



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

JAN 12 1988

Report No.: 50-395/87-35

Licensee: South Carolina Electric and Gas Company  
 Columbia, SC 29218

Docket No.: 50-395

License No.: NPF-12

Facility Name: Summer

Inspection Conducted: December 7 - 11, 1987

Inspector: R. R. Marston 1/6/88  
 R. R. Marston Date Signed

Approved by: J. B. Kahle 1/6/88  
 J. B. Kahle, Section Chief Date Signed  
 Radiological Effluents and Chemistry  
 Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection was conducted in the areas of liquid and gaseous effluents and gathering of data on collocated licensee and NRC environmental TLDs.

Results: No violations or deviations were identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*F. Bacon, Associate Manager, Chemistry
- \*W. Baehr, Manager, Corporate Health Physics and Environmental Progra.
- G. Baker, Maintenance Engineer
- \*D. Blanks, Licensing Engineer
- \*L. Blue, Manager, Support Services
- O. Bradham, Director Nuclear Plant Operations
- \*M. Browne, Group Manager, Technical and Support Services
- \*J. Cox, Associate Manager, Health Physics
- A. Cribb, Jr., Plant Chemist
- G. Guy, Radwaste Coordinator
- \*W. Higgins, Associate Manager, Regulatory Compliance
- V. Prawdzik, Instrumentation and Control Coordinator
- J. Sowell, Health Physics Supervisor
- \*R. Sweat, QA Surveillance Specialist
- \*M. Williams, Group Manager, Nuclear Regulatory and Developmental Services

#### NRC Resident Inspectors

R. Prevatte, Senior Resident Inspector

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on December 11, 1987, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee.

The inspector stated that Violation 395/87-21-01 (described in paragraph 3) was closed and IFI T2500/22 (described in paragraph 11) was closed.

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

(Closed) Violation 395/87-21-01; Failure to verify the volume of the geometry used to determine airborne radioactivity concentrations which resulted in inaccurate gamma spectroscopy measurements.

During the confirmatory measurements inspection (87-21), the inspector noted that the licensee used 1000 ml as the volume for the "one liter gas marinelli" used in gamma spectroscopy. In response to this violation, the licensee committed by letter dated September 1987, to verify the volumes (and had already done so) of the 25 ml and 1000 ml gaseous geometries. A further commitment was made to revise the applicable sampling procedures (HPP-808 and HPP-810) to include the requirements that actual volumes of gaseous volumes be determined.

The inspector reviewed documentation showing that the above volumes were verified to be 26 ml and 1260 ml, respectively, and that the one liter liquid marinelli (used for grab samples of gases) was approximately 1200 ml.

4. Audits (80721, 84723, 84724, 84725)

Technical Specification 6.5.2.8 requires audits of the radiological environmental monitoring program at least once per 12 months; the Offsite Dose Calculation Manual (ODCM) and implementing procedures at least once each 24 months; the Process Control Program (PCP) and implementing procedures at least once each 24 months; and the conformance of unit operation to provisions contained within the Technical Specifications and applicable license conditions at least once per 12 months.

The inspector reviewed the following audits and surveillances: 03-RMB-87-R, "Mechanical Filter Changeout and Leak Testing of the Duratek EVR System," conducted November 17, 1987; II-AEC-87-K, "Station Procurement," conducted September 4-11, 1987 (this audit documented circumstances leading to receipt, installation, and operation of a Portable Radwaste Ion Exchange system provided by Duratek Corporation); and II-5-87-R, "Radioactive Waste," conducted February 16 to March 9, 1987. The inspector also discussed Audit II-20-87-M, "Environmental Monitoring and TLD Processing, conducted October 21 to November 10, 1987, with cognizant licensee representatives. This audit report had not yet been issued.

The inspector's review of the contents of the audit packages indicated that the audits were thorough and in depth. Responses to findings and corrective actions appeared to be appropriate and timely.

No violations or deviations were identified.

5. Changes to Equipment and Procedures (84723, 84724)

Technical Specification 6.15.1.1 requires that major changes to radioactive liquid and gaseous waste treatment systems shall be reported to the Commission in the Monthly Operating Report for the period in which the evaluation was reviewed by the Plant Safety Review Committee. Technical Specification 6.8.1 requires that the licensee establish, implement, and maintain written procedures concerning those subjects recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978; Process Control Program; Offsite Dose Calculation Manual; and effluent and

environmental monitoring program using the guidance in Regulatory Guide 4.15, Revision 1, February 1979.

Licensee representatives stated that no changes had been made in organization pertaining to the radwaste program since the previous inspection.

Licensee representatives stated that a Duratek demineralization system had been installed to clean up part of the liquid radwaste stream. The installation was temporary, with the move to a permanent location dependent on preliminary operational findings. Licensee representatives stated that the system would be operated by plant personnel and operated in accordance with plant procedures adapted from vendor procedures. The inspector examined the unit installation during a tour of the plant.

Licensee representatives stated that a new gamma spec. unit had been installed, replacing an older unit.

The inspector selectively reviewed several procedures which had been revised since the previous inspection. The procedures were Health Physics and Chemistry procedures pertaining to effluent sampling and analysis, and operation and calibration of the equipment used in these processes; Surveillance Test Procedures in the 360.xxx series, used for calibration and test of effluent monitors and flow measurement instruments, Surveillance Test Procedures in the 554.xxx and 555.xxx series which describe HEPA filter and charcoal adsorber tests on the Control Room Emergency Air Cleanup System and effluent pathway cleanup systems.

No violations or deviations were identified.

6. Semi-Annual Report (84723, 84724)

Technical Specification 6.9.1.8 requires the licensee to submit routine radioactive effluent release reports within 60 days after January 1 and July 1 of each year. Technical Specification 6.9.1.9 requires that the radioactive effluent release reports include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit as outlined in Regulatory Guide 1.21, Revision 1, June 1974, with data summarized on a quarterly basis following the format of Appendix B thereof.

The inspector reviewed the semi-annual radiological effluent report dated August 24, 1987, and concerning the period from January 1 through June 30, 1987. The report appeared to comply with the Technical Specifications in format and content. No significant trends were noted. One abnormal liquid release was reported as occurring in February 1987. Approximately 4.7 microcuries were released, primarily Co-58 and Co-60.

The leak was apparently confined to soil in the protected area. The licensee performed calculations assuming a worst case release to the Broad River. The calculations showed a negligible dose to a maximum exposed individual at the exclusion boundary.

On the basis of the report discussed above and the inspector's review of selected liquid gaseous effluent release permits, the effluents were within the limits of Technical Specifications and 10 CFR Part 50, Appendix I design objectives.

No violations or deviations were identified.

7. Radioactive Liquid Waste (84723)

Technical Specification 3.11.1.1 establishes the limits for concentrations of radioactive materials in liquid effluents. Technical Specification 3.11.1.2 requires the licensee to limit the dose or dose commitment to an individual from radioactive materials in liquid effluent releases.

The inspector reviewed liquid radwaste release permits for the period from April 1 through November 30, 1987. The releases and calculations appeared to have been done in accordance with the Technical Specifications and the ODCM. The records indicated that concentration and dose limits had not been exceeded.

No violations or deviations were identified.

8. Radioactive Gaseous Waste (84724)

Technical Specification 3.11.2.1 requires that the dose rate due to radioactive materials released in gaseous effluents from the site shall be limited to:

- a. For noble gases: less than or equal to 500 mrem/year to the total body and less than an equal to 3000 mrem/year to the skin, and
- b. For radioiodines and for all radioactive materials in particulate form and radionuclides (other than noble gases) with half lives greater than eight days: less than or equal to 1500 mrem/year to any organ.

Technical Specification 3.11.2.2 requires that the air dose due to noble gases released in gaseous effluents to areas at or beyond the site boundary shall be limited to:

- a. During any calendar quarter: less than or equal to five mrads for gamma radiation and less than or equal to 10 mrads for beta radiation, and
- b. During any calendar year: less than or equal to 10 mrads for gamma radiation and less than or equal to 20 mrads for beta radiation.

Technical Specification 3.11.2.3 requires that the dose to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives greater than eight days in gaseous

effluents released from each reactor to areas at or beyond the site boundary shall be limited to:

- a. During any calendar quarter: less than or equal to 7.5 mrem to any organ, and
- b. During any calendar year: less than or equal to 15 mrem in any organ.

The inspector reviewed selected records for the period of January through November 1987 and determined that the calculated doses were within Technical Specification limits.

No violations or deviations were identified.

9. Testing of Air Cleaning Filtration Systems (84724)

Technical Specifications 3/4.7.6 and 3/4.9.11 list the requirements for the Control Room Normal and Emergency Air Handling System and the Spent Fuel Pool Ventilation System, respectively.

The inspector reviewed the results of leak testing of HEPA filters and charcoal adsorber beds conducted since the last inspection. The inspector verified that the surveillance requirements were met.

No violations or deviations were identified.

10. Effluent Radiological Monitoring and Analysis Instrumentation (84723, 84724)

Technical Specification Tables 4.3-8 and 4.3-9 provide surveillance for liquid effluent and gaseous effluent monitoring instrumentation respectively.

The inspector reviewed selected completed Surveillance Test Procedures and verified that the surveillance tests had been performed at prescribed intervals.

The inspector toured the plant, accompanied by a cognizant licensee representative. The inspector noted the installation, configuration, and cleanliness of the gaseous and liquid effluent monitors.

Licensee representatives stated that a gas calibration standard had been received and gas calibrations had been performed on the gamma spectroscopic systems since the last inspection (87-21).

The inspector reviewed the licensee's source certificate for the Mixed Gamma Emitting Gas Standard and the Gas Transfer Accountability Certificate. The inspector also reviewed the calibration and weekly QC and background check records for the gamma spec. systems for the period from July 1987 through November 1987.

The inspector reviewed the following Health Physics Procedures:

- ° HPP-812, Operation and Calibration of the ND-66/HP-9845 Ge(Li) Spectroscopy System, and
- ° HPP-813, Quality Control of the ND-66/HP-9845 Ge(Li) Spectroscopy System.

The inspector determined that the systems had been operated, calibrated, and tested/checked in accordance with Technical Specifications and procedures.

No violations or deviations were identified.

11. Collocated Environmental TLDs (TI 2500/22)

The inspector discussed the environmental TLD program with licensee representatives and gathered the data specified in the instruction. The inspector also visited six sites where NRC and licensee environmental TLDs were collocated.

(Closed) IFI 395/T2500/22 is closed.

No violations or deviations were identified.

12. Contaminated Sludge (84723)

The inspector discussed the licensee's proposed application of dewatered sludge from the sewage lagoon with licensee representatives. The inspector reviewed a letter from SCE&G to DHEC (State of South Carolina), Subject: Virgil C. Summer Nuclear Station Land Application of Sludge, dated November 12, 1987. This letter was the cover for the application to the State for permission to spread the sludge on an area of licensee-owned land and work it into the soil.

Licensee representatives stated that the sludge had been removed from the lagoon and put in a lay down area. A 23-hour count showed detectable levels of Cobalt-60, Cesium-137, Cesium-134, and Uranium series. The licensee stated that the levels of the Cesiums and Uranium series was comparable to that in other environmental samples and was assumed to be from previous atmospheric weapons tests and the Chernobyl incident.

Pending approval from the State of South Carolina, the licensee plans to spread the sludge in the soil in February 1988.

No violations or deviations were identified.