



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

SEP 05 1989

Report Nos.: 50-321/89-17 and 50-366/89-17

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

Docket Nos.: 50-321 and 50-366

License Nos.: DPR-57 and NPF-5

Facility Name: Hatch 1 and 2

Inspection Conducted: June 12-16, 1989 and July 31 - August 4, 1989

Inspectors: T. R. Decker for 9/1/89
R. R. Marston Date Signed
T. R. Decker for 9/1/89
C. A. Hughey Date Signed
Approved by: T. R. Decker 9/1/89
T. R. Decker, Chief Date Signed

Radiological Effluents and Chemistry Section
Emergency Preparedness and Radiological
Protection Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of radiological effluents, liquid and gaseous radwaste processing, control room habitability, water chemistry, and special environmental monitoring programs.

Results:

In the areas inspected, violations or deviations were not identified.

Effluents tended to be high compared to other boiling water reactors (BWRs) in the Region. Process and chemistry control appeared to be adequate with the exception of copper in the reactor water. Retubing the condensers with titanium and initiating a hydrogen water chemistry program is expected to solve this problem. A concern regarding the long down-time of the in-line conductivity meter and the hydrogen monitor in the Post Accident Sampling System was identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *B. Arnold, Chemistry Supervisor
- R. Bryant, Plant Chemist
- A. Cowan, Instrumentation and Control Supervisor
- J. Fraser, Quality Assurance Site Manager
- *J. Hammonds, Nuclear Safety and Compliance Supervisor
- *W. Kirkley, Acting Health Physics/Chemistry Manager
- S. Lee, Chemistry Foreman
- A. Manning, Quality Assurance Field Representative
- A. Miller, Chemistry Foreman
- *H. Nix, General Manager
- *W. Rogers, Chemistry Superintendent
- W. Stovall, Radwaste Supervisor
- *S. Tipps, Nuclear Safety and Compliance Manager
- D. Woodson, Junior Engineer

Other licensee employees contacted during this inspection included craftsmen, engineers, operators, security force members, technicians, and administrative personnel.

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- *J. Menning, SRI
- *R. Musser, RI

*Attended exit interview

2. Audits (84750)

The inspector reviewed Quality Assurance (QA) audits within the scope of this inspection which were conducted since the last inspection (50-321, 366/88-33). Audits reviewed were:

- ° 88-RWC-1, QA Audit of Radwaste Control, January 9, 1989. This was an audit of the regulatory and procedural requirements of liquid, gaseous, and solid radwaste controls, and offsite shipment of Dry Active Waste (DAW).
- ° 89-RWC-1, QA Audit of the Radiological Waste Controls Program, May 30, 1989. This was an audit concentrating on solid radwaste processing, scaling factors, use and handling of resin, and solid radwaste shipping programs.

- ° 85-ODCM-1, QA Audit of Offsite Dose Calibration Manual (OCDM), March 8, 1989.
- ° 89-EP-1, QA Audit of Emergency Preparedness. This audit evaluated emergency preparedness items, including Post Accident Sampling System (PASS).
- ° 89-SC-1, QA Audit of Site Chemistry Program, February 6, 1989.

The inspector reviewed audit findings and the tracking and closeout of these items. The inspector also discussed auditor qualifications with the auditor assigned to audit in the Chemistry and Radwaste areas. The inspector concluded that the audit program appeared to be adequate and that the auditor appeared to be well qualified in his assigned audit areas.

No violations or deviations were identified.

3. Procedures (84750)

The inspector selectively reviewed Chemistry Department procedures, primarily those revised since the previous inspection in this area. A licensee representative stated that chemistry procedures were being processed through a Procedure Upgrade Program (PUP) and that seven procedures remained to be reviewed and approved for validation prior to the September 1, 1989 deadline.

The procedures reviewed by the inspector appeared to be adequate for the purposes for which they were intended.

No violations or deviations were identified.

4. Radiological Effluent Instrumentation (84750)

The inspector reviewed selected procedures and records for calibrations and functional tests for the Main Steam Line Monitors, Offgas Post Treatment Monitors, the Main Stack Monitor, and the Liquid Radwaste Monitors and discussed the program with a cognizant licensee representative. The records showed that the monitors had been calibrated at the required frequencies.

The inspector toured the plant with a licensee representative, examining the installation and maintenance of the process and effluent monitors. The inspector also examined the Control Room indicators and recorders. The inspector did not note any discrepancies and cleanliness was adequate.

The inspector examined the Chemistry Department Count Room and Analytical Lab. There were three gamma spectroscopic systems in the Count Room and a proportional counter. A licensee representative stated that the plant did not have a liquid scintillation counter and that liquid scintillation counting was done by the Central Lab in Smyrna, Georgia, or by a vendor.

The inspector reviewed the calibration records for the gamma spectroscopic systems. The systems had been calibrated for the various geometries during May and June 1989. The inspector reviewed the Quality Control (QC) records for the gamma spectroscopic systems, including the control charts, for January 1989 through August 2, 1989.

The QC check consisted of a daily analysis of a source with an efficiency plot, resolution plot, and centroid plot of the 122 keV and 1,332 keV lines. The program was changed starting August 1, 1989. The net count rate was recorded rather than efficiency, data for the three parameters of interest was extracted from the printout and recorded on a data sheet, and the centroid was no longer plotted. Each data sheet showed the days since the last efficiency calibration for the first entry on the sheet. A "remarks" sheet was attached to each package, and comments or explanations were entered for any anomalies which appeared on the plot.

The inspector reviewed the Count Room QC Book which included data and graphs for the Count Room crosscheck programs. Information was included for alpha, beta, and gamma isotopics for 1986 through the second quarter of 1989. These isotopic crosschecks were provided by the Environmental Protection Agency (EPA), the NRC, and an independent contractor. Overall agreement was high.

No violations or deviations were identified.

5. Air Cleaning Systems (84750)

The inspector discussed in-place testing of high efficient particulate air (HEPA) filters and charcoal adsorbers and laboratory testing of charcoal samples from the Control Room habitability ventilation system and Standby Gas Treatment System (SGTS) with a licensee representative. The licensee representative stated that testing was conducted by a vendor. The inspector reviewed records for the most recent testing. The Control Room system tests were last conducted on January 3, 1989, for Train A, and on March 23, 1989, for Train B. SGTS tests were conducted on September 23, 1988 for Unit 1, Train A, and Unit 2, Train A. Unit 1, Train A was retested on April 26, 1989, due to charcoal replacement. Unit 1, Train B was tested on February 16, 1989, and Unit 2, Train B was tested on March 23, 1989. All in-place tests and charcoal tests appeared to be conducted in accordance with Technical Specifications (TSs) and were found to be within limits.

No violations or deviations were identified.

6. Evaluation of Exercises (82301)

On August 2, 1989, at 1:40 p.m., the Chemistry Foreman was notified by telephone that a Site Area Emergency Drill was initiated, and that the Chemistry Staff should report to the Operations Support Center (OSC). The inspector accompanied the Foreman to the OSC and reported by telephone to a Resident Inspector (RI). The RI advised the inspector that he and the

SRI were not participating. The inspector noted that the OSC was being set up. Health Physics (HP) Technicians were frisking people entering the OSC, and equipment was being unpacked.

The basis for the drill was announced. A failure of the reactor to scram was assumed, and RHR Service Water B Pump was assumed to be inoperative:

- ° 1:50 p.m. - The Chemistry Foreman formed teams for external surveys. Three people were dispatched to the Emergency Operations Facility (EOF) to form Offsite Monitoring Teams. Procedure books, log books, and telephone directories were passed to group leaders.
- ° 1:57 p.m. - Status boards were uncovered and posted, and sign-in (accountability) sheets were initiated. The inspector examined several portable survey instruments and noted that calibration was current.
- ° 2:03 p.m. - An announcement was made that no release was underway. Evacuation of nonessential personnel was to be assumed. Evacuation routes were given, instructions to report to the Rally Point were given, and instructions were given not to report to the State Reception Center.
- ° 2:05 p.m. - An announcement was made that the OSC had been declared operational at 2:00 p.m.
- ° 2:12 p.m. - An announcement was made that a fire was reported in the Switchgear Room at the 130 foot level. The HP Foreman started asking his people whether they had fire training. An announcement was made that the Standby Liquid Control System was being injected.
- ° 2:33 p.m. - The drill was terminated.

A request was made that all players fill out the training form and the Critique Sheet, which had been passed out.

The drill appeared to run smoothly and was professionally accomplished. The inspector noted that it would have been helpful for the HP Foreman to have had a list of those personnel with fire training in his procedure book rather than having to ask the people about their qualifications.

No violations or deviations were identified.

7. Liquid Radiological Effluents (84750)

The inspector reviewed selected Liquid Radwaste Release permits and discussed the releases with cognizant licensee representatives. The inspector also reviewed the effluent trend graphs and parts of the TS Surveillance Log. The records showed that surveillances were conducted as required and that releases and doses were well within limits.

No violations or deviations were identified.

8. Gaseous Radiological Effluents (84750)

The inspector reviewed appropriate portions of the TS Surveillance Log and the Offgas Daily Log. The logs showed surveillances performed and monitor and flow readings taken on the Offgas Treatment and other gaseous effluent release points. Surveillances were performed at required frequencies and at the required points. Radiation Monitor readings were taken on the offgas system from the Pretreatment Radiation Monitor, the Post-Treatment Radiation Monitor, and the Main Stack Radiation Monitor. The release information and dose calculations were well within TS and procedural limits.

No violations or deviations were identified.

9. Water Chemistry (84750)

The inspector toured the Analytical Lab and discussed the chemistry program with licensee representatives. The inspector noted that the laboratory was well equipped and clean; however, with the amount of equipment in place, there was little counter space left for working. The inspector discussed PASS and other inline instrumentation with licensee representatives. The conductivity meter on the PASS had been inoperable since 1984, and the hydrogen analyzer had been inoperative since 1987. A licensee representative stated that the conductivity meter had been fixed earlier this year and paperwork had been submitted for a replacement for the hydrogen analyzer.

The inspector examined the Chemistry Trend Charts for 1989, and selectively reviewed the daily Morning Chemistry Reports for July and August 1989, and the Weekly Chemistry Status Reports for January through July 1989. The inspector noted that chemistry parameter values normally remained within administrative limits. The report showed the parameter values for each unit, and provided a means of comparison to Administrative Limits or Goals. The exception to the good chemistry control observed was copper in the reactor water. In Unit 2, copper was frequently above the goal of 10 ppb, and in Unit 1, copper was above the goal when hydrogen injection was shut down. Licensee representatives stated that the source of the copper was the admiralty brass used in the condenser tubes. The representatives stated that Unit 2 condensers would be retubed with titanium tubes during the outage later this year, and that Unit 1 condensers would also be retubed with titanium during the outage early next year.

The hydrogen water chemistry (HWC) used in Unit 1 was discussed with licensee representatives. The licensee representatives stated that original testing of the program was conducted in mid-1986, and that retesting was conducted in early 1987. The initial testing was hampered by electrochemical potential (ECP) measurement problems believed to have

been caused by copper plateout on ECP electrodes. The retest was planned to run for one month to reduce copper effects.

A decrease in copper was noted in reactor water and in the reactor vessel. It was found that a hydrogen injection rate of 42.5 standard cubic feet per minute (scfm) would be required to achieve an ECP of minus 230 millivolts. Management decided that the dose rates would be too high at this level (Main Steam Line Monitor readings would increase by factor of four) and compromised at an injection rate of 22 scfm, which would give an ECP of zero millivolts. It was believed that this rate of injection would cause crack growth to decrease by a factor of 10. The licensee stated that it was planned to install an online means to measure crack growth.

No violations or deviations were identified.

10. Radwaste Operations (84750)

The inspector toured the plant, inspecting components of the radwaste systems and discussing them with licensee representatives. The licensee representatives stated that the radwaste organization was composed of 13 people working for the Radwaste Supervisor who worked for the Operations Superintendent. The radwaste operators were trained as plant equipment operators, attended a six week course for radwaste operators, and then spent four to five days per quarter in retraining. The licensee representatives stated that the equipment was operable and caused few problems. The radwaste control room was clean and had "plumbing and wiring" diagrams on the control panels for ease of use.

Licensee representatives stated that there had been no abnormal or unplanned releases during 1989 to date.

No violations or deviations were identified.

11. Environmental Monitoring Program (84750)

The inspector reviewed results of the licensee's groundwater monitoring program on plant property for tritium levels. Decreases in levels were noted for most wells and some increases noted for well T-3.

The inspector also reviewed the licensee's report, Plant Hatch Units 1 and 2, Results of Augmented Radiological Environmental Monitoring Program for 1988. This program was implemented as a result of a release of radioactive water from the spill of the spent fuel storage pools (SFSPs) in December 1986, and its subsequent entry into the onsite swamp east of the cooling towers. Samples were collected in 1987, and in June and December 1988. The sediments and organic matter as well as grass samples were isotopically analyzed and compared. The range of variability had decreased from 1987 to 1988, and the average concentration showed a considerable decrease during the same period. The licensee made the decision to decrease the sampling frequency to once per year.

No violations or deviations were identified.

12. Followup Items (92701)

The inspector discussed NRC Information Notice (IN) 89-37, Proposed Amendments to 40 CFR Part 61, Air Emission Standards for Radionuclides, dated April 4, 1989, with license representatives. Licensee representatives stated that the Information Notice had been received and sent to the HP/Chemistry Department for evaluation. The inspector reviewed documentation dated May 1989, which acknowledged receipt of the IN by the HP/Chemistry Department.

13. Review of Licensee's Operational Upgrade Efforts - Units 1 and 2 (84750)

In April 1988, the licensee voluntarily initiated a program to upgrade certain aspects of operational performance. This program is discussed in NRC Inspection Report Nos. 50-321/88-14 and 50-366/88-14. The areas discussed below were reviewed by the inspector during June 12-16, 1989, and are considered to be closed.

a. Chemistry Control Deficiencies

The licensee decided to establish a chemistry problem management process to ensure that all significant plant chemistry problems were identified and tracked, and that increased management attention would be given to significant chemistry problems to ensure timely corrective actions. Upper management, including the Executive Vice President, was to be included in this process to ensure adequate attention. Evidence of this program's effectiveness can be supported by the corrective actions implemented in the subsequent discussion areas.

b. Chemistry Control of Reactor Building Chilled Water System and Recombiner Closed Cooling Water System

Previous leaks in these systems' heat exchangers and chemistry parameters frequently being outside of specified limits had resulted in increased corrosion rates within these systems, increased liquid radwastes, and increased chemical usage (corrosion inhibitor). In order to correct and prevent recurrence of these problems, the licensee had taken the following corrective actions:

1. Procedures 62CH-SAM-027-OS and 60AL-HPX-010-OS had been revised to allow chemistry technicians to add corrosion inhibitors to systems requiring treatment.
2. The recombiner closed cooling water heat exchanger had been eddy current tested and all existing leaks were plugged. The Unit 2 pump seals were repaired to eliminate system leaks through the seals.

3. Chemistry parameters and surge tank levels were monitored daily to ensure proper corrosion inhibitor concentrations and to minimize system leakage.
4. A program to monitor long term corrosion rates and assess the effectiveness of corrosion inhibitors was developed.

c. Chemistry and Laboratory Safety

Because of a previous lack of attention by plant management in the area of chemistry personnel protection and equipment, the licensee decided to strengthen the safety program by taking the following actions:

1. The chlorination building chlorine gas monitor, which had been inoperable for a long period of time, was replaced and returned to service.
2. Flow indicators were installed on all sample hoods to verify adequate hood ventilation flow.
3. Explosion-proof light covers were installed at the chemical storage building and all sample hoods.
4. The desiccant in the bulk acid storage tank vent used to prevent moisture from entering the tank was replaced with an indicating type and was to be checked and replaced on a regular periodic basis.
5. A chemistry department directive was issued addressing laboratory safety.

d. Expand Plant Chemistry Layup Program

In order to provide specific guidance to plant personnel for protecting plant equipment during outages, the licensee expanded the plant layup program by developing and approving plant procedure 60-AC-HPX-011-05, Plant Systems Layup. This procedure addresses layup requirements and techniques for specific plant equipment during short and extended outages. A long term program to evaluate the effectiveness of these various layup techniques was in progress.

14. Offgas Hydrogen Measurements (84750)

During an independent review conducted June 12-16, 1989, the inspector conducted a random review of selected Chemistry Department procedures. This review included procedure 64CH-GCL-101-05, Hydrogen, Rev. 0, July 18, 1988, which describes the back-up method of hydrogen analysis in the offgas system. This procedure indicated that the oxygen content of the atmosphere to be measured should be a least 10 percent to insure accurate instrument response to hydrogen measurements. Because of concerns that

the offgas atmosphere may not be greater than 10 percent, the inspector discussed this matter with a cognizant licensee representative. The representative stated that prior to implementing this procedure, oxygen content of the offgas system was verified at the appropriate sample points to be greater than 10 percent. This was because of the use of HWC which required the addition of excess oxygen prior to the offgas recombiner to insure sufficient amounts of oxygen to recombine with hydrogen that was injected into the reactor feedwater system for HWC control. The licensee representative also indicated that this method was used as a backup method of hydrogen measurement only when the required in-line offgas hydrogen analyzers were out of service and that the in-line analyzers had been very reliable. The inspector determined that this concern was adequately addressed.

No violations or deviations were identified.

15. Exit Interview

The inspection scope and results were summarized on August 4, 1989, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed above. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

The inspector stated the areas inspected and that there were no findings. The inspector noted that a concern was the long down time of the in-line conductivity meter and the hydrogen monitor in the PASS.