UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

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Report No: 50-261/93-24

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 Nuclear Power Plant

Inspection Conducted: October 18 - 22, 1993

Inspector: _____ 11/12/93
R. P. Carrion, Radiation Specialist Date Signed

Approved by: _____ 11/19/93
T. R. Decker, Chief Date Signed
Radiological Effluents and Chemistry Section
Radiological Protection and Emergency Preparedness Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of the organization of the Chemistry/Effluent Department and Radioactive Waste Group, the Semiannual Radiological Effluent Release Report, the Radiological Environmental Monitoring Program (REMP), the Counting Room Cross Check Program, Microbiologically-Induced Corrosion (MIC) of the Service Water (SW) System, the Condensate Conductivity Spike, ventilation issues, radioactive material transportation, and records for decommissioning planning.

Results:

The licensee's organization of its Chemistry/Effluent Department and radioactive material processing and shipping unit satisfied Technical Specification (TS) requirements (Paragraph 2).

The licensee's Semiannual Radioactive Effluent Release Report was complete and satisfied regulatory requirements (Paragraph 3).

The licensee had good programs in place to monitor releases of radiological effluents and plant operations caused minimum impact to the environment and virtually no dose to the general public (Paragraph 4).

The licensee maintained a good Counting Room radiochemical analysis program, as evidenced by the results of the Cross Check Program (Paragraph 5).

The licensee had a good program in place and was taking positive actions to maintain the SW system within its design basis and to prevent system corrosion and fouling due to microbiological attack (Paragraph 6).

The prompt action taken by the licensee's Chemistry Unit during the condensate conductivity spike event mitigated damage to major plant components and was viewed as a strength (Paragraph 7).

The licensee's actions were appropriate during the ventilation events (Paragraph 8).

Despite Non-Cited Violation (NCV) 50-261/93-24-01, the licensee's shipping of radioactive material was conducted in a competent, professional manner (Paragraph 9).

The licensee had developed a system to identify and maintain events/incidents significant with respect to decommissioning planning (Paragraph 10).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*R. Barnett, Manager, Project Management
*D. Baur, Regulatory Compliance
W. Christensen, Environmental and Chemistry (E&C) Supervisor
M. Crabtree, Radiation Control (RC) Supervisor (Radwaste)
*C. Dietz, Vice President, Robinson Nuclear Power Division
*J. Eaddy, Manager, Environmental and Chemistry (E&C)
J. Harrison, Manager, Environmental and Radiation Control (E&RC) Technical Support
R. Hitch, Senior Specialist, E&RC
M. McConnel, Service Water System Engineer
M. Millinor, Senior Specialist, E&RC
R. Norris, Ventilation System Engineer
*J. Padgett, Manager, E&RC
*M. Pearson, Plant Manager
R. Slone, Records Management Supervisor
*D. Waters, Regulatory Affairs Manager

Other licensee employees contacted during this inspection included engineers, technicians, and administrative personnel.

Chem Nuclear, Inc.

C. Stuckey, Liquid Waste Processor

Nuclear Regulatory Commission

*C. Ogle, Resident Inspector
*J. Stohr, Director, Division of Radiation Safety and Safeguards

*Attended exit interview

Acronyms and Initialisms used throughout this report are listed in the last paragraph.

2. Organization (84750 and 86750)

Technical Specification (TS) 6.2 describes the licensee's organization.

The inspector reviewed the licensee's organization, staffing levels, and lines of authority as they related to the Chemistry/Effluents Department and Radioactive Waste Group to verify that the licensee had not made organizational changes since the last inspection which would adversely affect the control of radiation exposures and/or radioactive material in the areas reviewed.

The Environmental and Radiation Control (E&RC) Unit consisted of 62 positions organized into six functional areas: Environmental and Chemistry, Radioactive Waste, Technical Support, and three groups for Job Coverage under the direction of the E&RC Manager. The unit had been reorganized since the last inspection (93-08, conducted in April) in that the former Chemistry/Effluents Group had been combined with part of the former Technical Support Group to become the Environmental and Chemistry Group. This group was managed by the former manager of the Technical Support Group. The Technical Support Group had a new manager.

The Radioactive Waste Unit had not experienced any changes at all since the previous inspection. Therefore, the inspector concluded that the licensee's E&RC organization continued to satisfy TS requirements.

No violations or deviations were identified.

3. Semiannual Radioactive Effluent Release Report (84750)

TS 6.9.d requires the licensee to submit a Semiannual Radiological Effluent Release Report within the time periods specified covering the operation of the facility during the previous six months of operation. The TS also states the requirements for the content and format of the report. The inspector reviewed the report for the first half of 1993 and compared the results to those of 1991 and 1992 to verify compliance and to determine trends which might have occurred in liquid and gaseous effluent releases. These data are summarized below.

Robinson Radioactive Effluent Release Summary

	1991	1992	1993*
Abnormal Releases			
Liquid	0	0	0
Gaseous	0	0	0
Activity Released (curies)			
a. Liquid			
1. Fission and Activation Products	2.35E-1	2.28E-1	8.37E-3
2. Tritium	1.88E+2	3.94E+2	1.72E+2
3. Gross Alpha	< LLD	< LLD	< LLD
b. Gaseous			
1. Fission and Activation Gases	2.26E+0	7.49E+0	9.05E+1
2. Iodines	< LLD	1.21E-6	3.78E-6
3. Particulates	1.73E-4	1.39E-4	1.05E-5
4. Tritium	4.48E+0	1.88E+0	3.52E+0

*First half of 1993 only

A comparison of data from liquid and gaseous effluents 1991, 1992, and the first half of 1993 showed a significant decrease in liquid fission and activation products. Discussions with cognizant licensee personnel determined that the reduction was the result of a change in the way that the waste water was processed. The Waste Water Demineralization System (WWDS), which processed water from both the Waste Holdup Tank (WHUT) and Chemical and Volume Control System (CVCS), employed a system of pre-filters and filters to remove suspended solids larger than 0.45 micrometers (μm) in diameter. This configuration had successfully removed suspended solids, which previously had been removed by becoming entrapped in the matrix of the bead resin and removed with the resin when the resin bed was replaced. The past practice had resulted in relatively short run lives for the resin beds due to an increase in the pressure differential across the bed. Upon removal of the residual suspended solids, the licensee had realized longer run times for and greater efficiency of the resin beds, resulting in liquid radioactive releases of substantially less activity than in the past. A decline in gaseous particulate releases was noted while no significant changes were noted for releases of liquid tritium and gross alpha. The inspector noted an increase in the releases of gaseous fission and activation gases, iodine, and tritium. Discussions with the licensee determined that the gaseous fission and activation gases and iodine activities rose as the result of leaking fuel. (Refer to Inspection Reports (IRs) 50-261/93-01, Paragraph 4, and 50-261-93-08, Paragraph 4.b) The rise in gaseous tritium activity released was attributed to elevated levels of boron in the RCS due to the extended length of the power production run.

There were no changes to the REMP (as a result of the Land Use Census), the Process Control Program (PCP), the Off-site Dose Calculation Manual (ODCM), or the Radioactive Waste Systems (liquid, gaseous, or solid) during the first half of 1993.

No outside liquid holdup tank or waste gas decay tank exceeded its regulatory limit of 10 curies and 1.90E+4 curies, respectively.

No reportable instrumentation inoperability events occurred during this reporting period.

The table on the following page summarizes solid radwaste shipments for burial or disposal for the previous two and a half years. These shipments typically include spent resins, filter sludge, dry compressible waste, and contaminated equipment.

Robinson Solid Radwaste Shipments

	1991	1992	1993*
Number of Waste Disposal Shipments	90	92	18
Volume (cubic meters)	64.5	62.5	14.7
Activity (curies)	95.4	446.7	24.0

*First half of 1993 only

For solid radwaste, the most significant change noted for the period reviewed was a decrease in each of the categories listed. The licensee attributed the improvement to the previously-referenced enhancements in the WWDS.

In addition to the radwaste shipments, the licensee had made two shipments of spent fuel to the Harris Plant for storage in the Spent Fuel Pool there. The shipments were made via exclusive use rail. (No further spent fuel shipments were scheduled until 1996.)

The inspector concluded that the Semiannual Radioactive Effluent Release Report was complete and satisfied regulatory requirements.

No violations or deviations were identified.

4. Radiological Environmental Monitoring Program (REMP) (84750)

The purpose of the REMP is to measure any accumulation of radioactivity in the environment and to assess trends, to determine whether this radioactivity is the result of operations at the plant, and to assess the potential dose to the offsite populations based on the cumulative measurements of any plant-originated radioactivity via the monitoring of specific elements of exposure pathways, and to detect unanticipated pathways for the transport of radionuclides through the environment.

a. Annual Radiological Environmental Operating Report

TS 6.9.1.2.3 requires that the Annual Radiological Environmental Operating Report be submitted prior to May 1 of the following year of the Report. TS 6.9.1.2.3 also states format and content requirements for the Report.

The inspector reviewed the Report for calendar year 1992 to verify compliance with the TSs. The Report had been submitted in compliance with TS 6.9.1.2.3 on April 6, 1993, and the format and contents were as prescribed by the TS. The inspector determined that the Report was in compliance with the TSs.

Approximately 1000 samples of eleven different media types from

indicator stations were collected and 1125 analyses and measurements were made during the year. Detectable radioactivity attributable to plant activities was identified in 22 total samples (of surface water, bottom sediment, and aquatic vegetation), less than two percent of the measurements. All detectable radionuclides in the environmental samples were less than reportable levels, as defined in the TSs. Overall, the radiological environmental data indicated that plant operations in 1992 had no significant impact on the environment or public health and safety. Only tritium activity in fish samples constituted a potential source of public exposure. Modeling estimates based on those activities indicated that a potential dose to a member of the public due to consumption of fish from Lake Robinson was reported to be 0.004 mrem per year. Specifically, the report noted the following:

1) Air Sampling

358 air samples were collected from indicator stations and 52 from control stations throughout 1992, with the following results:

- In all cases, iodine-131 activities were less than the Lower Limit of Detection (LLD).

- The mean gross beta activity was only somewhat higher for the indicator stations vs. the control stations (1.81E-2 vs. 1.59E-2 picocuries per cubic meter (pCi/m^3)) and less than the preoperational data of 1.4E-1 picocuries per cubic meter. The lower 1992 values were attributed to a reduction of worldwide fallout which occurred during the preoperational years. No discernable impact from plant operations was apparent from the data.

- Quarterly composite gamma analyses for air particulate samples revealed no radionuclides typical of plant effluents.

2) Broadleaf Vegetation

One control and two indicator stations were utilized for sampling broadleaf vegetation. Twenty-five of thirty samples taken from the indicator sites contained concentrations of Cs-137 with an average of 3.42E-1 picocuries per gram (pCi/g), while 12 of 15 of the samples taken from the control site contained concentrations of Cs-137 of 2.17E-1 pCi/g. From these results, it was concluded that the indicator values were consistent with those of the control station and were indicative of worldwide fallout, not plant effluents.

3) Fish

Samples of free-swimmer and bottom-feeding fish were collected from Lake Robinson and Prestwood Lake (the first downstream lake) and compared to similar fish samples from a control lake unaffected by plant operations. All 12 fish samples collected contained traces of Cs-137. The activity levels of the samples from the indicator stations were lower than those from the control stations. Therefore, no plant-related dose was assigned due to the presence of the radionuclide. (The data were very similar to the results of the samples taken in 1991.)

4) Groundwater

Groundwater sampling indicated that no samples (of 36) contained detectable tritium or gamma activity. This finding was consistent with those of previous years.

5) Milk

Twenty-six samples from the control milk station and 26 samples from the indicator stations were collected and analyzed. I-131 and gamma activities were all less than the LLD.

6) Shoreline Sediment

No radionuclides of plant origin were detected in the four samples of shoreline sediment, as was the case in 1991. However, Cs-137 was detected in one sample in 1992.

7) Bottom Sediment

Samples of bottom sediment were collected from Lake Robinson and Prestwood Lake. Co-60 activity was detected at 1.4 pCi/g, representing a slight increase over the 1991 value of 1.0 pCi/g. Cs-137 activities at the indicator stations also increased over those of 1991, but at a smaller percentage than at the control station.

8) Aquatic Vegetation

Samples of aquatic vegetation contained Mn-54, Co-58, Co-60, and Cs-137. The Co-58 and Co-60 activities were higher in both Lake Robinson and Prestwood Lake and were observed further downstream at the Auburndale Plantation than in 1991. Cs-137 activity levels in Lake Robinson were similar to those of 1991.

9) Surface Water

Samples of surface water of Lake Robinson indicated a presence of tritium which was attributed to plant operations. The activity levels were essentially unchanged from those of 1991. Gamma analyses of monthly composites of surface water samples detected no radionuclides typical of plant effluents.

10) Direct Radiation

Direct radiation exposure in the plant environs was measured by the placement of thermoluminescent dosimeters (TLDs) around the plant forming inner and outer concentric circles of approximately one and five miles, respectively. The expectation was that if plant effect existed, dose measurements of the inner circle would exceed those of the outer circle. This condition was not observed.

The Radiochemistry Laboratory at the Harris Energy and Environmental Center in New Hill, North Carolina, provides radioanalytical services for CPL's nuclear plant radiological environmental surveillance programs. The laboratory is a participant in the Environmental Protection Agency's (EPA's) cross-check program and uses its performance in the program as a major determinant for the accuracy and precision of its own analytical results. During 1992, a comparison of the laboratory's reported values with those of the EPA's known activity found 98 percent to be within three standard deviations. Specifically, one of 62 samples exceeded the three-sigma action level. A gross beta analysis of a water sample received in January 1992 fell outside the limit. The beta self-absorption curve was redone and the sample reanalyzed and the results were within one standard deviation of the known activity.

b. Comparison of State of South Carolina vs Robinson Results

The South Carolina Bureau of Radiological Health entered into a contractual agreement with the NRC to measure the concentrations of radioactivity and radiation levels in the environs of four nuclear power plants within the state, including Robinson. The principal objective of the contract is to provide reasonable assurance that environmental measurements made by NRC licensees are valid. To this end, the State of South Carolina:

- Coordinates sampling activities with those of the NRC licensees.
- Collects and analyzes environmental media samples.
- Takes appropriate action in the investigation of elevated levels of radioactivity in the environment.

- Participates in and reports results of the EPA's Intercomparison Studies Program.

- Reports the results of the State's and licensee's environmental radiological verification monitoring program.

The inspector compared several air sample results for gross beta and I-131, surface water results for tritium, shoreline sediment for Pb-212, Pb-214, Bi-214, and Ra-226, milk sample results for I-131 and K-40, fish sample results for K-40 and Cs-137, and food crop (collards) results for K-40, I-131, I-134, and Cs-137 as reported by the licensee to those listed in the "Nuclear Facility Monitoring Report" for 1992, submitted by the South Carolina Department of Health and Environmental Control. The results compared favorably.

The inspector concluded that the licensee had good programs in place to monitor releases of radiological effluents. Plant operations caused minimum impact to the environment and virtually no dose to the general public.

No violations or deviations were identified.

5. Cross Check Program (84750)

10 CFR 20.201(b) requires the licensee to perform surveys as necessary to evaluate the extent of radiation hazards.

To assure that the licensee's analytical capabilities to accurately detect and identify gamma-emitting radionuclides and to quantify their concentrations was maintained at a high level, the licensee participates in a quarterly exercise whereby it receives and analyzes numerous samples prepared by an independent laboratory. The results are then compared for agreement/disagreement. (This exercise is very similar to the confirmatory measurements exercise in which the NRC Region II mobile laboratory splits, analyzes, and compares radioactive material sample results.)

The inspector reviewed the third quarter results for several of the detectors, samples, and geometries, including: a one-liter Marinelli beaker on shelf zero, a 47-millimeter filter on shelf zero, and a 1260-cc gas beaker on shelf zero, and an iodine cartridge on shelf zero for the three detectors in the Counting Room as well as the detector used by Health Physics. The results of the licensee's analyses were in agreement in every case with those of the independent laboratory, indicating that the licensee's analysis system was capable of accurately identifying radioisotopes over a wide energy spectrum.

From the review made during this inspection, the inspector concluded that the licensee maintained a good Counting Room radiochemical analysis program.

No violations or deviations were identified.

6. Microbiologically-Induced Corrosion (MIC) (92700)

In 1984, during Refueling Outage 9, MIC was identified by the licensee as the cause of numerous pinhole leaks detected in welds of the Service Water (SW) piping, both inside and outside of containment. During that refueling outage and subsequent ones, part of the SW piping was replaced or sleeved each outage with AL6XN material, a 6 percent molybdenum stainless steel, which had demonstrated high resistance to MIC.

The inspector reviewed the status of the licensee's program to install the new SW piping and found that PM 1113 had completed the final stage of the work on the system and had been signed off by the system engineer on October 18, 1993. The inspector also walked down the SW pumping station to observe its physical condition. No irregularities were noted. The inspector also discussed the methods used by the licensee to control the microbes responsible for MIC. The licensee explained that control was maintained through the injection of chlorine compounds (sodium hypochlorite) and/or biodispersants at a rate of 0.3 to 3.0 gpm at each SW pump. Surface fouling was monitored by a biobox. Also, a corrosion coupon rack had been installed and was checked regularly to determine the effects of biological fouling and sodium hypochlorite on the different system metallurgies. Chlorination was coordinated with Operations to perform weekly and/or biweekly flushes of standby and infrequently-used SW heat exchangers and associated piping. The inspector reviewed Chemistry Procedure CP-009, "Chlorination," Rev. 12, which defined the operating parameters and limitations of the system.

The inspector concluded that the licensee had a good program in place and was taking positive actions to maintain the SW system within its design basis and to prevent system corrosion and fouling due to microbiological attack.

No violations or deviations were identified.

7. Condensate Conductivity Spike (92700)

On July 21, 1993, after placing the "D" Condensate Polisher Vessel on service rinse, whereby about 1250 gallons per minute (gpm) of condensate were pumped through the vessel and back to the Condensate Polisher Inlet Header, an estimated 20-50 gpm of the flow leaked forward to the Outlet Header through the closed butterfly outlet valve into the Feedwater System. The feedwater cation conductivity rose over a thirty minute period to a maximum of 2.4 microSeimens (μS), corresponding to a maximum of 250 parts per billion (ppb) sulfate in the 20000 gpm feedwater flow rate. Over the next two hours the feedwater conductivity dropped and leveled off at about 0.1 μS. During this period, the steam generator

cation conductivity exceeded 10 μS, thereby placing the plant in Chemistry Action Level 3, which required plant shutdown within four hours if the conductivity could not be reduced to less than 10 μS. However, the steam generator cation conductivity was reduced to less than 10 μS within two hours as reactor power was reduced to less than thirty percent and the Steam Generator Blowdown System removed the sulfate, thereby precluding the necessity for a plant shutdown.

The licensee assembled an investigation team which conducted an extensive Root Cause Analysis, documented in Adverse Condition Report (ACR) 93-126. The inspector reviewed the ACR and determined that the investigation was thorough. It identified numerous contributory causes which led to the ultimate valve failure which triggered the event, such as human performance problems prior to and during the event (including written procedures, verbal communication, work practices, and training/qualifications), equipment failure/condition affecting the event (including managerial methods, equipment specification/ manufacture, system design configuration and analysis, and system operation), and proposed corrective actions (twenty-two separate corrective actions ranging from procedural revisions to repairing the Regenerative Rinse Conductivity Recorder, CR-10308). The inspector determined that the recommended corrective actions were reasonable and appropriate to prevent recurrence. Implementation of some of them had been completed (the replacement of the "D" Condensate Polisher Vessel Isolation Valve (QCV-103051D), along with the valves of the four other condensate polisher vessels, for example), while other corrective actions were scheduled for the future.

The inspector concluded that the prompt action taken by the licensee (especially by the Chemistry Unit) during the event mitigated damage to major plant components and was viewed as a strength.

No violations or deviations were identified.

8. Ventilation Events (92700)

a. Auxiliary Building Event

Work done under Modification 934 to modify a fire door required the removal of the door framing for both a rollup door and a personnel access door at the north end of the second floor hallway of the Auxiliary Building. In place of the doors, a tarp was erected to provide a barrier. On the afternoon of July 28, 1993, licensee personnel observed the motion of the tarp which indicated that air movement was from inside the building to the outside environment, i.e. a negative building was not being maintained and the design basis for the ventilation system was not being met.

This incident was documented in IR 50-261/93-18 and resulted in a Level IV Violation. The current inspection reviewed the event from an effluent release point of view. Licensee documentation generated as a result of the event was reviewed for adequacy and

completeness, including E&RC Event Report 93-CRN-76, ACR 93-130, and internal corporate memos and correspondence. An air sample was taken in the hallway of the Auxiliary Building near the opening and analyzed for radionuclide content shortly after it was noticed that negative pressure was not being maintained. Only traces of Xe-133 (at a concentration of 1.64E-7 μCi/ml) were identified, resulting in a calculated potential dose of 9.91E-7 mrem (whole body) and 2.35E-6 mrem (skin) to a member of the public. The inspector also reviewed conservative calculations done by the licensee to demonstrate that the regulatory limits of 10 CFR 20 and 10 CFR 50, Appendix I were not exceeded. The inspector also reviewed the system description, SD-036, "HVAC," Rev. 21 and Drawing Nos. G-190304 (Sheet 1 of 4), Rev. 35, G-190304 (Sheet 2 of 4), Rev. 26, G-190304 (Sheet 3 of 4), Rev. 12, G-190304 (Sheet 4 of 4), Rev. 1, G-190305, Rev. 13, G-190306, Rev. 10, and G-190307, Rev. 9 for a better understanding of the design of the system and discussed its operation with the responsible system engineer.

The inspector walked down the system in the area where the event occurred and noted some of the remedial actions taken by the licensee, including the slightly-open door to the prefilter room containing exhaust air units HVE-2A and HVE-2B, to assure negative building pressure.

Additional corrective actions to be taken by the licensee upon completion of the current refueling outage were outlined in the licensee's written response to the violation, including performing an air balance of the system. The licensee expected completion of the corrective actions by May 20, 1994.

The inspector concluded that the licensee's actions were appropriate to mitigate a gaseous release, return the building to its design basis (negative pressure), and preclude future positive pressure excursions.

No violations or deviations were identified.

b. E&RC Building Hood Fan Exhaust Header Release

In working on Work Request 93-AGCD1, E&RC Laboratory Hood Fan #8 was removed. The duct below the fan was sealed to prevent the release of radioactive material to the atmosphere. However, the upper duct, which led to the exhaust header for all of the laboratory hood fans, was left unsealed. When the licensee discovered this condition but before sealing the duct, a smear sample taken at an arm's length up into the unsealed duct and an air sample of the air coming out of the duct were analyzed. Results showed that the smear read 3500 disintegrations per minute (dpm) on a frisker and that the air sample yielded 73 counts per minute or 4.742E-10 μCi/cc of beta activity and no gamma activity. Measurements taken later by the licensee indicated that

approximately forty percent of the flow into the exhaust header could escape through the unsealed duct, while the remaining 60 percent passed out through the vent, as designed. During the period when the duct was not sealed, the only laboratory work with radioactive materials was done under Hood #8. Because the duct above the hood was sealed and a negative pressure was maintained in the laboratory area, the only way for any radioactive material to leave was to enter the building's ventilation system. To do so meant that the material would be thoroughly mixed with the air of the building before being delivered to the exhaust header. Two sets of effluent samples were taken by the building radiation monitor, R-22, located in the vent, downstream of the exhaust header, before being discharged to the atmosphere. The results of the analysis of the samples were consistent with release data for the four weeks prior to the incident, indicating a consistency of operation during the period of several weeks. The inspector accepted the licensee's rational that the air from the laboratory was well-mixed by the time it was introduced into the exhaust header and that the concentration in the exhaust header was accurately determined by R-22 as it passed the monitor. Therefore, conservative assumptions about flow rates for the period in question were made to estimate the total gaseous release. Licensee calculations showed that no regulatory limits were exceeded. The information relevant to this release was to be included in the data of the next Semiannual Radioactive Effluent Release Report.

The inspector reviewed ACR 93-111 and E&RC Event Report 93-CRN-62, written to document the incident; reviewed ventilation drawings of the E&RC Building (including the laboratory where Hood #8 is located) including HBR-9952, Rev. 0, HBR-9953, Rev. 0, and HBR-9956, Rev. 0; walked down the system, from the laboratory to the exhaust header; and discussed system operation with the system engineer.

The inspector concluded that the licensee had responded appropriately to the event.

No violations or deviations were identified.

9. Transportation Incident (92700)

10 CFR 71.5(a) requires each licensee who transfers licensed material outside of 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 (DOT) in 49 CFR, Parts 170 through 189.

In particular, 49 CFR 173.421-1(a) requires, in part, that "excepted radioactive materials prepared for shipment ... must be certified as being acceptable for transportation by having a notice enclosed in or on

the package, included with the packing list, or otherwise forwarded with the package." Contrary to this requirement, on July 20, the licensee made a limited quantity shipment (S-93-14) containing second quarter chemistry samples to the Harris Energy and Environmental (E&E) Center without the required paperwork.

Shortly after the shipment left the site, the error was discovered by the licensee, who notified the Harris E&E Center and faxed copies of the shipping paperwork. (It was noted that the shipment arrived without further incident.)

The licensee generated ACR 93-127 to investigate the incident, determine its root cause, summarize lessons learned, and recommend corrective actions to prevent recurrence. The ACR identified the root cause to be human performance problems; specifically that there had been some confusion due to the fact that the package had been prepared for shipping during one shift and actually shipped during the following shift, and the technician who shipped the package had assumed that it contained the required paperwork and released it for transport without checking for the paperwork. Procedural ambiguity was also identified as a contributory cause.

Corrective actions taken by the licensee included the establishment of a status board to track the progress of a given shipment, revision of procedures to clarify certain practices, and training of radwaste shipping personnel in the importance of verifying completeness of radioactive materials shipments (including the documentation) prior to transport.

The inspector reviewed the ACR for completeness and determined that the immediate response and corrective actions taken were timely and appropriate for the event. The inspector also reviewed the procedural revisions and concluded that they, coupled with the other corrective actions, were acceptable to mitigate a recurrence. Therefore, in accordance with the criteria specified in Section VII.B of the Enforcement Policy, this violation of 49 CFR 173.421-1(a) is viewed as Non-Cited Violation (NCV).

NCV 50-261/93-24-01, "Failure to Transport a Radioactive Material Shipment with Required Paperwork."

Despite this shipping incident, the inspector concluded that the licensee had good programs in place for the shipping of radioactive material, based on acceptable past performance.

One NCV was identified.

10. Decommissioning Planning Records (84750)

10 CFR 50.75(g) requires, in part, that licensees maintain "records of information important to the safe and effective decommissioning of the facility in an identified location until the license is terminated by

the Commission." Furthermore, information considered important by the Commission for decommissioning is identified as "records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site" and that the records "must include any known information on identification of involved nuclides, quantities, forms, and concentrations." Also identified are "as-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used and/or stored and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination."

During Inspections 92-23 and 93-01, the inspector requested the licensee's decommissioning planning records to verify compliance with the regulations and held discussions with the licensee's Records Management Supervisor to determine program status/effectiveness. The inspector determined that while the subject information was in the licensee's document control vault, in the form of microfiche and drawings, it was not segregated into one readily identifiable area nor was a listing identifying pertinent information for decommissioning planning available. Timely retrieval and proper classification of documentation (both existing and future) could not be guaranteed. To remedy this shortcoming, the licensee developed a program which established a Records Task Force (RTF), consisting of eight representatives, whose activities include:

- Review all newly-created plant records, not only those required for decommissioning planning

- Determine storage/retention requirements for each record

- Establish the appropriate quality classification (Q or non-Q)

- Identify indexing parameters to facilitate record retrieval

During Inspection 93-08, the inspector interviewed the Records Management Supervisor to determine the status of the licensee's program. The licensee had submitted Rev. 10 of Plant Program PLP-003, "Records Management Program," for review and final approval. The revision formally defined Records Important to Decommissioning, the Records Task Force (including its responsibilities), and established the procedure to be used in transmitting Records Important to Decommissioning to Records Management to allow their indexing into the Automated Records Management Storage and Retrieval System to facilitate retrieval.

During the current inspection, the inspector interviewed the Records Management Supervisor to determine the status of the licensee's program. Revision 10 of Plant Program PLP-003 had been approved on April 30 and became effective on May 18, 1993. The inspector reviewed the revision and determined that it adequately addressed the previously-referenced issues. The licensee had reviewed past documents and had compiled a computerized list of those relating to decommissioning planning issues (about forty documents and three hundred drawings). Previously-

completed Plant Modifications (PMs) were being reviewed for applicability and plans were being formulated to review PMs after each outage. The inspector "exercised" the system, randomly selecting two documents from the list for review. The documents were stored on microfiche and retrieved in a timely manner.

The inspector concluded that the licensee had implemented a satisfactory program to identify, store, and retrieve relevant decommissioning planning records.

No violations or deviations were identified.

11. Exit Interview

The inspection scope and results were summarized on October 22, 1993, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed the inspection results, including likely informational content of the inspection report with regard to documents and/or processes reviewed during the inspection. The licensee did not identify any such documents or processes as proprietary. Dissenting comments were not received from the licensee.

Item Number	Description and Reference
50-261/93-24-01	NCV - Failure to transport a radioactive material shipment with required paperwork (Paragraph 9).

12. Acronyms and Initialisms

ACR	Adverse Condition Report
CFR	Code of Federal Regulations
Ci	curie
CP	Chemistry Procedure
CP&L	Carolina Power and Light
CVCS	Chemical and Volume Control System
DOT	Department of Transportation
dpm	disintegrations per minute
E&C	Environmental and Chemistry
EPA	Environmental Protection Agency
E&RC	Environmental and Radiation Control
g	gram
gpm	gallons per minute
HVAC	Heating Ventilation and Air Conditioning
IR	Inspection Report
l	liter
LLD	Lower Limit of Detection
µCi	micro-Curie (1.0E-6 Ci)
µm	micro-meter (1.0E-6 meter)
µS	micro-Seiman (1.0E-6 Seiman)
m	meter
MIC	Microbiologically Induced Corrosion

ml	milli-liter
mrem	milli-rem
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PCP	Process Control Program
ppb	parts per billion
PM	Plant Modification
REMP	Radiological Environmental Monitoring Program
Rev.	Revision
RC	Radiation Control
RTF	Records Task Force
SW	Service Water
TLD	Thermoluminescent Dosimetry
TS	Technical Specification
WHUT	Waste Holdup Tank
WWDS	Waste Water Demineralization System