March 27, 2000

NOED 00-6-004

Tennessee Valley Authority
ATTN: Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: NRC INTEGRATED INSPECTION REPORT NO. 50-390/00-01 AND 50-391/00-01

Dear Mr. Scalice:

This refers to the inspection conducted on January 30 through March 4, 2000, at the Watts Bar facility. The enclosed report presents the results of this inspection.

During the inspection period, your conduct of activities at the Watts Bar facility was generally characterized by safety-conscious operations, sound engineering and maintenance practices, and careful radiological work controls.

Within the scope of the inspection, violations or deviations were not identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

Should you have any questions concerning this letter, please contact us.

Sincerely,

/RA/

Paul E. Fredrickson, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos. 50-390, 50-391
License No. NPF-90 and Construction
Permit No. CPPR-92

Enclosure: NRC Inspection Report

cc w/encl:
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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-390, 50-391
License Nos:	NPF-90 and Construction Permit CPPR-92
Report Nos:	50-390/00-01, 50-391/00-01
Licensee:	Tennessee Valley Authority
Facility:	Watts Bar, Units 1 and 2
Location:	1260 Nuclear Plant Road Spring City TN 37381
Dates:	January 30 through March 4, 2000
Inspectors:	P. Van Doorn, Senior Resident Inspector D. Rich, Resident Inspector
Approved by:	P. E. Fredrickson, Chief Reactor Projects Branch 6 Division of Reactor Projects

Enclosure

EXECUTIVE SUMMARY

Watts Bar, Units 1and 2
NRC Inspection Report 50-390/00-01, 50-391/00-01

This integrated inspection included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a five-week period of resident inspection.

Operations

- The conduct of Operations was professional and safety conscious. Requirements were met for control room conduct and other areas reviewed such as turnovers, tagouts, documentation, staffing, and assistant unit operator activities (Section O1.1).

- Requirements for Operations' staffing and overtime were met for the period reviewed (Section O6.1).

- The licensee continued to implement a strong corrective action process exhibiting a questioning attitude and conducting thorough reviews with strong management oversight. Corrective action plans were typically thorough. The Plant Operations Review Committee reviews were thorough and Nuclear Assurance observations were broad based with beneficial findings noted. A flood protection self-assessment was very thorough with a number of beneficial findings noted (Section O7.1).

Maintenance

- Maintenance and surveillance activities observed were adequately performed. Maintenance personnel were knowledgeable and carefully followed procedures to resolve plant equipment and component problems. Work performed was typically well documented (Section M1.1).

- The licensee found that response time testing had not been performed as required by Technical Specification (TS) 3.3.2 on the train B main turbine trip solenoid valve after replacement of the solenoid valve as a preventive maintenance action. However the train B turbine trip was verified to be functional prior to plant startup. The issue was of minor safety significance and enforcement discretion was granted (Section M3.1).

Engineering

- Engineering activities reviewed were thorough and technically viable. Plant equipment problems were being addressed commensurate with plant safety (Section E1.1).

Plant Support

- Radiological controls were adequate. Radiological areas were properly posted and high radiation areas were labeled and locked. Personnel were attentive and followed requirements. The licensee provided thorough management oversight of chemistry results, and regulatory limits reviewed were met (Section R1.1).

- Security personnel were attentive, followed requirements for access control, and problems were not identified with barriers and zones.(Section S1.1).

Report Details

Summary of Plant Status

Unit 1 began this inspection period operating in Mode 1 at 100 percent reactor power. Reactor power remained at 100 percent for the remainder of the inspection period.

Unit 2 remained in a suspended construction status.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

The inspectors conducted frequent inspections and reviews of ongoing plant operations. This included observation of routine control room (CR) crew activities, mid-shift briefings and turnovers; review of logs, standing and night orders, CR staffing, and tagouts; and observation of assistant unit operator (AUO) activities.

The conduct of Operations was professional and safety conscious. Requirements were met for CR conduct and other areas reviewed such as turnovers, tagouts, documentation, staffing, and AUO activities.

06 Operations Organization and Administration

06.1 Review of Staffing and Overtime

a. Scope (71707)

The inspector reviewed records and held discussions with licensee management to confirm Operations' staffing and overtime met requirements during November and December 1999.

b. Observations and Findings

Staffing requirements are contained in Technical Specification (TS) 5.2.2, 10CFR 50.54, and the licensee's Radiological Emergency Plan (REP), Appendix C, Revision 51. Overtime requirements are contained in TS 5.2.2. The inspector determined that minimum staffing was being maintained and overtime was properly controlled in accordance with requirements. In addition, routine heavy use of overtime was not evident. Licensee evaluations of possible event scenarios had determined that five AUOs was the minimum number necessary based on the fire response scenario. This is more than TS requirements. The inspector determined that five AUOs were not available on several occasions; however, licensed reactor operators (ROs) were utilized in their place. In addition, this required a senior reactor operator (SRO) to replace an RO on one occasion. These replacements were considered acceptable based on licensee qualification standards and 10CFR 50.54 requirements.

c. Conclusions

Requirements for Operations' staffing and overtime were met for the period reviewed.

O7.1 Licensee Self-Assessment Activities (40500)

The inspectors reviewed various self-assessment activities which included the following:

- Observation of Management Review Committee (MRC) meetings;
- Review of selected Problem Evaluation Reports (PERs) for adequacy of corrective actions and implementation of procedural requirements;
- Review of PER initiations;
- Observation of two Plant Operations Review Committee (PORC) meetings;
- Review of Nuclear Assurance (NA) observations and findings, and
- Review of a Flood Protection Self-Assessment.
- Review of World Association of Nuclear Operators (WANO) report dated, November 22. 1999.

The licensee continued to implement a strong corrective action process exhibiting a questioning attitude and conducting thorough reviews with strong management oversight. Corrective action plans were typically thorough. The PORC reviews were thorough and NA observations were broad based with beneficial findings noted. The self-assessment was very thorough with a number of beneficial findings noted. The WANO report was consistant with evaluations performed by NRC and no NRC followup was planned.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope (62707, 61726)

The inspectors observed preplanned and emergent maintenance activities including all or portions of the following work orders (WOs) and surveillance instructions (SIs) and reviewed associated documentation:

- WO 00-002972-000, Troubleshoot Loss of Shutdown Banks C and D Rod Control

- WO 00-003431-000, Repair or Replace 2B1 Diesel Lube Oil Circ Pump, 2-PMP-082-B1
- WO 99-003458-000, Locate and Repair Oil Leaks on 1B-B Motor Driven Auxiliary Feedwater Pump
- 0-SI-82-11-A, Monthly Diesel Generator Start and Load Test, DG 1A-A, Revision 8
- WO 00-004562-000, Investigate Erratic Voltage and Current, #1 Vital 125 VDC Battery Charger
- WO 99-014667-043, Replace 1-BKR-026-0245, Annulus Cable Tray Area Sprinkler Header Isolation Motor Operator Breaker
- WO 99-016431, Master PM for Valve 1-MVOP-067-0125A
- 1-SI-72-901-A, Containment Spray Pump 1A-A Quarterly Test, Revision 4

b. Observations and Findings

The inspectors observed the activities identified above and determined that personnel involved in the work were qualified and knowledgeable in the tasks being performed. The work instructions were observed being followed, and problems, if encountered during the performance of the work, were properly dispositioned. Work performed was also typically well documented. Where appropriate, radiation control measures were in place.

c. Conclusions

Maintenance and surveillance activities observed were adequately performed. Maintenance personnel were knowledgeable and carefully followed procedures to resolve plant equipment and component problems. Work performed was typically well documented.

M3 Maintenance Procedures and Documentation

M3.1 Inadequate Post-Maintenance Test (62707)

a. Inspection Scope

The inspector reviewed the evaluations, documentation, and licensing issues involved with the licensee's request for enforcement discretion concerning post maintenance testing of a main turbine trip solenoid valve.

b. Observations and Findings

On February 22, 2000, while performing research for a design change, the licensee discovered that the train B main turbine trip solenoid valve had been replaced without performing response time testing (RTT) as part of post-maintenance testing. TS 3.3.2 requires a steam generator water level high-high signal to actuate a main turbine trip and feedwater isolation and required the function to be included in RTT as specified by TS surveillance requirement (SR) 3.3.2.10. Technical Requirement 3.3.2 specified the response time to be less than or equal to 2.5 seconds. The turbine trip subsequent to a steam generator water level high-high condition is an equipment protection function, as described in the TS Bases. This function prevents possible damage to the turbine due to water in the steam lines.

SR 3.3.2.10 required RTT every 18 months on a staggered test basis, effectively requiring testing of train B every 36 months. The licensee found that train B turbine trip solenoid valve 1-FSV-47-27 was replaced as a preventive maintenance action during the 1999 refueling outage and that train B RTT was not included as post-maintenance testing. The licensee had performed a functional test and verified valve 1-FSV-47-27 would trip the turbine. The licensed operator who performed the test certified that both train A and B tripped the turbine immediately, without delay. Train B RTT was last performed during the 1997 refueling outage and train A RTT was last performed in 1999.

The licensee contacted Westinghouse regarding their qualitative review of the Watts Bar Nuclear (WBN) Feedwater Malfunction Analysis and found that an increase in turbine trip response time would not result in a more limiting condition for this analysis but would only delay the time that the event is terminated. Even if the turbine trip does not occur, the feedwater isolation signal would cause the steam generator to drain down, and the transient would behave as a loss-of-normal feedwater/inadvertent emergency core cooling system operation at power event. The resultant transient would be bounded by the existing Final Safety Analysis Report analyses.

The licensee could not perform the RTT without shutdown to Mode 3, since it would require the main turbine to be tripped as part of the test. The licensee determined that inability to meet SR 3.3.2.10 requirements would require entry into TS limiting condition for operation (LCO) 3.0.3 and shutdown of the unit.

On February 23, after review and approval by the PORC, the licensee requested enforcement discretion. The NRC issued Notice of Enforcement Discretion (NOED) 00-6-004, dated February 25, 2000, which stated the NRC's intention to not enforce TS SR 3.3.2.10 for a period of 30 days, pending approval of an exigent TS amendment making RTT of valve 1-FSV-47-27 unnecessary until the next shutdown of the main turbine. This issue is identified as unresolved item (URI) 50-390/00-01-01, Failure to Perform Response Time Testing as Required, pending approval of the exigent TS change. This issue is in the licensee's corrective action program as PER 00-004459-000.

c. Conclusions

The licensee found that RTT had not been performed as required by TS 3.3.2 on the train B main turbine trip solenoid valve after replacement of the solenoid valve as a preventive maintenance action. However, the train B turbine trip was verified to be functional prior to plant startup. The issue was of minor safety significance and enforcement discretion was granted.

III. Engineering

E1 Conduct of Engineering

E1.1 General Observations (37551)

The inspectors observed Engineering support activities for PER evaluations, review of plant equipment problems and associated corrective action plans, and MRC and PORC meetings.

Engineering activities reviewed were thorough and technically viable. Plant equipment problems were being addressed commensurate with plant safety.

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 General Comments (71750)

The inspectors routinely observed radiologically controlled areas to verify adequacy of access controls, locked areas, personnel monitoring, surveys, postings, and radiological briefings. The inspectors also routinely reviewed primary and secondary chemistry results.

Radiological controls were adequate. Radiological areas were properly posted and high radiation areas were labeled and locked. Personnel were attentive and followed requirements. The licensee provided thorough management oversight of chemistry and results and regulatory limits reviewed were met.

S1 Conduct of Security and Safeguards Activities

S1.1 General Observations (71750)

The inspectors routinely observed security activities for conformance to requirements which included protected area barriers, isolation zones, personnel access, and package inspections. Security personnel were attentive, followed requirements for access control, and problems were not identified with barriers and zones.

V. Management Meetings

X1 Exit Meeting Summary

The resident inspectors presented inspection findings and results to licensee management on March 2, 2000. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Beecken, Maintenance and Modifications Manager
D. Boone, Radiological Control Manager
L. Bryant, Assistant Plant Manager
S. Casteel, Radiological and Chemistry Control Manager
J. Cox, Training Manager
L. Hartley, Maintenance Rule Coordinator
M. King, Acting Chemistry Manager
D. Kulisek, Operations Manager
W. Lagergren, Plant Manager
D. Nelson, Business and Work Performance Manager
P. Pace, Licensing and Industry Affairs Manager
R. Purcell, Site Vice President
J. Roden, Operations Superintendent
S. Spencer, Site Nuclear Assurance Manager
J. West, Assistant Plant Manager

NRC

P. Van Doorn, Senior Resident Inspector
D. Rich, Resident Inspector

INSPECTION PROCEDURES USED

IP 37551	Onsite Engineering
IP 40500	Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems
IP 61726	Surveillance Observations
IP 62707	Maintenance Observation
IP 71707	Plant Operations
IP 71750	Plant Support Activities

ITEMS OPENED

Opened

50-390/00-01-01	URI	Failure to Perform Response Time Testing as Required (Section M3.1).