

January 13, 1983

Docket Nos: 50-390
and 50-391

APPLICANT: Tennessee Valley Authority
FACILITY: Watts Bar Nuclear Plant
Units 1 and 2
SUBJECT: SUMMARY OF WATTS BAR CONFIRMATORY SITE
VISIT HELD ON JULY 12 THROUGH 14, 1982,
BY THE POWER SYSTEMS BRANCH

A confirmatory site visit meeting was held on July 12 through 14, 1982, at the Watts Bar Plant site with representatives from TVA. The site visit was held to view the installation and arrangement of electrical equipment and cables and to discuss matters related to the electric power systems at the Watts Bar Plant.

A status summary of all items discussed and a summary of the discussion for each item is enclosed. The attached summary was written by J. Knox of the Power Systems Branch.

[Signature]
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Enclosure:
As stated

cc: See next page

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WATTS BAR

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A status summary of all items discussed at the Watts Bar site visit meeting is given below:

SER ItemsStatus

OI #11	applicant action required
CI #26	applicant action required
CI #27	applicant action required
CI #28	Closed (I&E confirmation)
CI #29	NRC staff action required
CI #30	applicant action required
CI #31	Closed
CI #32	applicant action required
CI #33	Closed
CI #34	applicant action required
CI #35	applicant action required
LC #12	applicant action required
LC #13	applicant action required
LC #14	applicant action required
LC #15	applicant action required
LC #16	applicant action required
LC #17	applicant action required
LC #18	applicant action required

New ItemsStatus

NI #1	applicant action required
NI #2	applicant action required
NI#3	applicant action required

A summary of the discussion for each of the above items is presented below:

OI #11 (SER Sections 8.2.2.2, 8.2.3)

The design for the proposed modification of the offsite circuits from the C and D transformers to the Class 1E buses was not available. This item remains open and may require a future site visit.

In regard to offsite power system testing, the NRC staff requested a description be provided in the FSAR of how transfer of power is tested from the normal power source to the first alternate source and from the normal source to the second alternate source. If any component parts involved in the transfer of power cannot be tested during normal power operation, the NRC staff further requested that justification be provided for the lack of testability.

CI #26 (SER Section 8.2.2.1)

Amendment to FSAR was unavailable for NRC staff review. This item remains confirmatory.

CI #27 (SER Section 8.3.1.1)

Amendment to FSAR was unavailable for NRC staff review. This item remains confirmatory.

CI #28 (SER Section 8.3.1.2)

The NRC staff reviewed drawing 45W760-211-17 revision 2. The staff is satisfied that position 1 and 2 are met.

Concerning position 3 and 4, the NRC staff reviewed the results of the Watts Bar voltage drop analysis and found the results to be satisfactory. The NRC staff stated it would request I&E to verify the test results which substantiate the analysis.

CI #29 (SER Section 8.3.1.6)

The applicant provided test reports titled (1) 300 Start Reliability Test and (2) Test Report for One Tandem Diesel Generator Set for Tennessee Valley Authority Watts Bar Nuclear Plant. The NRC staff indicated it would continue its review of this item. This item remains confirmatory pending completion of the staff's review.

CI #30 (SER Section 8.3.2.4)

Amendment to FSAR was unavailable for NRC staff review. This item remains confirmatory.

CI #31 (SER Section 8.3.3.1.2)

The NRC staff reviewed drawings 45W760-62-3 (revision 7) and 45W760-270-2 (revision 8). The NRC staff confirmed that the design for bypassing thermal overloads during accident conditions meets the staff position and is acceptable.

The NRC staff stated that this item is now closed.

CI #32 (SER Section 8.3.3.2.2)

Amendment to FSAR was unavailable for NRC staff review. This item remains confirmatory.

CI #33 (SER Section 8.3.3.2.3)

The cable routings that were traced as part of the confirmatory site visit are identified with item NI #1 below. Based on the cable tracing, the staff concludes that cables associated with Units 1 and 2 "A" train are extensively routed in close proximity and in the same raceway. Similarly cables associated with Units 1 and 2 "B" train are routed together. A and B cables are routed in physically separate raceways. This cable routing is in accordance with Watts Bar separation criteria. Thus, this item is considered complete.

CI #34 (SER Section 8.3.3.5.2)

Amendment to FSAR was unavailable for NRC staff review. This item remains confirmatory.

CI #35 (SER Section 8.3.3.6)

The applicant indicated that non Class 1E circuits normally deenergized (such as the crane) would not have two breakers in series as implied by the NRC staff SER. The NRC staff informed the applicant that the FSAR should be revised to indicate the non Class 1E loads that will be deenergized during normal plant operation and that the plant technical specification would include surveillance requirements for these non Class 1E loads. Revision to the FSAR remains confirmatory.

As an alternate to the above, the applicant indicated that cables when they pass through the electrical penetration split so that two cables versus one pass through the penetration. Assuming split cables, the applicant indicated that they would ask the penetration manufacturer to determine if the penetration can withstand long term overload. The NRC staff indicated that this alternative would be considered by the staff when formally submitted for NRC review.

The test report showing the capability of the penetration to withstand long duration faults 10-1000 seconds was not available for NRC staff review. This item remains confirmatory.

LC #12 (SER Section 8.3.1.6)

In regard to the 30 start tests from hot conditions, the applicant stated that they do not want to unnecessarily load the gear train or run tests on new turbo chargers. The applicant indicated that they would try to find a similar diesel where the subject 30 start tests have been performed at another plant. The NRC staff indicated that tests on another diesel would be acceptable provided the other diesel is identical to the diesels at Watts Bar.

The applicant further indicated that if they could not find a similar diesel where the subject tests have been performed, they will contest this license condition.

LC #13 (SER Section 8.3.2.2)

The applicant indicated that monitoring of the diesel generator DC battery system will meet the minimum requirements for monitoring listed in Section 8.3.2.2 of the staff's SER. The proposed design was unavailable for NRC review. The license condition is no longer required and will be deleted pending formal documentation of compliance. This item will become confirmatory.

LC #14 (SER Section 8.3.3.2.4)

The applicant indicated that all possible interconnections between redundant divisions through normal and alternate power sources to various loads meet the staff positions identified in Section 8.3.1.7 of the staff SER and that Table 8.3-10 of the FSAR will be revised to reflect these interconnections. The revision to Table 8.3-10 remains to be confirmed. The license condition is no longer required and will be deleted pending formal documentation of the above compliance. This item will become confirmatory.

LC #15 (SER Section 8.3.3.3.(2))

The applicant indicated that a number of alternative options to periodically testing non Class 1E circuit breakers are being considered. The options will be presented to the NRC staff for their review at a later date. This item remains a license condition.

LC #16 (SER Section 8.3.3.3.(3))

Same as LC #15.

LC #17 (SER Section 8.3.3.4)

The applicant indicated that they are still considering this item. This item remains a license condition.

LC #18 (SER Section 8.3.3.6)

The applicant indicated that two separate and independent breakers would be installed in series in compliance with the license condition. Pending documentation of this in the FSAR or by letter, the license condition is no longer required.

NI #1 Cable Routing

The following cable routings were traced as part of the confirmatory site visit.

- a. 6900 volt 1B and 2B train cables between the diesel generator and the switchgear.
- b. 6900 to 480 volt 2A train cables between their respective switchgear.
- c. Cables associated with the A and B train turbine and motor driven auxiliary feedwater pump.

As a result of the cable tracing, it was noted (for the cases listed below) that redundant cables essential for safe shutdown given a design bases fire, are separated by less than the 20 foot requirement of Appendix R to 10 CFR 50 Appendix A. The applicant was requested to identify where this item is covered in the Watts Bar fire hazards analysis. The applicant was also informed that resolution would be the responsibility of others.

Cases where cable separation is less than 20 feet:

- (1) A train cables associated with both the turbine and motor driven auxiliary feedwater pumps are separated by 16 feet (as noted on Watts Bar drawings 45W888-18 and 31) and 13 feet (as noted on Watts Bar drawing 45W888-6 and 11) from B train cables associated with both the turbine and motor driven auxiliary feedwater pumps.
- (2) B train cables routed from the diesel generator to their associated switchgear are separated by 10 feet from A cables routed from the 6900 to 480 volt switchgear.

NI #2 - Effects of Automatic Fire Protection Systems

The applicant has installed a water sprinkler system above 480 volt safety related motor control centers. It was noted that the Class 1E motor control centers located below the sprinklers are not qualified, designed, or protected to operate without failure in a water spray environment. For the design basis event, fire protection system operation, the applicant was requested to justify the Watts Bar design with respect to compliance with IEEE Standard 308 and GDC 4.

NI #3 - Separation Between Class 1E and Non Class 1E Cables

Class 1E and non Class 1E cables are routed in the same wire bundle in NSSS cabinets. The applicant indicated they would provide justification for the separation.

January 13, 1983

MEETING SUMMARY DISTRIBUTION

Docket No(s): 50-390/391
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