



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

CNL-16-164

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U.S. Nuclear Regulatory Commission
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Watts Bar Nuclear Plant, Unit 1
Facility Operating License No. NPF-90
NRC Docket No. 50-390

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, Units 1 and 2 Technical Specifications to Extend Surveillance Requirement Intervals for AC Sources (WBN-TS-16-024)**

Reference: Letter from TVA to NRC, CNL-16-159, "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)," dated September 30, 2016

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10CFR) 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 Nos. NPF-90 and NPF-96 for Watts Bar Nuclear Plant (WBN) Unit 1 and Unit 2, respectively.

In the referenced letter, TVA requested a change to WBN Unit 2 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. The extension request provided in the referenced letter was submitted separately due to the near term due date of February 1, 2017, for SRs 3.6.11.2 and 3.6.11.3.

The proposed change extends the due date for SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, and 3.8.1.19 from July 25, 2017 (i.e., 18 months from the last performance of the surveillance plus the allowable 25 percent extension in SR 3.0.2), to November 30, 2017, and extends the due date for SR 3.8.1.18 from October 12, 2017 to November 30, 2017. An extension of the due dates for these SRs is being requested for Diesel Generators (DG) 2A-A and 2B-B for WBN Unit 1 and Unit 2, with the exception of SR 3.8.1.12 and SR 3.8.1.17. Because DGs 2A-A and 2B-B do not receive an Engineered Safety Feature actual signal from WBN Unit 1, SRs 3.8.1.12 and 3.8.1.17 are not required to be performed on DGs 2A-A and 2B-B for WBN Unit 1. These extensions allow these SRs to be performed during the first refueling outage for WBN Unit 2.

TVA initially planned to perform these SRs 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. This SR extension request is being submitted separately due to the commonality of the DGs to WBN Unit 1 and Unit 2. An additional amendment request 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 2 provide the existing WBN Unit 1 TS and Bases pages marked-up to show the proposed changes. Attachments 3 and 4 to Enclosure 1 provide the existing WBN Unit 2 TS and Bases pages marked-up to show the proposed changes. The WBN Unit 2 marked-up TS and Bases pages reflect the SR 3.0.2 changes proposed in the referenced letter. Attachments 5 and 6 to Enclosure 1 provide the existing WBN Unit 1 TS and Bases pages retyped to show the proposed changes. Attachments 7 and 8 to Enclosure 1 provide the existing WBN Unit 2 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 1 and 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 and exemption request by July 18, 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.

The referenced letter provided a commitment to 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. Enclosure 2 provides a change to the commitment to include the performance of SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, 3.8.1.18, and 3.8.1.19 for WBN Unit 1 and Unit 2, as applicable, if WBN Unit 2 enters Mode 5 of sufficient duration such that the SRs can be performed.

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 17th day of October 2016.

Respectfully,

J. W. Shea

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J. W. Shea
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Enclosures:

1. Evaluation of Proposed Technical Specification Change
2. Revised 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, Units 1 and 2

WBN-TS-16-024

Evaluation of Proposed Technical Specification Change

Subject: Application to Modify Watts Bar Nuclear Plant, Units 1 and 2 Technical Specifications to Extend Surveillance Requirement Intervals for AC Sources (WBN-TS-16-024)

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ATTACHMENTS

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

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Evaluation of Proposed Technical Specification Change

1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend Facility Operating License (OL) Nos. NPF-90 and NPF-96 for the Tennessee Valley Authority (TVA) Watts Bar Nuclear Plant (WBN) Unit 1 and Unit 2, respectively. For WBN Unit 1, the proposed amendment revises the Technical Specifications (TSs) to allow a one-time extension to 18-month TS Surveillance Requirements (SRs) 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.13, 3.8.1.16, 3.8.1.18, and 3.8.1.19. For WBN Unit 2, the proposed amendment revises the TSs to allow a one-time extension to 18-month TS SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, 3.8.1.18, and 3.8.1.19. SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, 3.8.1.18, and 3.8.1.19 are tests performed to verify operability of the diesel generators (DGs). These SRs are normally performed during a refueling outage.

The proposed change extends the due date for SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, and 3.8.1.19 from July 25, 2017 (i.e., 18 months from the last performance of the surveillance plus the allowable 25 percent extension in SR 3.0.2) to November 30, 2017, and extends the due date for SR 3.8.1.18 from October 12, 2017 to November 30, 2017. An extension of the due dates for these SRs is being requested for DGs 2A-A and 2B-B for WBN Unit 1 and Unit 2, with the exception of SRs 3.8.1.12 and 3.8.1.17. An extension of the due dates for SRs 3.8.1.12 and 3.8.1.17 on WBN Unit 1 is not required, because DGs 2A-A and 2B-B do not received an Engineered Safety Feature (ESF) actual signal from WBN Unit 1. The extensions allow these SRs to be performed during the first refueling outage for WBN Unit 2.

The proposed change revises the WBN TS to extend certain surveillances normally performed during a refueling outage with the unit in the Cold Shutdown (CSD) (Mode 5), Refueling Mode (Mode 6), or defueled, on a one-time basis. 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 requests an expedited review of the proposed change in order to mitigate the risk of an additional plant shutdown solely to perform surveillance tests, because most of the surveillances would need to be repeated during the refueling outage. The latest performance date of the first surveillance due of those contained in this extension request is July 25, 2017. Therefore, TVA is requesting the Nuclear Regulatory Commission (NRC) approval a week prior to this date for implementation within seven days following NRC approval.

2.0 DETAILED DESCRIPTION

2.1 PROPOSED CHANGES

Due to the number of SR frequency extensions requested, TVA is proposing a change to WBN Unit 1 TS SR 3.0.2 to add information stating that the specified frequency of the SRs listed in TS SR Table 3.0.2-1 is met if the SRs are performed prior to the dates listed in SR

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Table 3.0.2-1. The proposed extension of the test intervals for these SRs is on a one-time basis.

By letter dated September 30, 2016, TVA submitted a request to change the WBN Unit 2 TS to allow a one-time extension to the 18-month TS SRs 3.6.11.2 and 3.6.11.3. The request included a proposed change to TS SR 3.0.2 to add 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 WBN Unit 2 TS change proposed in this request adds several SRs to the list in TS 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 the enclosure provide the existing WBN Unit 1 TS and Bases pages marked-up to show the proposed changes. Attachments 3 and 4 to the enclosure provide the existing WBN Unit 2 TS and Bases pages marked-up to show the proposed changes. The WBN Unit 2 marked-up TS and Bases pages reflect the SR 3.0.2 changes proposed in the referenced letter. Attachments 5 and 6 to the enclosure provide the existing WBN Unit 1 TS and Bases pages retyped to show the proposed changes. Attachments 7 and 8 to the 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

Limiting Condition for Operation (LCO) 3.8.1, "AC Sources - Operating," in part, requires four DGs to be operable in Modes 1, 2, 3 and 4. LCO 3.8.2, in part, requires two DGs (Train A or Train B) to be operable in Modes 5 and 6, and during the movement of irradiated fuel assemblies.

The proposed amendment to the WBN Unit 1 Operating License permits a one-time extension of the test intervals for SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.13, 3.8.1.16, 3.8.1.18, and 3.8.1.19 that are performed in Modes 5, 6, or when defueled.

The proposed amendment to the WBN Unit 2 Operating License permits a one-time extension of the test intervals for SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, 3.8.1.18, and 3.8.1.19 that are performed in Modes 5, 6, or when defueled.

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.

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Although WBN Unit 1 is scheduled for a refueling outage in spring 2017, the performance of SRs 3.8.1.9, 3.8.1.10, and 3.8.1.13 is precluded for DG 2A-A and DG 2B-B with WBN Unit 2 in Modes 1 and 2. In addition, the performance of SRs 3.8.1.11, 3.8.1.16, 3.8.1.18, and 3.8.1.19 is precluded in Modes 1, 2, 3, and 4. Therefore, the next performance of these SRs is scheduled to occur during the next WBN Unit 2 refueling outage.

To preclude the risk of an additional plant shutdown solely to perform surveillance tests, TVA is requesting an extension to the SRs listed in TS Table SR 3.0.2-1 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. The proposed extension date of November 30, 2017 will allow some schedule flexibility during the WBN Unit 2 refueling outage including the movement of irradiated fuel assemblies.

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 fall 2016 with the first refueling outage currently planned to commence on October 14, 2017.

TVA initially planned to perform SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, 3.8.1.18, and 3.8.1.19 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. A separate license amendment request (LAR) was submitted in the referenced letter to extend the SR intervals for SRs 3.6.11.2 and 3.6.11.3 due to the near term due date for these SRs. This SR extension request is being submitted separately due to the commonality of the DGs to WBN Unit 1 and Unit 2. An additional amendment request will be submitted to address additional SRs that require an extension.

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To support continuous plant operation until the October 2017 refueling outage a one-time change is requested to extend the surveillance intervals for SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, 3.8.1.18, and 3.8.1.19. 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) (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 for these SRs is November 30, 2017, because the DGs are required to be operable to support the movement of irradiated fuel assemblies. 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 November 30, 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 CSD (i.e., Mode 5) surveillance outage would cause an unnecessary transient on the plant.

TVA will, as applicable, perform SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, 3.8.1.18, and 3.8.1.19 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 THE ABILITY TO PERFORM THE SURVEILLANCES ONLINE

WBN Unit 2 SRs 3.8.1.9, 3.8.1.10, 3.8.1.12, and 3.8.1.13 include a Note that precludes the performance of the SRs for DG 2A-A and DG 2B-B with WBN Unit 2 in Modes 1 and 2. In addition, the performance of SRs 3.8.1.11, 3.8.1.16, 3.8.1.17, 3.8.1.18, and 3.8.1.19 is similarly precluded for DGs 2A-A and 2B-B with WBN Unit 2 in Modes 1, 2, 3, and 4. Therefore, the next performance of these SRs is scheduled to occur during the next WBN Unit 2 refueling outage.

3.0 TECHNICAL EVALUATION

3.1 SYSTEMS DESCRIPTIONS

As required by 10 Code of Federal Regulations (CFR) 50, Appendix A, General Design Criterion (GDC) 17, the design of the offsite and onsite electrical power systems provide independence and redundancy to ensure an available source of power to the ESF systems.

A description of the relevant portions of the WBN electrical power system is presented below as background for evaluation of the proposed changes.

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3.1.1 Offsite AC Power System

Two dedicated 161 kilovolt (kV) transmission lines from the WBN Hydro Plant switchyard provide preferred offsite power to four 161 kV / 6.9 kV common station service transformers (CSSTs) located in the WBN 161 kV switchyard. The four CSSTs and their associated switchgear are designed in accordance with GDC 17 and are connected and arranged to provide two physically independent offsite power circuits to the onsite Class 1E distribution system. The two independent offsite power circuits (designated P and R) are designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions.

Each 6.9kV shutdown board can be powered through any one of four shutdown board supply breakers. For normal operation, power is supplied from CSSTs C and D through the 6.9kV common switchgear C and D circuits. The normal supply breakers are normally closed. The breakers that connect the alternate offsite power circuits to the shutdown boards (via CSSTs C or D) are normally open. The emergency supply breakers that connect each shutdown board to a separate standby diesel generator are normally open.

3.1.2 Onsite AC Power System

The onsite AC power system supplies electrical power to two redundant load groups. Each load group is comprised of two power trains, i.e., Trains 1A and 2A, and Trains 1B and 2B. Each train is powered by one independent Class 1E 6.9 kV shutdown board. Each 6.9 kV shutdown board has two separate and independent offsite power sources, as well as a dedicated onsite DG source. When the preferred (offsite) power system is not available, each shutdown board is energized from a separate standby DG. The two DGs associated with one load group can provide all safety related functions to mitigate a loss-of-coolant accident (LOCA) in one unit and achieve hot standby in the opposite unit.

A loss of voltage on the 6.9 kV shutdown board starts the associated DG and initiates logic that trips the supply feeder breakers, all 6.9 kV loads (except the 480 V shutdown board transformers), and the major 480 V loads. The bypass breaker for the 480 V shutdown board current-limiting inductive reactor is also closed as part of this logic. When the DG has reached rated speed and voltage, the generator is automatically connected to the 6.9 kV shutdown board. This return of voltage to the 6.9 kV shutdown board initiates logic that connects the required loads in sequence. The standby (onsite) power system's automatic sequencing logic is designed to automatically connect the required loads in proper sequence should the logic receive an accident signal, concurrent with, or following a loss of all nuclear unit and preferred (offsite) power.

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There are two loading sequences: (1) one is applied in the absence of a safety injection (SI) signal (i.e., the “non-accident condition”), and (2) the other is applied when an SI signal is received following or coincident with a sustained loss of voltage on the 6.9 kV shutdown board (i.e., the “accident condition”). A loss of offsite power (LOOP) coincident with an SI signal is the design basis event. An SI signal received during the course of a non-accident shutdown loading sequence will cause the actions described below.

- Loads already sequentially connected that are not required for an accident will be disconnected.
- Loads already sequentially connected that are required for an accident will remain connected.
- Loads pending sequential loading that are not required for an accident will not be connected.
- Loads pending sequential loading that are required for an accident will either be sequentially loaded as a result of the non-accident loading sequence or have their sequential timers reset to time zero from which they will then be sequentially loaded in accordance with the accident sequence.

An SI signal received in the absence of a sustained loss of voltage on a 6.9 kV shutdown board will start the DGs but will not connect them to the 6.9 kV shutdown boards.

Each DG consists of two 16-cylinder diesel engines directly connected to a 6.9 kV generator. The continuous rating of each DG is 4400 kilowatts (kW) at 0.8 power factor, 6.9 kV, 3 phase, and 60 Hz. Each DG also has an additional rating of 4840 kW for 2 hours out of 24 hours.

3.2 SAFETY ANALYSIS

The safety function of the onsite AC power system is to supply power to permit functioning of components and systems required to assure that: (1) fuel design limits and reactor coolant pressure boundary design conditions are not exceeded due to anticipated operational occurrences, and (2) the core is cooled and vital functions are maintained in the event of a postulated accident, subject to loss of the preferred offsite power system and subject to any single failure in the standby power system.

The operability of the AC electrical power sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the plant. This results in maintaining at least two DGs associated with one load group or one offsite circuit operable during accident conditions in the event of an assumed loss of all offsite power or all onsite AC power and the worst-case single failure.

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3.3 SURVEILLANCE REQUIREMENTS

SR 3.8.1.9

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This surveillance demonstrates the DG load response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency and while maintaining a specified margin to the overspeed trip. This SR is accomplished by:

- 1) tripping the DG output breaker with the DG carrying greater than or equal to its associated single largest post-accident load while paralleled to offsite power or while solely supplying the bus, or
- 2) tripping its associated single largest post accident load with the DG solely supplying the bus.

The load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower.

SR 3.8.1.10

This SR demonstrates the DG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This SR ensures proper engine generator load response under the simulated test conditions. This test simulates the loss of the total connected load that the DG experiences following a full load rejection and verifies that the DG does not trip upon loss of the load.

SR 3.8.1.11

This SR demonstrates the as-designed operation of the standby power sources during loss of the offsite source. This SR verifies all actions encountered from the LOOP, including shedding of the non-essential loads and energization of the emergency buses and respective loads from the DG. This SR further demonstrates the automatic capability of the DG to achieve the required voltage and frequency within the specified time.

SR 3.8.1.12

This SR demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time (ten seconds) from the design basis actuation signal (LOCA signal) and operates for greater than or equal to five minutes. The minimum voltage and frequency stated in the SR are those necessary to ensure the DG can accept DBA loading while maintaining acceptable voltage and frequency levels.

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SR 3.8.1.13

This SR demonstrates that DG non-critical protective functions (e.g., high jacket water temperature) are bypassed on an automatic or emergency start signal and that critical protective functions (engine overspeed and generator differential current) remain functional to affect a DG trip to avert substantial damage to the DG unit or to the safety related equipment powered by the DG.

SR 3.8.1.16

This SR ensures that the manual synchronization and automatic load transfer from the DG to the offsite source can be made and the DG can be returned to ready to load status when offsite power is restored. It also ensures that the auto-start logic is reset to allow the DG to reload if a subsequent LOOP occurs.

SR 3.8.1.17

This SR involves operating the DGs in the test mode override, which verifies that the DG availability under accident conditions will not be compromised as the result of testing and the DG will automatically reset to ready-to-load operation if a LOCA actuation signal is received during operation in the test mode.

SR 3.8.1.18

Under accident and LOOP conditions loads are sequentially connected to the 6.9 kV shutdown board by the automatic load sequencer. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. This SR verifies that the time delay setting for each sequenced load block is within limits for each accident condition and non-accident condition load sequence. The load sequence time specified in the WBN dual-unit Updated Final Safety Analysis Report (UFSAR) Table 8.3-3 ensures that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load block and that safety analysis assumptions regarding ESF equipment time delays are not violated. The allowable values for the time delay relays are contained in system specific setpoint scaling documents.

SR 3.8.1.19

This SR demonstrates the DG operation, as discussed in the TS Bases for SR 3.8.1.11, during a LOOP actuation test signal in conjunction with an ESF actuation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable.

3.4 EVALUATION METHOD

The proposed one-time surveillance extensions were evaluated, in part, using the guidance provided in NRC Generic Letter (GL) 91-04, "Changes in Technical Specification

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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 evaluations performed to justify the one-time surveillance extensions discussed herein. Specifically, surveillance and failure history reviews were performed for applicable extended SRs. Consideration was given to other testing that would continue to be performed on the affected equipment or components, as well as the availability of redundant equipment or components, during the extended portion of the SR intervals.

3.5 BASIS FOR EXTENSION OF THE SURVEILLANCE REQUIREMENTS

3.5.1 Date and Results of Previous Surveillance

The integrated DG testing for DGs 2A-A and 2B-B (including SRs 3.8.1.9, 3.8.1.10, 3.8.1.11, 3.8.1.12, 3.8.1.13, 3.8.1.16, 3.8.1.17, and 3.8.1.19) was last completed on September 7, 2015 (earliest date). SR 3.8.1.18 was last performed on DGs 2A-A and 2B-B on November 25, 2015 (earliest date).

3.5.2 Surveillance Test History

Review of the last three previous surveillance performances for the integrated DG testing indicates no failures.

3.5.3 Additional Testing

Additional testing that further verifies the operability of the DGs (DGs 2A-A and 2B-B) that are affected by the proposed extended SRs is provided below.

1. Documented Performance

On June 5, 2016, WBN Unit 2 experienced a reactor trip and safety injection. The DGs responded as expected. All four DGs emergency started and remained unloaded running in a standby condition. The WBN Unit 2 DGs fast started to emergency mode as designed. (The SRs effectively performed by the reactor trip and safety function include SR 3.8.1.12 and SR 3.8.1.16.)

2. Power Ascension Testing

A power ascension test (PAT) was conducted in July 2016. The objective of this test was to demonstrate that the unit's response to a turbine generator trip with a coincident LOOP is in accordance with design. The PAT demonstrated that the diesel generators automatically start, load, and provide power to the controls, indications, and equipment necessary to maintain the unit in hot standby (Mode 3) conditions for a minimum of 30 minutes. No abnormal test results were documented during the PAT. (The SRs effectively performed by the PAT include SR 3.8.1.11 and SR 3.8.1.18.)

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3. Overview of Monthly/Biannual testing

- Biannual surveillance tests that perform DG fast start and loading have been successfully performed over the last six attempts for DGs 2A-A and 2B-B.
- Twenty-four hour load runs of DGs 2A-A and 2B-B have been successfully performed over the last six attempts. The procedure provides detailed steps for performing the 24-hour load run, hot restart, idle override, 184-day fast start, and monthly operability tests, and, in part, satisfies SRs 3.8.1.2 through 3.8.1.7.
- Monthly DG start and load tests have been successfully performed over the last six attempts. The test provides instructions to verify operability of DGs 2A-A and 2B-B.

The above surveillance tests confirm that the AC sources are operable during the operating cycle. To validate the acceptance for increasing the surveillance test interval, a review of the surveillance test history and an evaluation of the functional testing performance were performed for the last two operating cycles for WBN Unit 1. There were no failures to meet the surveillance test acceptance criteria identified in this review.

Other recent testing that effectively performed the SRs, but were not credited for performing the SRs, is described below:

- SR 3.8.1.11 – The operation of the DGs during a LOOP was functionally tested during the PAT on July 7, 2016.
- SR 3.8.1.12 – Functional testing of the load sequencing with an ESF actuation occurred with the valid SI signal that occurred on June 5, 2016.
- SR 3.8.1.13 – Functional testing of the DG trip bypass occurs every six months with the fast start testing. The associated relays are exercised and validated to operate to the safety state on one set of contacts. The testing is not credited for surveillance completion because the contacts that bypass the trips in emergency mode are not monitored. However, other contacts on the same relays are validated with the fast start.
- SR 3.8.1.16 – The WBN DGs are paralleled to the grid and loaded on a monthly basis. The load sequencing logic was actuated with an SI signal in June 2016. The logic performed as designed.
- SR 3.8.1.18 – The time delay relays associated with LOOP were functionally tested with the PAT on July 7, 2016.

4. DG Preventative Maintenance (PM) Program

The PMs associated with the DGs are within frequency. Recent post-maintenance testing included the full load reject of DG 2A-A with satisfactory test results.

Additional considerations:

- During the operating cycle, the DGs are subjected to operational testing every 31 days and fast-start testing every 184 days. This testing provides confidence of DG operability and the capability to perform their intended function. The testing and periodic trending of critical

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parameters will also provide prompt identification of any substantial DG degradation or failure.

- The instrumentation that provides automatic initiation of the DGs in response to a LOCA condition or LOOP condition is verified to be operating properly throughout the operating cycle by performance of surveillances such as channel checks, channel calibrations, and channel functional tests.
- DGs are only operated for the performance of surveillance testing, which has minimal risk of wear-related degradation, due to the small amount of time the DGs are operated.
- DG attributes subject to degradation due to aging such as fuel oil quality are subject to TS requirements for replenishment and testing.
- Historical testing and surveillance testing during operations have proven the ability of the diesel engines to start and operate under various load conditions.

3.6 CONCLUSION

Based on the successful performance of the SRs for the DGs for WBN Unit 1 and Unit 2, the successful testing during PAT, the successful documented start of the DGs on a valid SI signal, and the extensive additional testing routinely performed on the DGs, it is reasonable to conclude that the requested surveillance extension will have no adverse impact on the ability of DGs to respond as designed during a DBA and will continue to meet their 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 limiting condition for operation (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 dual-unit UFSAR, however, addresses the NRC GDC published as Appendix A to 10 CFR 50 in July 1971, including Criterion 4 as amended October 27, 1987.

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The WBN UFSAR contains these GDCs followed by a discussion of the design features and procedures that meet the intent of the criteria. The relevant GDCs 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 5 - Sharing of Structures, Systems, and Components

Structures, systems, and components important to safety shall not be shared among nuclear power units unless it is shown that such sharing will not impair significantly their ability to perform their safety functions, including, in the event of an accident in one unit, an orderly shutdown and cooldown of the remaining units.

Conformance with this GDC is described in Section 3.1.2.1 of the WBN dual-unit UFSAR.

Criterion 13 - Instrumentation and Control

Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.

Conformance with this GDC is described in Section 3.1.2.1 of the WBN dual-unit UFSAR.

Criterion 17 - Electric Power Systems

An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The onsite power sources, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits (not necessarily on separate rights of way) designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. A switchyard common to both circuits is acceptable. Each of these circuits shall be

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designed to be available in sufficient time following a loss of all onsite alternating current power supplies and the other offsite electric power circuit, to assure that specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. One of these circuits shall be designed to be available within a few seconds following a LOCA to assure that core cooling, containment integrity, and other vital safety functions are maintained.

Provisions shall be included to minimize the probability of losing electric power from any of the remaining sources as a result of, or coincident with, the loss of power generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power sources.

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

Criterion 18 - Inspection and Testing of Electric Power Systems

Electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features, such as wiring, insulation, connections, and switchboards, to assess the continuity of the systems and the condition of their components. The systems shall be designed with a capability to test periodically (1) the operability and functional performance of the components of the systems, such as onsite power sources, relays, switches, and buses, and (2) the operability of the systems as a whole and, under conditions as close to design as practical, the full operation sequence that brings the systems into operation, including operation of applicable portions of the protection system, and the transfer of power among the nuclear power unit, the offsite power system, and the onsite power system.

Conformance with this GDC is described in Section 3.1.2.2 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, Units 1 and 2, will continue to comply with the applicable regulatory requirements.

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).

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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).

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4.3 Significant Hazards Consideration

The Tennessee Valley Authority (TVA) is proposing an amendment to revise the Watts Bar Nuclear Plant (WBN) Units 1 and 2 Technical Specifications (TS) to allow a one-time extension to 18-month (refueling outage) TS Surveillance Requirements (SRs). The proposed changes 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 of a limited number of TS surveillance requirements. 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.

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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 a limited number of TS surveillance requirements. 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.

The instrumentation and components involved in this request have exhibited reliable operation based on current test results. The current testing includes power ascension testing and surveillance testing that either partially or fully exercised the components. Some components have been evaluated for extended testing intervals greater than 18 months but are set at WBN to an 18-month frequency.

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.

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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.

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.

6.0 REFERENCE

TVA letter to NRC, CNL-16-159, "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)," dated September 30, 2016 (ML16277A477)

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Evaluation of Proposed Technical Specification Change

Attachment 1

Proposed TS Changes (Mark-Ups) for WBN Unit 1

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 November 30, 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

SR 3.0.3
(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.

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.

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.

<u>Table SR 3.0.2-1</u>		
<u>Surveillance Requirement (SR)</u>	<u>Description of SR Requirement</u>	<u>Frequency Extension Limit</u>
<u>3.8.1.9</u>	<p><u>Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and:</u></p> <p><u>a. Following load rejection, the frequency is ≤ 66.75 Hz;</u></p> <p><u>b. Within 3 seconds following load rejection, the voltage is ≥ 6555 V and ≤ 7260 V; and</u></p> <p><u>c. Within 4 seconds following load rejection, the frequency is ≥ 59.8 Hz and ≤ 60.1 Hz.</u></p>	<u>11/30/17</u>
<u>3.8.1.10</u>	<p><u>Verify each DG operating at a power factor ≥ 0.8 and ≤ 0.9 does not trip and voltage is maintained ≤ 8880 V during and following a load rejection of ≥ 3960 kW and ≤ 4400 kW and ≥ 2970 kVAR and ≤ 3300 kVAR</u></p>	<u>11/30/17</u>
<u>3.8.1.11</u>	<p><u>Verify on an actual or simulated loss of offsite power signal:</u></p> <p><u>a. De-energization of emergency buses;</u></p> <p><u>b. Load shedding from emergency buses;</u></p> <p><u>c. DG auto-starts from standby condition and:</u></p> <ol style="list-style-type: none"> <u>1. energizes permanently connected loads in ≤ 10 seconds.</u> <u>2. energizes auto-connected shutdown loads through automatic load sequencer.</u> <u>3. maintains steady state voltage ≥ 6800 V and ≤ 7260 V.</u> <u>4. maintains steady state frequency ≥ 59.8 Hz and ≤ 60.1 Hz, and</u> <u>5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes</u> 	<u>11/30/17</u>
<u>3.8.1.13</u>	<p><u>Verify each DG's automatic trips are bypassed on automatic or emergency start signal except:</u></p> <p><u>a. Engine overspeed; and</u></p> <p><u>b. Generator differential current</u></p>	<u>11/30/17</u>
<u>3.8.1.16</u>	<p><u>Verify each DG:</u></p> <p><u>a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;</u></p> <p><u>b. Transfers loads to offsite power source; and</u></p> <p><u>c. Returns to ready-to-load operation</u></p>	<u>11/30/17</u>
<u>3.8.1.18</u>	<p><u>Verify the time delay setting for each sequenced load block is within limits for each accident condition and non-accident condition load sequence.</u></p>	<u>11/30/17</u>

<u>Table SR 3.0.2-1</u>		
<u>Surveillance Requirement (SR)</u>	<u>Description of SR Requirement</u>	<u>Frequency Extension Limit</u>
<u>3.8.1.19</u>	<p><u>Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal:</u></p> <p><u>a. De-energization of emergency buses;</u></p> <p><u>b. Load shedding from emergency buses; and</u></p> <p><u>c. DG auto-starts from standby condition and:</u></p> <ol style="list-style-type: none"> <u>1. energizes permanently connected loads in ≤ 10 seconds.</u> <u>2. energizes auto-connected emergency loads through load sequencer.</u> <u>3. achieves steady state voltage: ≥ 6800 V and ≤ 7260 V.</u> <u>4. achieves steady state frequency ≥ 59.8 Hz and ≤ 60.1 Hz, and</u> <u>5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.</u> 	<u>11/30/17</u>

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Evaluation of Proposed Technical Specification Change

Attachment 2

Proposed TS Bases Changes (Mark-Ups) for WBN Unit 1 (For Information Only)

BASES (continued)

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 those 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 extensions expires on November 30, 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 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 13-week 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

(continued)

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Watts Bar Nuclear Plant, Units 1 and 2

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Attachment 3

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~~ November 30, 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.

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.

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> <p>a. Weighing a representative sample of ≥ 144 ice baskets and verifying each basket contains greater than or equal to 1415 lb of ice; and</p> <p>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.</p>	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> <p>a. Group 1-bays 1 through 8;</p> <p>b. Group 2-bays 9 through 16; and</p> <p>c. Group 3-bays 17 through 24.</p> <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
<u>3.8.1.9</u>	<p><u>Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and:</u></p> <p><u>a. Following load rejection, the frequency is ≤ 66.75 Hz;</u></p> <p><u>b. Within 3 seconds following load rejection, the voltage is ≥ 6555 V and ≤ 7260 V; and</u></p> <p><u>c. Within 4 seconds following load rejection, the frequency is ≥ 59.8 Hz and ≤ 60.1 Hz.</u></p>	<u>11/30/17</u>
<u>3.8.1.10</u>	<p><u>Verify each DG operating at a power factor ≥ 0.8 and ≤ 0.9 does not trip and voltage is maintained ≤ 8880 V during and following a load rejection of ≥ 3960 kW and ≤ 4400 kW and ≥ 2970 kVAR and ≤ 3300 kVAR</u></p>	<u>11/30/17</u>
<u>3.8.1.11</u>	<p><u>Verify on an actual or simulated loss of offsite power signal:</u></p> <p><u>a. De-energization of emergency buses;</u></p> <p><u>b. Load shedding from emergency buses;</u></p> <p><u>c. DG auto-starts from standby condition and:</u></p> <p><u>1. energizes permanently connected loads in ≤ 10 seconds,</u></p> <p><u>2. energizes auto-connected shutdown loads through automatic load sequencer,</u></p> <p><u>3. maintains steady state voltage ≥ 6800 V and ≤ 7260 V,</u></p> <p><u>4. maintains steady state frequency ≥ 59.8 Hz and ≤ 60.1 Hz, and</u></p> <p><u>5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes</u></p>	<u>11/30/17</u>

3.0 SR APPLICABILITY (continued)

Table SR 3.0.2-1		
Surveillance Requirement (SR)	Description of SR Requirement	Frequency Extension Limit
3.8.1.12	<p><u>Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each Unit 2 DG auto-starts from standby condition and:</u></p> <p><u>a. In ≤ 10 seconds after auto-start and during tests, achieves voltage ≥ 6800 V and frequency ≥ 58.8 Hz;</u></p> <p><u>b. After DG fast start from standby conditions the DG achieves steady state voltage ≥ 6800 V and ≤ 7260 V, and frequency ≥ 59.8 Hz and ≤ 60.1 Hz.</u></p> <p><u>c. Operates for ≥ 5 minutes;</u></p> <p><u>d. Permanently connected loads remain energized from the offsite power system; and</u></p> <p><u>e. Emergency loads are energized from the offsite power system.</u></p>	11/30/17
3.8.1.13	<p><u>Verify each DG's automatic trips are bypassed on automatic or emergency start signal except:</u></p> <p><u>a. Engine overspeed; and</u></p> <p><u>b. Generator differential current</u></p>	11/30/17
3.8.1.16	<p><u>Verify each DG:</u></p> <p><u>a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;</u></p> <p><u>b. Transfers loads to offsite power source; and</u></p> <p><u>c. Returns to ready-to-load operation</u></p>	11/30/17
3.8.1.17	<p><u>Verify, DG 2A-A and 2B-B operating in test mode and connected to its bus, an actual or simulated ESF actuation signal overrides the test mode by:</u></p> <p><u>a. Returning DG to ready-to-load operation; and</u></p> <p><u>b. Automatically energizing the emergency load from offsite power.</u></p>	11/30/17
3.8.1.18	<p><u>Verify the time delay setting for each sequenced load block is within limits for each accident condition and non-accident condition load sequence.</u></p>	11/30/17

3.0 SR APPLICABILITY (continued)

Table SR 3.0.2-1		
Surveillance Requirement (SR)	Description of SR Requirement	Frequency Extension Limit
<u>3.8.1.19</u>	<p><u>Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal:</u></p> <p><u>a. De-energization of emergency buses;</u></p> <p><u>b. Load shedding from emergency buses; and</u></p> <p><u>c. DG auto-starts from standby condition and:</u></p> <p><u>1. energizes permanently connected loads in ≤ 10 seconds,</u></p> <p><u>2. energizes auto-connected emergency loads through load sequencer,</u></p> <p><u>3. achieves steady state voltage: ≥ 6800 V and ≤ 7260 V,</u></p> <p><u>4. achieves steady state frequency ≥ 59.8 Hz and ≤ 60.1 Hz, and</u></p> <p><u>5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.</u></p>	<u>11/30/17</u>

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Watts Bar Nuclear Plant, Units 1 and 2

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Attachment 4

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~~ November 30, 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

(continued)

Enclosure 1

Watts Bar Nuclear Plant, Units 1 and 2

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Evaluation of Proposed Technical Specification Change

Attachment 5

Proposed TS Changes (Final Typed) for WBN Unit 1

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 November 30, 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

SR 3.0.3
(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.

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.

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.

Table SR 3.0.2-1		
Surveillance Requirement (SR)	Description of SR Requirement	Frequency Extension Limit
3.8.1.9	Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 66.75 Hz; b. Within 3 seconds following load rejection, the voltage is ≥ 6555 V and ≤ 7260 V; and c. Within 4 seconds following load rejection, the frequency is ≥ 59.8 Hz and ≤ 60.1 Hz.	11/30/17
3.8.1.10	Verify each DG operating at a power factor ≥ 0.8 and ≤ 0.9 does not trip and voltage is maintained ≤ 8880 V during and following a load rejection of ≥ 3960 kW and ≤ 4400 kW and ≥ 2970 kVAR and ≤ 3300 kVAR	11/30/17
3.8.1.11	Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected shutdown loads through automatic load sequencer, 3. maintains steady state voltage ≥ 6800 V and ≤ 7260 V, 4. maintains steady state frequency ≥ 59.8 Hz and ≤ 60.1 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes	11/30/17
3.8.1.13	Verify each DG's automatic trips are bypassed on automatic or emergency start signal except: a. Engine overspeed; and b. Generator differential current	11/30/17
3.8.1.16	Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation	11/30/17
3.8.1.18	Verify the time delay setting for each sequenced load block is within limits for each accident condition and non-accident condition load sequence.	11/30/17

Table SR 3.0.2-1		
Surveillance Requirement (SR)	Description of SR Requirement	Frequency Extension Limit
3.8.1.19	<p>Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal:</p> <ul style="list-style-type: none"> a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: <ul style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through load sequencer, 3. achieves steady state voltage: ≥ 6800 V and ≤ 7260 V, 4. achieves steady state frequency ≥ 59.8 Hz and ≤ 60.1 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes. 	11/30/17

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Watts Bar Nuclear Plant, Units 1 and 2

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Evaluation of Proposed Technical Specification Change

Attachment 6

Proposed TS Bases Changes (Final Typed) for WBN Unit 1 (For Information Only)

BASES (continued)

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 those 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 extensions expires on November 30, 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 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 13-week 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.

(continued)

Enclosure 1

Watts Bar Nuclear Plant, Units 1 and 2

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Attachment 7

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 November 30, 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.

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.

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
3.8.1.9	<p>Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and:</p> <ul style="list-style-type: none"> a. Following load rejection, the frequency is ≤ 66.75 Hz; b. Within 3 seconds following load rejection, the voltage is ≥ 6555 V and ≤ 7260 V; and c. Within 4 seconds following load rejection, the frequency is ≥ 59.8 Hz and ≤ 60.1 Hz. 	11/30/17
3.8.1.10	<p>Verify each DG operating at a power factor ≥ 0.8 and ≤ 0.9 does not trip and voltage is maintained ≤ 8880 V during and following a load rejection of ≥ 3960 kW and ≤ 4400 kW and ≥ 2970 kVAR and ≤ 3300 kVAR</p>	11/30/17
3.8.1.11	<p>Verify on an actual or simulated loss of offsite power signal:</p> <ul style="list-style-type: none"> a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: <ul style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected shutdown loads through automatic load sequencer, 3. maintains steady state voltage ≥ 6800 V and ≤ 7260 V, 4. maintains steady state frequency ≥ 59.8 Hz and ≤ 60.1 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes 	11/30/17

3.0 SR APPLICABILITY (continued)

Table SR 3.0.2-1		
Surveillance Requirement (SR)	Description of SR Requirement	Frequency Extension Limit
3.8.1.12	<p>Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each Unit 2 DG auto-starts from standby condition and:</p> <ul style="list-style-type: none"> a. In ≤ 10 seconds after auto-start and during tests, achieves voltage ≥ 6800 V and frequency ≥ 58.8 Hz; b. After DG fast start from standby conditions the DG achieves steady state voltage ≥ 6800 V and ≤ 7260 V, and frequency ≥ 59.8 Hz and ≤ 60.1 Hz. c. Operates for ≥ 5 minutes; d. Permanently connected loads remain energized from the offsite power system; and e. Emergency loads are energized from the offsite power system. 	11/30/17
3.8.1.13	<p>Verify each DG's automatic trips are bypassed on automatic or emergency start signal except:</p> <ul style="list-style-type: none"> a. Engine overspeed; and b. Generator differential current 	11/30/17
3.8.1.16	<p>Verify each DG:</p> <ul style="list-style-type: none"> a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation 	11/30/17
3.8.1.17	<p>Verify, DG 2A-A and 2B-B operating in test mode and connected to its bus, an actual or simulated ESF actuation signal overrides the test mode by:</p> <ul style="list-style-type: none"> a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency load from offsite power. 	11/30/17
3.8.1.18	<p>Verify the time delay setting for each sequenced load block is within limits for each accident condition and non-accident condition load sequence.</p>	11/30/17

3.0 SR APPLICABILITY (continued)

Table SR 3.0.2-1		
Surveillance Requirement (SR)	Description of SR Requirement	Frequency Extension Limit
3.8.1.19	<p>Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal:</p> <ul style="list-style-type: none"> a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: <ul style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through load sequencer, 3. achieves steady state voltage: ≥ 6800 V and ≤ 7260 V, 4. achieves steady state frequency ≥ 59.8 Hz and ≤ 60.1 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes. 	11/30/17

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Watts Bar Nuclear Plant, Units 1 and 2

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Attachment 8

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 November 30, 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

(continued)

Enclosure 2

Watts Bar Nuclear Plant, Units 1 and 2

WBN-TS-16-024

Revised Regulatory Commitment

Commitment	Due Date/Event
TVA will, as applicable, perform the Surveillance Requirements listed in TS SR Table 3.0.2-1, 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