



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30303

Report No.: 50-261/78-28

Docket No.: 50-261

License No.: DPR-23

Licensee: Carolina Power and Light Company  
336 Fayetteville Street  
Raleigh, North Carolina 27602

Facility Name: H. B. Robinson 2

Inspection at: Hartsville, South Carolina

Inspection conducted: November 27 - December 1, 1978

Inspector: G. R. Jenkins

Reviewed by:

*[Signature]*  
for A. F. Gibson, Chief  
Radiation Support Section

Fuel Facility and Materials Safety Branch

12/12/78  
Date

Inspection Summary

Inspection on November 27 - December 1, 1978 (Report No. 50-261/78-28)

Areas Inspected: Routine, unannounced inspection of radioactive effluent releases, records and reports of radioactive effluents, and procedures for controlling and evaluating effluent releases. The inspection involved about 32 inspector-hours on site by one NRC inspector.

Results: Of three areas inspected, no items of noncompliance or deviations were identified.

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DETAILS I

Prepared by:

G. R. Jenkins  
 G. R. Jenkins, Radiation Specialist  
 Radiation Support Section  
 Fuel Facility and Materials Safety Branch

12/11/78  
 Date

Dates of Inspection: November 27 - December 1, 1978

Reviewed by:

A. F. Gibson  
 for A. F. Gibson, Chief  
 Radiation Support Section  
 Fuel Facility and Materials Safety Branch

12/12/78  
 Date

1. Individuals Contacted

- \*R. B. Starkey, Plant Manager
- D. S. Crocker, E&RC Supervisor
- \*M. L. Layton, Senior Generation Specialist, E&RC
- \*W. L. MacCready, Engineer, E&RC
- \*D. R. Gainey, Jr., RC&T Foreman
- J. A. Eaddy, RC&T Foreman
- J. Sawyer, Engineering Technician
- F. Watkins, Engineering Technician
- W. Christenson, RC&T Technician

\*Denotes those present at exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Open Item (78-23-04) Supplement to Semi-Annual Report. Corrected copies of two pages to January-June, 1978, Semi-Annual Report have been received and reviewed. (Details I, paragraph 6.d.)

3. Unresolved Items

No new unresolved items were identified during this inspection.

4. Radioactive Effluent Releases - Liquid

- a. An inspector discussed processing and release of liquid radwaste with licensee representatives and reviewed the controls applied through the liquid waste release permits (LWRP). A licensee representative stated that a new liquid waste evaporator was installed about one year ago. He said the evaporator is rated at 15 gpm and has performed well thus far.

- b. Based on information provided in the Semi-Annual Reports for the periods July-December, 1977, and January-June, 1978, the release rates of radioactive liquid effluents were well within the limits specified in Technical Specification 3.9.1. An inspector reviewed all LWRP's for the 1st Quarter, 1978, and verified that the release rates over that period were well within the technical specification limits. The inspector also verified that where the licensee's more restrictive administrative limits were exceeded, the appropriate review and approvals were obtained prior to release. This review further verified that liquid waste sampling and analysis was done during that period in conformance with the technical specification requirements.
- c. The routine analyses performed prior to each release consist of tritium, by liquid scintillation counting; gross particulate, by proportional counting of an evaporated sample; and dissolved noble gases, by NaI gamma spectrometry. The sum of the particulate and noble gas concentrations is entered on the LWRP as gross beta-gamma concentration, which forms the basis for the daily administrative limit on activity released. In reviewing the 1st Quarter, 1978, LWRP's, the inspector found several examples where errors were made in adding the particulate and noble gas concentrations. Also, a few errors were noted in the calculation, for accountability purposes, of activity released based on sample concentration and volume released. Although the net effect of the errors observed did not appear to be significant, the inspector stated that the need for more care and attention to detail by the technicians was indicated. The RC&T foreman concurred, and held a meeting with the technicians to emphasize those concerns.

#### 5. Radioactive Effluent Releases - Gaseous

- a. An inspector discussed with licensee representatives the sampling and evaluation of gaseous effluents prior to releases and for accountability purposes, and reviewed the application of the gaseous waste release permit (GWRP) to the control of releases. During these discussions, a licensee representative said that the steam generator blowdown system was modified during the Spring, 1978, refueling outage to install a heat exchanger prior to the flash tank. This mode of operation is used for reactor power above 30%, effectively eliminating gaseous releases from the blowdown system. Prior to this modification, the licensee assumed steam generator blowdown to be released as 30% steam and 70% water.

- b. Based on information provided in the Semi-Annual Reports for the periods July-December, 1977, and January-June, 1978, the release rates of radioactive gaseous effluents were well within the limits specified in Technical Specification 3.9.2. An inspector reviewed all GWRP's for the 2nd Quarter, 1978, and verified that the release rates during that period were well within the technical specification limits. The inspector also verified that sampling and analysis of gaseous wastes was performed during that period in conformance with T.S. 3.9.2 and Table 4.1-2, Item 10.

6. Records and Reports of Radioactive Effluents

- a. Based on detailed reviews of waste release permits and weekly summary reports, as well as spot checks of other supporting documentation, the inspector had no questions regarding the adequate maintenance of effluent records.
- b. The inspector performed a detailed review of the liquid and gaseous effluent data provided in the Semi-Annual Report for the period January-June, 1978. This included verification that the summary totals of activity released agreed with the sum of the isotopic activities reported, verification of the average concentration released (liquid) and the average release rate (gaseous), and verification of the reported percent of applicable limit for the various types of emissions. The inspector verified that the isotopic activities released, as reported, agreed with the on-site summary data for liquid (1st quarter) and gaseous (2nd quarter) releases. Additional independent checks were made of specific isotopic data in the on-site weekly summary reports. No significant discrepancies were identified in any of the reported data.
- c. In performing a spot check review of daily computer printouts of gaseous activity released from condenser off-gas, the inspector noted an apparent computer error in summing microcuries/hour to get microcuries/day. The printouts for June 1, 1978 through June 5, 1978 were checked, and errors were found in the totals for June 2 and June 3. The two errors identified were conservative; that is, the off-gas activity released was over-estimated. The inspector stated that a review of past data should be made to determine the scope of the problem and whether any significant errors exist in the reported gaseous activity released. Since the plant vent gas activity released is similarly computed, the inspector stated that the review should also include a check of plant vent data. Licensee representatives acknowledged the

inspector's comments and stated that such a review would be made. (78-28-01)

- d. IE Report No. 50-261/78-23 discussed an error in the solid waste shipment section of the January-June, 1978, Semi-Annual Effluent Report (78-23-04). Corrected copies of pages 12 and 14 of that report have been submitted to Region II. There are no further questions on that item.

#### 7. Procedures for Controlling and Evaluating Effluent Releases

- a. An inspector reviewed Health Physics Procedure 14, "Liquid Release Accountability", and Health Physics Procedure 15, "Gaseous Effluent Accountability", taking note of changes and revisions over the past year. All changes and revisions appeared to have been made in accordance with the procedural control system and reviewed and approved by appropriate management. A complete revision to HP-15 was approved in November, 1978, and a similar revision to HP-14 is planned in the near future. The licensee appeared to be complying with the approved procedures.
- b. The licensee has recognized a need to develop and upgrade written instructions to provide the step-by-step details needed for consistency in the sampling, analysis, approval, documentation, and accountability associated with effluent releases. These are being developed in the form of Health Physics Instructions requiring review and approval by the E&RC Supervisor. The inspector noted that a considerable effort will be required to get the necessary instructions completed and issued. Licensee management acknowledged the inspector's comment, and indicated that emphasis would be placed on the project. The status of these implementing instructions will be reviewed during a later inspection. (78-28-02)

#### 8. Exit Interview

The inspector met with management representatives (denoted in paragraph 1) on December 1, 1978, and summarized the scope and findings of the inspection.