



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W.
 ATLANTA, GEORGIA 30303

Report Nos.: 50-327/83-26 and 50-328/83-26

Licensee: Tennessee Valley Authority
 500A Chestnut Street
 Chattanooga, TN 37401

Docket Nos.: 50-327 and 50-328

License Nos.: DPR-77 and DPR-79

Facility Name: Sequoyah 1 and 2

Inspection at Sequoyah site near Chattanooga, Tennessee

Inspectors:	<u>P. R. Anderson</u>	<u>12/16/83</u>
	In E. J. Ford	Date Signed
	<u>P. R. Anderson</u>	<u>12/16/83</u>
	In S. D. Butler	Date Signed
Approved by:	<u>C. A. Julian</u>	<u>12/19/83</u>
	In C. A. Julian, Section Chief	Date Signed
	Project Branch No. 1	
	Division of Project and Resident Programs	

SUMMARY

Inspection on October 6 thru November 5, 1983

Areas Inspected

This routine inspection involved 115 inspector-hours on site in the areas of Operational Safety Verification, Surveillance and Maintenance, ESF system walkdown, Unit 2 restart, LER review and Independent inspection effort.

Results

Of the seven areas inspected, three violations were found in two areas (Failure to have operable acoustic monitors during a mode change, paragraph 5; failure to meet snubber LCO, paragraph 7.a; failure to properly calibrate OT&T channels, paragraph 7.b).

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

C. C. Mason, Plant Superintendent
L. M. Nobles, Assistant Plant Superintendent
J. B. Krell, Assistant Plant Superintendent
D. H. Tullis, Maintenance Supervisor (M)
B. M. Patterson, Maintenance Supervisor (I)
D. C. Craven, Maintenance Supervisor (E)
J. M. Anthony, Operations Supervisor
R. W. Fortenberry, Engineering Supervisor
D. E. Crawley, Acting Health Physics Supervisor
J. T. Crittenden, Public and Safety Service Supervisor
J. E. Law, Quality Assurance Supervisor
M. R. Harding, Compliance Supervisor
W. M. Halley, Preoperational Test Supervisor
J. Robinson, Field Services Group Director

Other licensee employees contacted included field services craftsmen, technicians, operators, shift engineers, security force members, engineering, maintenance personnel and corporate office personnel.

2. Exit Interview

The inspection scope and findings were summarized with the Plant Superintendent and/or members of his staff on October 26, 1983.

During the reporting period, frequent discussions are held with the Plant Superintendent and his assistants concerning inspection findings.

3. Licensee Action on Previous Inspection Findings (92702)

- a. (Closed) Violation, 327/82-28-01: The inspector reviewed the licensee's response to the notice of violation dated January 4, 1983, and verified that the stated corrective action has been taken. The action appears to be effective. The inspector continues to monitor configuration control of safety related systems. This item is closed.
- b. (Closed) Violation, 327/82-28-02: The inspector reviewed the licensee's response to the notice of violation dated January 4, 1983, and verified that the stated corrective action has been taken. The inspector observes instrument calibration on a monthly basis, and has not seen any subsequent violations of this nature. This item is closed.
- c. (Closed) Violation, 327, 328/83-05-01: The inspector reviewed the licensee's response to the notice of violation dated May 11, 1983, and

verified that the stated corrective action had been taken. The release of waste water from the plant is monitored on a periodic basis and no further problems have been noted to date. These items are closed.

- d. (Closed) Violation, 327, 328/83-05-02: The inspector reviewed the licensee's response to the notice of violation dated May 11, 1983 and verified that the stated corrective action had been taken. The licensee's reporting in accordance with 10 CFR 50.72 is continuously evaluated and no subsequent problems have been noted to date. These items are closed.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Operational Safety Verification (71707)

The inspector toured various areas of the plant on a routine basis throughout the reporting period. The following activities were reviewed/verified:

- a. Adherence to limiting conditions for operation which were directly observable from the control room panels.
- b. Control board instrumentation and recorder traces.
- c. Control room and shift manning.
- d. The use of approved operating procedures.
- e. Unit operator and shift engineer logs.
- f. General shift operating practices.
- g. Housekeeping practices.
- h. Posting and hold tags, caution tags and temporary alteration tags.
- i. Personnel, package, and vehicle access control for the plant protected area.
- j. General shift security practices, on post manning, vital area access control and security force response to alarms.
- k. Surveillance, start-up and preoperational testing in progress.
- l. Maintenance activities in progress.
- m. Health Physics Practices.

On October 13, 1983, during a routine tour of the main control room, the inspector noted that the acoustic monitor panel was removed from the control room. Discussions with operations and instrument maintenance personnel indicated that the panel was removed on October 12 and taken to the instrument shop to facilitate repairs. Unit 1 was in mode 1 during the period of October 12 and 13 while Unit 2 was taken critical late on October 12 changing from mode 3 to mode 2.

The acoustic monitors were installed on Units 1 and 2 to provide reliable indication of flow in the tailpipes of the pressurizer power operated relief valves (PORV) and Safety Valves (SV). This additional indication was required by Unit 1 low power license condition (dated 2/29/80) 2.c.(4) m. and Unit 1 and Unit 2 Technical Specification (TS) 3.3.3.7, Tables 3.3-10 items 12, 13 and 14. The license condition and TS requirements were imposed to satisfy NUREG 0578 "TMI-2 Lessons Learned Task Force...Short Term Recommendations", 2.1.3a and NUREG 0737 "Clarification of TMI Action Plan Requirements, II.D.3. This matter is discussed in section II.D.5 of Safety Evaluation Report, Supplement No. 1 for Sequoyah Nuclear Plant. The intent of TS 3.3.3.7, Table 3.3-10, items 12, 13, and 14 is that the acoustic monitors shall be one of the two channels used for adequate valve position indication. In that changing modes on Unit 2 without meeting the conditions for the Limiting Condition for Operation without relying on provisions contained in the Action requirements is identified as a violation of TS 3.0.4 (328/83-26-01). The licensee returned the acoustic monitors to service on October 13.

6. Unit 2 Restart Criticality (71711)

On October 13, 1983, the inspector witnessed initial criticality of Unit 2 after the current refueling outage. The inspector verified that the unit was restarted in a controlled manner in accordance with approved and technically adequate procedures. Prior to the unit attaining criticality, the inspector reviewed RTI-1, "Restart Sequence" and RTI-3, "Initial Criticality" to ensure that prerequisite testing had been completed and reviewed, proper authorization for criticality had been obtained, and that precautions and prerequisites were met. No discrepancies were noted. The inspector observed the briefing of reactor operators by nuclear engineering personnel and discussed testing methods with engineering and operations personnel. Plant parameters and equipment status were reviewed and selected completed surveillance instructions were reviewed to ensure applicable TS requirements were being met. Once criticality was obtained, the inspector verified that observable core parameters met applicable acceptance criteria. The reactor was declared officially critical at 11:50 p.m. with 1450 ppm boron and D bank at 188.5 step.

No violations or deviations were noted.

7. Surveillance and Maintenance

a. Safety-Related Snubbers (62703)

On the evening of October 7, 1983, the inspector received a call from the licensee who reported that a review of a surveillance instruction (SI-162) showed that it did not correspond to the TS required number of

snubbers. The licensee said that a field engineering review of a Field Services Group workplan identified a potential discrepancy between SI-162 and the TS LCO Table (Table 4.7.9a of LCO 3.7.9). Further discussions centered on the course of the discrepancy. The inspector noted that an unreviewed safety question determination (USQD) evaluation had been performed. The inspector participated with members of NRR and regional management in a telecon on October 14 to evaluate what, if any, safety significance was involved in that the units had ascended into the applicable modes for the LCO. It was noted that the seismic analysis, engineering evaluations and USQD had been performed and that the problem with the TS was administrative in nature. Nevertheless, a determination was made that proper management controls had not been exercised in that the licensee had failed to recognize that the changes to the system required a TS change. As a result the licensee had not met the LCO conditions for changing modes. This failure to meet the LCO is identified as a violation (327, 328/83-26-02).

b. Overtemperature Delta-T Setpoint (61726)

The Reactor Protection System (RPS) monitors various plant parameters for deviation from allowable values and trips the control rods into the core when these values are exceeded. Overtemperature ΔT (OTAT) is one of two core thermal overpower trips whose setpoint are continuously calculated by analog circuitry for each loop. The OTAT trip input to the RPS is designed to protect against a departure from nucleate boiling which causes a decrease in the heat transfer coefficient between the fuel rods and the reactor coolant. This trip will provide protection if the transient encountered is slow and reactor coolant pressure is within the bounds set by the high and low pressure trips. It does so by continuously calculating an OTAT setpoint value which is a function of temperature, pressure and core axial flux difference. The measured axial flux difference provides input to an error signal generating circuitry, the output of which becomes a variable penalty to the OTAT setpoint. A flux difference increase represents an increase in hot channel factors.

During Unit 2 cycle 2 restart testing and recalibration it was discovered by licensee engineers and technicians that voltage values used in the calibration of the error signal generator were incorrect. Investigation by the licensee revealed that a computer program utilized to calculate these voltage values relied on TS mandated data which has been incorrectly entered due to a personnel error. A supervisory review of the data had failed to detect the incorrect data. A review of Unit 1 calibration data revealed that all four OTAT channel setpoints were less conservative than allowed by the TS. This condition had existed since the Unit 1 cycle 2 restart testing and recalibration in January 1983. The licensee entered TS limiting condition for operation (LCO) 3.0.3 upon discovery and immediately began calibration of the affected channels. Other corrective actions consisted of modifying the OTAT data calculation program to be more error-resistant and a review of constants in the other important programs. Discussions with NRR Core Performance Branch technical

personnel, a regional core physics inspector and regional management concluded that had the core flux actually caused the unit to operate in the non-conservative area of the error signal generating circuitry, the effect would be a slight increase in a low probability event.

This failure to properly calibrate the OTAT channels constitutes a violation of TS requirements (327/83-26-01).

8. ESF System Operability Verification

During the reporting period the inspector performed a detailed operability review of the Unit 1 Emergency Core Cooling System (ECCS). The review included accessible system walkdown, surveillance test results review, valve alignment verification and power availability checks for various components. Both trains of equipment were checked. Some minor discrepancies were noted and resolved. No significant discrepancies were noted.

No violations or deviations were identified.

9. Licensee Event Report (LER) Review (92700)

During the reporting period, LER's were reviewed on a routine basis as they were received from the licensee. Each LER was reviewed to determine that:

- a. The report accurately described the event.
- b. The reported cause was accurate and the LER form reflected the proper cause code.
- c. The report satisfied the TS reporting requirement with respect to information provided and timing of submittal.
- d. Corrective action appeared appropriate to correct the cause of the event.
- e. Corrective action has been or is being taken.
- f. Generic implications, if identified, were incorporated in corrective action.
- g. Corrective action taken or to be taken was adequate, particularly to prevent recurrence.
- h. The event did not involve continued operation in violation of regulatory requirements or license conditions.

The following LER's were reviewed in depth and are closed: SQRO-50-327/83142 (safety-related snubber administrative problem), SQRO-50-327/83135 (four channels of OTAT reactor trip setpoints less conservative than allowable), SQRO-50-327/83122 and 83122 Rev. 1 (inoperability of one DG).

10. Independent Inspection Effort (92706)

The inspector routinely attended the morning staff meetings during the reporting period. These meetings provide a daily status report on operational and maintenance activities in progress as well as discussion of significant problems or incidents associated with the plant.