

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199



Report Nos.: 50-269/95-32, 50-270/95-32, and 50-287/95-32

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242

Docket Nos.: 50-269, 50-270,
and 50-287

License Nos.: DPR-38, DPR-47,
and DPR-55

Facility Name: Oconee 1, 2, and 3

Inspection Conducted: December 18-21, 1995

Inspector:

R P Gamm
D. W. Jones

12 JAN '96
Date Signed

Approved by:

K. P. Barr
K. P. Barr, Chief
Plant Support Branch
Division of Reactor Safety

1/10/96
Date Signed

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of transportation of radioactive material, radioactive effluent monitoring instrumentation, and water chemistry.

Results:

No violations or deviations were identified.

The licensee had established procedures for preparation and shipment of radioactive material in accordance with NRC, DOT, and state requirements. Licensee records for selected recent shipments indicated that procedures were followed during preparation of material for transport. No transportation incidents involving the licensee's shipments of radioactive material have occurred during the last three years (Paragraph 2).

The licensee had established procedures to demonstrate operability of radioactive effluent monitors by performance of surveillances at the frequency specified in Chapter 16 of the FSAR. Those surveillances included channel response checks, source checks, channel calibrations, and channel functional

tests. Licensee records indicated that those surveillances had been performed in accordance with established procedures for the instruments used to monitor liquid radwaste, low pressure service water, and unit vent effluents (Paragraph 3).

The licensee was actively pursuing a resolution to the problem with fouling of the feedwater nozzles in the steam generators (Paragraph 4).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- †*D. Berkshire, Senior Scientist, Radiation Protection
- †E. Burchfield, Manager, Regulatory Compliance
- †D. Cantrell, General Supervisor, Chemistry
- *J. Davis, Manager, Engineering
- *G. Hamrick, Manager, Chemistry
- †*J. Smith, Licensing Coordinator, Regulatory Compliance
- *R. Smith, Staff Scientist, Chemistry
- T. Smith, Supervisor, Radiation Protection
- †*S. Spear, General Supervisor, Radiation Protection

Other licensee employees contacted included engineers, technicians, and office personnel.

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- P. Harmon, Senior Resident Inspector
- G. Humphrey, Resident Inspector
- L. Keller, Resident Inspector
- N. Salgado, Resident Inspector

†Attended entrance Interview

*Attended exit interview.

2. Transportation of Radioactive Material (86750)

10 CFR 71.5 required the licensee to comply with the applicable regulations of the Department of Transportation (DOT) in 49 CFR Parts 170 through 189 when transporting licensed material outside the confines of the plant or other place of use, or when delivering licensed material to a carrier for transport. 10 CFR 20.2006(d) and section III.A.1. of Appendix F to 10 CFR 20.1001 - 20.2402 required the licensee to prepare all radioactive waste transferred to a land disposal facility, or a licensed waste collector, such that the waste is classified in accordance with 10 CFR 61.55 and meets the waste characteristics requirements of 10 CFR 61.56.

The inspector reviewed the procedures listed below and determined that they adequately addressed the following: assuring that the receiver has a license to receive the material being shipped; assigning the form, quantity type, and proper shipping name of the material to be shipped; classifying waste destined for burial; selecting the type of package required; labeling and marking the package; placarding the vehicle; assuring that the radiation and contamination limits are met; preparing shipping papers; and making advance notification of shipments of radioactive waste.

Enclosure

HP/0/B/1006/01 "Procedure for Packaging and Shipment of
Radioactive Materials"

HP/0/B/1006/01A "Procedure for Packaging and Shipment of
Radioactive Waste"

"Oconee Nuclear Station 10 CFR 61 Waste Classification and Waste Form
Implementation Program"

The inspector reviewed the licensee's records for 4 recent shipments. Those records indicated that the shipments were made in accordance with the above procedures. No transportation incidents involving the licensee's shipments of radioactive material have occurred during the last three years.

Based on the above reviews, it was concluded that the licensee had effectively implemented a program for shipping radioactive materials.

No violations or deviations were identified.

3. Radioactive Effluent Monitoring Instrumentation (84750)

Technical Specification (TS) 6.4.6 and Sections 16.11-3 and 16.11-4 of the Final Safety Analysis Report (FSAR) described the operational and surveillance requirements for the radioactive effluent monitoring instrumentation. The instrumentation was required to be operable during specified operational modes and demonstrated to be operable by the performance of channel response checks, source checks, channel calibrations, and channel functional tests at specified frequencies. Compensatory actions for inoperable monitors were specified.

The inspector toured the control room and relevant areas of the facility with a licensee representative to locate and determine the operational status of the following 7 radiation monitors.

1-RIA-33	Liquid Radwaste Effluent Line
1,2,&3-RIA-35	Low Pressure Service Water
1,2,&3-RIA-45	Unit Vent Noble Gas Activity

The instrumentation for the above radiation monitors was found to be operable at the time of the tour.

The inspector reviewed the procedures listed below which related to channel response checks, source checks, channel calibrations, and channel functional tests for the above listed monitors.

PT/1,2&3/A/600/01	"Periodic Instrument Surveillance"
PT/0/A/230/01	"Radiation Monitor Check"
IP/0/B/0398/019	"Radwaste Facility Liquid Radiation Monitor (RIA-33)"
IP/0/B/0398/020	"Radwaste Facility Liquid Radiation Monitor (RIA-33) Functional Check - Monthly"

IP/O/B/0360/030	"Sorrento Process Radiation Monitor Functional Check"
IP/O/B/0360/033	"Sorrento Process Radiation Monitor Low Range Gas Detector Calibration"
IP/O/B/0360/039	"Sorrento Liquid Monitor Calibration"
CP/O/B/5100/10	"Radwaste Regulatory Surveillance Requirements"
CP/O/B/5200/45	"Liquid Waste Release From RWF"
CP/O/B/5200/69	"RWF Waste Monitor Tanks Multiple Release"

The inspector determined that the above procedures included provisions for performing the required surveillances in accordance with the relevant sections of the TSs and FSAR. The frequency for performing the surveillances was either specified in the procedures or was scheduled by the Planning group through issuance of Work Requests. The inspector also reviewed selected licensee records of channel checks, source checks, channel calibrations, and channel functional tests for the above listed monitors. The records selected for review were generally the two most recently completed surveillances for the above checks/tests. Those records indicated that the surveillances had been performed in accordance with their applicable procedures and at the required frequency.

The licensee provided for the inspector's review a work history report for the above effluent monitors. The report consisted of a listing of the 48 work requests issued year-to-date for the monitors and a description of the work performed. Most of the requests were for monitor calibration and functional tests. Several requests were issued for routine cleaning the liquid effluent monitor's detector chamber to reduce the background activity. The inspector noted that approximately 25 percent of the listed work requests were issued for repair of the Unit 2 Low Pressure Service Water monitor. Response to the work requests appeared to be prompt and generally effective. The licensee indicated that the availability of the effluent monitors was not currently being tracked but a system which would provide that information was being developed pursuant to the requirements of 10 CFR 50.65, i.e., the new maintenance rule which becomes effective on July 10, 1996.

Based on the above reviews and observations, it was concluded that the licensee had implemented an effective surveillance program for effluent radiation monitoring instruments.

No violations or deviations were identified.

4. Water Chemistry (84750)

Technical Specifications (TSs) 3.14, 3.15 and 4.1.3 described the operational and surveillance requirements for reactor coolant activity and chemistry. Maximum concentration limits and sampling frequencies were specified for dissolved oxygen, chloride, and fluoride in primary coolant. Sections 5.2.1.7 and 9.3.1.2 of the Final Safety Analysis Report (FSAR) indicated that guidelines for maintaining reactor coolant and feedwater quality were derived from vendor recommendations and the

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current revisions of the Electric Power Research Institute (EPRI) PWR Primary and Secondary Water Chemistry Guidelines. Those sections of the FSAR also indicated that detailed operating specifications for the chemistry of those systems were addressed in the Chemistry Section Manual.

During the inspection conducted on June 19-23, 1995, (reference NRC Inspection Report Nos. 50-269, 270, 287/95-13) the inspector discussed with the licensee a prolonged problem with main feedwater nozzle fouling in the Unit 2 A steam generator (SG). The licensee indicated that the integrated control system (ICS) normally maintains the differential pressure (dp) across the A train feedwater control valve at 35 pounds per square inch (psi). When the main feedwater nozzles in the A SG became fouled, the ICS responded by increasing the feedwater system pressure in both trains in order to maintain that dp across the A train feedwater control valve. Due to the cross connection between the A and B feedwater trains, the dp across the B train control valve increased significantly above the normally expected 35 psi. The dp across the B train control valve began increasing during 1993. Prior to the April May 1993 refueling outage the dp was approximately 40 psi. Following that outage the dp gradually increased from 45 psi to 70 psi in April 1995. During a forced outage in May 1995 the licensee removed one of the nozzles from the Unit 2 A SG for examination. The licensee found that particulate material was deposited in most of the 0.188 inch diameter holes in the nozzle and had reduced the effective diameter of the holes to approximately 0.15 inches. Qualitative analysis of a sample of the particulate material indicated that it was composed of magnetite (Fe_3O_4). Based on those results the licensee determined that chemical controls for the feedwater should be used to control and/or reduce the magnetite fouling. During this inspection the results achieved by those chemical controls were discussed with the licensee. The licensee has had some success in reducing the fouling by injecting dimethylamine at a rate which produced a maximum concentration of 1 ppm in the feedwater. The dp across the B train control valve has decreased to approximately 56 psi and the iron transport to the steam generators was also reduced. The licensee plans to continue the chemical controls until the next Unit 2 refueling outage scheduled for May 1996. During that outage the licensee also plans to perform further examination of the Unit 2 feedwater nozzles and attempt to determine the root cause of the fouling.

Based on the above discussions, it was concluded that the licensee was actively pursuing a resolution to the problem with fouling of the feedwater nozzles in the steam generators.

No violations or deviations were identified.

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5. Exit Interview

The inspection scope and results were summarized on December 21, 1995, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed above. No dissenting comments were received from the licensee. Proprietary information is not contained in this report.