



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

Report Nos. 50-259/80-20, 50-260/80-15 and 50-296/80-16

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

Facility: Browns Ferry Nuclear Plant

Docket Nos. 50-259, 50-260, and 50-296

License Nos. DPR-33, DPR-52 and DPR-68

Inspection at Browns Ferry Site near Athens, Alabama

Inspectors:	<u>HC Dance / for</u>	<u>5/20/80</u>
	R. F. Sullivan	Date Signed
	<u>HC Dance / for</u>	<u>5/20/80</u>
	J. W. Chase	Date Signed
Approved by:	<u>HC Dance</u>	<u>5/20/80</u>
	H. C. Dance, Section Chief, RONS Branch	Date Signed

SUMMARY

Inspection on April 5 through May 2, 1980

Areas Inspected

This routine inspection involved 100 resident inspector-hours in the areas of operational safety, reportable occurrences, IE Bulletin followup, plant physical protection, surveillance instructions, Plant Operations Review Committee, and containment purging during operation.

Results

Of the 7 areas inspected, no items of noncompliance were identified in 5 areas. One item of apparent noncompliance was found in each of two areas, (Infraction - failure to follow procedure while performing surveillance, Paragraph 9); (Infraction - failure to make a prompt report to NRC, Paragraph 12).

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## DETAILS

### 1. Persons Contacted

H. L. Abercrombie, Plant Superintendent  
J. L. Harness, Assistant Plant Superintendent  
J. B. Studdard, Operations Supervisor  
R. Hunkapillar, Assistant Operations Supervisor  
J. A. Teague, Maintenance Supervisor, Electrical  
M. A. Haney, Maintenance Supervisor, Mechanical  
J. R. Pittman, Maintenance Supervisor, Instruments  
R. G. Metke, Results Section Supervisor  
R. T. Smith, QA Supervisor  
A. L. Burnett, Shift Engineer  
S. G. Bugg, Plant Health Physicist  
R. E. Jackson, Chief, Public Safety  
R. Cole, QA Site Representative Office of Power

Other licensee employees contacted included licensed senior reactor operators and reactor operators, auxiliary operators, craftsmen, technicians, public safety officers, QA personnel and engineering personnel.

### 2. Management Interviews

Management interviews were conducted on March 28, April 11 and 25, 1980 with the Plant Superintendent and selected members of his staff. The inspectors summarized the scope and findings of their inspection activities. The licensee was informed that two apparent items of noncompliance were identified during this report period. The licensee questioned the significance for the item on reporting.

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

No unresolved items were identified during this inspection.

### 5. Operational Safety

The inspectors kept informed on a daily basis of the overall plant status and any significant safety matters related to plant operations. Daily discussions were held each morning with plant management and various members of the plant operating staff.

The inspectors made frequent visits to the control rooms such that each was visited at least daily when an inspector was on site. Observations included instrument readings, setpoints and recordings; status of operating systems; status and alignments of emergency standby systems; purpose of temporary

tags on equipment controls and switches; annunciator alarms; adherence to procedures; adherence to limiting Conditions for Operations; temporary alterations in effect; daily journals and data sheet entries; and control room manning. This inspection activity also included numerous informal discussions with operators and their supervisors.

General plant tours were conducted on at least a weekly basis. Portions of the turbine building, each reactor building and outside areas were visited. Observations included valve positions and system alignment; snubber and hanger conditions; instrument readings; housekeeping; radiation area controls; tag controls on equipment; work activities in progress; vital area controls; personnel badging, search and escort; and vehicle search and escort. Informal discussions were held with selected plant personnel in their functional areas during these tours.

During the tour of Unit 3 Reactor Building, it was discovered by the inspectors that there were two hydraulic snubbers installed on the residual heat removal service water system which were not listed in the Technical Specifications for Unit 3. The licensee is preparing a Technical Specification change to incorporate these two snubbers.

No items of noncompliance or deviations were identified within the areas inspected.

#### 6. Reportable Occurrence Review

The below listed licensee event reports (LER's) were reviewed to determine if the information provided met NRC reporting requirements. The determination included adequacy of event description and corrective action taken or planned, existence of potential generic problems and the relative safety significance of each event. Additional inplant reviews and discussion with plant personnel as appropriate were conducted for those reports indicated by an asterisk.

LER No.	Date	Event
*259/8011	2/29/80	Electronic Overspeed protection damaged damaged on RCIC turbine.
*259/8012	2/14/80	Purging of primary containment.
*259/8014	2/25/80	Scram accumulator level switch damaged.
*259/8015	2/29/80	Unused lines entering primary containment
*259/8020	3/28/80	Loss of one source of offsite power.
*259/8021	3/28/80	Wind instrument inoperative.
*259/8022	3/12/80	Total leak rate from containment exceeded 655 SCFH.

LER No.	Date	Event
*260/8011	3/17/80	480 Rx MOV board failed to transfer.
*260/8013	3/28/80	Loss of one source of off site power
*260/8002	2/18/80	Flow control valve 2-FCV-68-79 would not operate.
260/8004	2/20/80	Reactor water level switch LIS-3-2030 exceeded technical specifications.
260/8005	2/22/80	Pressure switch LIS-3-58A did not operate at proper setpoint.
296/7808/ Rev. 1	4/8/80	Relief valve 1-31 failed to reseal.
296/7917/ Rev. 1	10/17/79	Containment leak rate exceeded limit.
*296/8002	2/8/80	RHR valve FCV 74-73 tripped in mid position.
*296/8005	3/5/80	FCV 7473 was found inoperative during surveillance instruction.
*296/8006	3/13/80	EECW would not delete rated flow.

The inspectors noted during their review of LER's that the coding on LER's 259/8014 and 260/8011 needed to be clarified. The licensee submitted a revised LER on both items to the Plant Operations Review Committee (PORC), on April 22, 1980 for approval. PORC approved both revised LER's.

The inspectors' review indicated that LER 259/8012 on the electronic over-speed protection being damaged on the Reactor Core Isolation Cooling turbine had possible generic implications. This information was forwarded to the Regional office for review.

The inspectors had no further questions in this area.

#### 7. IE Bulletin Followup

- a. A followup review of the licensee response to IE Bulletin 80-03, Loss of Charcoal From Standard Type II, 2 Inch, Tray Absorber Cells, was made. The review included examination of procedures and records. The inspectors had no further questions on the licensee's response to the Bulletin. IEB 80-03 is closed.
- b. A followup review of IE Bulletin 80-02, Inadequate Quality Assurance For Nuclear Supplied Equipment, was also performed. The review

consisted of examining records, procedures and discussions with outage personnel. The inspector had no further questions on the licensee's response to the bulletin. IEB 80-02 is closed.

- c. A followup review of IE Bulletin 79-24, Frozen Lines, was performed. This review consisted of examining procedures, areas where lines are subsequent to being frozen and discussions with auxiliary unit operators. The inspectors had no further questions on the licensee's response to the Bulletin. IEB 79-24 is closed.
- d. A followup review of IE Bulletin 79-25, Failures of Westinghouse BFD Relays in Safety-Related Systems, was performed. This review consisted of examining Power stores records and discussions with power stores personnel. The inspector had no further questions on the licensee's response to the Bulletin. IEB 79-25 is closed.
- e. IE Bulletin 79-26, Boron Loss From BWR Control Blades, was reviewed in the Region II office. The response provided by TVA has been found acceptable and no further action beyond that identified in the response is required. IEB 79-26 is closed.
- f. The inspectors reviewed the licensee's results on IE Bulletin 79-23, Potential Failure of Emergency Diesel Generator Field Excitor Transformer, and found them to be adequate. The review includes an examination of the test results and a discussion with the Electrical Maintenance Supervisor. IEB 79-23 is closed.

#### 8. Plant Physical Protection

During the course of routine inspection activities, the inspectors made observations of certain plant physical protection activities. These included personnel badging, personnel search and escort, vehicle search and escort, communications and vital area access control.

No items of noncompliance or deviations were identified within the areas inspected.

#### 9. Performance of Surveillance Instructions

On April 22, 1980, instrument mechanics were performing Surveillance Instruction 4.1.A-7, Reactor Protection System Reactor Water Level, when a false high water level signal was received causing Unit 2 to scram on turbine stop valve closure. The instrument mechanics (IM's) were returning a reactor level indicating switch to service when the scram occurred. Three errors were made on the return to normal line up which, by themselves, would not have scrambled the reactor, but collectively did as follows:

- a. Step 4.32 requires the left and right side differential pressure (DP) calibration valves to be shut. The IM's shut the right side DP calibration valve but because of the orientation of the left side valve, opened it fully instead of shutting it.



- b. Step 4.32 also requires the DP calibrator to be removed from the sensor. Because the possibility existed to recalibrate the sensor the DP calibrator was left installed.
- c. Step 4.34 requires the sensor left side manifold valve to be opened. When the IM did this, he inadvertently started draining the variable leg down into the DP calibrator via the left side calibration valve. This resulted in a half scram being received on reactor low water level. When the operator told the IM's that he had a half scram, the IM's shut the left side manifold valve, and the half scram was cleared. The IM's then postulated that the procedure was in error and the right side manifold valve was the valve that should have been opened. The IM's then opened the right side manifold isolation valve, and started draining the reference leg down via the left side DP calibration isolation valves into the DP calibrator. Because the reactor high water level sensor also comes off this same reference leg, the high water level sensor saw increasing water level and tripped the main turbines on high water level which scrambled the reactor on turbine stop valve closure.

The inspectors identified this as an apparent item of noncompliance (260/80-15-01) on failure to adhere to plant operation review committee (PORC) approved procedures and on April 25, 1980, notified the Plant Superintendent and Assistant Plant Superintendent of this finding.

10. Plant Operation Review Committee (PORC) Meetings

The inspector observed two PORC meetings held on April 18 and 22, 1980, to ascertain whether provisions of Technical Specification 6.2.B, dealing with membership, review process and quorum, were met.

No items of noncompliance or deviations were identified.

11. Containment Purging During Normal Plant Operation

The inspectors reviewed licensee action taken in response to the NRR letter of November 29, 1978, to TVA, concerning containment purging during normal plant operation. The review by the inspectors was directed primarily at the safety actuation signal circuitry design.

TVA responded by letter of March 1, 1980, to NRR the results of their design review of the actuation circuitry which the licensee had been requested to conduct. The inspectors verified through examination of internal correspondence and discussions with site personnel who participated in the design review that all concerns expressed by NRR were adequately addressed and that administrative controls on manual bypass switches were strengthened through procedure revision.

Although not directly related to the circuitry aspects, the TVA reanalysis of the containment purge and venting system by the Division of Engineering and Design revealed a potential problem during certain postulated accident

conditions. The analysis indicated a possible loss of secondary containment should primary containment purging be conducted concurrent with a loss of coolant accident during hot standby or power operations. This was reported formally to NRC on February 1, 1980 and further details by LER 259/8011 dated February 14, 1980. Until this matter is resolved, TVA has implemented the requirement that purge operation will not be permitted when the primary coolant is greater than 212°F. This requirement was implemented February 1, 1980.

The inspectors had no further questions in the areas reviewed.

## 12. Emergency Diesel Generator Actuation

On April 28, 1980, plant management informed the inspectors that due to an uneven distribution of electrical loads for units 1 and 2 when both units were in shutdown on April 23, that "B" Diesel Generator (D.G.) was automatically actuated by low voltage on "B" 4kv shutdown board.

Further review by the inspectors as determined by logbooks reviews and discussions with various plant personnel provided the basis for the following sequential summary.

On April 23, Unit 1 was in hot shutdown and Unit 2 was in cold shutdown with the Residual Heat Removal (RHR) system in the shutdown cooling mode. At 1:00 p.m. when an RHR service water pump was started "B" shutdown board sensed a degraded voltage condition, unloaded the board and actuated the "B" DG with the system performing as designed. The DG was on the line for 15 minutes while operations investigated the cause and checked out the system. Some load redistribution was made and the shutdown board was returned to its normal feed. No shutdown cooling problem or other significant problems resulted.

Plant personnel did not make a one-hour prompt report to NRC on April 23 since they concluded that the event was not a significant event as they interpreted the reporting requirements of 10 CFR 50.72. The inspectors identified the failure to make a prompt report as an apparent item of noncompliance (259/80-20-20, 260/15-80-02) as required by 10 CFR 50.72(a)(7). Plant management was informed on April 29, 1980, of the inspectors' findings. Their reaction was that the event in question was not of the significance intended by the requirements in 10 CFR 50.72 and that more definitive guidance on interpretation was needed. The inspectors stated that this comment would be forwarded to the IE Region II office.