



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303

Report No. 50-327/80-47

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

Facility Name: Sequoyah Nuclear Plant, Unit 1

License No. DPR-77

Inspector: H. C. Dance / S. D. Butler 1-28-81  
Date Signed

Approved by: H. C. Dance 1-28-81  
H. C. Dance, Section Chief, RONS Branch Date Signed

SUMMARY

Inspection on November 4-30, 1980

Areas Inspected

This routine, unannounced inspection involved 89 inspector-hours onsite in the areas of operational safety verification, power ascension test witnessing, licensee event report review, independent inspection effort and followup on plant incidents.

Results

Of the 5 areas inspected, no items of noncompliance or deviations were identified.

8108100 121

## DETAILS

### 1. Persons Contacted

#### Licensee Employees

J. M. Ballentine, Plant Superintendent  
C. E. Cantrell, Assistant Plant Superintendent  
W. F. Popp, Assistant Plant Superintendent  
W. T. Cottle, Acting Assistant Plant Superintendent  
J. W. Doty, Maintenance Supervisor (M)  
J. M. McGriff, Maintenance Supervisor (I)  
W. A. Watson, Maintenance Supervisor (E)  
D. J. Record, Operations Supervisor  
W. H. Kinsey, Results Supervisor  
R. J. Kitts, Health Physics Supervisor  
C. R. Brimer, Outage Director  
R. S. Kaplan, Supervisor, Public Safety Services  
W. M. Halley, Preoperational Test Supervisor  
D. O. McCloud, Quality Assurance Supervisor

Other licensee employees contacted included 4 technicians, 8 operators, 6 shift engineers, 2 security force members, 8 engineers, 3 maintenance personnel, 2 contractor personnel, and 3 corporate office personnel.

#### Other Organizations

Three Region II inspectors

### 2. Exit Interviews

The inspection scope and findings were summarized with the Plant Superintendent and members of his staff on November 7, 1980 and November 25, 1980.

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

### 5. Operational Safety Verification

The inspector toured various areas of Unit 1 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. Proper 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. Fire protection measures for hot work.
- i. Posting of hold tags, caution tags and temporary alteration tags.
- j. Measures to exclude foreign materials from entry into clean systems.
- k. Personnel, package, and vehicle access control for the Unit 1 protected area.
- l. General shift security practices on post manning, vital area access control and security force response to alarms.
- m. Surveillance testing and startup testing in progress.
- n. Maintenance activities in progress.

On November 17, 1980 during a routine tour of the control room, the inspector noted that vital inverter 2-III had been out of service during Unit 1 mode changes on November 16 and 17. The inspector questioned licensee personnel since this appeared to be contrary to their technical specifications. The licensee contended that technical specification 3.8.2.1 required in addition to other vital switchboards that the 120 VAC vital switchboard 2-III be operable and that in accordance with technical specification 3.0.5 the switchboard did not have to be declared inoperable solely because the normal power supply (the 2-III vital inverter) was inoperable. The 2-III vital switchboard was being powered from its maintenance power supply. The inspector discussed this interpretation of technical specification 3.0.5 with Region II personnel and a representative of the Office of Nuclear Reactor Regulation and determined that technical specification 3.0.5 was not intended to be used in cases such as this because the 120 VAC vital boards cannot perform their intended function unless they are powered from an operable inverter. They are designed to provide continuous power in all cases including a loss of all AC power. This determination was discussed with plant management and they agreed that vital inverter loss would constitute inoperability of the associated vital switchboard and require compliance with the related action statement in their technical specifications. The licensee will report

this occurrence in a licensee event report to the Nuclear Regulatory Commission.

On two occasions during the reporting period the licensee has experienced small releases of gaseous and/or particulate activity in the auxiliary building in the vicinity of the volume control tank. In either instance there was no significant personnel contamination or exposure and levels were below minimum permissible concentrations. The activity is short lived and the licensee has been unable to identify the intermittent leak. In each instance, the inspector reviewed the licensee's actions to protect personnel and considers them adequate. Region II management has been kept informed of these problems as they develop.

No items of noncompliance or deviations were identified.

#### 6. Power Ascension Test Witnessing

During the reporting period the inspector witnessed the performance of the following tests:

- a. S/U 1.1 Loss of Offsite Power
- b. S/U 1.2A Shutdown from Outside the Control Room
- c. S/U 1.2B Cooldown from Outside the Control Room
- d. S/U 8.3 Static Rod Drop and RCCA Below Bank Position Measurement

In each instance the inspector verified proper shift manning and crew performance, proper use of approved procedures and related test equipment, initial condition and prerequisites met, data properly collected for analysis and overall test acceptance criteria have been met.

In addition S/U 8.1, Power Coefficients and Integral Power Defect Measurements, was reviewed by the inspector after it was completed at 30% power.

No items of noncompliance or deviations were identified.

#### 7. Licensee Event Report (LER) Review

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 technical specification 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

While leak testing Emergency Core Cooling System check valves in accordance with technical specification 3.4.6.2, the licensee identified a valve that would not meet the leakage criteria. Further investigation by the licensee revealed the valves to be stuck in the open position. Repairs/modifications were made to the valve to correct the abnormal condition and prevent recurrence. Two other valves of the same design were inspected and found to have a similar design problem which would allow the valves to stick in the open position. In each case the check valves satisfied their leakage criteria after repairs or modifications. A complete inspection of the remaining valves of this type was not considered necessary by the licensee since the leak testing requirements of technical specification 3.4.6.2 was considered adequate to prevent operation with a valve stuck in the open position without detection. The licensee has been in contact with the valve vendor for additional assistance with this problem.

The Nuclear Regulatory Commission (NRC) was notified of this occurrence in LER SQRO-50-327/80-150. The inspector reviewed the details of the LER and found them satisfactory. In addition contact was made with a member of the Office of Nuclear Reactor Regulation (NRR) and the inspector has supplied him with details concerning the event to assist an ongoing NRC review of generic valve failures. The inspector will continue to assist NRR in the performance of this review.

On November 14, 1980 the licensee determined that certain non-reinforced block walls in the auxiliary building would possibly fail in a seismic event rendering safety related equipment in the vicinity inoperable. The walls were identified in conjunction with a review required by the Office of Nuclear Reactor Regulation and Inspection and Enforcement Bulletin 80-11. When safety related equipment was determined to be affected, the licensee took prompt action to place the unit in a mode where the equipment was not required in accordance with their technical specifications. The inspector reviewed the licensee's field change request to add steel supports to the block walls to prevent seismic failure and possible safety equipment damage. Completed work was inspected to ensure the field changes had been properly completed. This problem was reported to the Nuclear Regulatory Commission in LER SQRO-50-327/80-180.

No items of noncompliance or deviations were identified.

#### 8. Independent Inspection Effort

The inspector routinely attended the morning scheduling and staff meetings during the reporting period. These meetings provide a daily status report on the operational and testing activities in progress as well as a discussion of significant problems or incidents associated with the start-up testing and operations effort.

No items of noncompliance or deviations were identified.

#### 9. Followup on Plant Incidents

During the reporting period the licensee has experienced numerous reactor trips due to equipment malfunctions. In each instance the inspector reviewed the circumstances concerning each occurrence to determine proper reporting to the Nuclear Regulatory Commission, proper use of procedure subsequent to the trips for plant recovery, proper operation of all equipment and systems involved and proper plant and operator response. In addition the cause of equipment malfunction was determined and the inspector followed the licensee's corrective action to ensure it was adequate to prevent recurrence of the malfunction.

On November 5, 1980, subsequent to a reactor trip, the licensee determined that valve 1-PCV-3-132 failed to open automatically rendering the 1B-B motor driven auxiliary feedwater pump inoperable. 1B-B AFW pump supplies steam generators 3 and 4. The operator was able to supply steam generators 3 and 4 with the turbine driven auxiliary feedwater pump and level was maintained until 1-PCV-3-132 could be opened manually. The problem was discussed with the operator on duty and it was determined that the problem had previously occurred during surveillance testing on October 30, 1980. Investigation of the problem on October 30, revealed no identifiable problem and the failure could not be caused to repeat. The valve was declared operable after it was satisfactorily retested. Licensee action following the second failure of the valve included flushing and inspecting the hydraulic system and troubleshooting the control system. Due to lack of clear indication of the reason for valve failure and development of other problems during troubleshooting, the licensee decided to install the identical valve operator from a Unit 2 AFW valve. After testing, the valve was declared operable. The licensee's Independent Safety Engineering group is reviewing the performance and maintenance history of hydraulic valves of this type to determine if an alternative type valve operator is warranted to provide more reliable and maintenance free service.

On November 22, 1980 a bomb threat was received by two different members of the security force at Sequoyah. Both employees recognized the callers voice as being another licensee employee. The employee was questioned about the incident and subsequently suspended and refused unescorted access to the plant until completion of an investigation.

Areas of the plant in question were searched by the security force and no explosive devices were discovered. The Nuclear Regulatory Commission was properly notified as required by 10 CFR 50.72.

On November 23, 1980 approximately six minutes after the start of S/U 1.1 Loss of Offsite Power test the unit experienced a safety injection due to a high steamflow signal coincident with a low reactor coolant system average temperature. Several problems were detected with equipment performance during the ensuring recovery from the inadvertent safety injection. The more significant problems were the fact that the centrifugal charging pumps could not be stopped without using the lockout feature, and the main steam isolation valves reopened when a master reset switch was used from the auxiliary instrument room. The problems were discussed with the plant superintendent and the inspector requested that be able to review their resolution prior to restart of the unit. Subsequent investigation by the inspector determined that the safety injection was caused by a spike on the 1-II vital inverter. The centrifugal charging pumps could not be stopped because the blackout relays on the 6900 VAC shutdown boards which were picked up during the loss of offsite power test had not been reset yet and there was no procedural precaution to key the operator to this limitation. The main steam isolation valves reopened prematurely because an instrument mechanic actuated a master reset switch in an attempt to aid in stopping the centrifugal charging pumps. Each of these problems were discussed with the licensee and Region II management and the following actions were required prior to restarting Unit 1:

- a. complete testing of vital inverters and establish corrective measures to prevent spiking
- b. incorporate procedural precautions to key operators that equipment started by a blackout signal cannot be stopped without resetting blackout relay unless pull-to-lock feature is used.
- c. administratively control use of master reset function to limit its use for testing and surveillance which is its intended function.

These actions were completed and verified by the inspector subsequent to their completion.

No items of noncompliance or deviations were identified.