



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

SEP 26 1986

Report No.: 50-261/86-20

Licensee: Carolina Power and Light Company
 P. O. Box 1551
 Raleigh, NC 27602

Docket No.: 50-261

License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: August 18-22, 1986

Inspectors: <u>Roy C. Weddington</u>	<u>9/18/86</u>
R. E. Weddington	Date Signed
<u>B. K. Revsin</u>	<u>9/18/86</u>
B. K. Revsin	Date Signed

Accompanying Personnel: F. N. Wright

Approved by: <u>Douglas M. Collins</u>	<u>9/21/86</u>
for C. M. Hosey, Section Chief	Date Signed
Division of Radiation Safety and Safeguards	

SUMMARY

Scope: This routine, unannounced inspection in the area of radiation protection included: previous enforcement matters; organization and management controls; training and qualifications; external exposure control; internal exposure control; control of radioactive material; solid waste processing; transportation of radioactive material and a special assessment of the licensee's program for maintaining occupational radiation exposures as low as reasonably achievable (ALARA).

Results: One violation was identified for failure to provide adequate procedures for control of radioactive material and respirator fit testing.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. C. Abbott, Senior Specialist, Regulatory Compliance
- *D. F. Boan, Radiation Control Foreman
- *M. Crabtree, Radiation Control Foreman
- *D. S. Crocker, Supervisor, Radiation Control
- *J. M. Curley, Director, Regulatory Compliance
- *S. A. Griggs, Regulatory Compliance
- R. Hammond, ALARA Specialist
- *P. C. Harding, Health Physics Project Specialist
- *E. M. Harris, Director, Onsite Nuclear Safety
- *R. E. Morgan, General Manager
- J. Petitegaut, ALARA Specialist
- W. T. Ritchie, Supervisor, Radiation Control
- *A. H. Shepherd, Regulatory Compliance
- *R. M. Smith, Manager, Environmental and Radiation Control
- B. Snipes, Training Specialist
- B. B. Toney, Radiation Control Foreman
- *D. L. Weaver, Radiation Control Foreman
- *H. J. Young, Director, Quality Assurance/Quality Control

Other licensee employees contacted included two technicians.

NRC Resident Inspectors

- *H. Krug, Senior Resident Inspector
- *R. Latta, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on August 22, 1986, with those persons indicated in Paragraph 1 above. The apparent violation with two examples for inadequate procedures applicable to control of radioactive material (Paragraph 7) and respiratory protection (Paragraph 8) was discussed in detail. The licensee acknowledged the inspection findings and took no exceptions. 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 (92702)

(Closed) Violation (50-261/86-09-01) Failure to comply with regulations applicable to the transportation of licensed material. The inspector

reviewed and verified the implementation of the corrective actions stated in Carolina Power and Light Company's (CP&L) letter of July 18, 1986.

(Closed) Violation (50-261/86-09-02) Failure to post and control a high radiation area. The inspector reviewed and verified the implementation of the corrective actions stated in CP&L's letter of July 18, 1986.

4. Organization and Management Controls (83722)

The inspector reviewed the licensee's organization, staffing level and lines of authority as they related to radiation protection, radioactive material control and transportation of radioactive material and verified that the licensee had not made organizational changes which would adversely affect the ability of the licensee to control radiation exposures, radioactive material or transportation activities.

No violations or deviations were identified.

5. Training and Qualifications (83723)

a. Advanced Radiation Worker Training

The licensee was in the process of implementing a training program for a category of radiation workers designated as Advanced Radiation Worker (ARW). This program was designed to take plant workers other than Health Physics (HPs) and provide them with a more extensive background in HP in order to permit them to perform certain tasks normally performed by a HP technician. The training consisted of completion of Level III radiation worker training (a one week course consisting of classroom and practical factor demonstration) and two weeks of on-the-job training during which the ARW demonstrated job proficiency by completion of qualification checkout cards. At the time of the inspection, three individuals had completed the training but had not yet taken the final examination for ARW training.

The licensee stated that the intent of the program was to increase the worker's responsibility for his own radiation exposure which was the result of a company wide program to diminish collective exposures at its various facilities. The licensee stated that limits had been placed on the activities of the ARW in that they could not cover work when the dose rate in an area was greater than 1000 millirem per hour or when the removable contamination exceeded 50,000 disintegrations per 100 square centimeters. Additionally, when an ARW's quarterly exposure reached one rem, they were to be removed from ARW duties involving radiation exposure for the remainder of the quarter.

The inspector reviewed the qualification files of the three individuals who had participated in the ARW program and verified that they had completed Level III training as required. The inspector also reviewed Training Instruction No. 304, Related Technical and Health Physics

Coverage "OJT" for Selected Plant Personnel, Revision 0, May 13, 1986, which contained the lesson plan for Level III training.

b. General Employee Training (GET)

The licensee was required by 10 CFR 19.12 to provide basic radiation safety training for workers. Regulatory Guides 8.27, 8.29, and 8.13 provides an outline of topics that should be included in such training. The inspector reviewed the lesson plans and course outlines for radiation worker Level I and II training. The self-help material developed by the licensee for the employee was also reviewed. Selected records of radiation workers were examined to verify that their GET training was current. Lesson plans for annual GET retraining were also reviewed.

No violations or deviations were identified.

6. External Exposure Control (83724)

10 CFR 20.203 specifies the posting, labeling, and control requirements for radiation areas, high radiation areas, airborne radioactivity areas and radioactive material areas. Additional requirements for control of high radiation areas are contained in Technical Specification 6.13.

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

10 CFR 20.202 requires each licensee to supply appropriate personnel monitoring equipment to specific individuals and to require the use of such equipment. During tours of the plant, the inspector observed workers wearing appropriate personnel monitoring devices.

No violations or deviations were identified.

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

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

On one tour, the inspector observed health physics technicians surveying and segregating pieces of electrical conduit in the licensee's radioactive waste segregating area. The health physics technicians were surveying the exterior of the conduit. Upon completion of the external survey, the conduit was either tagged as contaminated radioactive material or placed in

an open metal bin which would later be released to the site landfill outside of the protected area.

The inspector noted that no surveys were being performed to access potentially contaminated internal surfaces of the conduit placed in the bin. The inspector discussed the adequacy of the conduit release survey with licensee representatives. The licensee informed the inspector that contamination smears of the pipe ends would be made prior to its release to the waste landfill.

Technical Specification 6.5.1.1.1.a requires written procedures to be established, implemented, and maintained for the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978.

Appendix A of Regulatory Guide 1.33-1978, Section 7.e(4) specified contamination control as a typical safety-related activity that should be covered by written procedures.

The inspector reviewed the licensee's procedure HPP-004, Revision 7, Radiological Control of Tools and Equipment, June 11, 1986, which was utilized in the control of items released to unrestricted areas. The inspector found the licensee's procedure did not provide adequate guidance for evaluating the radioactivity on inaccessible surfaces of potentially contaminated items in that the interior surfaces of all items were not required to be surveyed.

Failure to provide adequate guidance in written procedures to cause appropriate surveys to be performed for the evaluation of the internal contamination of items released to uncontrolled areas was identified as an apparent violation of Technical Specification 6.5.1.1.1.a (50-261/86-20-01).

The inspector performed independent radiation surveys in the auxiliary building, radwaste building and around outside areas of the plant site and verified that the areas were properly posted and controlled.

Through a review of licensee records, the inspector determined that the licensee was reducing the contaminated areas of the plant. Of approximately 80,000 square feet of the plant's operating area (excluding containment), 3,000 square feet was contaminated or about 4%.

8. Internal Exposure Control (83725)

- a. 10 CFR 20.103(a) established the limits for exposure of individuals to concentrations of radioactive materials in air in restricted areas. This section also required that appropriate bioassays be performed to detect and assess individual intakes of radioactivity.

The inspector reviewed the following plant procedures and verified that they were consistent with applicable regulations.

- ° HPP-105, Revision 7, Grab Air Sampling and Control of MPC Hours, August 14, 1986.
 - ° HPP-110, Revision 6, Inspection and Maintenance of Respiratory Equipment, August 7, 1986.
 - ° DP-016, Revision 0, Collection and Handling of Urine and Fecal Samples for Bioassay, April 13, 1984.
 - ° DP-018, Revision 3, Personnel Whole Body Counting, June 6, 1986.
 - ° ERC-004, Revision 1, Internal Dosimetry Program, January 15, 1986.
 - ° HPP-005, Revision 3, Control of Personnel Contamination and Decontamination Techniques, January 9, 1986.
- b. 10 CFR 20.103(a)(3) requires the licensee to use measurements of radioactivity in the body, measurements of radioactivity excreted from the body, or any combination of such measurements as may be necessary for timely detection and assessment of individual intakes of radioactivity by exposed individuals.

Licensee procedure ERC-004, Revision 1, Internal Dosimetry Program, January 15, 1986, specified an action level requiring a whole body count (WBC) whenever nasal swabs exceed 10,000 disintegrations per minute (dpm).

The potential problems associated with such a high action level were discussed with licensee management. The licensee stated that it had been routine policy to prescribe a WBC upon detection of any radioactive contamination found from nasal swabs. The licensee agreed to revise their procedures to reflect actual assessment practices.

The licensee's nasal/whole body count action limit in its procedures will be reviewed during subsequent inspections (IFI 50-261/86-20-02).

- c. 10 CFR 20.103(b) requires 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 reviewing records, observations and discussions with licensed representatives, the inspector determined that the licensee maintained internal exposures well below regulatory limits. The inspector also reviewed the licensee's respiratory protection program, including training, medical qualifications, fit-testing, maximum permissible concentration (MPC) hour controls,

quality of breathing air and the issue, use, repair, and storage of respirators.

Technical Specification 6.5.1.1.1.a required written procedures to be established, implemented, and maintained for the applicable procedure recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978.

Appendix A of Regulatory Guide 1.33-1978, Section 7.e(5) specified respiratory protection as a typical safety-related activity that should be covered by written procedures.

10 CFR 20.103(c) allows the licensee to make allowance for the use of respiratory protection equipment in estimating exposures of individuals to airborne radioactive material provided that the licensee maintains and implements a respiratory protection program that includes, as a minimum, written procedures regarding fitting of respirators.

By review of licensee records, the inspector determined that protection factor credit had been taken for the use of self-contained breathing apparatus (SCBA) equipment by a licensee employee. The employee's records showed that the employee had been fit tested with a Mine Safety Appliance (MSA) facepiece and had received training on the use of the Scott SCBA, however, the employee had not been fit tested with the Scott SCBA facepiece.

Through a review of licensee procedures for respiratory protection, the inspector determined that licensee Procedure HPP-102, Revision 4, Respiratory Fit Testing, May 16, 1986, did not require personnel to be fit tested with the Scott SCBA facepiece.

Failure to require adequate fit testing requirements in written procedures was identified as a second example of an apparent violation of Technical Specification 6.5.1.1.1.a (50-261/86-20-01).

9. Maintaining Exposures ALARA (83728)

10 CFR 20.1(c) specified that licensees should implement programs to keep worker's doses 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 Exposure at Nuclear Power Stations Will Be ALARA," and Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Exposures ALARA."

In July 1985, the licensee initiated a Radiation Exposure Reduction Program as a result of a task force study conducted by personnel from all the licensee's nuclear facilities and support organizations. The goal of this program was to lower collective personnel exposures at each station to within industry standards by concentrating on supervisory responsibility and accountability for radiation protection, employee awareness and involvement in radiation safety, and improvement of the radiological work environment.

Licensee representatives stated that management commitment to reducing plant exposures came from the highest corporate and plant levels and was very strong. Plant management was routinely kept apprised of station exposure broken down into exposure by work unit for the preceding week as well as monthly totals. In addition, the manager for each craft had been made responsible for establishing the craft's ALARA goals for the year and these goals along with those for the entire station required approval by the plant manager. ALARA elements had also been incorporated into each manager and worker's annual performance appraisal to implement exposure accountability.

During routine operation, plant foremen were kept informed of their crew's exposure status on a weekly basis via computer printout so that accumulated dose could play a role in work assignments. During refueling outages, exposure printouts continued to be sent to the foremen weekly, but in addition, such data could be provided to the foremen daily if requested.

The inspector reviewed several pre- and post job ALARA reviews from the spring 1986 refueling outage. The licensee stated that post job reviews were required when the collective dose for a job exceeded 10 man-rem, and the prejob estimate of man-rem was in error by 25 percent or more. It was noted that in some instances where errors in man-rem estimates were greatest were those jobs or plant modifications where the lead time may have been shorter than desired for job pre-planning, e.g., steam generator blowdown sample valve replacement.

ALARA information was communicated to the worker by several mechanisms: (1) mandatory monthly safety meetings, (2) postings of a graphic nature about the plant and unit specific exposure goals and station performance in relation to those goals and (3) through an employee newsletter called "Flashlight" which was distributed to each employee weekly. The inspector noted that the licensee had not implemented an employee suggestion and incentive program, and discussed with the licensee the success of these types of programs as delineated in NUREG/CR-4254, "Occupational Dose Reduction and ALARA at Nuclear Power Plants." The licensee stated that such a program had been discussed and that it was still under review.

The inspector reviewed the following procedures which implemented the ALARA program:

- ° ERC-001, Radiological Control and Protection, Revision 4, November 22, 1985
- ° ERC-003, Temporary Shielding Procedure, Revision 4, May 28, 1986
- ° ERC-006, ALARA Program, Revision 2, May 22, 1986
- ° ERC-007, ALARA Goals, Revision 0, January 15, 1985
- ° ERC-008, ALARA Review of Plant Procedures and Plant Modifications, Revision 0, January 14, 1985.

The inspector discussed the goals and objective for 1986, with licensee representatives and reviewed the man-rem estimates for 1985 and 1986. For 1985, the projected man-rem for the facility had been 375 man-rem while the actual man-rem received was 310 as measured by TLD. For 1986, the estimated collective exposure was 450 man-rem and at the end of July 1986, the collective dose had been 458 man-rem. The licensee stated that they had a secondary goal of 500 man-rem which was the average exposure for Westinghouse pressurized water reactors for the years, 1979-1983. It was recognized by the licensee that 500 man-rem would be difficult not to exceed with five months left in the operating year. However, the licensee felt that with judicious planning and no unforeseen problems, the goal was achievable.

No violations or deviations were identified.

10. Solid Waste (84722)

- a. 10 CFR 20.203(e) requires that each area or room in which licensed material is used or stored in excess of ten times the quantity of the material listed in Appendix C be posted as a radioactive materials area.

During tours of the plant, the inspector verified that radioactive materials storage areas were properly posted.

- b. While conducting a tour of the radwaste facilities, the inspector noticed temporary connections from a solid waste processing system that was being utilized to fill a cask with evaporator bottoms. The inspector determined that the licensee had installed the temporary system to replace the solid waste system described in Section 11.4 of the licensee's Final Safety Analysis Report (FSAR).

10 CFR 50.59 requires that when licensees make changes to the facility from those described in the FSAR, that records of those changes be maintained. These records shall include a written safety evaluation which provides the bases for the determination that the change does not involve an unreviewed safety question. Additionally, the licensee shall furnish to the NRC at least annually, a report containing a brief description of the changes including a summary of the safety evaluation. The licensee making a change in the facility as described in the FSAR, which involve an unreviewed safety question, are also required to submit an application for license amendment pursuant to 10 CFR 50.90.

Section 11.4.2.2, Solid Waste Processing System of the H. B. Robinson FSAR states:

"The Solid Waste Solidification Subsystem packages solid wastes in standard 55 gallon drums for removal to burial facilities. Concentrates from the waste evaporator are pumped into drums which are subsequently filled with cement."

The licensee had identified and documented by means of internal memoranda dated August 11 and 18, 1986, the need to apply the requirements of 10 CFR 50.59 for the radwaste system modification. The inspector determined that the modification to the system was several years old, however, and during this time, the licensee had failed to meet the requirements of 10 CFR 50.59.

The licensee was informed that failure to make changes to the FSAR, perform a safety analysis of the modification, and report the significance of the safety evaluation to the NRC would normally be considered a violation of the requirements of 10 CFR 50.59. However, the NRC Enforcement Policy, 10 CFR 2, Appendix C, 1986, states that a Notice of Violation will generally not be issued for violations identified by the licensee, if (1) it was identified by the licensee; (2) it fits in Severity Level IV or V; (3) it was reported, if required; (4) it was or will be corrected, including measures to prevent recurrence, within a reasonable time; and (5) it was not a violation that could reasonably be expected to have been prevented by the licensee's corrective actions for a previous violation. The inspector stated that this apparent violation met the criteria specified in 10 CFR 2, Appendix C and would be considered licensee identified. The inspector stated that the implementation of the yet completed long term corrective actions would be reviewed during future inspections (50-261/86-20-03).

11. Transportation (86721)

10 CFR 71.5 requires that licensees who transport licensed material outside the confines of its plant or other place of use, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation in 49 CFR Parts 170 through 189.

The inspector reviewed selected records of radioactive waste and radioactive material shipments performed during fiscal years 1985 and 1986. The shipping manifests examined were prepared consistent with 49 CFR requirements. The radiation and contamination survey results were within the limits specified for the mode of transport and shipment classification. The inspector selectively performed independent calculations using licensee's records of material radioactive nuclide composition and verified that the shipments reviewed had been properly classified.

No violations or deviations were identified.