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

Report Nos. 50-259/81-37, 50-260/81-37, and 50-296/81-37

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

Facility Name: 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: A K Hardin for — 1/18/82
R. F. Sullivan — Date Signed

A K Hardin for — 1/18/82
J. W. Chase — Date Signed

A K Hardin for — 1/18/82
G. L. Paulk — Date Signed

Approved by: A K Hardin for — 1/18/82
F. S. Cantrell, Section Chief, Division of Resident and Reactor Project Inspection — Date Signed

SUMMARY

Inspection on November 26 to December 25, 1981

Areas Inspected

This routine inspection involved 316 resident inspector-hours in the areas of operational safety, reportable occurrences, surveillance testing, maintenance observation, TMI action items and plant physical protection.

Results

Of the six areas inspected, no violation or deviations were identified in five areas. One violation was found in one area: (Failure to provide adequate procedure, paragraph 5).

DETAILS

1. Persons Contacted

   Licensee Employees

   G. T. Jones, Power Plant Superintendent
   J. R. Bynum, Assistant Power Plant Superintendent
   J. R. Pittman, Assistant Power Plant Superintendent
   R. T. Smith, Quality Assurance Supervisor
   R. G. Metke, Engineering Section Supervisor
   A. L. Clement, Chemical Unit Supervisor
   D. C. Mims, Engineering and Test Unit Supervisor
   A. L. Burnette, Operations Supervisor
   Ray Hunkapillar, Operations Section Supervisor
   T. L. Chinn, Plant Compliance Supervisor
   M. W. Haney, Mechanical Maintenance Section Supervisor
   J. A. Tongue, Electrical Maintenance Section Supervisor
   R. E. Burns, Instrument Maintenance Section Supervisor
   J. E. Swindell, Field Services Supervisor
   A. W. Sorrell, Supervisor, Radiation Control Unit BFN
   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, QC and engineering personnel.

2. Management Interview

   Management interviews were conducted on December 4, 11 and 18 with the power plant superintendent and/or his assistant and other members of his staff. The inspector summarized the scope and findings of the inspection activities. The licensee was informed of one apparent violation identified during the report period.

3. Licensee Action on Previous Inspection Findings

   Not inspected.

4. Unresolved Items

   Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviation. New unresolved items are discussed in paragraph 5 or 7.

5. Operational Safety

   The inspectors kept informed on a daily basis of the overall plant status and any significant safety matter 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. Observation include 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 alignments; snubber and hanger conditions; instrument readings; housekeeping; radiation area controls, tag controls on equipment; work activities in progress; vital area controls; personnel badging, personnel, and vehicle search and escort. Informal discussions were held with selected plant personnel in their functional areas during these tours. In addition a complete walkdown, which included verifying valve, instrument, and switch alignment was performed on the Radwaste System during this report period.

During the walkdown of the Radwaste System, the inspectors utilized the plant operating instruction for this system (OI-77) and the system drawings to determine procedure adequacy and system lineup. The following problems were identified during this walkdown.

(1) The recirculation of the laundry drain tanks could not be performed utilizing the procedure because the procedure did not incorporate a modification to the system which allowed the recirculation water to be sent through filters on the discharge of the laundry drain tank pumps. The procedure allowed bypassing the filters through a line which had been removed for the modification.

(2) The inspector checked the valve position of approximately 50 valves and found five out of position with respect to the valve lineup in OI-77. None of the valves found out of position had the potential for an uncontrolled release to the environment.

(3) Two isolation valves, 77-1116 and 77-884, were found in the system but not on the system valve lineup sheet. These valves were out of position with respect to the system drawings.

On December 11, 1981 the inspectors identified to the Plant Superintendent that because of the above identified problems, OI-77 was not detailed in system operation in that it could not be performed as written, valves were omitted from the system lineup and it did not reflect actual valve positions that existed in the system; therefore, this was an apparent violation of Technical Specification 6.3.A.7. Technical Specification 6.3.A.7 requires

detailed written procedures to be prepared, approved and adhered to for radiation control. The term radiation control, as used in Reg. Guide 1.33, encompasses the liquid radwaste system. The Plant Superintendent accepted the apparent violation. (259/81-37-01, 260/81-37-01, 296/81-37-01)

During the inspection of the radwaste system the inspectors reviewed the final safety analysis report (FSAR) to ensure that any specifications addressed in the FSAR on the radwaste system was covered by plant procedures. The inspectors noted that the safety evaluation on the radwaste system takes into account the piping and tanks failing during a design bases earthquake (DBE); but, no calculation for offsite exposure was performed because all the liquid would be contained within the radwaste building which was inspected to withstand a DBE. (FSAR 9.2.6)

The present critical structure list at Browns Ferry does not include the radwaste building; but, it is included on the non-critical structure list. Based on the FSAR safety evaluation, the inspector determined that the RadWaste Building should be on the critical structure list. TVA has agreed to (1) review past modification to the radwaste building to determine if any affected the ability of the structure to withstand a DBE, (2) evaluate whether to place the radwaste building on its critical structure list at its next update and (3) will treat the building as a critical structure until this evaluation is made.

The Plant Superintendent was informed that this item will remain open until the review of past modification is complete and the evaluation on whether to place the building on the critical structure list is made. (259/81-37-02, 260/81-37-02 and 296/81-37-02)

During this report period the inspectors conducted an inspection of the containment atmosphere dilution (CAD) system. The inspection consisted of a review of system procedures for technical adequacy, conformance to technical specifications, verification of valve and switch lineups and a review of maintenance records.

This inspection of the CAD system was instigated by a review of the licensee reportable event determination of November 6, 1981 concerning the inoperability of FCV 1-84-19. (CAD system exhaust to standby gas treatment (SBGT) system.) This valve was declared inoperable on November 6, 1981 because of an electrical fault. The licensee determined that this was not reportable because Technical Specification 3.7.G.1 refers only to the "supply" part of the CAD system.

This system is used after a loss of coolant accident (LOCA) to purge and vent the drywell and torus to reduce H_2 and O_2 concentrations. The system is designed with two supply and two vent paths. CAD vent valve 1-84-20 is redundant to vent valve 1-84-19. The vent path are not directly referred to in the Technical Specification; however, CAD system operating instruction 84 requires 84-19 and 84-20 to be operable for system operation.

The Technical Specification for primary containment isolation valves, Table 3.7.A, does not include CAD system boundry valves entering and exiting the drywell. (84-20, 19, 8A, 8B, 8C and 8D). These valves are in Group 6 for primary containment isolation system (PCIS) and requires handswitch overrides to operate during a LOCA (reference Section 5 of FSAR, PCIS and P&ID's). In addition, the inspector learned that closure timing has never been performed on the above valves.

Table 3.7.D of the Technical Specification, which lists primary containment isolation valves leak testing method, includes the CAD system isolation valves previously mentioned in the report; however, they are not included in Technical Specification Table 3.7.A which designate valves needing closure time testing nor are they in the exceptions to general criteria for isolation valves listed in FSAR Section S.2.

The inspector identified to the Plant Superintendent that not having the CAD boundary valves in Table 3.7.A of the Technical Specification, not performing closure time testing on these valves and not having the vent valves included in the Technical Specification as part of the CAD system was an unresolved item pending further investigation by the inspector. (259/81-37-03, 260/81-37-03, 296/81-37-03)

The inspector reviewed the CAD system operating instruction (OI-84) and noted several procedural errors that made the procedure non-functional. OI-84 omitted required override switch operations and referred to incorrect switch locations. These errors made the procedure if precisely followed unusable. These errors were discussed with plant staff and management. This is the second example for an inadequate procedure. (259/81-37-01, 260/81-37-01, 296/81-37-01)

The inspector conducted an evaluation of the operability of the flood indicator level switches located in the corner rooms of the Unit 1, 2 and 3 reactor buildings. The level switches are set to sound an alarm in the control room when the water level in the respective rooms (core spray, RHR pump, HPCI, Pressure Suppression Chamber, RCIC) reaches 2" above the floor level. System description is referenced on DWG. No. 47W610-77. The inspector learned that the level switches operability was questionable in that the switches were not routinely checked for operability and have been scheduled for calibration since installation during original construction. The inspector notified plant management and staff of these concerns and plant staff agreed to add these flood level switches to routine calibration/operability schedules for all three units.

This will remain an open item (259/81-37-04, 260/81-37-04, 296/81-37-04).

The inspector toured Unit 1 reactor building on December 9, 1981 and noted the suction valves to residual heat removal (RHR) pumps 1A and 1C were tagged out under Hold Order 81-1400, Unit 1 was operating at full power and the RHR pumps were fully operable. The inspector informed the shift engineer of his observation and was informed that the hold order was cleared at the last outage completion in September 1981. The inspector discussed

with the plant staff and management the importance of clearing all hold order tags when the hold order is cleared during the management meeting on December 11, 1981.

6. Reportable Occurrence

The below listed licensee event reports (LERs) 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, existance 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 asterick.

LER No.	Date	Event
*259/81-09	3/17/81	Backup manual-scram capability could be bypassed with reactor mode switch
*259/81-25-25R	8/10/81	During bench testing of main steam relief valves, three failed to actuate within 1%
*259/81-61	11/6/81	IC diesel generator shutdown prior to normal time frame.
*259/81-63	11/23/81	Loss of indicating lights for 1-FCV-64-21
*259/81-64	11/24/81	Recirculation discharge valve closure and CS/RHR valve open permissive switch setpoints drifted outside technical specification limits
259/81-65	11/25/81	CAD tank level indicator inoperable
259/81-66	12/1/81	Recirculation pump A tripped because of personnel error
*259/81-67	12/4/81	CAM alarm setpoint not set at 3 x background per drywell
*259/81-75	12/1/81	Wind direction recorder inoperable

*260/81-56	11/17/81	2B H_2 - O_2 analyzer sample bearings seized
*260/81-59	11/2/81	Reactor low pressure switches for recirculation discharge valve actuation setpoint had drifted
260/81-60	12/1/81	2A SLC inoperable due to broken connection on accumulator
*260/81-61	12/4/81	CAM alarm setpoint not set at 3 x background for drywell
*296/81-04 R2	11/11/81	3A diesel generator tripped because output breaker shut too soon
*296/81-29 R1	11/23/81	Fire protection sprinklers system was left isolated after repair work
*296/81-57	11/4/81	Reactor water level switch had drifted outside Technical Specification limits
*296/81-58	11/5/81	3D diesel was made inoperable to repair annunciator circuit
*296/81-59	11/9/81	RCIC minimum flow valve failed to shut
*296/81-61	11/6/81	Air start valve for 3C diesel remained opened
296/81-64	11/25/81	H_2 analyzer removed from service to repair weld joint

In the above area, no violations or deviations were identified.

7. Surveillance Testing Observation

The inspectors observed the performance of the below listed surveillance procedures. The inspection consisted of a review of the procedure for technical adequacy, conformance to technical specifications, verification of test instrument calibration, observation on the conduct of the test, removal from service and return to service of the system and a review of test data.

(1) SI 4.5.F.1.c Reactor Core Isolation Cooling Motor Operated Valve Operability

(2) SI 4.5.F.1.b Reactor Core Isolation Cooling Pump Operability

The inspectors also reviewed SI 4.1.A.7, Calibration and Functional Test of reactor water level switches. Technical specification table 4.1.A note 5 for reactor water level requires that the water level be perturbated after the monthly functional test; however, the inspector could find no procedure which requires the evolution to be performed after the performance of SI 4.1.A.7.

The licensee was informed of the requirements of table 4.1.A and changed SI.4.1.A.7 to require perturbation after performing this surveillance instruction. The Plant Superintendent was informed on December 18, 1981 that this item would remain unresolved because the standard technical specifications and other boiling water reactor technical specification do not have this requirement; therefore, Browns Ferry should submit a technical specification change to delete the requirement. The Plant Superintendent agreed to submit a change to the technical specification (259/81-37-05, 260/81-37-05, 296/81-37-05).

In the above area, no violations or deviations were identified.

8. Maintenance Observation

During the report period, the inspectors observed the below listed maintenance activities for procedure adequacy, adherence to procedure, proper tagouts, adherence to technical specifications, radiological controls, and adherence to quality control hold points.

a. A change out of valve body on high pressure coolant injection (HPCI) valve 73-202A

b. Change out of diaphram on Robert Shaw control valve on HPCI

c. Torus modification currently being performed on Unit 3

d. Weather protection work in RHRSW pump rooms

e. Coupling alignment checks on 3EN LPCI MG set

In the above area no violations or deviations were identified.

9. TMI Action Items

The following TMI action items were reviewed by the inspectors during the report period;

a. I.A.1.3(1) Shift Manning. Browns Ferry has procedures in place and is currently tracking overtime of certain employees; however, a lack of

licensed operators prevents full implementation of this item. This item is considered closed, implementation will be tracked under TMI I.A.1.3. (2.B). (reference IE report 259, 260, 296/81-14)

b. II.B.3 Post Accident Sampling. Browns Ferry has commenced modifications to install the post accident sampling station. Current projections by TVA call for the installation to be fully operational on all three units by mid 1983. The inspectors will continue to track this item as work progresses.

10. 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 violations or deviations were identified within the areas inspected.