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

Report Nos.: 50-324/79-4 and 50-325/79-3

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

Facility Name: Brunswick Steam Electric Plant, Units 1 and 2

Docket Nos.: 50-324 and 50-325

License Nos.: DPR-62 and DPR-71

Inspection at Brunswick Site near Southport, North Carolina

Inspector: G. L. Troup — Date Signed: 2/14/79

Approved by: for A. F. Gibson, Section Chief, FF&MS Branch — Date Signed: 2/14/79

SUMMARY

Inspection on January 16-19, 1979

Areas Inspected

This routine, unannounced inspection involved 31 inspector-hours onsite in the areas of radiation protection practices during the refueling/maintenance outage, testing of filters and adsorbers, radioactive effluent procedures, follow-up on licensee event reports, follow-up on previously identified items and follow-up on previous items of noncompliance.

Results

Of the six areas inspected, no apparent items of noncompliance or deviations were identified in four areas; two apparent items of noncompliance were found in two areas (infraction-failure of PNSC to review contractor's test procedure prior to performance, paragraph 5; deficiency-late submittal of report required by 10 CFR 20.405, paragraph 6).

## DETAILS

1. Persons Contacted

Licensee Employees

H. R. Banks, Manager, Nuclear Generation
*A. C. Tollison, Jr., Plant Manager
J. M. Brown, Superintendent, Operations and Maintenance
*W. M. Tucker, Superintendent, Technical and Administrative
*J. A. Padgett, Environmental and Radiation Control Supervisor
S. E. Thorndyke, Operations Supervisor
*L. F. Tripp, Health Physicist
J. L. Kiser, Engineer
R. P. Cross, Engineer
J. M. Petitgout, Senior Nuclear Generating Specialist
R. D. Pasteur, RC&T Foreman
J. B. Cook, RC&T Foreman
E. H. Norwood, Training Coordinator

Other licensee employees contacted included technicians and operators.

Other Organizations

G. D. Leonard, Vice President (Site Coordinator)

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 19, 1979 with those persons indicated in Paragraph 1 above. The licensee acknowledged the two items of noncompliance discussed in paragraphs 5 and 6.

3. Licensee Action on Previous Inspection Findings

(Closed) Open Item (78-23-01), Revision of Liquid Radioactive Waste Discharge Procedure. Plant procedure RC&T 0008, Revision 4 was approved and issued on December 27, 1978 (paragraph 7.a).

(Open) Open Item (324/78-31-01), Unit 2 Turbine Building Exhaust Filter Charcoal Spill. The source of the charcoal spill has been identified; corrective actions are pending (paragraph 11).

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Testing of Standby Gas Treatment System Filters and Adsorbers

a. Technical Specifications 4.6.6.1 specifies the surveillance tests for the standby gas treatment system (SBGTS) including the filters and adsorbers. The inspector reviewed the results of test procedure PT 15.6 for both units for the period September through December 1978 and verified that the peridic flow test of Technical Specification 4.6.6.1.a had been performed; the inspector had no questions. A licensee representative informed the laboratory test sample results (Technical Specification 4.6.6.1.b.2) were in the review cycle and the heater test results (Technical Specification 4.6.6.1.d.3) were being held pending action on a change request for the specification. The other surveillance tests were performed by a contractor.

b. The contractor performed the tests on both units during the period October 18-24, 1978. The contractor's test report was reviewed by the Plant Nuclear Safety Committee (PNSC) on November 9, 1978. In response to an inspector's question, a licensee representative stated that the contractor's test procedure had not been reviewed and/or approved by PNSC prior to the conduct of the test.

c. Technical Specification 6.5.1.6.a states that the PNSC shall be responsible for review of all procedures required by Specification 6.8. Technical Specification 6.8.1 states that "written procedures shall be established, implemented and maintained covering the activities referenced below: The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, November 1972." Regulatory Guide 1.33, November 1972, Appendix "A", section H.2.b lists the specific procedures for surveillance tests, inspections and calibrations of boiling water reactors; item e in this section lists "standby gas treatment system tests including filter tests". The inspector stated that, based on the above requirements, the contractor's test procedure should have been reviewed by the PNSC prior to its use and that the failure to do so was an item of noncompliance with Technical Specification 6.5.1.6.a. Licensee management representatives acknowledged this item (324/79-04-01, 325/79-03-01).

6. Investigation of Possible Overexposure

a. This item was originally discussed in RII Report Nos. 50-324/78-31, 50-325/78-33, Details I, paragraph 4 and dealt with an apparent whole body exposure of 5.05 Rems to a contractor employee. As discussed in the report, subsequent to the inspection, the licensee was informed by a contractor representative that the individual had admitted that he had purposely exposed his TLD and that the indicated dose was not his true dose. During this inspection, the inspector reviewed the individual's statement and the licensee's evaluation which concluded that no exposure in excess of regulatory limits had occurred. The inspector informed licensee management that he had no further questions on this item.

b. 10 CFR 20.403(b)(1) requires that the licensee shall, within twenty-four hours, notify the NRC by telephone and telegram, mailgram and facsimile of any incident which may have caused or threatens to cause an exposure to whole body of 5 Rems or more. 10 CFR 20.405(a)(4) requires that the licensee shall make a report in writing within 30 days to the NRC for any incident for which notification was required by 10 CFR 20.403. Telephone notification and the facsimile transmittal were made by the licensee on November 30, 1978. The written report was contained in Carolina Power and Light Company's letter serial GD-79-003 of January 5, 1979. The inspector pointed out to licensee management representatives that the written report was due by December 30 to satisfy 10 CFR 20.405; consequently, the report was overdue in its submittal. The inspector informed licensee management that this was considered an item of noncompliance against the reporting requirement of 10 CFR 20.405 (324/79-04-02, 325/79-03-02).

7. Radioactive Effluent Control Procedures

a. By letter serial GD-78-2270 of August 20, 1978, the licensee reported a situation where an unplanned release had been made from the liquid radioactive waste system as the result of an improper valve lineup. Part of the corrective action was to revise RC&T procedure 0008, "Radioactive Liquid Effluent Releases and Reports", to better identify the specific tank to be discharged. The inspector reviewed revision 4 to RC&T 0008 and determined that it had been approved by the plant manager on December 27, 1978 and that the revision included the actions stated in the licensee's letter. The inspector had no further questions.

b. The inspector reviewed RC&T procedure 0007, "Stack and Building Vent Radioactive Gaseous Release Set Points" and noted that the equations and assumptions used in determining the effluent monitor set points used different flow rates for the two Turbine Building

exhausts. The inspector discussed this with licensee representatives; a licensee representative reviewed the procedure and informed the inspector that the set point calculation equations were out of date as the recirculation/exhaust systems which were in use for the Turbine Buildings have equal flow rates. The licensee representative stated that during the period that the recirculation/exhaust system was being installed in Unit 2, the system was in use in Unit 1 which led to the difference in flow rates; the procedure had not been revised after the recirculation/exhaust system was put in service in Unit 2. A licensee management representative acknowledged that the procedure should be revised; he did point out that the difference in flow rates resulted in the Unit 2 trip setting being established in a conservative direction so that no releases above the limits of the Environmental Technical Specifications would have occurred. The inspector stated that the procedure revision and trip settings would be reviewed at a later date (324/79-04-03, 325/79-03-03).

8. Radiation Protection Program-Units 1 and 2 Refueling/Maintenance Outage

a. Procedures

The inspector discussed special radiation protection procedures and the inclusion of radiation protection requirements in special procedures prepared for the outage with licensee representatives. A licensee representative stated that two RC&T instructions which were issued during the 1977 outage for work in the reactor vessel and for work in the drywell during refueling activities were still in effect and would be used during this outage. The licensee representative also stated that the special procedures were being reviewed by RC&T to ensure that adequate radiation protection precautions and/or requirements were included in the procedures. The inspection had no further questions.

b. Additional Staffing

(1) To provide additional staffing for radiation protection, the licensee currently has fifty-three temporary personnel on-site working with the RC&T group. A licensee representative stated that individuals who were accepted at the "senior" level have a minimum of two years of experience plus some formal training so that their qualifications are at least equivalent to ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel" for technicians in responsible positions. Those individuals classified as "juniors" or "trainees" have lesser qualifications. The licensee representative also stated that twenty-two of the

thirty-five senior technicians had previous experience at Brunswick. The inspector reviewed the resumes for the senior technicians and verified that they had the experience comparable to those required by ANSI N18.1-1971; the inspector had no further questions.

(2) In addition to the temporary radiation protection technicians, personnel from another licensee facility and the corporate office to provide services for dosimetry and in-vivo counting and additional supervisory assistance.

c. Training

(1) Paragraph 11.1 of the Radiation Control and Protection Manual states, in part, "All facility personnel, non-facility personnel and non-company personnel shall be indoctrinated in radiation control and emergency procedures before being allowed within the Controlled Access Area without an escort". The inspector discussed the training with a licensee representative and determined that temporary personnel on-site for the outage were receiving the required training, tests were being administered to verify the training and minimum test scores were established for passing. The inspector also reviewed approximately twenty completed test papers and examined ten exposure files to verify that successful completion of the training was documented. The inspector had no further questions.

(2) A licensee representative informed the inspector that, in addition to the radiation protection and security training required for temporary personnel, the temporary radiation protection technicians were given a test covering the appropriate regulations and practical situations. A minimum score of 70 was required. The inspector reviewed three completed tests and a summary of all test scores. The summary indicated that some scores were less than 70 and a retest was satisfactorily passed; a licensee representative confirmed that several individuals had not achieved an initial satisfactory score, but after additional review/discussions, were retested with a satisfactory score. The inspector had no further questions.

d. Advance Planning and Preparation

The inspector discussed the planning and preparations for the outage with licensee representatives. A licensee representative stated that planning meetings have been held for approximately one year to identify work packages, etc. Based on these work

packages, action was taken to order additional quantities of consumables, temporary shielding materials and additional dosimeters and survey instruments to ensure that adequate supplies were available. The licensee representative also stated that arrangements had been made for on-site handling of laundry by a contractor. The inspector had no further questions.

e. Exposure Control

The inspector reviewed the licensee's program for external exposure control, including review of records, observation of control practices, and discussions with licensee personnel. Specific areas were: (1) personnel monitoring requirements of 10 CFR 20.202a, (2) permissible doses of 10 CFR 20.101a, (3) extended permissible doses of 10 CFR 20.101.b, and (4) exposure history requirements of 10 CFR 20.102. The inspector reviewed exposure history files for both licensee employees and temporary personnel and verified that exposure histories and authorizations were on file for personnel who were authorized to receive extended doses and that exposure records were being maintained. The inspector had no further questions.

9. Reportable Occurrence Review

a. The below listed licensee event reports were reviewed for potential generic problems, to detect trends, to determine if the information provided meets NRC reporting requirements and to determine whether corrective actions discussed appeared appropriate. Those reports marked with an asterisk (*) were reviewed on-site with cognizant licensee personnel.

| LER | Date | Subject |
|---|---|---|
| 1-78-31 | April 3, 1978 | Reactor Building Exhaust Monitor |
| *1-78-35 | April 12, 1978 | Containment Radiation Monitors |
| *2-78-17 | March 29, 1978 | Containment Radiation Monitors |
| *2-78-21 | April 4, 1978 | Containment Radiation Monitors |
| *2-78-23 | April 11, 1978 | Containment Radiation Monitors |

b. As several of these reports dealth with similar events on the inoperability of the containment monitors due to problems with the detector tubes, the inspector discussed the generic implications with licensee representatives. A licensee representative outlined the actions taken to reduce the deterioation of the tubes and also changes in the tube supplier which had been taken and which have reduced the failure problems. The licensee representative noted that since these actions were taken, the incidence of monitor problems has decreased; the inspector had no further questions.

10. On-Site Radioactive Water Spill

a. During the inspection, a licensee management representative informed the inspector that on January 14, 1979, a spill of radioactive liquid had occurred on-site. Water from a liquid waste sample tank was being pumped to the Unit 2 condensate storage tank. Due to the level in the condensate storage tank, the water overflowed through the overflow line from the condensate storage tank to the auxiliary surge tank. The auxiliary surge tank was being cleaned at the time of the overflow; the manway cover was in place but not bolted. The overflow raised the level in the auxiliary surge tank and then spilled out through the manway opening onto the ground with the run off going into the storm drain system.

b. From a water balance inventory, the licensee estimated the volume of water which was spilled and took water samples to estimate the amount of radioactivity which had been spilled. The licensee has also taken periodic samples from the storm drain system and the settling basin outfall to determine the quantity and concentrations of off-site releases. Based on the volume, quantity and concentration determinations, the licensee concluded that no off-site releases in excess of a minor percent of regulatory limits had occurred.

c. Licensee representatives discussed the immediate actions taken to mitigate the spill and the probable causes of the spill. A licensee management representative also outlined the items or areas being reviewed which may have resulted in the event; the licensee representative stated that these items were still under review. Another licensee representative stated that the plant records and effluent records would include the amount of activity discharged as the result of the spill. The inspector that he had no further questions pending completion of the licensee's review of the spill.

11. Turbine Building Exhaust Ventilation Filter Housing (Unit 2)

This item was originally discussed in RII Report No. 50-324/78-31, Details I, paragraph 7.a, and dealt with the inspector's observation of free charcoal in the exhaust filter housing. The inspector discussed this item with licensee representatives regarding the results of the inspections which the licensee had performed. A licensee representative stated that once the free charcoal had been removed, additional free charcoal was found in the housing. A visual inspection of the charcoal adsorber beds had revealed a space approximately two inches long in a seam between the retainer screen and the frame which permitted the charcoal to seep out. The licensee representative stated that when the filter unit can be taken out of the service, the seam will be welded, the charcoal bed refilled as necessary and the downstream HEPA filters replaced because of the charcoal dust accumulation. The inspector stated that he would review the corrective actions at a later time and that this item remains open.