



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

Report Nos. 50-259/84-10, 50-260/84-10, and 50-296/84-10

Licensee: Tennessee Valley Authority
500 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 near Athens, Alabama

Inspector: Ross C. Butcher for 4/4/84
G. L. Paulk Date Signed

Approved by: F. S. Cantrell 4/4/84
F. S. Cantrell, Section Chief, Division of Date Signed
Project and Resident Programs

SUMMARY

Inspection on February 26 - March 25, 1984

Areas Inspected

This routine inspection involved 93 resident inspector-hours in the areas of operational safety, reportable occurrences, surveillance, security, and maintenance.

Results

Of the five areas inspected, there was one violation in the area of surveillance for an inadequate surveillance procedure related to airborne effluent sampling.

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DETAILS

1. Persons Contacted

Licensee Employees

G. T. Jones, Power Plant Superintendent
J. E. Swindell, Assistant Power Plant Superintendent
J. R. Pittman, Assistant Power Plant Superintendent
L. W. Jones, Quality Assurance Supervisor
W. C. Thomison, Engineering Section Supervisor
A. L. Clement, Radwaste Supervisor
D. C. Mims, Engineering and Test Unit Supervisor
J. R. Smith, Chemical Unit Supervisor
A. L. Burnette, Operations Supervisor
Ray Hunkapillar, Operations Section Supervisor
T. L. Chinn, Plant Compliance Supervisor
C. G. Wages, Mechanical Maintenance Section Supervisor
T. D. Cosby, Electrical Maintenance Section Supervisor
R. E. Burns, Instrument Maintenance Section Supervisor
J. H. Miller, 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 reactor operators and senior reactor operators, auxiliary operators, craftsmen, technicians, public safety officers, quality assurance, quality control, and engineering personnel.

2. Management Interviews

Management interviews were conducted on February 29 and March 23, 1984, with the Power Plant Superintendent and/or Assistant Power Plant Superintendents and other members of his staff. The licensee was informed of one violation identified during this report period. The licensee had no comment on the violation cited.

Media attention this month has been in the area of operator requalification exams and low level radioactive waste storage facilities. A presentation was given by the NRC on March 6, 1984 before the Advisory Committee for Reactor Safeguards related to the loss of shutdown cooling event alert on February 14, 1984.

3. Licensee Action on Previous Inspection Findings

This area was not inspected.

4. Unresolved Items

There were no new unresolved items during this period.

5. Operational Safety

The inspectors were 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, personnel search and escort; 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 valve alignment, instrument alignment, and switch positions was performed on the containment atmosphere monitoring system.

6. Surveillance Testing Observation

The inspectors observed and/or reviewed 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.

S.I. 4.8.B.2-3a (TI38)	Airborne Effluent Sampling
S.I. 4.2.J.2	Biaxial Seismic Switch Test
S.I. 4.2.J.1	Triaxial Time History Accelograph
S.I. 2	Operator Daily Logs

On March 7, 1984 the inspector observed Surveillance Instruction 4.8.B.2-3a, Airborne Effluents (Weekly Gamma Isotopic), being performed for monitors on the stack (0-RE-90-252) and Unit 2 turbine building roof exhaust fans (2-RE-90-251). Unit I was operating at 100% power and Unit 2 at 60% power. The procedure being used, although recently revised, was inadequate and resulted in several errors being made during the performance of the instruction. The gaseous samples are collected per Technical Instruction 38 (TI-38), Procedure 1053. Procedure 1053 of TI-38 was revised February 17, 1984 and S.I. 4.8.B.2-3a was revised February 8, 1984.

The following is a list of the problems or unclear instructions found in the procedure:

- a. Procedure 1053, Step II.C, requires that any Marinelli used on ventilation can samples should be identified uniquely and checked for background radiation prior to use. The breakers are not uniquely identified and are checked after five uses.
- b. Procedure 1053, Step III.E, addressed the connection of sampling equipment according to a referenced figure but only one out of six figures displayed the pressure gauges needed to obtain data in the sample. During the collection of the samples, the equipment was not connected as specified.
- c. Procedure 1053 Step F. requires that all sample valves be opened but these valves were not identified by valve numbers or the quantity of sample valves to open.
- d. Procedure 1053, Step III.N, contains a formula for correcting the Marinelli beaker volume for pressure/vacuum effects. This formula, if used as implied, gives an incorrect answer. An incorrect calculation was made twice while being observed. The formula is as follows:

$$V2 = \frac{(14.696 + \Delta P) \times V1}{14.696}$$

Where ΔP = Gauge reading (positive number for excess pressure negative number for vacuum)

The gauges used read out in inches of vacuum (30 inches equals 0 psia). However, the ΔP was added to 14.696 in units of psi. A conversion factor must first be made for the gauge reading to units of psi to use in the formula. An erroneous 'V2' of 1783 was used for 0-RE-90-232 and 4287 for 2-RE-90-251.

- e. Procedure 1053 A, Step III, requires the recording of the as-found position of the inlet valves to the monitor but no place in the procedure provided a space to record the position of these valves. Furthermore, on monitor 2-RE-90-250, no identification tags were on the valves to identify them.
- f. S.I. 4.8.B.2-3a, Step 2, requires recording of stack monitor channel A and B readings in counts per second. The computer program run to evaluate the data requires only one entry for the counts per second and does not specify whether to average the two values, use the low, or use the high. The analyst was unsure what to use and the low value was used in the calculation.

- g. S.I. 4.8.B.2-3a data cover sheet asks "yes" or "no" whether the Technical Specification criteria and Surveillance Instruction criteria are satisfied. What rule or test that this judgement is being applied to is unclear and is not specified in the procedure.

A violation of 10 CFR 50, Appendix B, Criterion V; Instructions, Procedures, and Drawings exist in that the procedure used was not appropriate to insure the quality of the Surveillance Instruction performance. The Plant Superintendent was made aware of the inspector's concerns on March 8, 1984. Additionally, a detailed walk-thru of the procedure was made with several results and chemistry supervisors identifying the areas of concern. The Plant Superintendent was notified of the violation on March 23, 1984, in an exit meeting. (259, 260, 296/84-10-01).

7. Reportable Occurrences

The below listed Licensee Event Reports (LERs) were reviewed to determine if the information provided met NRC requirements. The determination included: adequacy of event description, verification of compliance with Technical Specifications and regulatory requirements, corrective action taken, existence of potential generic problems, reporting requirements satisfied, and the relative safety significance of each event. Additionally inplant reviews and discussions with plant personnel as appropriate were conducted for those reports indicated by an asterisk. The following licensee event reports are closed:

<u>LER No.</u>	<u>Date</u>	<u>Event</u>
*259/83-16 R-1	3-09-83	CREV charcoal efficiency out of specification.
*259/83-18	3-25-83	Standby gas treatment inoperable.
259/83-28 R-1	6-02-83	Stack gas radiation monitor pump failure.
*259/83-29 R-1	6-04-83	Standby gas treatment paddle flow switch problem.
259/83-51	8-24-83	CAM broken drive belt.
259/83-52	9-12-83	Fire protection heat detector relay inoperable.
*259/83-53	3-14-83	CREV found inoperable.
*259/83-54	9-27-83	Chemical section surveillance not done.

*259/83-55	10-18-83	Core spray test bypass valves not tested.
*259/83-60	10-18-83	CAD system level below T.S. requirements.
259/83-63	11-02-83	Standby gas treatment failed flow test.
259/83-64	10-29-83	Stack gas sample pump.
*259/83-65	11-07-83	Scram discharge tank surveillance not completed on schedule
*259/83-66	11-12-83	Refueling interlocks failed.
259/83-71	12-14-83	CAM drive belt broke.
259/83-72	12-27-83	Wind speed indicator inoperable.
*259/83-73	12-31-83	Chloride limits exceeded.
259/83-74	12-22-83	CAM low flow.
*259/84-01	1-03-84	Inadvertent start of 1-D RHR pump.
259/84-02	1-03-84	Drywell high pressure switch setpoint drift.
*259/84-03	1-17-84	Standby gas treatment system in degraded mode.
*259/84-04	1-06-84	Movement of control rods out of sequence and subsequent scram.
*259/84-05	1-22-84	High drywell pressure switches setpoint drift.
259/84-06	2-10-84	Combines with 296/84-02.
*259/84-07	1-27-84	CAD system inoperable.
*259/84-08	1-29-84	Rosemount transmitters inoperable.
*259/84-09	1-30-84	Kf factor out-of-tolerance in computer.

*259/84-10	2-03-84	Containment isolation system activation.
*259/84-11	2-09-84	Scram due to D.C. main steam isolation valve solenoid failure.
*259/84-13	2-13-84	EECW air release valves inadequate design.
*259/84-14	2-22-84	Scram due to high first stage turbine pressure.
*259/84-15	2-21-84	EECW vacuum valve inadequate design.

A review of the recurrence control on LER 259/84-03 indicated that the standby gas treatment damper checks were not on a procedure or checklist that was routinely verified for completion. The dampers were checked on a weekly damper checklist but the inspector questioned if the procedure was adequate to assure auditability. This item was brought to the Plant Manager's attention as an open item for correction. (259/84-10-02).

8. Organization Changes

During this report period, Mr. J. R. Smith assumed the duties of Mechanical Maintenance Supervisor. The inspector reviewed his qualifications per Technical Specification 6.1.E. which commits Browns Ferry plant management to ANSI 18.1, Selection and Training of Nuclear Power Plant Personnel, dated March 8, 1971. The resume showed Mr. Smith was qualified to the requirements of ANSI 18.1.

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

9. 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.

10. 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. Unit 3 Outage/Torus Modifications.
- b. Unit 1 Reactor Coolant Isolation Cooling System Valve Repair.
- c. LPCI MG Set Preventative Maintenance.
- d. EECW Strainer Maintenance.
- e. RHR Loop I Inboard Valve Unit 3 (FCV 74-53) Failure.

No violations or deviations were noted in this area.