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

AUG 26 1985

Report Nos.: 50-269/85-23, 50-270/85-23, and 50-287/85-23

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 Power Station

Inspection Conducted: August 5 - 9, 1985

Inspector: B. K. Revsin 8/22/85
B. K. Revsin Date Signed

Approved by: C M Hosey 8/22/85
C. M. Hosey, Section Chief Date Signed
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection entailed 42 inspector-hours onsite during regular hours inspecting: radiation protection program including external exposure control and dosimetry; internal exposure control; control of radioactive materials, posting, and labeling; transportation of radioactive materials; radioactive waste classification and characterization; and the program for maintaining radiation exposure as low as reasonably achievable (ALARA).

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*M. Tuckman, Station Manager
*J. N. Pope, Superintendent of Operations
*T. S. Barr, Superintendent of Technical Services
*T. C. Matthews, Compliance Technical Specialist
*C. Harlin, Health Physics Coordinator
*E. Brown, Assistant Health Physicist
*R. Bond, Compliance Engineer
*R. Knoerr, Project Services Engineer
T. E. Carroll, Health Physics Supervisor
S. L. Morgan, Health Physics Supervisor
L. Lewis, System Health Physicist
C. Yongue, Plant Health Physicist

NRC Resident Inspectors

*J. Bryant, Senior Resident Inspector
*L. P. King, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on August 9, 1985, with those persons indicated in paragraph 1 above. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters (92702)

a. (Closed) Violation 50-269/84-20-01, 50-270/84-19-01, 50-287/84-21-01 Verify CRDM Shipment Met LSA Criteria Prior to Shipment. The inspector verified that the licensee's corrective action, as specified in their response dated October 25, 1984, had been implemented.

b. (Closed) Violation 50-269/84-20-02, 50-270/84-19-02 Proper Tagging of Containers. The inspector verified that the licensee's corrective action, as specified in their response dated January 11, 1985, had been implemented.

c. (Closed) Violation 50-270/84-30-02 Posting Xenon Airborne Radioactivity Areas. The inspector verified that the licensee's corrective action, as specified in their response dated February 15, 1985, had been implemented.

d. (Closed) Violation 50-287/84-14-01 Presence and Condition of a Moderator Prior to Shipping Fissile Material. The inspector verified that the licensee's corrective action, as specified in their response dated July 20, 1984, had been implemented.

e. (Closed) Violation 50-287/84-14-02 Neutron Surveys During Fuel Movements. The inspector verified that the licensee's corrective action, as specified in their response dated July 20, 1984, had been implemented.

4. Licensee Action On Inspector Followup Items (92701)

(Closed) IFI 50-269/84-31-01, 50-270/84-30-01, 50-287/84-34-01 Procedure to Calculate MPC-hours from Bioassay Data. The licensee committed to MPC-hour determinations from bioassay data when an individual reached established action levels. The procedural requirement for this calculation will be incorporated into the next revision of the System Health Physics Manual (paragraph 10).

5. Organization And Management Controls (83722)

a. Organization

The licensee was required by Technical Specification 6.1 to implement the plant organization specified in Figure 6.1.2. Responsibilities, authorities, and other management controls were further outlined in Chapters 12 and 13 of the FSAR. Technical Specification 6.1.3 specified the members of the Nuclear Safety Review Board (NSRB) and outlined its functions and authorities. Regulatory Guide 8.8 specifies certain functions and responsibilities to be assigned to the Radiation Protection Manager and radiation protection responsibilities to be assigned to line management. Through review of current organization charts and discussions with licensee representatives the inspector verified that the organization as specified in Technical Specification 6.1 had remained unchanged.

b. Staffing

The inspector discussed authorized health physics staffing levels versus actual on-board staff with a licensee Assistant Health Physicist. Health physics (HP) staffing for the upcoming Unit 3 outage was discussed with the Station Health Physicist. The inspector was informed that 89 contract HP technicians were already onsite for the outage due to begin August 8, 1985.

No violations or deviations were identified.

6. Control Of Radioactive Materials And Contamination Surveys And Monitoring (83726)

a. Surveys

10 CFR 20.201(b) required each licensee to make or cause to be made such surveys as (1) may be necessary for the licensee to comply with the regulations and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present.

The inspector observed, during plant tours, results of surveys performed by the HP staff. The inspector reviewed the Radiation Work Permit (RWP) 675, Revision 1, for preventive maintenance on equipment in the Hot Machine Shop to determine if adequate controls were specified. Radiation and contamination surveys from August 5 and 6, 1985, performed in conjunction with this RWP were discussed with the HP technician covering the job.

During plant tours, the inspector examined radiation and contamination survey results outside selected cubicles. The inspector performed independent radiation surveys in the auxiliary building and in the restricted area outside the auxiliary building and verified that the areas were properly posted.

b. Frisking

During tours of the plant, the inspector observed the exit of workers from contamination control to clean areas to determine if adequate frisking was performed.

The inspector discussed with the licensee the method used to release material from the restricted area and reviewed HP Manual, Section 5.1, Movement of Radioactive Materials Within the Owner Controlled Area. Frequency of alpha determinations on smears taken for release of material was discussed with licensee representatives.

c. Instrumentation

During plant tours, the inspector observed the use of survey instruments by plant staff and compared plant survey instrument readings with readings obtained using NRC equipment. The inspector examined calibration stickers on radiation protection instruments in use by licensee staff and selected instruments stored in the instrument issue room. The inspector discussed calibration methods and methods for performing source checks prior to each use with the HP Supervisor in charge of calibrations. The inspector examined the calibration facility and discussed with the HP Supervisor methods for calibration of teletectors and determination of beta correction factors. The instrument check-out log was examined.

No violations or deviations were identified.

7. Transportation (86721)

10 CFR 20.205(b)(2) required that when removable contamination in excess of 0.01 microcuries (22,000 disintegrations per minute) per 100 square centimeters of package surface is found on the external surfaces of the package, the licensee shall immediately notify the final delivering carrier and the appropriate NRC Regional Office.

On July 8, 1985, the licensee received an empty fuel cask from Nuclear Assurance Corporation (NAC) onsite which had four areas on the cask surface with removable contamination in excess of 22,000 disintegrations per minute (dpm)/100 cm^2. The inspector reviewed the licensee's investigation of the event and found that the personnel barrier surrounding the cask was clean but four areas on the cask surface had removable contamination of 26,565 dpm, 35,005 dpm, 25,195 dpm and 6,000 counts/minute (50,000-60,000 dpm). Surveys were performed over 100 cm^2 assuming a 10% removal efficiency for all smears.

The carrier tractor and driver were released from the site on July 8, 1985, before a trailer survey was performed, and a licensee tractor was used to transport the trailer into the licensee's protected area. On July 9, 1985, it was ascertained that the carrier driver had remained in the area and he was contacted by the licensee and asked to return to the site for a survey. A survey of the tractor revealed no reportable contamination levels. The licensee notified the NRC, Region II, the transport carrier and NAC on July 8, 1985, of the reportable contamination levels.

The inspector asked the licensee if it were usual practice to permit the tractor and driver to leave prior to performing a survey. The licensee pointed out that release of the tractor and driver had been permitted by an operations group rather than HP and since the tractor and driver had never entered the protected area, survey by licensee staff was not required. However, a licensee representative stated that in the interest of good health physics practices, discussions had been held with the operations supervisor to ensure that in the future all tractors and drivers would be surveyed prior to release from the site.

10 CFR 71.5 required that licensees who transport licensed material outside the confines of its plant or other place of use, or who deliver licensed material to a carrier for transport, shall comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation in 49 CFR Parts 170 through 189.

The inspector reviewed the following procedures and verified that they were consistent with applicable regulations.

HP/O/B/1006/01 - Procedure for Packaging and Shipment of Radioactive Materials

HP/O/B/1006/01A - Procedure for Packaging and Shipment of Radioactive Wastes

The inspector reviewed selected records of radioactive waste shipments and the records of a shipment (ONS 85-103) of spent fuel rods for adherence with the requirements of 49 CFR Parts 170 through 189. The inspector verified that the licensee was registered with the NRC for packages used in July 1985.

The inspector reviewed the course outline for training for personnel involved with radioactive materials shipping. All personnel except one had recently attended the 32 hour training course given on June 24 - 27, 1985. The technician who had missed the training was slated for training in the later part of August 1985.

No violations or deviations were identified.

8. Solid Waste (84722)

10 CFR 20.311 required that the licensee maintain a tracking system for radioactive waste shipments to verify that shipments have been received without undue delay by the intended recipient. The inspector reviewed the tracking log maintained by the licensee for shipments performed in 1985.

10 CFR 61.56 specified the waste characteristic and stability requirements for low level radioactive waste. Through discussions with licensee representatives and review of selected records, the inspector determined that waste stability, when required, was achieved by use of approved containers or by solidification by the licensee.

10 CFR 20.311 required a licensee who transfers radioactive waste to a land disposal facility to prepare all wastes so that the waste is classified according to 10 CFR 61.55.

10 CFR 61.55(a)(8) provided that the concentration of a radionuclide may be determined by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured if there is reasonable assurance that the indirect method can be correlated with actual measurements.

The licensee had samples of their various radioactive waste streams analyzed by an offsite contractor laboratory and from these analyses, had developed six sets of scaling factors for various waste streams at the facility. The inspector reviewed the documentation which served as the bases for the scaling factor development and which was entitled, "10 CFR 61 Waste Classification and Waste Form Implementation Program." Based on methodologies published by the Atomic Industrial Forum and studies performed by the licensee, the licensee had developed factors to scale transuranic radionuclides to Cs-137 as an alternate to Ce-144.

No violations or deviations were identified.

9. External Exposure Control and Dosimetry (83724).

10 CFR 20.101 specified the applicable radiation dose standards. The inspector reviewed the radiation exposure control (REC), a twice daily issued computer printout which lists up-to-date exposure data for the plant workers, and verified that the radiation doses recorded for the period January 1 - August 9, 1985, were well within the limits specified by 10 CFR 20.101.

10 CFR 20.101(b)(3) required the licensee to determine an individual's accumulated occupational dose to the whole body on a Form NRC-4 or equivalent record prior to permitting the individual to exceed the limits of 10 CFR 20.101(a). The inspector verified by examination of selected records that exposure histories were being completed and maintained as required by 10 CFR 20.102.

During tours of the plant, the inspector observed the wearing of thermoluminescent dosimeters (TLDs) and pocket dosimeters (PD) by workers. The inspector discussed the assignment and use of dosimeters as well as TLD/PD discrepancy investigations.

No violations or deviations were identified.

10. Internal Exposure Control (83725)

10 CFR 20.103(a) established the limits for exposure of individuals to concentrations of radioactive materials in air in restricted areas. This section also required that suitable measurements of concentrations of radioactive materials in air be performed to detect and evaluate the airborne radioactivity in restricted areas and that appropriate bioassays be performed to detect and assess individual uptakes of radioactivity.

10 CFR 20.103(b)(2) required that whenever the intake of radioactive material by an individual exceeds 10 MPC-hours in a seven day period, the licensee shall make such evaluations and take such actions as may be necessary to assure against recurrence. The licensee shall maintain records of such occurrences, evaluations, and actions taken in a clear and readily identifiable form suitable for summary review and evaluation.

The inspector reviewed selected results of bioassays (whole body counts) and the licensee assessment of individual intakes performed during January - August, 1985. The inspector also examined the REC and verified that for the third quarter, all plant workers were well below the 40 hour maximum permissible concentration (MPC) per seven consecutive day control measure specified by 10 CFR 20.103(b)(2).

It was identified in Report Nos. 50-269/84-33, 50-270/84-30 and 50-287/84-34, that the licensee had not established a program to ensure that body burden analyses (BBA) were reviewed to determine if personnel had exceeded 40 MPC-hours in a seven day period. The System HP Manual, HP Procedure Guide No. II-16, Acute Exposure: Body Burden Analysis, specified

that when a BBA reached the action level of 10% Maximum Permissible Organ Burden (MPOB), additional analyses shall be performed so that dose commitments may be assigned and an investigation of the intake situation shall be performed. However, at the 10% MPOB action level, an MPC-hour calculation was not required by the licensee's program.

In discussions with licensee representatives about this issue, licensee management acknowledged this deficiency and committed that at the next revision of the System HP Manual, a requirement for an MPC-hour determination from BBA data, as appropriate, would be required when pre-established action levels were exceeded.

The inspector stated to licensee representatives that an action level of 10% MPOB for some radionuclides would be attained after the individual had been exposed to significantly greater than 40 MPC-hours in a seven day period. The licensee stated that using MIRD-11 methodology, Co-60 was the only radionuclide where a 10% MPOB exceeded 40 MPC-hours. The inspector stated that for 10 CFR Part 20 compliance, International Council on Radiation Protection and Measurements Report No. 2 (ICRP-2) methodology was appropriate. A licensee representative indicated that action levels would be re-evaluated.

10 CFR 20.103(b) required that when it is impracticable to apply process or engineering controls to limit concentrations of radioactive material in air below 25% of the concentrations specified in Appendix B, Table 1, Column 1, other precautionary measures should be used to maintain the intake of radioactive material by an individual within seven consecutive days as far below 40 MPC-hours as is reasonably achievable. By review of records and discussions with licensee representatives, the inspector examined the licensee's respiratory protection program. The inspector observed the facility for cleaning, decontamination, maintenance and issuance of respirators, and discussed these with selected staff members. The inspector discussed respirator fit testing with licensee representatives and determined that amyl acetate was used for a qualitative fit test, while cartridge recertification was performed by a contractor using thermally generated dioctylphthalate.

No violations or deviations were identified.

11. ALARA (83728)

10 CFR 20.1c stated that persons engaged in activities under licenses issued by the NRC should make every reasonable effort to maintain radiation exposures as low as reasonably achievable (ALARA). The recommended elements of an ALARA program are contained in Regulatory Guide 8.8, Information Relevant to Ensuring that Occupational Radioactive Exposure at Nuclear Power Stations will be ALARA, and Regulatory Guide 8.10, Operating Philosophy for Maintaining Occupational Radiation Exposures ALARA.

The inspector discussed the ALARA goals and objectives for the current year with licensee representatives and reviewed the man-rem estimates and results

for 1985. As of June 30, 1985, the actual collective exposure was 604 man-rem as measured by TLD, with 1098 man-rem being the estimated exposure for the year. During this same period of time, the licensee had disposed of 18,250 ft^3 of waste which contained 645 curies of activity.

The extent of contaminated areas within the plant was tracked by performing quarterly estimates. The extent of contaminated areas remained constant during the first and second quarter of 1985 at approximately 17,000 ft^2 or 25% of the controlled area.

The inspector discussed with the ALARA Supervisor preplanning in connection with the Unit 3 refueling outage. Many of the jobs had already been planned and dose estimates for each had been projected based on previous experience with Unit 3 and with Units 1 and 2 as well.

No violations or deviations were identified.

12. Information Notices (92717)

The inspector reviewed Information Notice 84-75, Calibration Problems - Eberline Instrument Mode 6112B Analog Teletectors to ensure receipt and review by appropriate licensee management.

13. Licensee Audits (83726, 86721, 83725, 83724)

The inspector discussed the audit and surveillance program in the areas of radiation protection and transportation of radioactive materials with the licensee. The inspector reviewed the audit of the radiation protection program performed by the corporate Quality Assurance (QA) Department, Audit Division on February 11 - March 5, 1985.

An audit function was also vested in an onsite QA Surveillance group which had performed three surveillances during 1985 in the area radiation protection (Nos. 0-585/2, 0-585/19 and 0-585/30). The inspector reviewed these audits and discussed the surveillance program with the QA Surveillance Supervisor. The inspector reviewed Procedure QA-500, Operations Division Surveillance Program, which specified the frequency and the areas of the HP program to the audited. The inspector verified that appropriate corrective actions were documented.

No violations or deviations were identified.