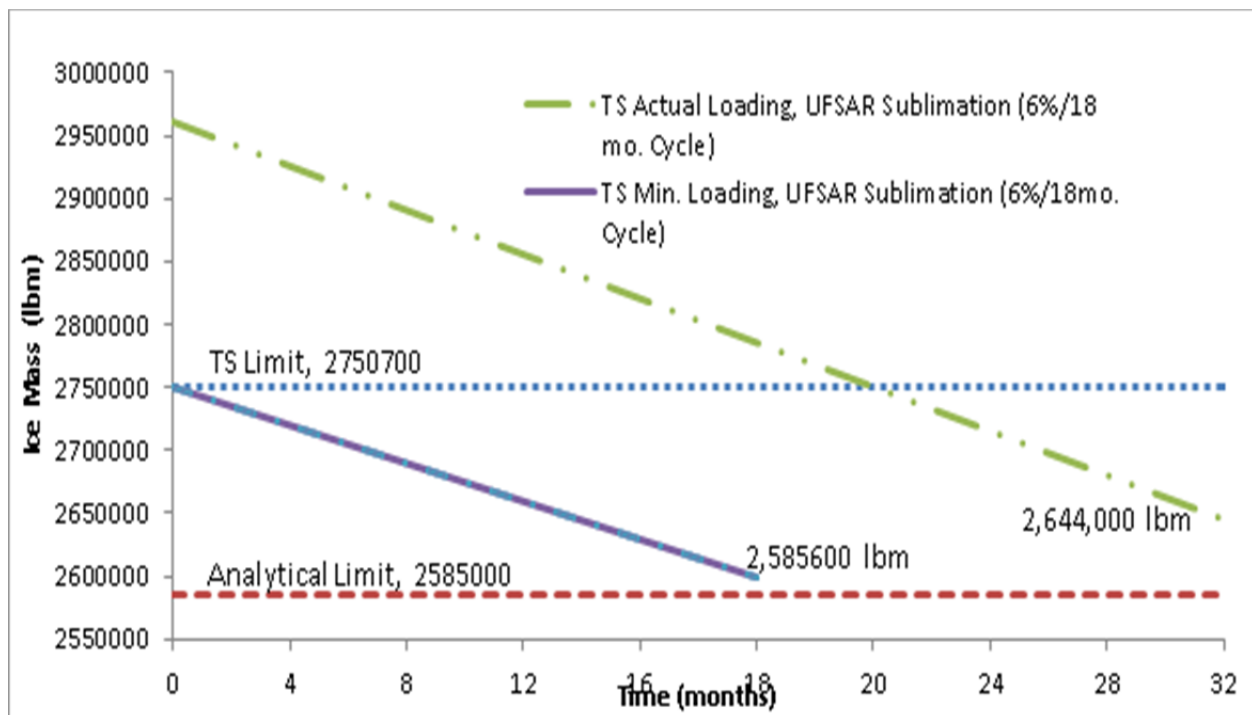
The below calculation shows that 10.7% of the ice would be lost due to sublimation over the proposed extended cycle using the 6% UFSAR sublimation assumption. The use of a simplified linear sublimation rate is considered adequate, given the fact that actual sublimation is half of the assumed sublimation.

$$\text{Sublimation (Extended Cycle)} = \text{Sublimation (Typical Cycle)} \times (\text{Time (Extended Cycle)} / \text{Time (Typical Cycle)})$$

$$\text{Sublimation (Extended Cycle)} = 6\% \times (32 \text{ months}) / (18 \text{ months})$$

$$\text{Sublimation (Extended Cycle)} = 10.7\%$$

Due to the conservatism involved in the planning of the ice loading, the initial WBN Unit 2 ice bed was not loaded to the TS 3.6.11 minimum, but instead was loaded to the significantly higher weight of 2,961,620 lb. Applying the calculated 10.7% sublimation to this ice weight, at the end of the extended operating cycle, the ice bed would still contain approximately 2,644,000 lb of ice. As shown in Figure 1, this is approximately 59,000 lb above the analytical limit required for the design basis LOCA.



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Figure 1 Predicted Sublimation using UFSAR Sublimation Rates

3.5.2 Date and Results of Previous Surveillance

Performance of SRs 3.6.11.2 and 3.6.11.3 was initiated on March 17, 2015, and satisfactorily completed on May 28, 2015.

3.5.3 Additional Testing

Although the amount of ice in the ice condenser is projected to remain above the analytical limit throughout the extended surveillance interval, another concern would be excessive deposition of sublimated ice on critical surfaces within the ice condenser during this time period.

SR 3.6.11.4 is normally performed on an 18-month interval. This SR verifies by visual inspection that accumulation of ice on structural members comprising flow channels through the ice bed is less than or equal to 15% blockage of the total flow area. Performance of SR 3.6.11.4 verifies that the air/steam flow channels through the ice bed have not accumulated ice blockage that exceeds 15% of the total flow area through the ice bed region. SR 3.6.11.4 was last performed satisfactory on September 12, 2016. The next performance of this SR is scheduled for the refueling outage in October 2017.

Additionally, the following SRs were required to be performed every three months during the first year following receipt of the license (i.e., October 22, 2015) during their Modes of Applicability (i.e., Modes 1, 2, 3, and 4) and every 18 months thereafter.

- SR 3.6.12.3 - Verify, by visual inspection, each inlet door is not impaired by ice, frost, or debris.
- SR 3.6.12.4 - Verify torque required to cause each inlet door to begin to open is ≤ 675 in-lb.
- SR 3.6.12.5 - Perform a torque test on a sampling of $\geq 50\%$ of the inlet doors
- SR 3.6.12.6 - Verify for each intermediate deck door:
 - a. no visual evidence of structural deterioration;
 - b. free movement of the vent assemblies; and
 - c. free movement of the door

SRs 3.6.12.3, 3.6.12.4, and 3.6.12.5 were last performed satisfactorily on August 6, 2016. SR 3.6.12.6 was last performed satisfactorily on March 3, 2016. The next performance of these SRs is scheduled for the refueling outage in October 2017.

Therefore, the time interval between performances of SRs 3.6.11.4, 3.6.12.3, 3.6.12.4, 3.6.12.5, and 3.6.12.6 are within their normal periodicity and support the conclusion that excessive deposition of sublimated ice will not occur on critical surfaces within the ice condenser.

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3.6 CONCLUSION

The last performance of SRs 3.6.11.2 and 3.6.11.3 established that the WBN Unit 2 ice bed contained 2,961,620 lb of ice. Assuming that the ice sublimates at 6% over 18 months (10.7% over 32 months), the ice bed would still contain approximately 2,644,000 lb of ice at the end of the extended operating cycle. This is approximately 59,000 lb above the analytical limit required for the design basis LOCA. In addition, surveillances that verify ice condenser critical surfaces do not incur excessive ice deposition are within their normal periodicity. Therefore, the WBN Unit 2 ice condenser will respond as designed during a DBA and will continue to meet its safety function through the proposed surveillance interval extension period.

4.0 REGULATORY EVALUATION

4.1 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA

4.1.1 Regulations

10 CFR 50.36 sets forth the regulatory requirements for the content of the TSs. This regulation requires, in part, that the TS contain SRs. 10 CFR 50.36(c)(3), states that SRs to be included in the TS are those relating to test, calibration, or inspection which assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the TS LCO will be met. The proposed changes to the SRs are for a one-time extension of certain surveillance intervals, which are not specified in the regulations.

4.1.2 General Design Criteria

As noted in the WBN dual-unit UFSAR Section 3.1.1, WBN was designed to meet the intent of the "Proposed General Design Criteria for Nuclear Power Plant Construction Permits" published in July 1967. The WBN construction permit was issued in January 1973. The WBN Unit 2 UFSAR, however, addresses the NRC General Design Criteria (GDC) published as Appendix A to 10 CFR 50 in July 1971, including Criterion 4 as amended October 27, 1987.

The WBN UFSAR contains these General Design Criteria followed by a discussion of the design features and procedures that meet the intent of the criteria. The relevant GDC with the discussion of the design features and procedures that meet the intent of the criteria are included below. Any exception to the 1971 GDC is identified in the discussion of the corresponding criterion.

Criterion 16 - Containment Design

Reactor containment and associated systems shall be provided to establish an essentially leaktight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

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Conformance with this GDC is described in Section 3.1.2.2 of the WBN dual-unit UFSAR.

Criterion 38 - Containment Heat Removal

A system to remove heat from the reactor containment shall be provided. The system safety function shall be to reduce rapidly, consistent with the functioning of other associated systems, the containment pressure and temperature following any LOCA and maintain them at acceptably low levels.

Suitable redundancy in components and features, and suitable interconnections, leak detection, isolation, and containment capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure.

Conformance with this GDC is described in Section 3.1.2.4 of the WBN dual-unit UFSAR.

Criterion 39 - Inspection of Containment Heat Removal System

The containment heat removal system shall be designed to permit appropriate periodic inspection of important components, such as the torus, pumps, spray nozzles, and piping to assure the integrity and capability of the system.

Conformance with this GDC is described in Section 3.1.2.4 of the WBN dual-unit UFSAR.

Criterion 40 - Testing of Containment Heat Removal System

The containment heat removal system shall be designed to permit appropriate periodic pressure and functional testing to assure (1) the structural and leaktight integrity of its components, (2) the operability and performance of the active components of the system, and (3) the operability of the system as a whole, and, under conditions as close to the design as practical, the performance of the full operational sequence that brings the system into operation, including operation of applicable portions of the protection system, the transfer between normal and emergency power sources, and the operation of the associated cooling water system.

Conformance with this GDC is described in Section 3.1.2.4 of the WBN dual-unit UFSAR.

Criterion 50 - Containment Design Basis

The reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and, with sufficient margin, the calculated pressure and temperature conditions resulting from any LOCA.

This margin shall reflect consideration of (1) the effects of potential energy sources which have not been included in the determination of the peak conditions, such as energy in steam

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Criterion 50 - Containment Design Basis

The reactor containment structure, including access openings, penetrations, and the containment heat removal system shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and, with sufficient margin, the calculated pressure and temperature conditions resulting from any LOCA.

This margin shall reflect consideration of (1) the effects of potential energy sources which have not been included in the determination of the peak conditions, such as energy in steam generators and energy from metal-water and other chemical reactions that may result from degraded emergency core cooling functioning, (2) the limited experience and experimental data available for defining accident phenomena and containment responses, and (3) the conservatism of the calculational model and input parameters.

Conformance with this GDC is described in Section 3.1.2.5 of the WBN dual-unit UFSAR.

There will be no changes to the WBN design such that compliance with any of the regulatory requirements above would come into question. As such, WBN Unit 2 will continue to comply with the applicable regulatory requirements.

Enclosure 1

Watts Bar Nuclear Plant, Unit 2 WBN-TS-16-022

Evaluation of Proposed Technical Specification Change

4.2 PRECEDENT

1. Clinton Power Station, Unit 1, Docket No. 50-461, License No. NPF-62, License Amendment No. 125. The NRC staff approved a one-time extension of some TS surveillance intervals to support elimination of a planned spring 2000 mid-cycle outage by letter dated March 17, 2000, using similar justifications and modifying SR 3.0.2 to include a table of extended SRs (ML003696357).
2. Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46, License Amendment No. 205. The NRC approved an amendment that would revise a limited number of TS SRs to allow a one-time extension because the core will not be fully utilized by the originally planned October 2004 outage, which was scheduled for January 2005. The NRC approved this amendment by letter dated July 14, 2004 (ML041960078).
3. Kewaunee Power Station, Docket No. 50-305, License No. DPR-43, Licensed Amendment No. 187. The NRC staff approved similar surveillance interval extensions by letter dated July 12, 2006 (ML061640302).
4. Fort Calhoun Station, Unit No. 1, Docket No. 50-285, License No. DPR-40, License Amendment No. 279. The NRC approved an amendment that revised a limited number of TS SRs by adding a note or footnote permitting a one-time extension from a refueling frequency (i.e., at least once per 18 months) to a maximum of 28 months by letter dated December 29, 2014 (ML14356A012).

Enclosure 1

Watts Bar Nuclear Plant, Unit 2 WBN-TS-16-022 Evaluation of Proposed Technical Specification Change

4.3 SIGNIFICANT HAZARDS CONSIDERATION

The Tennessee Valley Authority (TVA) is proposing an amendment to revise the Watts Bar Nuclear Plant (WBN) Unit 2 Technical Specifications to allow a one-time extension to 18-month (refueling outage) TS Surveillance Requirements (SRs). The proposed changes would revise the TS to extend on a one-time basis certain surveillances normally performed during a refueling outage with the unit in cold shutdown (CSD), refueling mode, or defueled.

Approval of the request allows TVA to continue with the startup of WBN Unit 2 to commercial operation and then operate the unit as originally planned without a mid-cycle shutdown to perform these surveillances. TVA is requesting this extension to mitigate the risk of an additional plant shutdown solely to perform surveillance tests.

TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The requested action is a one-time extension to the performance interval for TS SRs 3.6.2.11.2 and 3.6.11.3. The performance of these surveillances, or the extension of these surveillances, is not a precursor to an accident. Performing these surveillances or failing to perform these surveillances does not affect the probability of an accident. Therefore, the proposed delay in performance of the SRs in this amendment request does not increase the probability of an accident previously evaluated.

A delay in performing these surveillances does not result in a system being unable to perform its required function. In the case of this one-time extension request, the short period of additional time that the systems and components will be in service before the next performance of the surveillance will not affect the ability of those systems to operate as designed. Therefore, the systems required to mitigate accidents will remain capable of performing their required function. No new failure modes have been introduced because of this action and the consequences remain consistent with previously evaluated accidents. On this basis, the proposed delay in performance of the SRs in this amendment request does not involve a significant increase in the consequences of an accident.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Enclosure 1

Watts Bar Nuclear Plant, Unit 2 WBN-TS-16-022

Evaluation of Proposed Technical Specification Change

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed amendment does not involve a physical alteration of any system, structure, or component (SSC) or a change in the way any SSC is operated. The proposed amendment does not involve operation of any SSCs in a manner or configuration different from those previously recognized or evaluated. No new failure mechanisms will be introduced by the one-time SR extensions being requested.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed amendment is a one-time extension of the performance interval of TS SRs 3.6.2.11.2 and 3.6.11.3. Extending these surveillance requirements does not involve a modification of any TS limiting conditions for operation. Extending these SRs does not involve a change to any limit on accident consequences specified in the license or regulations. Extending these SRs does not involve a change in how accidents are mitigated or a significant increase in the consequences of an accident. Extending these SRs does not involve a change in a methodology used to evaluate consequences of an accident. Extending these SRs does not involve a change in any operating procedure or process.

Based on the limited additional period of time that the systems and components will be in service before the surveillances are next performed, as well as the operating experience that these surveillances are typically successful when performed, it is reasonable to conclude that the margins of safety associated with these SRs will not be affected by the requested extension.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, TVA concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92 (c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 CONCLUSIONS

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Enclosure 1

Watts Bar Nuclear Plant, Unit 2

WBN-TS-16-022

Evaluation of Proposed Technical Specification Change

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or SR. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

Enclosure 1

Watts Bar Nuclear Plant, Unit 2

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Evaluation of Proposed Technical Specification Change

Attachment 1

Proposed TS Changes (Mark-Ups) for WBN Unit 2

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1 SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

SR 3.0.2 The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met. **In addition, for each of the SRs listed in Table SR 3.0.2-1 the specified Frequency is met if the Surveillance is performed on or before the date listed on Table SR 3.0.2-1. This extension of the test intervals for these SRs is permitted on a one-time basis and expires October 31, 2017.**

For Frequencies specified as "once," the above interval extension does not apply.

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3 If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

3.0 SR APPLICABILITY (continued)

SR 3.0 .(continued)	When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.
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SR 3.0.4	Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4.
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This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

3.0 SR APPLICABILITY (continued)

Table SR 3.0.2-1		
Surveillance Requirement (SR)	Description of SR Requirement	Frequency Extension Limit
3.6.11.2	<p>Verify total weight of stored ice is greater than or equal to 2,750,700 lb by:</p> <ul style="list-style-type: none"> a. Weighing a representative sample of ≥ 144 ice baskets and verifying each basket contains greater than or equal to 1415 lb of ice; and b. Calculating total weight of stored ice, at a 95 percent confidence level, using all ice basket weights determined in SR 3.6.11.2.a. 	10/31/17
3.6.11.3	<p>Verify azimuthal distribution of ice at a 95 percent confidence level by subdividing weights, as determined by SR 3.6.11.2.a, into the following groups:</p> <ul style="list-style-type: none"> a. Group 1-bays 1 through 8; b. Group 2-bays 9 through 16; and c. Group 3-bays 17 through 24. <p>The average ice weight of the sample baskets in each group from radial rows 1, 2, 4, 6, 8, and 9 shall be greater than or equal to 1415 lb.</p>	10/31/17

Enclosure 1

Watts Bar Nuclear Plant, Unit 2

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Evaluation of Proposed Technical Specification Change

Attachment 2

Proposed TS Bases Changes (Mark-Ups) for WBN Unit 2 (For Information Only)

BASES

SR 3.0.1
(continued)

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per . . ." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities). **On a one-time basis the surveillance interval for the surveillances listed in TS Table 3.0.2-1 are allowed to be extended as identified on Table SR 3.0.2-1. The one-time surveillance interval extension expires on October 31, 2017.**

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. Therefore, when a test interval is specified in the regulations, the test interval cannot be extended by the TS, and the surveillance requirement will include a note in the frequency stating, "SR 3.0.2 does not apply." An example of an exception when the test interval is not specified in the regulations, is the discussion in the Containment Leakage Rate Testing Program, that SR 3.0.2 does not apply. This exception is provided because the program already includes extension of test intervals.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per . . ." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required

(continued)

BASES

SR 3.0.2
(continued)

Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified, with the exception of surveillances required to be performed on a 31-day frequency. For surveillances performed on a 31-day frequency, the normal surveillance interval may be extended in accordance with Specification 3.0.2 cyclically as required to remain synchronized to the maintenance work schedules. This practice is acceptable based on the results of an evaluation of 31-day frequency surveillance test histories that demonstrate that no adverse failure rate changes have occurred nor would be expected to develop as a result of cyclical use of surveillance interval extensions and the fact that the total number of 31-day frequency surveillances performed in any one-year period remains unchanged.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

(continued)

BASES

SR 3.0.3
(continued)

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals.

While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed Surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program.

(continued)

BASES

SR 3.0.3
(continued)

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a MODE or other specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these systems and components ensure safe operation of the unit. The provisions of the Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

A provision is included to allow entry into a MODE or other specified condition in the Applicability when an LCO is not met due to Surveillance not being met in accordance with LCO 3.0.4.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) are not required to be performed, per SR 3.0.1, which states that surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s) since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing MODES or other specified conditions of the Applicability. However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to MODE or other specified condition changes. SR 3.0.4 does not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the LCO not met has been delayed in accordance with SR 3.0.3.

(continued)

BASES

SR 3.0.4
(continued)

The provisions of SR 3.0.4 shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO's Applicability, would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been reached. Further discussion of the specific formats of SRs' annotation is found in Section 1.4, Frequency.

Enclosure 1

Watts Bar Nuclear Plant, Unit 2

WBN-TS-16-022

Evaluation of Proposed Technical Specification Change

Attachment 3

Proposed TS Changes (Final Typed) for WBN Unit 2

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1 SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

SR 3.0.2 The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met. In addition, for each of the SRs listed in Table SR 3.0.2-1 the specified Frequency is met if the Surveillance is performed on or before the date listed on Table SR 3.0.2-1. This extension of the test intervals for these SRs is permitted on a one-time basis and expires October 31, 2017.

For Frequencies specified as "once," the above interval extension does not apply.

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

SR 3.0.3 If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

3.0 SR APPLICABILITY (continued)

SR 3.0 (continued)	When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.
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SR 3.0.4	Entry into a MODE or other specified condition in the Applicability of an LCO shall only be made when the LCO's Surveillances have been met within their specified Frequency, except as provided by SR 3.0.3. When an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4.
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This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

3.0 SR APPLICABILITY (continued)

Table SR 3.0.2-1		
Surveillance Requirement (SR)	Description of SR Requirement	Frequency Extension Limit
3.6.11.2	<p>Verify total weight of stored ice is greater than or equal to 2,750,700 lb by:</p> <ul style="list-style-type: none"> a. Weighing a representative sample of ≥ 144 ice baskets and verifying each basket contains greater than or equal to 1415 lb of ice; and b. Calculating total weight of stored ice, at a 95 percent confidence level, using all ice basket weights determined in SR 3.6.11.2.a. 	10/31/17
3.6.11.3	<p>Verify azimuthal distribution of ice at a 95 percent confidence level by subdividing weights, as determined by SR 3.6.11.2.a, into the following groups:</p> <ul style="list-style-type: none"> a. Group 1-bays 1 through 8; b. Group 2-bays 9 through 16; and c. Group 3-bays 17 through 24. <p>The average ice weight of the sample baskets in each group from radial rows 1, 2, 4, 6, 8, and 9 shall be greater than or equal to 1415 lb.</p>	10/31/17

Enclosure 1

Watts Bar Nuclear Plant, Unit 2

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Evaluation of Proposed Technical Specification Change

Attachment 4

Proposed TS Bases Changes (Final Typed) for WBN Unit 2 (For Information Only)

BASES

SR 3.0.1
(continued)

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per . . ." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities). On a one-time basis the surveillance interval for the surveillances listed in TS Table 3.0.2-1 are allowed to be extended as identified on Table SR 3.0.2-1. The one-time surveillance interval extension expires on October 31, 2017.

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. Therefore, when a test interval is specified in the regulations, the test interval cannot be extended by the TS, and the surveillance requirement will include a note in the frequency stating, "SR 3.0.2 does not apply." An example of an exception when the test interval is not specified in the regulations, is the discussion in the Containment Leakage Rate Testing Program, that SR 3.0.2 does not apply. This exception is provided because the program already includes extension of test intervals.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per . . ." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required

(continued)

BASES

SR 3.0.2
(continued)

Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified, with the exception of surveillances required to be performed on a 31-day frequency. For surveillances performed on a 31-day frequency, the normal surveillance interval may be extended in accordance with Specification 3.0.2 cyclically as required to remain synchronized to the maintenance work schedules. This practice is acceptable based on the results of an evaluation of 31-day frequency surveillance test histories that demonstrate that no adverse failure rate changes have occurred nor would be expected to develop as a result of cyclical use of surveillance interval extensions and the fact that the total number of 31-day frequency surveillances performed in any one-year period remains unchanged.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

(continued)

BASES

SR 3.0.3
(continued)

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals.

While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed Surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program.

(continued)

BASES

SR 3.0.3
(continued)

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a MODE or other specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these systems and components ensure safe operation of the unit. The provisions of the Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

A provision is included to allow entry into a MODE or other specified condition in the Applicability when an LCO is not met due to Surveillance not being met in accordance with LCO 3.0.4.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) are not required to be performed, per SR 3.0.1, which states that surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s) since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing MODES or other specified conditions of the Applicability. However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to MODE or other specified condition changes. SR 3.0.4 does not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the LCO not met has been delayed in accordance with SR 3.0.3.

(continued)

BASES

SR 3.0.4
(continued)

The provisions of SR 3.0.4 shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO's Applicability, would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been reached. Further discussion of the specific formats of SRs' annotation is found in Section 1.4, Frequency.

Enclosure 2

Watts Bar Nuclear Plant, Unit 2

WBN-TS-16-022

Watts Bar Nuclear Plant Unit 2

New Regulatory Commitment

Commitment	Due Date/Event
TVA will, as applicable, perform Surveillance Requirements 3.6.11.2 and 3.6.11.3, prior to their extended due date, if WBN Unit 2 enters Mode 5 of sufficient duration such that the SRs can be performed.	Entry into Mode 5 of sufficient duration such that the SRs can be performed