



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

JUN 22 1984

Report Nos.: 50-269/84-12, 50-270/84-12, and 50-287/84-14

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 Dates: June 4-8, 1984

Inspection at Oconee site near Seneca, South Carolina

Inspector: G. R. Jenkins 6/19/84
for R. E. Weddington Date Signed

Approved by: G. R. Jenkins 6/19/84
G. R. Jenkins, Section Chief Date Signed
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection entailed 40 inspector-hours (six inspector-hours on backshifts) on site in the areas of internal audits, ALARA, control of radioactive material, transportation and radioactive waste, and licensee actions on previous enforcement matters and inspector followup items.

Results: Two violations were noted - failure to verify the presence and condition of a neutron radiation moderator prior to shipping a loaded fuel cask and failure to perform neutron radiation surveys in two instances on loaded fuel casks.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

C. T. Yongue, Station Health Physicist
M. J. Tuckman, Station Manager
T. C. Matthews, Compliance Technical Specialist
J. J. McCool, Quality Assurance Surveillance Supervisor
E. G. Hough, Assistant Health Physicist
G. Davenport, Performance Engineer
D. L. Davidson, Compliance Staff
R. T. Bond, Compliance Engineer
J. N. Fope, Operations Superintendent

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

NRC Resident Inspectors

J. C. Bryant

2. Exit Interview

The inspection scope and findings were summarized on June 8, 1984, with those persons indicated in paragraph 1 above. The following issues were discussed in detail: an apparent violation for failure to verify the presence and condition of a neutron radiation moderator prior to shipping a loaded fuel cask (paragraph 7); and an apparent violation for failure to perform neutron radiation surveys in two instances on loaded fuel casks (paragraph 6).

The licensee acknowledged the inspection findings and stated that they desired to further evaluate the circumstances of the apparent violations.

3. Licensee Action on Previous Enforcement Matters

(Closed) Violation 269,270,287/83-34-01 - Failure to Post Chemical Treatment Pond (CTP)-3 as a Radioactive Materials Storage Area. By letter dated January 6, 1984, the licensee stated that CTP-3 had been posted, yet denied the violation on the grounds that the posting requirements do not apply to unrestricted areas. The Region requested a supplemental response in a letter dated March 9, 1984, to describe licensee actions that would be taken to control the buildup of radioactivity in the areas between CTP-3 and the lake. The licensee responded in a letter dated April 9, 1984, that they would seek an interpretation from the NRC Office of Nuclear Reactor Regulation on this issue and would hold in abeyance any further corrective actions. During the course of the inspection, the inspector verified that CTP-3 was properly posted.

This item is considered closed.

4. Internal Audits (83722, 83724, 83726, 83728, 83725, 83723, 86721, and 84722)

Licensee Technical Specification 6.1.3.4 requires that periodic audits of station activities be performed.

The licensee performed a multilevel series of audits in the health physics area by the health physics staff, on-site Quality Assurance Surveillance Group and corporate quality assurance personnel.

The inspector reviewed selected audits performed by the health physics staff. These audits included Health Physics Form 31's, Report of Possible Overexposure/Unusual Radiological Occurrences Investigation, ALARA Problem Reports, Weekly High Radiation Door Tour Summary Reports, and Random Body Burden Analysis Surveillances. The inspector observed that appropriate corrective actions were indicated and that licensee management reviews had been performed.

The inspector reviewed the results of the most recent audits performed by the Quality Assurance Surveillance Group in the areas of Health Physics Inprogress Activities, Waste Disposal, Administration and Source Control and Personnel Exposure Control. The inspector observed that appropriate corrective actions and reviews were indicated.

The inspector reviewed the results of the most recent audits performed by the Corporate Quality Assurance Department in the areas of Health Physics, Training, ALARA, Instrumentation, Radwaste, Process Control, Training and Qualification and Chemistry. The inspector observed that appropriate corrective actions and reviews were indicated.

No violations or deviations were noted.

5. ALARA (83728)

10 CFR 20.1(c) states that licensees should make every reasonable effort to maintain radiation exposures as low as is reasonably achievable.

The inspector reviewed the licensee ALARA results for the recent Unit 3 outage. The original exposure estimate for the outage was 309 man-rem. The licensee stated that TLD monitoring results are still being compiled; however, they expect that the actual outage exposure will exceed their initial estimate by approximately 25 percent. Higher than anticipated dose rates in the steam generators were attributed as causing the higher man-rem total.

The licensee discussed their plans to incorporate lessons learned from the previous outage into the planning for the upcoming Unit 1 outage. Each major work evolution will receive an ALARA planning evaluation. Debriefings of previous outage work and related ALARA suggestions will be considered when formulating the evaluation. The inspector reviewed selected Unit 3 debriefing sheets and observed that several apparently beneficial recommendations had been made.

The inspector evaluated worker ALARA awareness through observations and discussions with personnel. The inspector noted appropriate actions were being taken to minimize exposure.

No violations or deviations were noted.

6. Control of Radioactive Material (83726)

- a. 10 CFR 20.203 states the requirements for posting Radiation, High Radiation, Airborne Radioactivity, and Radioactive Materials areas. Licensee procedure HP/O/B/1000/07, Procedure for Roping Off, Barricading and Posting of Radiation Control Zones, implements the 10 CFR 20 postings requirements and states the requirements for posting contamination zones.

The inspector performed random independent radiation surveys within the station restricted area and reviewed selected licensee survey results. Area postings were noted to be consistent with the survey results.

- b. Technical Specification 4.16 requires that sealed sources which contain greater than 100 microcuries of beta and/or gamma emitting materials or 10 microcuries of alpha emitting material be leak tested at intervals not to exceed six months unless the sources are stored and not being used.

The inspector reviewed the licensee Source Leak Check Log and verified that all sealed sources are being leak checked at the specified interval. The inspector verified that selected sources were at the storage location indicated in the log and that the storage area postings and controls were appropriate for the type of material present.

- c. 10 CFR 20.201(b) requires that the licensee perform such surveys as are reasonable and necessary under the circumstances to evaluate the extent of radiation hazards that may be present.

During the period April 5, 1984 to June 5, 1984, the licensee performed 11 transfers of spent fuel assemblies from the Units 1 and 2 spent fuel pool to the Unit 3 spent fuel pool. The transfers were performed using the NAC shipping cask. Radiation work permit number 409 required performance of neutron radiation surveys for loading and transferring the NAC cask. The inspector reviewed the survey records provided by the licensee and observed that no neutron surveys were performed until the sixth fuel transfer on May 21, 1984. The licensee stated that the health physics personnel who had provided coverage for the first five transfers had apparently overlooked the requirement. Subsequent neutron surveys on the loaded NAC cask indicated that the dose rates were less than two millirem per hour.

On February 3, 1984, 16 irradiated fuel pins were shipped to Babcock and Wilcox Lynchburg Research Center under shipment control number 84-19. Radiation work permit numbers 336 and 337 and station operating procedure OP/O/A/1510/11 were the controlling documents for the shipment.

The inspector noted that no neutron surveys were specified or documented during or after loading the NLI 1/2 fuel shipping cask. The inspector interviewed the health physics technician who had approved the radiation work permit and had provided coverage during cask loading. The technician stated that he had no previous experience with fuel casks and did not recognize that a neutron survey might be warranted. The inspector then interviewed the fuels engineer who had prepared the operating procedure. The engineer stated that his procedure required that health physics perform a radiation survey and that the health physics technician would know what types of surveys were appropriate.

The inspector informed the licensee that failure to perform adequate surveys to evaluate the extent of neutron radiation hazards that may have been present on the NAC and NLI fuel shipping casks was an apparent violation of 10 CFR 20.201(b) (VIO 50-269/84-12-02, 50-270/84-12-02, and 50-287/84-14-02).

7. Transportation and Radioactive Waste (84722 and 86721)

- a. 10 CFR 71.5 requires that each licensee who transports licensed material outside of the confines of its plant, or offers the material to a carrier for transport, shall comply with the applicable requirements of the regulations appropriate to the mode of transport of DOT in 49 CFR Parts 170 through 189. 49 CFR 170-189 specifies the requirements for manifest preparation, permissible levels of radiation and contamination, placarding and labeling, and packaging and determination of shipment classification.

The inspector reviewed the records of radioactive material shipments performed this calendar year. The shipping manifests were prepared consistent with 49 CFR requirements. The radiation and contamination survey results were within the limits specified for the mode of transport and shipment classification. The inspector witnessed the loading of an exclusive use transport vehicle with low specific activity packages and noted that the vehicle and package placarding and labeling were correct. NRC Certificates of Compliance and other records of package procurement indicated that the licensee selected and used packages appropriate for the material being transported. The inspector selectively performed independent calculations using licensee records of material radioactive nuclide composition and verified that the shipments reviewed had been properly classified as Type A or B, Low Specific Activity or Highway Route Control Quantity.

- b. 10 CFR 20.311 requires that radioactive waste be classified in accordance with 10 CFR 61.55, that the waste meet the stability requirements of 10 CFR 61.56, and that the waste package and manifest indicate the classification as Class A, B, or C.

The inspector reviewed selected radioactive waste manifests to verify compliance with waste classification requirements. Independent calculations were performed for selected shipments to verify the proper classification had been computed. The licensee met the waste stability requirements for Class B and C waste by use of high integrity containers or by solidifying waste using a vendor process control program.

- c. Technical Specification 6.4.1 requires that procedures for radiation control and operation of radioactive waste management systems be prepared and maintained.

The inspector reviewed the following licensee procedures:

- HP/O/B/1007/04 Operating Procedure for Contaminated Waste Compactor
- HP/O/B/1006/01 Procedure for Packaging and Shipment of Radioactive Material
- HP/O/B/1006/02 Procedure for Receipt and Opening of Radioactive Packages
- HP/O/B/1006/03 Procedure for Receipt/Inspection of Reconditioned 55-Gallon Metal Drums
- HP/O/B/1006/06 Procedure for Shipment of Irradiated Fuel Assemblies

The inspector verified that the procedures were consistent with current regulatory requirements and had been properly approved.

- d. 10 CFR 71.87 requires that the licensee make certain routine determinations prior to each shipment of licensed material. One such determination is that, for fissile material, any moderator or neutron absorber, if required, is present and in proper condition.

The inspector reviewed licensee records of a Fissile Class III shipment of 16 irradiated fuel pins to Babcock and Wilcox Lynchburg Research Center on February 3, 1984, under shipment control number 84-19. Upon review of the licensee procedure used to perform the shipment, OP/O/A/1510/11, the inspector noted that no check was required of the cask moderator. NRC Certificate of Compliance 9010 for the NLI 1/2 fuel shipping cask requires that the neutron shielding tank be filled with a mixture of water and ethylene glycol (52% by volume).

The cognizant engineer verified that a check of the cask moderator was not required or performed by the local operating procedure. The licensee stated that this type of check would probably have been performed by the cask vendor as a preventative maintenance (PM) check prior to sending the cask to the licensee.

The inspector reviewed Appendix XVI of the vendor application to the NRC for a Certificate of Compliance on the subject cask dated March 7, 1980. The subject appendix outlined the vendor PM schedule. The inspector noted that a check of the moderator was not included in the PM schedule. The inspector then reviewed the vendor cask operating manual. Section III, paragraph A.2 of the operating manual, titled "Operational Checks Prior to Each Fuel Loading", describes the capacity check of the water glycol solution in the shield tank that is performed by measurement of the expansion tank level. The procedure then requires that a sample of the water be taken and checked for specific gravity.

The inspector informed the licensee that they were in apparent violation of 10 CFR 71.87(g) in that they did not verify the presence and condition of the cask moderator prior to the fuel shipment. The licensee stated that they believed this requirement was satisfied by the vendor PM. The inspector observed that 10 CFR 71 and the vendor procedure requires the check prior to each shipment, that the vendor PM schedule does not include this check, and that the licensee had not addressed verifying completion of vendor PM's, either in their procedure or by contacting the vendor, until the issue was raised by the inspector (VIO 50-269/84-12-01, 50-270/84-12-01 and 50-287/84-14-01).

8. Inspector Followup Items (IFIs)

(Closed) IFI 269/270/287/80-31-07 - Calibration of TLD system with radiation sources similar to those expected in the plant. The licensee's TLD's are sent offsite for calibration. The licensee has evaluated this concern and concluded that the calibration accurately tests the responsiveness of their TLD's to plant radiation sources. The inspector had no additional concerns. This item is considered closed.

(Closed) IFI 269/270/287/80-31-23 - Isolation of counting room in event of high airborne radioactivity in plant. The licensee has established an alternate counting room in the basement of the visitor center. This item is considered closed.

(Closed) IFI 269/270/287/80-31-26 - Review of fixed monitor calibration procedures and techniques. This area was examined during inspection 50-269/270/287/83-38, and found to be adequate. This item is considered closed.

(Closed) IFI 269/270/287/81-13-05 - Procure specialized equipment and health physics support in exposure control. The inspector reviewed the staffing and equipment in the exposure control section and determined that they are now adequate. This item is considered closed.

(Closed) IFI 269/270/287/81-13-25 - Upgrade procedures for high activity liquid samples. This item will be tracked and evaluated with TMI Action Item, NUREG 0737, Item 2.B.3. This item is considered closed.

(Closed) IFI 269/270/287/83-09-01 - Posting auxiliary building as a high radiation area. The licensee now posts and maintains locked each area with dose rates of greater than 100 millirem per hour at 18 inches. The inspector determined that posting and other controls met regulatory requirements. This item is considered closed.