



1101 Market Street, Chattanooga, Tennessee 37402

CNL-25-012

January 16, 2025

10 CFR 50.90

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

Watts Bar Nuclear Plant, Units 1 and 2
Facility Operating Licenses Nos. NPF-90 and NPF-96
NRC Docket Nos. 50-390 and 50-391

Subject: Supplement to “Watts Bar Nuclear Plant, Units 1 and 2 - License Amendment Request for Adoption of Technical Specification Task Force Traveler TSTF-276-A, Revision 2, Regarding TS 3.8.1 “AC Sources – Operating” to Clarify Requirements for Diesel Generator Testing (WBN-TS-24-01 and WBN-TS-24-02),” (EPID L-2024-LLA-0086)

Reference: TVA letter to NRC, CNL-24-018, “Watts Bar Nuclear Plant, Units 1 and 2 - License Amendment Request for Adoption of Technical Specification Task Force Traveler TSTF-276-A, Revision 2, Regarding TS 3.8.1 “AC Sources – Operating” to Clarify Requirements for Diesel Generator Testing (WBN-TS-24-01 and WBN-TS-24-02),” dated June 25, 2024 (ML24178A413)

In the referenced letter, Tennessee Valley Authority (TVA) submitted a request for an amendment to Facility Operating License Nos. NPF-90 and NPF-96 for the Watts Bar Nuclear Plant (WBN), Units 1 and 2, respectively. The proposed change would revise certain surveillance requirements in WBN Units 1 and 2 Technical Specification (TS) 3.8.1, “AC Sources – Operating.” Specifically, the proposed change would revise Surveillance Requirement (SR) 3.8.1.9, for the diesel generator (DG) single largest load rejection test, SR 3.8.1.10, for the DG full load rejection test, and SR 3.8.1.14, for the DG endurance and margin test, to require that these SRs be performed at a specified power factor of ≤ 0.9 with clarifications addressing situations when the power factor cannot be achieved. These proposed changes are consistent with Technical Specification Task Force Traveler TSTF-276-A, Revision 2, “Revise DG full load rejection test.”

The proposed changes would also revise SR 3.8.1.10 and SR 3.8.1.14 to remove the surveillance kVAR ranges and modify the Note to SR 3.8.1.18, verification of time delay setting for sequenced DG load blocks, to allow for the surveillance to be performed in Modes 1, 2, 3, or 4 to reestablish operability provided an assessment of plant safety is performed. These changes are identified as variations to TSTF-276-A, Revision 2, and are consistent with TSTF-276-A Revision 2 and NUREG-1431, Standard Technical Specifications (STS), Westinghouse Plants, Revision 5.

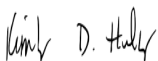
Attachment 1 to this letter contains revised markups of the WBN Units 1 TS Bases Section SR 3.8.1.14. Attachment 2 to this letter contains revised markups of the WBN Units 2 TS Bases Section SR 3.8.1.14. These revised TS Bases markups remove the strikeout of text related to the DG load band in the second paragraph of SR 3.8.1.14. This text was marked for removal in the referenced letter when it should be included in order to remain consistent with TSTF-276-A Revision 2 and NUREG-1431, Standard Technical Specifications (STS), Westinghouse Plants, Revision 5.

This letter does not change the remaining TS Bases markups for WBN Units 1 and 2 or any other content of the referenced letter. This letter does not change the environmental considerations contained in the referenced letter. In accordance with Title 10 of the *Code of Federal Regulations* 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Tennessee State Department of Environment and Conservation.

There are no new regulatory commitments associated with this submittal. Please address any questions regarding this request to Amber V. Aboulfaida, Senior Manager, Fleet Licensing, at avaboulfaida@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 16th day of January 2025.

Respectfully,



Digitally signed by Edmondson,
Carla
Date: 2025.01.16 08:00:07 -05'00'

Kimberly D. Hulvey
General Manager, Nuclear Regulatory Affairs and Emergency Preparedness

Attachments:

- 1) Revised Watts Bar Unit 1 TS Bases Markup of Section 3.8.1.14
- 2) Revised Watts Bar Unit 2 TS Bases Markup of Section 3.8.1.14

cc (Attachments):

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

Attachment 1

Revised Watts Bar Unit 1 TS Bases Markup of Section 3.8.1.14

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.13

This Surveillance demonstrates that DG noncritical 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. It is not necessary to actually trip the DG using critical protective functions in order to satisfy this SR. The noncritical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with

sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove DG 1A-A or 1B-B from service. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 3) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.14

Regulatory Guide 1.9 (Ref. 3), paragraph C2.2.9, requires demonstration that the DGs can start and run continuously for an interval of not less than 24 hours, ≥ 2 hours of which is at a load between 105% and 110% of the continuous duty rating and the remainder of the time at a load equivalent to 90-100% of the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelubricating and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

~~In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor of ≥ 0.8 and ≤ 0.9 . This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.~~ The load band is provided to avoid routine overloading of the DG. Routine overloading may result

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.14 (continued)

in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

This Surveillance is modified by ~~three~~ four Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the power factor limit will not invalidate the test. Note 2 establishes that this SR may be performed on only one DG at a time while in MODE 1, 2, 3, or 4. This is necessary to ensure the proper response to an operational transient (i.e., loss of offsite power, ESF actuation). Therefore, three DGs must be maintained operable and in a standby condition during performance of this test. In this configuration, the plant will remain within its design basis, since at all times safe shutdown can be achieved with two DGs in the same train.

Note 3 establishes that credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

Note 4 ensures that the DG is tested under load conditions that are as close to design basis conditions as possible. When synchronized with offsite power, testing should be performed at a power factor of ≤ 0.9 . This power factor is representative of the actual inductive loading a DG would see under design basis accident conditions. Under certain conditions, however, Note 4 allows the Surveillance to be conducted at a power factor other than ≤ 0.9 . These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to ≤ 0.9 results in voltages on the emergency boards that are too high. Under these conditions, the power factor should be maintained as close as practicable to 0.9 while still maintaining acceptable voltage limits on the emergency boards. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of 0.9 may not cause unacceptable voltages on the emergency boards, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained close as practicable to 0.9 without exceeding the DG excitation limits.

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BASES

SURVEILLANCE
REQUIREMENTSSR 3.8.1.14 (continued) _

Prior to performance of this SR in Modes 1 or 2, actions are taken to establish that adequate conditions exist for performance of the SR. The required actions are defined in Bases Table 3.8.1-2.

SR 3.8.1.15

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 10 seconds. 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. Stable operation at the nominal voltage and frequency values is also essential to establishing DG OPERABILITY, but a time constraint is not imposed. This is because a typical DG will experience a period of voltage and frequency oscillations prior to reaching steady state operation if these oscillations are not dampened out by load application. This period may extend beyond the 10 second acceptance criteria and could be a cause for failing the SR. In lieu of a time constraint in the SR, WBN will monitor and trend the actual time to reach steady state operation as a means of ensuring there is no voltage regulator or governor degradation which could cause a DG to become inoperable. The 10 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

The DG engines for WBN have an oil circulation and soakback system that operates continuously to preclude the need for a prelube and warmup when a DG is started from standby.

This SR is modified by a Note to ensure that the test is performed with the diesel sufficiently hot. The load band is provided to avoid routine overloading of the DG. Routine overloads may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. The requirement that the diesel has operated for at least 2 hours at full load conditions prior to performance of this Surveillance is based on manufacturer recommendations for achieving hot conditions. Momentary transients due to changing bus loads do not invalidate this test.

SR 3.8.1.16

As required by Regulatory Guide 1.9 (Ref. 3), paragraph C2.2.11, this Surveillance 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 autostart logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in ready to load status when the DG is at rated speed and voltage, the output breaker is open and can receive

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Attachment 2

Revised Watts Bar Unit 2 TS Bases Markup of Section 3.8.1.14

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.13 (continued)

- 2) Post-corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.14

Regulatory Guide 1.9 (Ref. 3), paragraph C2.2.9, requires demonstration that the DGs can start and run continuously for an interval of not less than 24 hours, ≥ 2 hours of which is at a load between 105% and 110% of the continuous duty rating and the remainder of the time at a load equivalent to 90% to 100% of the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelubricating and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

~~In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor of ≥ 0.8 and ≤ 0.9 . This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.~~ The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

This Surveillance is modified by ~~three~~-four Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the power factor limit will not invalidate the test. Note 2 establishes that this SR may be performed on only one DG at a time while in MODE 1, 2, 3, or 4. This is necessary to ensure the proper response to an operational transient (i.e., loss of offsite power, ESF actuation). Therefore, three DGs must be maintained operable and in a standby condition during performance of this test. In this configuration, the plant will remain within its design basis, since at all times safe shutdown can be achieved with two DGs in the same train.

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BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.14 (continued)

Note 3 establishes that credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post-corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

Note 4 ensures that the DG is tested under load conditions that are as close to design basis conditions as possible. When synchronized with offsite power, testing should be performed at a power factor of ≤ 0.9 . This power factor is representative of the actual inductive loading a DG would see under design basis accident conditions. Under certain conditions, however, Note 4 allows the Surveillance to be conducted at a power factor other than ≤ 0.9 . These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to ≤ 0.9 results in voltages on the emergency boards that are too high. Under these conditions, the power factor should be maintained as close as practicable to 0.9 while still maintaining acceptable voltage limits on the emergency boards. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of 0.9 may not cause unacceptable voltages on the emergency boards, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained close as practicable to 0.9 without exceeding the DG excitation limits.

Prior to performance of this SR in MODES 1 or 2, actions are taken to establish that adequate conditions exist for performance of the SR. The required actions are defined in Bases Table 3.8.1-2.

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