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

Report No.: 50-261/85-13

Licensee: Carolina Power and Light Company
411 Fayetteville Street
Raleigh, NC 27602

Docket No.: 50-261 License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: March 11 - April 10, 1985

Inspectors: H. E. P. Krug, Senior Resident Inspector — 19 APR 85 Date Signed

H. C. Whitcomb, III, Resident Inspector — 19 APR 85 Date Signed

Approved by: P. E. Fredrickson, Section Chief, Division of Reactor Projects — 4/23/85 Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 276 inspector-hours on site in the areas of technical specification compliance, plant tour, operations performance, reportable occurrences, housekeeping, site security, surveillance activities, maintenance activities, quality assurance practices, radiation control activities, outstanding items review, IE Bulletin and IE Notice followup, organization and administration, independent inspection and enforcement action followup.

Results: Of the areas inspected, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

R. Barnett, Maintenance Supervisor, Electrical
G. Beatty, Manager, Robinson Nuclear Project Department
C. Crawford, Manager, Maintenance
*J. Crocker, Principal Specialist, Radiation Control
J. Curley, Manager, Technical Support
B. Flanagan, Engineering Supervisor - Nuclear
F. Lowery, Manager, Operations
*R. Morgan, Plant General Manager
B. Reick, Manager, Control and Administration
D. Stadler, Director, Regulatory Compliance
*J. Sturdavant, Technician, Regulatory Compliance
*A. Wallace, Director, Onsite Nuclear Safety
*C. Wright, Senior Specialist, Regulatory Compliance
*H. Young, Director, QA/QC

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

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on April 9, 1985, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings. No written material was provided to the licensee by the resident inspectors during this report period. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Plant Tour

The inspectors conducted plant tours periodically during the inspection interval to verify that monitoring equipment was recording as required, equipment was properly tagged, and operations personnel were aware of plant conditions. Plant housekeeping efforts were observed to be outstanding. The inspectors determined that appropriate radiation controls were properly established, excess equipment or material was stored properly, and combustible material was disposed of expeditiously. During tours the inspectors looked for the existence of unusual fluid leaks, piping vibrations, pipe hanger and seismic restraint abnormal settings, various

valve and breaker positions, equipment clearance tags and component status, adequacy of fire fighting equipment, and instrument calibration dates. Some tours were conducted on backshifts.

Improvements to the Robinson Radiological Protection Program continue under strong management direction. Licensee letter RNPD/85-202 dated January 31, 1985, titled "Closeout of PNSC Action Items Regarding Locked High Radiation Area (LHRA) Access Controls" describes and promulgates the initial state of the licensee's long term plan for improved LHRA controls. Described are planned improvements in the areas of administrative controls, general employee training, LHRA access controls and the reduction of the number of LHRAs through the use of such measures as additional shielding, flushing and decontamination.

The licensee installed shielding in the pipe alley to reduce dose rates in the area where IE Bulletin 79-14 hangers were being repaired. The dose rates were reduced from 100 mR/hr to less than 50 mR/hr, saving about 1.5 man-rem for this work. The licensee is fabricating a shadow shield, to be installed at the boric acid storage tank filter, which is expected to allow the radiation control group to reduce the posting requirements in that area. The licensee is also evaluating methods of shielding the waste holdup tank in an effort to reduce the posting requirements near the tank.

Also, licensee letter RNPD/85-522 dated March 7, 1985, distributes the latest licensee self evaluation against the INPO guidelines; and requires appropriate supervisors to develop action plans addressing the recommendations by March 31, 1985. This licensee self evaluation is both comprehensive and specific. Current plans and modifications to the licensee Radiological Protection Program are being reviewed by the inspectors.

The inspectors reviewed the most recent changes to licensee measures which had been established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies and nonconformances, have been expanded to included all HBR Project personnel. Prior to these changes, the site QA/QC department was the only group which was designated with the responsibility of performing functions related to the nonconformance reporting program. Specific improvements included revisions to QAP-204, "Nonconformance Control", and AP-002, "Plant Conduct of Operations".

The inspectors performed valve lineup verifications and system status checks on the following systems:

a. Emergency Electrical Busses

b. Process and Area Radiation Monitoring Systems

c. Emergency Diesel Generator

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

5. Technical Specification Compliance (71707, 62703, 61726)

During this reporting interval, the inspectors verified compliance with selected limiting conditions for operations (LCO's) and reviewed results of selected surveillance tests. These verification were accomplished by direct observation of monitoring instrumentation, valve positions, switch positions, and review of completed logs and records.

Within the area inspected, no violations or deviations were identified.

6. Plant Operations Review (71707, 67203)

Periodically during the inspection interval, the inspectors reviewed shift logs and operations records, including data sheets, instrument traces, and records of equipment malfunctions. This review included control room logs, maintenance work requests, auxiliary logs, operating orders, standing orders, jumper logs, and equipment tagout records. The inspectors routinely observed operator alertness and demeanor during plant tours. The inspectors conducted random off-hours inspections during the reporting interval to assure that operations and security remained at an acceptable level.

On March 8, 1985, results of the Reactor Coolant System (RCS) daily primary coolant sample indicated an increase in Iodine (I-131 and I-133) activity levels from normally observed values (typical values range from 1 to 3 E-4 microcuries/gram for I-131 and 1 to 2 E-3 microcuries/gram for I-133). The plant was at 100% power and had been operating at this power without interruption for several days. Results of the RCS sample (units in Microcuries/gram) are as follows:

Date/Time	I-131	I-133	DOSE EQUIVALENT 1-131
3/8/85-1617	1.78E-2	4.05E-1	3.14E-2

Appreciable changes in Cesium (Cs-134 and Cs-137) activity levels (typical values range from 4 to 6 E-4 microcuries per gram for Cs-134 and 7 to 9 E-4 microcuries for Cs-137) was not observed until a plant trip occurred on March 18, 1985. Technical Specification 3.1.4 requires that the specific activity in microcuries/gram of the reactor coolant shall typically not exceed 1.0 microcuries/gram DOSE EQUIVALENT I-131 and shall never exceeds 100/E microcuries/gram total under all modes of operations (where E is the average of beta and gamma energy (MEV) per disintegration of the specific activity.) Limited operation (up to 48 hours) is allowed should the specific activity of the primary coolant exceed 1.0 microcuries/gram DOSE EQUIVALENT I-131. Therefore, although an increase in Iodine levels was apparent, these levels were still within Technical Specification limits.

Licensee response to these abnormal chemistry results included the organization of a task force to track and determine the cause of the increase. This task force consisted of personnel from the site Environmental and Radiation controls department and was augmented by personnel from both the Harris Environmental Center (utilizing the mobile counting lab) and the

corporate staff. RCS sampling and gaseous effluent exhaust monitoring frequencies were increased to provided quicker detectability should further increases occur. By March 17, 1985, the coolant activity levels had decayed to a steady state level somewhat higher than had been previously experienced at H. B. Robinson during its operational history (typically 1.33 E-2 microcuries/gram DOSE EQUIVALENT I-131).

A reactor trip occurred at 1409 on March 18, 1985. Chemistry samples were taken at 1410, 1430, and hourly thereafter. Significant results of these samples are as follows:

Date/Time	I-131	I-133	DOSE EQUIVALENT	Cs-134	Cs-137
3/18 - 1410	1.3E-2	5.5E-3	1.4E-2	6.6E-4	8.1E-4
3/18 - 1430	6.1E-1	4.5E-1	7.6E-1	1.7E-2	2.6E-2
3/18 - 1530	8.5E-1	6.2E-1	1.06	3.2E-2	5.4E-2
3/18 - 1730	7.6E-1	5.3E-1	9.3E-1	2.7E-2	4.7E-2

As can be seen from the chemistry data, both Iodine and Cesium levels increased rapidly shortly after the trip occurred. The peak activity levels were experienced approximately 1.5 hours later with the DOSE EQUIVALENT I-131 activity exceeding 1.0 microcuries/gram for about 2 hours.

By March 21, 1985, Iodine and Cesium activity levels decreased to steady state values observed prior to the trip. The task force is continuing to monitor RCS activity levels closely. Sampling frequencies have been reduced but chemistry personnel are prepared to respond to any detectable coolant activity changes. The licensee and fuel manufacturer have coordinated their efforts in determining the cause of the increased coolant activity. As of this report, it is suspected that the increased activity has originated from a small fraction of the Cycle II fuel. Efforts are continuing to determine the exact amount and location of the fuel with the activity release.

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

7. Physical Protection (71707)

The inspectors verified by observation and interview during the reporting interval that measures taken to assure the physical protection of the facility met current requirements. Areas inspected included the organization of the security force, the establishment and maintenance of gates, doors and isolation zones in the proper condition, access control and badging was proper, that search practices were appropriate, and that escorting and communication procedures were followed.

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