



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

JUL 08 2004

WBN-TS-04-05

10 CFR 50.90

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

Gentlemen:

In the Matter of) Docket No.50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - TECHNICAL SPECIFICATION
(TS) CHANGE NO. 04-05 - 125 VOLT (V) DIRECT CURRENT (DC)
ELECTRICAL POWER SUBSYSTEM

Pursuant to 10 CFR 50.90, TVA is submitting a request for a TS change (WBN-TS-04-05) to license NPF-90 for WBN Unit 1. The proposed TS change eliminates the term "inter-rack" and associated wording from TS Surveillances 3.8.4.6 and 3.8.4.10 for the 125 V DC Electrical Power Subsystems of the Emergency Diesel Generators (DG). Surveillances 3.8.4.6 and 3.8.4.10 check the continuity for battery interconnections and terminals for each DG battery in the DG power subsystems. TVA incorporated the term "inter-rack" into the surveillance requirements during the draft TS era after adopting generic surveillance requirements for multi-rack batteries. Inter-rack implies that there are two or more racks per battery; however, the DG batteries are technically one rack designs. During surveillance testing, personnel used the term inter-rack interchangeably with "inter-tier." This misunderstanding was likely further enhanced by the single rack battery configuration since it contains two rows of battery cells with one tier elevated above the other. Thus, the one jumper cable between the upper and lower tiers could easily be misinterpreted as being between two racks rather than tiers.

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Regardless of terminology, the proper jumper cable was field tested since the intent of both terms was to test the same cable. The TS change will clarify that the one jumper cable between tiers is the inter-tier jumper cable by omitting all other inter-rack references. The appropriate TS Bases change is provided for information.

Enclosure 1 to this letter provides the description and evaluation of the proposed change. TVA has determined that the proposed change does not involve a significant hazards consideration, and 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 attachments to the Tennessee State Department of Public Health.

Enclosure 2 contains copies of the appropriate TS pages marked-up to show the proposed change. Enclosure 3 contains the updated TS pages with the proposed change incorporated. Enclosure 4 provides, for information only, the marked-up TS Bases page 3.8-61 associated with this proposed change.

No commitments are made by this letter. If you have any questions about this change, please contact me at (423) 365-1824.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 8th day of July 2004.

Sincerely,



P. L. Pace
Manager, Site Licensing
and Industry Affairs

Enclosures:

1. TVA's Evaluation of the Proposed Change
2. Proposed Technical Specification Change (Marked-up)
3. Proposed Technical Specification Change (Retyped)

cc: See page 3

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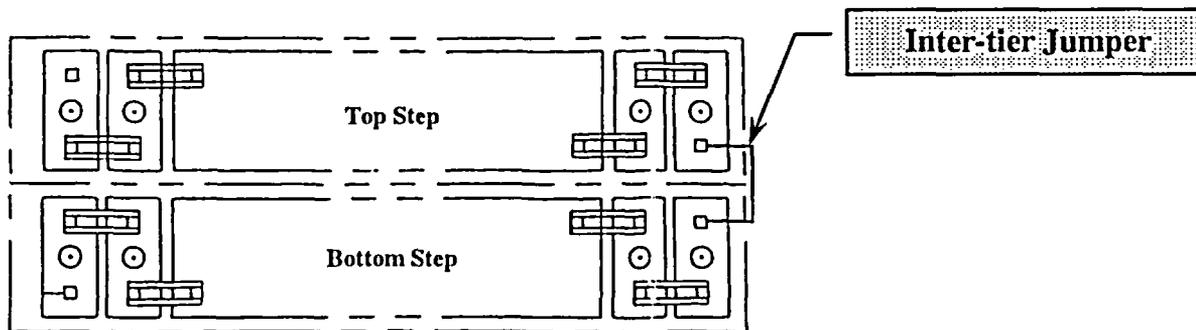
ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY (TVA)
WATTS BARS BAR NUCLEAR PLANT (WBN)
UNIT 1

TVA EVALUATION OF PROPOSED CHANGE

1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-90 for WBN Unit 1. The proposed license amendment will revise the Technical Specification (TS) to remove the term "inter-rack" and associated wording from Surveillances 3.8.4.6 and 3.8.4.10 for the 125 Volt (V) Direct Current (DC) Electrical Power Subsystems of the Emergency Diesel Generators (DGs). The TS change will clarify that the one jumper cable between battery cell tiers is the "inter-tier" jumper cable (see sketch below) by omitting all other references to inter-rack since the intent of both terms was to test the inter-tier jumper cable connections. Inter-rack is an incorrect term for the associated DG battery design.



Diesel Generator Battery Sketch
Top View

2.0 PROPOSED CHANGE

The proposed change will revise TS Section 3.8.4, "DC Source-Operating," by revising Surveillance 3.8.4.6 and 3.8.4.10 to remove the phrase " $\leq 50 \text{ E-6 ohm}$ for inter-rack connections" from the listed connection resistance measurement specified therein. TVA is proposing this change to remove ambiguous wording.

The specific change is noted in the marked up copy of TS pages 3.8-26 and 3.8-27. The appropriate TS Bases change is provided for information.

3.0 BACKGROUND

The proposed TS change eliminates the term "inter-rack" and associated wording from TS Surveillances 3.8.4.6 and 3.8.4.10 for the 125 V DC Electrical Power Subsystems of the Emergency Diesel Generators (DG). Surveillances 3.8.4.6 and 3.8.4.10 check the continuity for battery interconnections and terminals for each DG battery in the DG power subsystems. TVA incorporated the term "inter-rack" into the surveillance requirements during the draft TS era after adopting generic surveillance requirements for multi-rack batteries. Inter-rack implies that there are two or more racks per battery; however, each DG battery is a one rack design. During surveillance testing, personnel used the term inter-rack interchangeably with "inter-tier." This misunderstanding was likely further enhanced by the single rack battery configuration since it contains two rows of battery cells with one tier elevated above the other. Thus, the one jumper cable between the upper and lower tiers could be misinterpreted as being between two racks rather than tiers. Regardless of terminology, the proper jumper cable was field tested since the intent of both terms was to test the same cable. This TS change will clarify that the one jumper cable between tiers is the inter-tier jumper cable by omitting other inter-rack references.

This TS amendment involves the surveillance requirements of battery connections and jumpers within the 125 V DC DG Electrical Power Subsystems. Control power for the DGs is provided by one DG battery system per DG. Each system is comprised of a battery, a battery charger, distribution center, cabling, and cable ways. The DG 125 V DC control power and field-flash circuits have power supplied from their respective 125 V distribution panel. The normal supply of DC current is from the associated charger. The battery provides control and field-flash power when the charger is unavailable. The charger supplies the normal DC loads, maintains the battery in a fully charged condition, and recharges (480 V Alternating Current (AC) available) the battery while supplying the required loads regardless of the status of the unit. The batteries are physically and electrically independent. The battery has sufficient capacity when fully charged to supply required loads for a minimum of 30 minutes following a loss of normal power. Each battery is normally required to supply loads during the time interval between loss of normal feed to its charger and the receipt of emergency power to the charger from its respective DG.

The initial conditions of Design Basis Accident (DBA) and transient analyses assume that Engineered Safety Feature (ESF) systems are operable. The vital DC electrical power system provides normal and emergency DC electrical power for the emergency auxiliaries and control and switching during all modes of operation. The DG battery systems provide DC power for the DGs.

The operability of the DC sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the plant. This includes maintaining the DC sources operable during accident conditions in the event of an assumed loss of all offsite AC power or all onsite AC power and a worst case single failure.

4.0 TECHNICAL ANALYSIS

The removal of inter-rack and associated wording will clarify the TS surveillances. To be precise, inter-rack implies that there are two or more racks per battery; however, the existing DG battery design only has one rack and testing of the inter-tier jumper cable connections was what was intended. Inter-tier will remain as-is in TS surveillances and will ensure that the interior jumper connections are checked.

No missed battery continuity checks resulted from the ambiguous wording.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

The proposed change will revise the TS to remove the term inter-rack and associated wording from Surveillances 3.8.4.6 and 3.8.4.10 for the 125 V DC Electrical Power Subsystems of the Emergency Diesel Generators (DGs) because there are no inter-rack connections. TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No.

The proposed TS change eliminates an inaccurate term and associated wording, but the actual TS amendment does not result in any change to the actual surveillance field test for the associated batteries. The proposed wording will only clarify the surveillances. Prior field tests were adequate to verify proper battery connection integrity since it tested the inside (inter-tier) jumper cable connections as if they were interchangeable with inter-rack.

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

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

Response: No.

The proposed TS change does not alter the configuration of the plant's 125 V DC Electrical Power Subsystems of the Emergency DGs. The change does not directly affect plant operation. The change will not result in the installation of any new equipment or system or the modification of any existing equipment or systems. No new operations procedures, conditions, or modes will be created by this proposed change. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

Response: No.

The battery connection continuity check for the 125 V DC Electrical Power Subsystems of the Emergency DGs will continue to be monitored by the same process as previously performed; 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.

5.2 Applicable Regulatory Requirements/Criteria

The proposed amendment request changes TS Surveillances 3.8.4.6 and 3.8.4.10 for the 125 V DC Electrical Power Subsystems of the Emergency DGs. A detailed description of the 125 V DG batteries and statement of compliance to applicable general design criterion, regulatory guides, and IEEE standards are in Section 8.3.1.1 of the Updated Final Safety Analysis Report (UFSAR).

The principal review performed by NRC is documented in NUREG-0847, "Safety Evaluation Report (SER) related to the operation of Watts Bar Nuclear Plant Units 1 and 2, Docket Nos. 50-390 and 50-391," dated June 1982 in Section 8.3.2.4. NUREG-0847, Supplement 13, noted that TVA updated FSAR Section 8.3.1.1 (Amendment 70) to show that applicable general design criterion, regulatory guides, and IEEE standards applied. IEEE Standard 450 specifies the acceptable battery connection test

methods and the proposed change does not deviate from this standard.

No new commitments are made by the subject proposal. 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.

6.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment removes an ambiguous term and related wording from the surveillance requirements for the 125 V DC Electrical Power Subsystems of the Emergency DGs. The change is for clarification only. Therefore, 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 effluent 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.

7.0 REFERENCES

WBN UFSAR, Section 8.3.1.1

ENCLOSURE 2
WBN-TS-04-05
SURVEILLANCE 3.8.4.6 AND 3.8.4.10
PROPOSED TECHNICAL SPECIFICATION PAGE MARKUP

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
<p><u>Replace with:</u> Verify connection resistance for the DG batteries is $\leq 80 \text{ E-6}$ ohm for inter-cell connections, $\leq 50 \text{ E-6}$ ohm for inter-tier connections, and $\leq 50 \text{ E-6}$ ohm for terminal connections</p>	<p>5 Verify no visible corrosion at terminals and connectors for the vital batteries. <u>OR</u> Verify connection resistance for the vital batteries is $\leq 80 \text{ E-6}$ ohm for inter-cell connections, $\leq 50 \text{ E-6}$ ohm for inter-rack connections, $\leq 120 \text{ E-6}$ ohm for inter-tier connections, and $\leq 50 \text{ E-6}$ ohm for terminal connections.</p>	<p>92 days</p>
<p>SR 3.8.4.6</p>	<p>Verify no visible corrosion at terminals and connectors for the DG batteries. <u>OR</u> Verify connection resistance for the DG batteries is $\leq 80 \text{ E-6}$ ohm for inter-cell connections, $\leq 50 \text{ E-6}$ ohm for inter-rack connections, $\leq 50 \text{ E-6}$ ohm for inter-tier connections, and $\leq 50 \text{ E-6}$ ohm for terminal connections.</p>	<p>92 days</p>
<p>SR 3.8.4.7</p>	<p>Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.</p>	<p>12 months</p>
<p>SR 3.8.4.8</p>	<p>Remove visible terminal corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.</p>	<p>12 months</p>

(continued)

Replace with:
Verify connection resistance for the DG batteries is $\leq 80 \text{ E-6}$ ohm for inter-cell connections, $\leq 50 \text{ E-6}$ ohm for inter-tier connections, and $\leq 50 \text{ E-6}$ ohm for terminal connections

(continued)

	SURVEILLANCE	FREQUENCY
	<p>connection resistance for the vital s is $\leq 80 \text{ E-6}$ ohm for inter-cell ons. $\leq 50 \text{ E-6}$ for inter-rack ons. $\leq 120 \text{ E-6}$ ohm for inter-tier connections. and $\leq 50 \text{ E-6}$ ohm for terminal connections.</p>	12 months
SR 3.8.4.10	<p>Verify connection resistance for the DG batteries is $\leq 80 \text{ E-6}$ ohm for inter-cell connections. $\leq 50 \text{ E-6}$ for inter-rack connections. $\leq 50 \text{ E-6}$ ohm for inter-tier connections. and $\leq 50 \text{ E-6}$ ohm for terminal connections.</p>	12 months
SR 3.8.4.11	<p>-----NOTE----- This Surveillance is normally not performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR. -----</p> <p>Verify each vital battery charger is capable of recharging its associated battery from a service or capacity discharge test while supplying normal loads.</p> <p><u>OR</u></p> <p>Verify each vital battery charger is capable of operating for ≥ 4 hours at current limit 220 - 250 amps.</p>	18 months

(continued)

ENCLOSURE 3
WBN-TS-04-05
SURVEILLANCE 3.8.4.6 AND 3.8.4.10
PROPOSED TECHNICAL SPECIFICATION TYPED PAGES

SURVEILLANCE REQUIREMENTS (Continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.5	<p>Verify no visible corrosion at terminals and connectors for the vital batteries.</p> <p><u>OR</u></p> <p>Verify connection resistance for the vital batteries is $\leq 80 \text{ E-6 ohm}$ for inter-cell connections, $\leq 50 \text{ E-6 ohm}$ for inter-rack connections, $\leq 120 \text{ E-6 ohm}$ for inter-tier connections, and $\leq 50 \text{ E-6 ohm}$ for terminal connections.</p>	92 days
SR 3.8.4.6	<p>Verify no visible corrosion at terminals and connectors for the DG batteries.</p> <p><u>OR</u></p> <p>Verify connection resistance for the DG batteries is $\leq 80 \text{ E-6 ohm}$ for inter-cell connections, $\leq 50 \text{ E-6 ohm}$ for inter-tier connections, and $\leq 50 \text{ E-6 ohm}$ for terminal connections.</p>	92 days
SR 3.8.4.7	<p>Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.</p>	12 months
SR 3.8.4.8	<p>Remove visible terminal corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.</p>	12 months

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SURVEILLANCE REQUIREMENTS (Continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.9	Verify connection resistance for the vital batteries is $\leq 80 \text{ E-6 ohm}$ for inter-cell connections, $\leq 50 \text{ E-6}$ for inter-rack connections, $\leq 120 \text{ E-6 ohm}$ for inter-tier connections, and $\leq 50 \text{ E-6 ohm}$ for terminal connections.	12 months
SR 3.8.4.10	Verify connection resistance for the DG batteries is $\leq 80 \text{ E-6 ohm}$ for inter-cell connections, $\leq 50 \text{ E-6 ohm}$ for inter-tier connections, and $\leq 50 \text{ E-6 ohm}$ for terminal connections.	12 months
SR 3.8.4.11	<p>-----NOTE----- - This Surveillance is normally not performed in MODE 1, 2, 3, or 4. However, credit may be taken for unplanned events that satisfy this SR. -----</p> <p>Verify each vital battery charger is capable of recharging its associated battery from a service or capacity discharge test while supplying normal loads.</p> <p><u>OR</u></p> <p>Verify each vital battery charger is capable of operating for ≥ 4 hours at current limit 220 - 250 amps.</p>	18 months

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ENCLOSURE 4
WBN-TS-04-05
SURVEILLANCE 3.8.4.6 AND 3.8.4.10
TECHNICAL SPECIFICATION BASES PAGE B 3.8-61
INFORMATION ONLY

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.5 and SR 3.8.4.6 (continued)

The limits established for this SR must be no more than 20% above the resistance as measured during installation, or not above the ceiling value established by the manufacturer.

The Surveillance Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.

SR 3.8.4.7

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The 12 month Frequency for this SR is consistent with IEEE-450 (Ref. 9), which recommends detailed visual inspection of cell condition and rack integrity on a yearly basis.

SR 3.8.4.8, SR 3.8.4.9 and SR 3.8.4.10

Visual inspection and resistance measurements of intercell, interrack, intertier, and terminal connections provide an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anticorrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection. The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR provided visible corrosion is removed during performance of SR 3.8.4.8. For the purposes of trending, inter-cell (vital and DG batteries) and inter-tier (vital batteries) connections are measured from battery post to battery post. Inter-rack (vital and DG batteries), inter-tier (DG Batteries), and terminal connections (vital and DG batteries) are measured from terminal lug to battery post.

Delete

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