



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W., SUITE 2900
 ATLANTA, GEORGIA 30323

JUN 29 1987

Report Nos.: 50-321/87-13 and 50-366/87-13

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

Inspection Conducted: June 8-12, 1987

Inspectors:	<u>C Bassett</u>	<u>6/23/87</u>
	C. H. Bassett	Date Signed
	<u>F. N. Wright</u>	<u>6/24/87</u>
	F. N. Wright	Date Signed
Approved by:	<u>C. M. Hosey</u>	<u>6/24/87</u>
	C. M. Hosey, Section Chief	Date Signed
	Division of Radiation Safety and Safeguards	

SUMMARY

Scope: This was a routine unannounced inspection in the area of radiation protection including: organization and management controls; training and qualifications; internal exposure control; control of radioactive materials and contamination, surveys and monitoring; the program to maintain exposures as low as reasonably achievable (ALARA); solid radioactive waste processing; transportation of radioactive materials; followup of previous enforcement and open items; and IE Bulletin and Information Notice followup.

Results: One violation - failure to comply with regulations applicable to the transportation of licensed material.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *H. C. Nix, Plant Manager
- *R. W. Zavadoski, Manager, Health Physics/Chemistry
- *T. R. Powers, Manager, Engineering Support
- *P. E. Fornel, Manager, Maintenance
- *D. S. Read, Manager, Plant Support
- *T. Moore, Manager, Training and Emergency Preparedness
- *L. Sumner, Manager, Operations
- *D. Hopper, Manager, Radiological Safety, Corporate
- *W. H. Rogers, Superintendent, Health Physics
- *D. Smith, Supervisor, Health Physics
- M. L. Link, Supervisor, Health Physics
- *S. Bethay, Supervisor, Nuclear Safety and Compliance
- *R. W. Ott, Supervisor, Health Physics/Chemistry Training
- *J. I. Hammonds, Supervisor (Acting), Independent Safety Evaluation Group
- R. M. Anderson, Foreman, Health Physics
- *G. M. Creighton, Procedure Specialist
- *R. E. Bradley, Senior Nuclear Engineer
- *D. J. Elder, Senior Quality Assurance Field Representative
- B. S. Ford, Junior Engineer, Nuclear Safety and Compliance
- E. M. Cobb, Chairman, Offsite Safety Review Board
- O. Vidal, Senior Shift Technical Advisor (Acting)
- T. J. Kirkham, Health Physics
- M. D. Rigsby, Health Physicist

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

Nuclear Regulatory Commission

- *P. Holmes-Ray, Senior Resident Inspector

- *Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on June 12, 1987, with those persons indicated in Paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings including: an apparent violation for failure to ensure that a radioactive material shipment complied with DOT shipping requirements (Paragraph 10) and an Unresolved Item* regarding the control of Special Nuclear Material (Paragraph 7). The licensee acknowledged the inspection findings and took

*An Unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation or deviation.

no exceptions. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

(Closed) Violation (50-321/86-34-02 and 50-366/86-34-02). Failure to conspicuously post radiation areas. The inspector reviewed and verified the implementation of the corrective actions stated in Georgia Power Company's letter of February 23, 1987.

(Closed) Unresolved Item (50-321/87-04-02 and 50-366/87-04-02). Assessment of intake of radioactive material during work on Unit 2 Reactor Water Clean-up (RWCU) pump and impeller on June 8, 1986. The item was left as an unresolved item pending review of the licensee's dose assessment by the regional office staff. The regional office staff completed its review of the licensee's dose assessment and no deviations or violations were identified.

4. Organization and Management Controls (83722)

a. Organization

The licensee was required by Technical Specification 6.2 to implement the plant organization as shown in Figure 6.2.2-1. The inspector reviewed changes made to the licensee's organization staffing level and lines of authority as they relate to radiation protection and radioactive material control and verified that the changes had not adversely affected the licensee's ability to control radiation exposures and radioactive material.

The inspector discussed with the Radiation Protection Manager the type, methods, and degree of interaction between plant groups. The inspector discussed with selected Health Physics Foremen how frequently they toured the plant and radiation control areas.

b. Staffing

Technical Specification 6.2.2 specified minimum plant staffing. The inspector discussed authorized staffing with the Radiation Protection Manager. The licensee's health physics staff of ninety included seventy-one health physics technicians. In addition, the licensee's staff was supplemented with approximately seventy contract health physics technicians for outage related activities.

No violations or deviations were identified.

5. Training and Qualifications (83523)

10 CFR 19.12 required the licensee to instruct all individuals working in or frequenting any portion of the restricted area in health protection

problems associated with exposure to radioactive material or radiation, in precautions or procedures to minimize exposure, in the purpose and functions of protective devices employed, in applicable provisions of Commission regulations, and in individual responsibilities and the availability of radiation exposure data.

The inspector discussed the radiation protection aspects of the general employee training (GET) program with licensee representatives and selectively reviewing the training records of personnel from various plant organizations.

No violations or deviations were identified.

6. Internal Exposure Control and Assessment (83725)

a. Intake Assessment

10 CFR 20.103(a) established limits for exposure of individuals to concentrations of radioactive materials in air in restricted areas. 10 CFR 20.103(a) also required 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 general in-plant air samples taken during calendar year 1987 and the results of air samples taken in support of refueling outage work authorized by routine and job specific radiation work permits (RWPs). The inspector also reviewed selected results of whole body counts and the licensee's assessment of individual intakes of radioactive material performed during calendar year 1987. There was one instance in which a worker received greater than 40 maximum permissible concentration-hours (MPC-hrs) in one week.

On May 17, 1987, a worker entered the hot machine shop (HMS) to inspect a highly contaminated hinge pin from a Unit 1 valve. During this inspection, the worker noted some pitting and gaul marks on the pin which he removed using emory cloth. At some point during the job, the worker's right glove became torn, so another glove was placed over the damaged one. After an air sample was taken, the worker was allowed to remove the respirator he had been wearing. He then completed the job and exited the area. When the individual attempted to frisk out at the Unit 1 Satellite Building, he found himself contaminated. A health physics technician began surveying the worker and supervision was informed. Contamination levels of 260,000 disintegration per minute (dpm) were found around the individual's nose, mouth and mustache and a nasal swab read 140,000 dpm. Efforts were then begun to decontaminate the individual.

The worker received seven decontamination showers and two whole body counts on May 17, 1987, prior to being released to go home on the basis of a whole body frisk using an Eberline E-120. Whole body counts were continued on a daily basis until June 2, 1987, when the frequency was reduced to every third day. Four fecal and seven urine samples were also collected over the period from May 18 to 21, 1987. Preliminary data from the first series of whole body counts indicated that the highest activity seen was approximately one microcurie of cobalt-60 and two microcuries of zinc-65 in the lower torso. Preliminary estimates indicated the intake was less than the 20.103(a)(1) limit of 520 maximum permissible concentration-hours (MPC-hrs).

Because the evaluation of the bioassay data of this event had not been completed prior to end of the inspection, and final dose and MPC-hrs had not been assigned, the inspector informed the licensee that this would be an inspector followup item to be reviewed during a future inspection (50-321/87-13-01).

b. Process and Engineering Controls

The licensee was required by 10 CFR 20.103(b) to use process or other engineering controls, to the extent practicable, to limit concentrations of radioactive material in air to levels below those specified in Part 20, Appendix B, Table I, Column 1, or limit concentrations, when averaged over the number of hours in a 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 such controls was observed during tours of the plant.

c. Respiratory Maintenance and Fit Testing

Through discussions with licensee representatives it was noted that after use, respirators were cleaned in a washing and drying facility located onsite. The clean respirators were then surveyed, inspected, tested and packaged for use. Respirators were issued only after a worker's training, fit testing and medical evaluation had been verified either by checking on a computer terminal located at the issue point or on a printout listing the names of those individuals qualified and the dates of their qualifications.

The inspector reviewed the following procedures:

- Respiratory Protection Program, 60AC-HPX-006-OS, Rev. 1, dated June 10, 1985.

- Use and Care of Respirators, 62RP-RAD-003-OS, Rev. 0, dated May 3, 1985.
- Quantitative Fit Testing, 62RP-RAD-020-OS, Rev. 2, dated September 9, 1986.

No violations or deviations were identified.

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

a. Surveys and Calibration

10 CFR 20.201 requires each licensee to make such surveys as (1) may be necessary for the licensee to comply with the regulations and (2) are reasonable under circumstances to evaluate the extent of radiation hazards that may be present.

During tours of the plant, the inspector observed the use of survey instruments by plant staff. The inspector examined calibration stickers on radiation protection instruments in use by licensee staff. The inspector performed independent radiation surveys in the reactor building and verified that the areas were properly posted.

b. Frisking

During tours of the plant, the inspector observed the exit of workers and movement of material from contamination control to clean areas to determine if proper frisking was performed by workers and that proper direct and removable contamination surveys were performed on materials.

c. Survey Records

The inspector reviewed selected radiation and contamination survey results for the month of June 1987 and discussed with licensee representatives the documentation of surveys and the review process to ensure surveys were performed as required.

d. Material Inventory

While touring the 185' elevation of the reactor building with licensee representatives on June 9, 1987, the inspector observed a 55-gallon drum labeled as special nuclear material (SNM). The inspector questioned licensee representatives as to the contents of the drum. Licensee representatives stated that the drum contained four fission chambers.

The inspector reviewed the SNM inventory record just prior to the inspection exit meeting. The SNM inventory dated April 21, 1987, showed the four fission chambers to be on the refuel floor and not on the 185' elevation of the reactor building. The inspector stated

that the inventory discrepancy would be considered an unresolved item pending a detailed review of applicable procedures and records regarding the fission detectors (50-321/87-13-02).

No violations or deviations were identified.

8. Program for Maintaining Exposures As Low As Reasonably Achievable (ALARA) (83728)

10 CFR 20.1(c) specified that licensees should implement programs to keep workers' doses ALARA. FSAR Chapter 12 also contained licensee commitments regarding worker ALARA actions.

a. Outage Activities

The inspector discussed various aspects of the licensee's ALARA program pertaining to the current outage with licensee representatives. The estimated exposure for the outage was 290 man-rem. As of June 11, 1987, with over 95 percent of the work completed, 408 man-rem had been expended (measured by self-reading pocket dosimeters). Underestimation of the exposure involved on certain jobs and a typical 20 percent difference between the exposure recorded by self-reading dosimeters and that recorded by TLD were reasons given for exceeding the goal.

The most dose-intensive tasks during the outage were the reactor water clean-up (RWCU) heat exchanger repair work which accounted for 23.2 man-rem and the control rod drive (CRD) transfer, repair and replacement work which resulted in 16.5 man-rem.

b. Goals and Objectives

The licensee indicated that the man-rem goal for 1986 had been 1100 while actual accumulated exposure totaled 1680 man-rem. Among reasons given for exceeding the 1986 goal was the extension of the 3-month outage to 5 months and the 10 year inservice and Appendix R inspections required more exposure than had been anticipated or planned.

The goal for 1987 was set at 1060 man-rem. As of June 11, 1987, and after near completion of the scheduled outage, 612 man-rem had been expended. The licensee indicated that the 1987 goal should be achieved.

c. ALARA Program

The inspector reviewed the procedure dealing with ALARA:

ALARA Program, 60AC-HPX-009-OS, Rev. 1, dated April 23, 1987.

The procedure contained the elements of the ALARA program including ALARA goals, job planning and review, the composition of the Plant ALARA Review Committee and the responsibilities of plant personnel for ALARA. The focus of the program was the job pre-planning and post-completion review effected through the ALARA Review Package.

d. Personnel Contamination

As of June 11, 1987, there had been 436 personnel contaminations, of which 165 were skin contaminations. This compares favorably with the data from the licensee's data for 1986 which indicated a total of 1867 personnel contaminations, 498 of which were skin contaminations. The data reflects a downward trend in personnel contaminations.

No violations or deviations were identified.

9. Solid Waste (84722)

10 CFR 20.311 required a licensee who transfers radioactive waste to a land disposal facility to prepare all waste so that the waste was classified in accordance with 10 CFR 61.55 and met the waste characteristic requirements of 10 CFR 61.56. It further established specific requirements for conducting a quality control program and for maintaining a manifest tracking system for all shipments.

The licensee ensured waste stability through the use of metal liners and high integrity containers (HICs). The inspector discussed the air drying system used to prepare spent resins for shipment with licensee representatives. The operation of the air drying system was also observed and the operating procedure reviewed. The inspector also observed the transfer of a HIC containing dried, spent resin from the waste processing building of Unit 1 to a shipping cask on a flatbed trailer. Control of the area, surveys of the HIC and processing equipment and monitoring of personnel appeared to be adequate.

The inspector reviewed the shipping manifest of the aforementioned resin shipment and reviewed the following related procedures:

Shipment and Receipt of Radioactive Material, 62RP-RAD-011-OS, Rev. 2, dated March 16, 1987

Resin Packaging and Classification, 62RAD-023-OS, Rev. 3, dated April 19, 1987.

No violations or deviations were identified.

10. Transportation (86721)

10 CFR 71.5(a) requires that each licensee who transports licensed material outside the confines of its plant or other place of use, 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 173.441(b)(1) requires that radiation levels at any point on the external surface of a package transported by exclusive use vehicle not exceed 1,000 millirem per hour.

By letter dated March 9, 1987, the South Carolina Department of Health and Environmental Control notified the licensee of a problem with waste shipment number 87-012-RW. The shipment arrived at the Chem-Nuclear Systems, Inc. burial facility near Barnwell, SC on March 2, 1987, and during unloading, two boxes, HPN-87-033 and HPN-87-034, were found to have radiation levels listed on the licensee's manifest in excess of Department of Transportation (DOT) limits. Box HPN-87-033 was listed as having a contact radiation level of 1300 milliroentgens per hour (mR/hr) and Box HPN-87-034 was listed as having a contact radiation level of 2200 mR/hr. The shipment was classified as Radioactive Material, LSA, not otherwise specified and was described as dry compacted waste contained in 7 metal dumpsters. The containers were subsequently buried at the disposal site.

The letter from the State of South Carolina stated that radiation levels in excess of allowable limits (1000 mr/hr) at the surfaces of the packages was a violation of 49 CFR 173.441(b)(1). The licensee was temporarily prohibited from shipping radioactive waste to SC and was assessed a civil penalty of two thousand-five hundred dollars (\$2,500.00), which was paid by the licensee.

The inspector reviewed and discussed with licensee representatives their investigation of the event. The licensee indicated that an organization in the corporate office had been responsible for providing the plant with updated information concerning changes to various requirements and regulations including those of the DOT. Although the limits for allowable radiation levels at the surface of a package had changed in October 1985, the corporate office had failed to notify plant personnel.

As a result of this event, the licensee reviewed the procedures for the shipment of radioactive waste for burial and inadequacies were corrected. DOT limits and administrative limits for the radiation levels on the surface of a package were added to the procedures. A review was conducted of all shipping procedures for compliance with the regulations. All personnel associated with radioactive waste shipments were briefed on the violation and the procedural changes. A review of previous shipments made during the past two years indicated no other shipments had been made with surface radiation levels in excess of 1000 mr/hr. Updates of 49 CFR Parts 100 to 177 were ordered from a vendor and continual updates requested.

The state of South Carolina has reviewed the licensee's corrective actions and has lifted the prohibition on shipping material into the State for burial.

Failure of the licensee to comply with the DOT shipping requirements by shipping two boxes with surface radiation levels in excess of 1000 mr/hr was identified as an apparent violation of 10 CFR 71.5(a) (50-321, 366/87-13-03).

11. Licensee Audits

The inspector discussed the audit program related to radiation protection, control of radioactive material and solid radioactive waste with licensee representatives. The inspector reviewed the audit objectives, checklist, notes and corrective action for audit findings. The inspector reviewed the following audits:

86-HP-1, Audit of Health Physics Program, January 28-February 13, 1986.

86-HP-2, Audit of Health Physics Program, May 21-June 20, 1986.

86-RWC-1, Audit of Solid Radioactive Waste, February 24-March 17, 1986.

No violations or deviations were identified.

12. Inspector Followup Items (92701)

(Closed) Inspector Followup Item 50-321/87-04-02 and 50-366/87-04-02. This item concerned the lack of formalized procedural controls for the health physics key control program. The licensee revised plant procedure 30-AC-SEC-002, Key and Annunciated Door Control, Rev. 2, dated May 20, 1987, to incorporate the method health physics uses to control the issuance of keys to radiation areas greater than one rem per hour at 18 inches.

13. Followup on IE Bulletins (92703)

(Closed) BUL (78-BU-07)

On June 12, 1978, the NRC issued IE Bulletin No. 78-07 which indicated that the protection provided by air-line supplied-air respirators operated in the demand mode was much less than originally estimated. Licensees were required to perform a review of the plant respiratory protection program and outline actions to be taken to assure protection of personnel using air-line supplied-air respirators operated in the demand mode. The licensee's response, dated August 10, 1978, indicated that such respirators were not used in the demand mode and that no further actions were required.

The inspector discussed the respiratory protection program with licensee representatives and determined that the licensee's policy had not changed and that air-line supplied-air respirators were not being used in the demand mode.

14. IE Information Notices (IEN) (92717)

The inspector determined that the following information notices had been received by the licensee, reviewed for applicability, distributed to appropriate personnel and that action, as appropriate, was taken or planned.

86-20, Low-Level Radioactive Waste Scaling Factors, 10 CFR Part 61

86-22, Underresponse of Radiation Survey Instrument to High Radiation Fields

86-23, Excessive Skin Exposures Due to Contamination with Hot Particles

86-24, Respirator Users Notice: Increased Inspection Frequency for Certain Self-Contained Breathing Apparatus Air Cylinders

86-41, Evaluation of Questionable Exposure Readings of Licensee Personnel Dosimeters

86-42, Improper Maintenance of Radiation Monitoring Systems

86-43, Problems with Silver Zeolite Sampling of Airborne Radioiodine

86-44, Failure to Follow Procedures when Working in High Radiation Areas

86-46, Improper Cleaning and Decontamination of Respiratory Protection Equipment

86-55, Delayed Access to Safety-Related Areas and Equipment During Plant Emergencies

86-86, Clarification of Requirements for Fabrication and Export of Certain Previously Approved Type B Packages

86-103, Respirator Coupling Nut Assembly Failures

87-03, Segregation of Hazardous and Low-Level Radioactive Waste

87-07, Quality Control of Onsite Dewatering/Solidification Operations by Outside Contractors

15. Enforcement Conference

An Enforcement Conference was held by telephone on June 17, 1987, to discuss the transportation of radioactive materials. The following persons participated:

a. Georgia Power Company

L. Gucwa, Manager, Nuclear Safety and Licensing, Corporate
D. Hopper, Manager, Radiological Safety, Corporate
R. Baker, Licensing Engineer
J. Lambariski, Corporate Attorney
J. T. Beckham, Vice President, Plant Hatch
R. W. Zavadoski, Manager, Health Physics/Chemistry
M. L. Link, Supervisor, Health Physics

b. Nuclear Regulatory Commission

V. L. Brownlee, Chief, Reactor Projects Branch 2
G. R. Jenkins, Director, Enforcement and Investigation
C. M. Hosey, Chief, Facilities Radiation Protection Section
C. H. Bassett, Radiation Specialist

During the meeting licensee personnel presented discussions of the transportation event described in Paragraph 10 covering (1) sequence of events, (2) root cause of the event, (3) short term corrective actions, and (4) long term corrective actions.

NRC representatives discussed the significance of the transportation problem and NRC enforcement policy in this area.