



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

AUG 13 1992

Report Nos.: 50-424/92-15 and 50-425/92-15

Licensee: Georgia Power Company
P. O. Box 1295
Birmingham, AL 35201

Docket Nos.: 50-424 and 59-425 License Nos.: NPF-68 and NPF-81

Facility Name: Vogtle 1 and 2

Inspection Conducted: July 6-10, 1992

Inspector: D. W. Jones 8/15/92
D. W. Jones Date Signed

Approved by: T. R. Decker 8/10/92
T. R. Decker, Chief Date Signed
Radiological Effluents and Chemistry Section
Radiological Protection and Emergency
Preparedness Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of radiological environmental monitoring, radwaste processing, training, audits, and post accident sampling systems.

Results:

In the areas inspected, no violations or deviations were identified.

The licensee's radiological environmental monitoring program was effectively implemented. The program results for 1991 indicated that there was no adverse radiological impact to the environment as a result of plant discharges to the river or to the atmosphere (Paragraph 2).

The results of the licensee's participation in the EPA's interlaboratory crosscheck program indicated that the licensee had maintained an effective quality assurance program for the analysis of environmental samples (Paragraph 3).

No anomalies were noted between the Georgia Department of Natural Resources (GDNR) environmental monitoring program data and the licensee's program data. The range of radioactivity concentrations and general trends observed by the GDNR were comparable to the licensee's data (Paragraph 4).

The licensee had effectively implemented programs for processing liquid and gaseous radioactive wastes. The microfiltration system which was installed during 1991 contributed to the reduction of the radioactivity in the liquid effluents (Paragraph 5).

The licensee had implemented a very effective program for training and qualification of personnel involved in transportation of radioactive material and in radwaste processing (Paragraph 6).

The licensee had also implemented a very effective audit program. The audits were thorough and well documented, the program areas were being audited at the required frequency, and the results were reported to licensee management in a timely manner (Paragraph 7).

Adequate progress was being made to resolve the operational problems with the inline measurement components of the Post Accident Sampling Systems (Paragraph 8).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *H. Beacher, Senior Engineer, Technical Support
- *J. Beasley, Assistant General Manager, Nuclear Operations
- *W. Burmeister, Manager, Engineering Support
- C. Christiansen, Supervisor, Safety Audit and Engineering Review
- *G. Fredrick, Manager, Maintenance
- *F. Hlavin, Radwaste Supervisor, Operations
- *K. Holmes, Manager, Health Physics and Chemistry
- *I. Kochary, Superintendent, Health Physics
- *W. Kitchens, Assistant General Manager, Plant Operations
- M. Kurtzman, Training Supervisor, Health Physics and Chemistry
- *A. Parton, Superintendent, Chemistry
- M. Porter, Nuclear Specialist, Chemistry
- *M. Seepe, Radwaste Supervisor, Health Physics and Chemistry
- F. Scoggins, Radwaste Specialist, Health Physics and Chemistry
- *M. Sheibani, Supervisor, Technical Support
- *W. Shipman, General Manager, Nuclear Operations
- S. Sundaram, Senior Nuclear Specialist, Chemistry
- *C. Tippins, Jr., Nuclear Specialist, Safety Audit and Engineering Review

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

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- T. Allen, Senior Health Physicist, Technical Training Center
- *P. Balmain, Resident Inspector
- *B. Bonser, Senior Resident Inspector
- D. Starkey, Resident Inspector

*Attended exit interview

2. Radiological Environmental Monitoring (84750)

Technical Specifications (TSS) 3/4.12.1 and 6.8.1.3 delineated the sampling and analytical requirements for the licensee's Radiological Environmental Monitoring Program and specified the submittal date and content of the Annual Radiological Environmental Surveillance Report. The inspector reviewed the licensee's report for 1991 and discussed its content with the licensee. The report was submitted prior to May 1, 1992, as required and included the following: a description of the program, a summary and

discussion of the results for each exposure pathway, analysis of trends and comparisons with previous years and preoperational studies, and an assessment of the impact on the environment resulting from plant operations. The report also included the results of the Land Use Census required by TS 3/4.12.2 and the results of the Interlaboratory Comparison Program required by TS 3/4.12.3. The licensee's evaluation of the 1991 environmental monitoring program data for selected exposure pathways indicated the following:

Airborne - I-131 was not detected in any of the charcoal canisters during the year. Gamma isotopic analysis of air particulate filters did not yield any positive results for man-made radionuclides in quarterly composite samples collected during 1991 or the three previous years. The difference between the average weekly gross beta activity on particulate filters for the indicator locations and the control locations was not statistically significant. The average weekly gross beta activity for 1991 was approximately 85 percent of the levels observed during the previous years of operation and was near the lower end of the range of annual averages observed during the preoperational period.

Direct Radiation - The 1991 annual averages of the quarterly dose for the indicator locations and the control locations were approximately the same. Those doses were within 3 percent of the doses measured during the previous years of operation and approximately 10 percent higher than the doses for the preoperational period.

Milk - There were no milk animals found, by the land use census, within 5 miles of the plant and therefore milk samples were not available for indicator locations. Two dairies, 10 and 24 miles away from the plant, were used as control locations. Cs-137 was the only man-made radionuclide detected by gamma isotopic analysis of milk samples collected during 1991 but the observed concentrations were less than the TS required lower limit of detection (LLD) of 18 pCi/l.

Vegetation - Cs-137 was the only man-made radionuclide detected by gamma isotopic analysis of vegetation samples collected during 1991 and the observed concentrations were less than the LLD of 80 pCi/kg, wet, required by TS.

River Water - The 1991 annual average of the tritium concentration for the indicator locations was higher than the annual average for the control locations but

the difference was not statistically significant. The observed concentrations of tritium in the samples collected during 1991 were less than the TS required LLD of 3000 pCi/l.

Drinking Water - Two water treatment plants located 112 and 122 miles downriver served as indicator locations. The 1990 and 1991 annual averages of the tritium concentration in the raw (treatment plant intake) and finished drinking water at the indicator locations were approximately one half of the levels detected during the previous three years of operation and the preoperational period.

Fish - Cs-137 was the only radionuclide of interest detected by gamma isotopic analysis of fish samples collected during 1991 and the observed concentrations were less than the reporting levels of 2000 pCi/kg, wet, required by TS.

Sediment - Cs-137 and Co-60 were detected by gamma isotopic analysis of sediment samples collected during 1991. The average Cs-137 concentration was higher at the indicator location than at the control location but the difference was not statistically significant. The observed Cs-137 concentrations ranged from 200 to 290 pCi/kg, dry, which was slightly higher than the TS required LLD of 180 pCi/kg, dry. The average Co-60 concentration at the indicator location (113 pCi/kg, dry) was approximately twice the level typically found there during previous years of operation (46-62 pCi/kg, dry). The calculated whole body dose due to direct radiation from the sediment was 4.5 microrrem per year, which was less than one percent of the TS limit for liquid effluents.

The report's conclusions section indicated that the program results indicate that there was no adverse radiological impact to the environment as a result of plant discharges to the river or to the atmosphere.

Based on the above reviews and discussions, it was concluded that the licensee's radiological environmental monitoring program was effectively implemented.

No violations or deviations were identified.

3. Environmental Monitoring Quality Assurance Program (34750)

TSs 3/4.12.3 required the licensee to participate in an Interlaboratory Comparison Program as described in the Offsite Dose Calculation Manual (ODCM) and to include a

summary of the results in the Annual Radiological Environmental Surveillance Report. The ODCM indicated that the licensee would participate in the Environmental Protection Agency's (EPA's) Environmental Radioactive Laboratory Intercomparison Studies (Crosscheck) Program. The licensee's report for 1991 included a summary of the results, descriptions of the various types of samples analyzed, and an evaluation of the analytical results. A total of 31 samples were analyzed and statistical evaluation of the results indicated that no EPA control limits had been exceeded but the warning limits were exceeded for 5 samples. The report indicated that investigations were initiated whenever the analytical results for the crosscheck program samples exceed warning limits or whenever trends were observed in the program data. Investigations of the 1991 program data resulted in development of improved geometry corrections and computer software for evaluating background corrections. Generally there was good agreement between the licensee's results and the established values of the radionuclide concentrations in the crosscheck program samples.

Based on the licensee's overall performance in the EPA crosscheck program it was concluded that an effective quality assurance program had been maintained for analysis of environmental samples.

No violations or deviations were identified.

4. State Radiological Environmental Monitoring (84750)

The State of Georgia Department of Natural Resources (GDNR), by contract with the NRC, independently monitors the concentrations of radioactivity in the environs of the licensee's facility and provides an annual report of the results from the monitoring program. The inspector reviewed the GDNR's report for 1991 and discussed its content with the licensee. No anomalies were noted between the GDNR's program data and the licensee's program data. The range of radioactivity concentrations and general trends observed by the GDNR were comparable to the licensee's data.

5. Radwaste Processing (84750)

a. Liquid Radwaste

TS 3/4.11.1.3 described the operational and surveillance requirements for the Liquid Radwaste Treatment System. The system was required to be operable and used to reduce the radioactivity released in liquid effluents. The inspector toured the liquid radwaste processing areas and discussed its operation with the licensee. The licensee indicated that

the microfiltration system which was installed during 1991 contributed to the reduction of the radioactivity in the liquid effluents. The system was designed to remove 90 percent of the particulates larger than 3 microns from the water passed through the filters. The total activity from fission and activation products released during 1990 was 0.9 Ci. That total was reduced to less than 0.3 Ci during 1991 and to less than 0.1 Ci for the first half of 1992.

b. Gaseous waste

TS 3/4.11.2.6 described the operational and surveillance requirements for the waste gas decay tanks. The quantity of radioactivity contained in each tank was limited to 2.0 E+5 Ci of noble gases and the quantity of radioactive material contained in each tank was required to be determined at least once per 24 hours when radioactive materials had been added to the tank during the previous 24 hours. The inspector reviewed procedure No. 35430-C, Rev. 14, "Monitoring of the Radioactive Gaseous Waste Management System" and determined that it included provisions for sampling the tanks in accordance with the sampling plan required by the TS. The inspector also reviewed the test results for two tanks sampled on July 7, 1992, and determined that the quantity limit had not been exceeded.

Based on the above reviews and discussions, it was concluded that the licensee had effectively implemented programs for processing liquid and gaseous radioactive wastes.

No violations or deviations were identified.

6. Training and Qualification (84750 and 86750)

TS 6.3.1 required the licensee to maintain a training and qualification program for the plant staff. The inspector reviewed the licensee's training and qualification programs for plant personnel involved in transportation of radioactive material and in processing radwaste. Those programs were described in the "Health Physics System Master Plan" and the "Radwaste Operator System Master Plan". The programs were of adequate scope and provided for initial training, on-the-job training for specific tasks, and continuing training. The inspector also reviewed the training records for selected individuals and determined that they had been trained in accordance with the program requirements. The inspector also noted the licensee personnel contacted during this inspection who were involved in processing, classifying, and shipping radwaste were well versed in the applicable NRC and DOT regulations and plant procedures.

Based on the above reviews and observations, it was concluded that the licensee had implemented a very effective program for training and qualification.

No violations or deviations were identified.

7. Audits (84750 and 86750)

TS 6.4.2.8 required that audits of plant activities be performed under the cognizance of the Safety Review Board (SRB). The audits were required to encompass, in part, the following: (a) the conformance of plant operation to provisions within the TSs and applicable license conditions at least once per 12 months; (b) the performance, training, and qualification of the entire plant staff at least once per 12 months; (c) the Radiological Environmental Monitoring Program and the results thereof at least once per 12 months; (d) the OFFSITE DOSE CALCULATION MANUAL and implementing procedures at least once per 24 months; (e) the PROCESS CONTROL PROGRAM and implementing procedures for processing and packaging of radioactive wastes at least once per 24 months; and (f) the performance of activities required by the Quality Assurance Program for effluent and environmental monitoring at least once per 12 months. TS 6.4.2.9.c required that reports for the above audits be forwarded to licensee management within 30 days after completion of the audits. The inspector reviewed procedure VSAER-WP-03, Rev. 5, "Safety Audit and Engineering Review Field Audits" and determined that it provided guidance for administering the audit program in accordance with the TS requirements. The inspector also reviewed the following audit reports:

"QA Audit of Health Physics and Radiation Protection-OPO2-S1/31" dated December 19, 1991;

"QA Audit of Health Physics and Radiation Protection-OPO2-92/17" dated June 4, 1992;

"QA Audit of Environmental Monitoring and Environmental Technical Specifications-OPO3-91/39" dated January 24, 1992;

"QA Audit of Environmental Monitoring and Environmental Technical Specifications-OPO3-92/23" dated June 19, 1992;

"QA Audit of Radioactive Waste Control-OPO5-90/53" dated January 30, 1991;

"QA Audit of Radioactive Waste Control-OPO5-91/23" dated July 26, 1991.

The inspector noted that the audits were thorough and well documented, the program areas were being audited at the required frequency, and the results were reported to licensee management in a timely manner.

Based on the above reviews, it was concluded that the licensee had implemented a very effective audit program.

No violations or deviations were identified.

8. Post Accident Sampling System (84750)

TS 6.7.4.d required the licensee to establish, implement, and maintain a program which would ensure the capability to obtain and analyze samples of reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere under accident conditions. The program was required to include training of personnel, procedures for sampling and analysis, and provisions for maintenance of sampling and analytical equipment. The licensee provided the inspector with an update on their progress in resolving the operational problems with the inline measurement components of the post accident sampling systems. (Those problems were previously discussed in Inspection Report Nos. 50-424/92-09 and 50-425/92-09.) The leaking valves had been replaced on the Unit 1 system and acceptable results were being obtained for hydrogen analysis. The valves on the Unit 2 system were of a different type and new valves were ordered on July 6, 1992. A new power supply for the boron analyzer on the Unit 1 system was scheduled to be installed by July 17, 1992. The chloride analyzer on the Unit 1 system was being calibrated on July 9-10, 1991, and a maintenance work order had been issued to correct the polarity of the wiring for the chloride analyzer on the Unit 2 system. The inspector concluded that adequate progress was being made to resolve the operational problems with the inline measurement components.

No violations or deviations were identified.

8. Exit Interview

The inspection scope and results were summarized on July 10, 1992, 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.