



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

JUN 14 1985

Report Nos.: 50-321/85-15 and 50-366/85-15

Licensee: Georgia Power Company  
P. O. Box 4545  
Atlanta, GA 30302

Docket Nos.: 50-321 and 50-366

License Nos.: DPR-57 and NPF-5

Facility Name: Hatch 1 and 2

Inspection Conducted: May 6 - 10, 1985

Inspector: <u><i>W. T. Cooper</i></u>	<u>6/7/85</u>
<u><i>R. H. Albright</i></u>	<u>6-7-85</u>
Approved by: <u><i>C. M. Hosey</i></u>	<u>6/7/85</u>
C. M. Hosey, Section Chief	Date Signed
Division of Radiation Safety and Safeguards	Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 80 inspector-hours on site in the areas of Control of Radioactive Material, Internal and External Dosimetry, Health Physics Training and Qualifications and ALARA. The inspector also reviewed the licensee's use of the PCM-1 Portal Monitor.

Results: Of the five areas inspected, one violation was found in the area of calibration of personnel contamination portal monitors.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*H. Nix, General Manager, Plant Hatch
- \*P. Fornel, QA Site Manager
- \*R. Zavadoski, Manager, Health Physics and Chemistry
- D. Smith, Supervisor, Health Physics
- \*M. Link, Laboratory Supervisor
- \*D. Elder, QA Field Representative
- \*A. Cure, Health Physicist
- \*D. Vaughn, Senior QA/R
- \*C. Stancil, Senior Compliance Engineer
- \*D. McCusker, Q.C. Supervisor

Other licensee employees contacted included eight technicians, and six office personnel.

#### NRC Resident Inspector

- \*P. Holmes-Ray

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on May 10, 1985, with those persons indicated in paragraph 1 above. The licensee was informed of an apparent violation involving the high voltage settings of two PCM-1 personnel contamination portal monitors (paragraph 5). Licensee management acknowledged the apparent violation. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

### 3. Licensee Action on Previous Enforcement Matters

(Closed) Deviation 50-321/83-32-07. This deviation concerned the calibration of the High Range Primary Containment (Drywell) Radiation Monitors in accordance with NUREG-0737, Item II.F.1. The inspector reviewed and verified the corrective actions as stated in Georgia Power Company's letter of February 6, 1984.

### 4. External Exposure Control and Personal Dosimetry (83724)

10 CFR 20.101 specified the applicable radiation dose standards. The inspector reviewed computer printouts for the period April-May 1985 and verified that the radiation doses recorded for plant personnel were within the quarterly limits of 20.101(a).

10 CFR 20.202 required each licensee to supply appropriate personnel monitoring equipment to specific individuals and require the use of such equipment.

The inspector reviewed the following plant procedures which established the licensee's program for personnel monitoring of external dose in accordance with 10 CFR 20.202:

60AC-HPX-01-0 Radiation Exposure Limits  
60AC-HPX-02-0 Personnel Dosimetry Program

The inspector discussed with the dosimetry supervisor, the licensee's quality control and assurance measures for assuring accurate dosimetry results furnished by the vendor.

The inspector reviewed the records of TLD badge cross checks for the months of October and November 1984.

During tours of the plant, the inspector observed workers wearing appropriate personnel monitoring devices.

Technical Specification 6.8.1 required the licensee to have written radiation protection procedures, including the use of radiation work permits. The inspector reviewed plant procedure HNP-8008 which provided detailed instructions on the preparation and processing of Radiation Work Permits (RWPs).

The inspector reviewed selected active RWPs for appropriateness of the radiation protection requirements based on work scope, location, and conditions. During tours of the plant, the inspector observed the adherence of plant workers to the RWP requirements.

10 CFR 20.408(b) required that when an individual terminates employment with a licensee, or an individual assigned to work in a licensee's facility but not employed by the licensee completes the work assignment, the licensee furnish the NRC a report of the individual's exposure to radiation and radioactive material incurred during the period of employment or work assignment, containing information recorded by the licensee pursuant to 10 CFR 20.401(a) and 10 CFR 20.108. 10 CFR 20.409 required that the licensee send a report to the individual if the report is sent to the NRC in accordance with 10 CFR 20.408. 10 CFR 20.401(a) required each licensee to maintain records showing the radiation exposure of all individuals for whom personnel monitoring is required under 10 CFR 20.202 of the regulations. Such records shall be kept on Form NRC-5 or equivalent.

The inspector discussed the reporting requirements with licensee representatives and reviewed selected individual exposure records maintained by the licensee.

10 CFR 20.203 specified the posting, labeling and control requirements for radiation areas, high radiation areas, airborne radioactivity areas and

radioactive material. Additional requirements for control of high radiation areas are contained in Technical Specification 6.12.

During tours of the plant, the inspector reviewed the licensee's posting and control of radiation areas, high radiation areas, airborne radioactivity areas, contamination areas, radioactive material areas and the labeling of radioactive material.

No violations or deviations were identified.

5. Internal Exposure Control (83725)

10 CFR 20.103(a) establishes the limits of exposure of individuals to concentrations of radioactive materials in air in restricted areas. This section also requires 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 intakes of radioactivity.

The inspector reviewed selected results of bioassays (whole body counts) and the licensee's assessment of individual intakes of radioactive material performed during the period April, 1985.

10 CFR 20.103(b) required the licensee to use process or other engineering controls, to the extent practicable, to limit concentrations of radioactive material in air to levels below that specified in Part 20, Appendix B, Table I, Column 1 or limit concentrations, when averaged over the number of hours in any week during which individuals are in the area, to less than 25 percent of the specified concentrations.

The use of process and engineering controls to limit airborne radioactivity concentrations in the plant was discussed with licensee representatives and the use of such controls was observed during tours of the plant.

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 any individual within seven consecutive days as far below 40 MPC-hours as is reasonably achievable. By review of records, observations and discussions with licensee representatives, the inspector evaluated the licensee's respiratory protection program, including the quality of breathing air, and the issue, use, decontamination, repair and storage of respirators.

The inspector reviewed the following plant procedures which established the licensee's internal exposure control and assessment program and verified that the procedures were consistent with regulations, Technical Specifications and good health physics practices:

HNP-8013 Whole Body Counter Systems  
 HNP-8013 Airborne Radioactivity Concentration Determination  
 HNP-8042 Radiological Work Practices  
 60AC-HPX-001-0 Radiation Exposure Limits  
 60AC-HPX-003-0 Bioassay Program  
 60AC-HPX-004-0 Radiation and Contamination Control  
 60AC-HPX-006-0 Respiratory Protection Program

No violations or deviations were identified.

#### 6. Surveys, Monitoring, and Control of Radioactive Material (83726)

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 reviewed the following plant procedures which established the licensee's radiological survey and monitoring program and verified that the procedures were consistent with regulations, Technical Specifications and good health physics practices:

HNP-8012 Radiation and Contamination Surveys  
 HNP-8024 In-Plant Radiation Level Monitoring  
 HNP-8029 Plant Site Survey  
 HNP-8050 Survey Frequency and Work Scheduling  
 60AC-HPX-004-0 Radiation and Contamination Control  
 HNP-8040 Maintenance and Operation of Portable High Efficiency Particulate Atmosphere (HEPA) Filtration Units.

During tours of the plant, the inspector observed health physics technicians performing radiation and contamination surveys.

The inspector evaluated the licensee's use of the Eberline Model PCM-1 Portal Monitor to satisfy the frisking requirements specified in Hatch Procedure #60AC-HPX-004-01, Radiation and Contamination Control. The procedure requires that a whole body frisk be performed when exiting a contaminated area, and a hand and foot frisk be performed when exiting the RCA. The Eberline Personnel Contamination Monitor, Model PCM-1 is a microprocessor based radiation detection system which can provide a quick indication of Beta-Gamma contamination on personnel through the utilization of fifteen gas flow proportional detectors. Plant procedure HNP-8161, Eberline Model PCM-1 Portal Monitor Operation and Calibration, outlines system parameters and modes of operation and calibration.

The inspector requested that the licensee perform several tests on the PCM-1. The tests were conducted using a 10,000 disintegration per minute (DPM) licensee source composed of seventy-five percent Cobalt 60 and twenty-five percent Cesium-137 evenly deposited on a 100 cm<sup>2</sup> plastic plate. This source was designed to cause the PCM-1 to alarm at 100 counts per



minute above background. The inspector used the source to test selected detectors. The inspector found that the PCM-1 could detect 100 cpm above background on the detectors tested except for two areas that the inspector determined to be detector blind spots. The blind spots were found to be in the areas of the top and side of the shoe, and depending upon the height of the person being surveyed, the top of the head. The inspector requested that the licensee obtain a smear of approximately 20,000 dpm. When the smear was placed in the areas identified as blind spots, the PCM-1 was capable of detecting the activity. The inspector reviewed selected calibration records for the PCM-1 monitors. The inspector found that two monitors, number 102 and number 108 appeared to have the high voltage set below the knee of the high voltage plateau. Plant procedure HNP-8161 section (G) (3)(i) requires that the high voltage be set at a point which is midway on the measured beta plateau. The inspector requested that the licensee plot the plateaus for all PCM-1 monitors. The high voltage plateau plots completed by the licensee indicated that PCM-#102 was set 150 volts low and that PCM-#108 was set 50 volts low. Failure to set high voltages at a value near the midpoint of the high voltage plateau, as required by procedure HNP-8161, was identified as an apparent violation of Technical Specifications 6.8.1 (321,366/85-15-01).

The inspector reviewed Hatch Procedure HNP-8161 with licensee representatives. Licensee representatives stated that the following improvements would be made to the procedure:

1. HNP-8161(3)(k) required plateau verification of the 14 other detectors by counting the beta source when the high voltage is adjusted by -50, 0, and +50 volts from the selected plateau value. This check is not currently being documented. Licensee representatives stated that this voltage check will be documented.
2. Three counts per detector were used to make the efficiency determination for each detector. These counts are not documented, but rely upon the technician's ability to mentally add the numbers which appear on the PCM-1 display. Licensee representatives stated that the efficiency counts would be documented for each detector.
3. Daily instrument response checks were not currently being compared to an acceptable count rate for the standard used. Licensee representatives stated that the daily response checks would be plotted to insure that the standard counts fall within the 95% confidence level for the standard used.
4. There was no method currently in place to determine the quality of the P-10 fill gas used in the PCM-1 monitors. Licensee representatives stated that a method to determine the quality of the P-10 fill gas would be developed and/or a calibration check would be performed on the PCM-1 when P-10 cylinders were changed.

The manufacturer of the PCM-1 is in the process of developing the PCM-1A, which will be a reconfiguration of the detector assemblies to encompass the area of the shoe and head where blind spots are currently located. The manufacturer is also producing a modification package which will upgrade the PCM-1 to PCM-1A specifications. This package will be available in mid 1986. Until the licensee acquires the modification packages, licensee management stated that a health physics technician would perform a random survey of approximately six personnel per hour each day at the RCA exit after they had passed through the PCM-1 monitor.

7. ALARA Program (83728)

10 CFR 20.1(c) stated that persons engaged in activities under licenses issued by the NRC should make every reasonable effort to maintain radiation exposure as low as reasonably achievable (ALARA). The recommended elements of an ALARA program were contained in Regulatory Guide 8.8, Information Relevant to Ensuring that Occupational Radiation 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 the current year.

During calendar year 1984, 2165 man-rem were expended. During 1984, approximately 900 man-rem were expended due to recirculation pipe replacement work. As of May 1, 1985, the actual collective exposure for calendar year 1985 was 340 man-rem which represented 28 percent of the estimated exposure for the year.

No violations or deviations were identified.

8. Licensee Audits and Surveillance (83722, 83723, 83724, 83725, 83726, 83728, 84722, and 86721)

The inspector reviewed selected audits from 1984 and 1985 related to radiation protection, radioactive waste management, and transportation of radioactive material. The audits performed by Quality Assurance appeared comprehensive and thorough in scope.

No violations or deviations were identified.

9. Inspector Followup Items (92701)

a. (Closed) Inspector Followup Item (IFI) 50-321/83-32-06

The inspector reviewed changes made to Plant procedure HNP-5362 "Victoreen Model 876 Electronic Adjustment." The procedure now requires a calibration each 18 months and requires the calibration of

the High Range Primary Containment (Drywell) Radiation Monitors in accordance with NUREG-0737, Item II.F.1-3.

- b. (Closed) IFI 50-321,366/84-09-01, 84-09-02

The inspector reviewed and discussed a letter from the Health Physics, Laboratory Supervisor to Regulatory Compliance which stated that as of May 1, 1984, all current quarter termination whole body counts would be reported in accordance with 10 CFR 19.13.

- c. (Closed) NUREG-0737, Item II.F.1-3, In containment high range radiation monitors. This item was closed after review of licensee action for Deviation 50-321/83-32-07 and IFI 50-321/83-32-06 which are discussed in this report.

#### 10. IE Information Notices (92717)

The following IE Information Notice was reviewed to ensure its receipt and review by appropriate licensee management:

IN-84-75: Calibration Problems - Eberline Instrument Model 6112B Analog Teletectors.

#### 11. IE Circulars (92717)

The following IE circular was reviewed to ensure its receipt and review by appropriate licensee management:

IEC: 79-21: Prevention of Unplanned Releases of Radioactivity.

#### 12. Solid Radwaste Statistics

During 1984 the licensee shipped 87,000 cu. ft. of solid radwaste. This volume is above average for other comparable facilities and can be attributed to the 1984 major outage for recirculation pipe replacement. The solid radwaste target volume for 1985 is 60,000 cu. ft. As of May 1, 1985, approximately 19,743 cu. ft. of radwaste had been shipped.