



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

Report Nos. 50-259/80-28, 50-260/80-21 and 50-296/80-22

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

Inspector: P. A. Taylor for
R. F. Sullivan

8-15-80
Date Signed

P. A. Taylor for
J. W. Chase

8-15-80
Date Signed

Approved by: C. Julian for
H. C. Dance, Section Chief, RONS

8/15/80
Date Signed

SUMMARY

Inspection on June 1 to 30, 1980

Areas Inspected

This routine inspection involved 111 resident inspector-hours in the areas of operational safety maintenance, noncompliance followup, reportable occurrences, reactor trip followup, plant physical protection and radiation safety.

Results

Of the 7 areas inspected, no items of noncompliance were identified in 6 areas. One item of noncompliance was found in one area (Infraction-failure to test a portion of the Reactor Protection System after maintenance, paragraph 6).

8012190 512

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
- R. Edmondson, Electrical Engineer
- M. A. Haney, Maintenance Supervisor, Mechanical
- J. R. Pittman, Maintenance Supervisor, Instruments
- R. G. Metke, Results Section Supervisor
- R. T. Smith, QA Supervisor
- J. E. Swindell, Outage Director
- E. Nave, Shift Technical Adviser
- L. L. Kennedy, Shift Engineer
- J. D. Glover, 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 June 6 and 20, 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 one apparent item of noncompliance was identified during this report period dealing with failure to test the reactor protection system after maintenance was performed on a sensor. The licensee acknowledged the finding.

3. Licensee Action on Previous Inspection Findings

(Closed) Infraction (259/79-34-01): Proper approval for temporary alterations. Corrective action including procedural changes and retraining completed.

(Closed) Infraction (296/79-36-01): Mode switch to be locked in refuel position during core alterations. Corrective action including control of key, procedure revision and retraining completed.

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 alignment 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; saubber and hanger conditions; instrument readings; housekeeping; radiation area controls; tag controls on equipment; work activities in progress; vital area controls; personnel badging personnel search and escort. Informal discussions were held with selected plant personnel in their functional areas during these tours.

6. Maintenance Observations

The inspectors reviewed the maintenance activities associated with the repair of Unit 1 control valve #2 pressure switch. The switch developed a severe oil leak on June 23, 1980 which necessitated the shutting down of the reactor to administer repairs. The repairs consisted of replacing the fast acting solenoid valve, insulating wires that were grounded, replacing the bracket holding the switch and replacing conduit. To accomplish these repairs, wires had to be lifted on the switch which feed the Reactor Protection System (RPS).

After the repairs, the control valve was cycled to insure there was no further leakage. The unit was then started up and power level was raised to slightly above 30%. Surveillance Instruction (SI) 4.1.A-12, Reactor Protection System Turbine Control Valve Fast Closure, Turbine Control Valve-Loss of Oil (Control Fluid) Pressure, Recirculation Pump Trip Initiate Logic was performed to test the repaired pressure switch.

While testing control valve #3, a half scram as required was initiated, but before it was cleaned, a spurious half scram was received on the other RPS channel resulting in a full reactor scram. The spurious 1/2 scram was

later determined to be from a wiring error made on control valve #2 pressure switch during the maintenance performed on June 23, 1980.

The failure to test control valve #2 prior to returning the control valve to service is contrary to the requirements of the Nuclear Operating Quality Assurance Manual, Part II Section 2.1.

This is an infraction. (259/80-28-01)

7. 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
259/2913, Rev. 2	11/3/79	Short anchor bolts in hangers
*259/8808, Rev. 1	3/14/80	HPCI pedestal cracked
*259/8010	2/27/80	HPCI instrument line hangers broken
*259/8011, Rev. 2	6/9/80	Potential loss of secondary containment during purging
*259/8015, Rev. 1	6/9/80	Two 1/2 inch lines entering containment had only single isolation valve.
*259/80-26	4/18/80	HPCI stop valve did not open completely
259/8038	5/19/80	Radiation monitor for iodine inoperable.
*259/8039	6/20/80	Hydrogen sensors not fully qualified
259/8040	6/4/80	Instrument line isolation valve inoperable
259/8041	6/5/80	Smoke detector inoperable
*259/8044	6/13/80	Potential feedwater control failure
*260/7921	10/25/79	HPCI restraint failed
*260/8012	3/19/80	HPCI inoperative prevented startup of reactor

LER No.	Date	Event
*260/8015	4/7/80	Rod Block Monitor bypassed for more than 24 hours in a 30 day period
*296/8012	6/6/80	Two reactor level switches inoperable
*296/8013	6/12/80	One reactor level switch inoperable
*296/8017	6/2/80	One zone of fire protection system not tested
296/8018	6/17/80	Reactor low pressure switch inoperable

The inspector's questions concerning the above reports were satisfactorily answered.

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. Reactor Trips

The inspectors reviewed activities associated with the below listed reactor scrams during this report period. The review included determination of cause, safety significance, performance of personnel and systems, and corrective action. The inspectors examined instrument recordings, computer printouts, operations journal entries, scram reports and had discussions with operations, maintenance and engineering support personnel as appropriate.

6/7/80 Unit 3 reactor trip due to a turbine trip. Following turbine shaft voltage measurements, personnel re-inserted the block in the ground detection relay and the relay apparently did not reset resulting in the turbine trip. The reactor protection system performed as designed with no main steam relief valves lifting, nor an isolation or actuation of an emergency cooling systems occurring.

6/17/80 Unit 1 reactor trip due to a turbine trip. A high water level in the moisture-separator was caused by failure of the level control valve which resulted in the turbine trip. The reactor protection system performed properly. Two relief valves lifted for a short period. There was no isolation or actuation of emergency cooling systems.

The inspectors did not identify any items of noncompliance or deviations within the areas inspected.

10. Failure of Control Rods To Fully Insert

Unit 3 was being shut down for repair of a feedwater line leak on June 28, 1980. As planned, power level had been reduced from full power to 50% by recirculation flow reduction and then to 35% by insertion of 10 control rods. At 0130 the reactor was manually tripped to complete the scheduled shutdown. Operators noted that a large number of control rods on the east side of the core failed to fully insert. Two additional manual reactor trips were conducted with further insertion of the withdrawn rods being observed during each applied manual reactor trip. At 0146 an automatic reactor trip was initiated by the scram discharge instrument volume high level switches when the bypass feature for this trip function was returned to normal. At this time all remaining withdrawn control rods were fully inserted.

The initial on-site review by the resident inspectors began at 0350 hours on June 28. These activities included verification that the unit was in a safe configuration and that the licensee was making a concerted effort to determine the cause and possible generic application to Units 1 and 2. An inspector observed valve positions at the hydraulic control units for the east side scram discharge volume and did not identify any discrepancies. Process computer printouts, alarm recordings, sequential event print out and operators log books were examined and informal discussions were held with operations personnel on duty and the Shift Technical Adviser who was present during the scheduled shutdown.

The cause for the failure of 76 rods not to fully insert was not readily apparent but early investigative efforts led to the assumption that the scram discharge volume was not empty at the time of the reactor manual trip which prevented full scram insertion of all control rods.

Details of the inspection findings from the initial response through the end of the report period are being included in IE Report 259/80-32, 260/80-25 and 296/80-26 which covers inspection activities of the NRC team which was assembled at the site to review this event.

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