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

MAY 26 1992

Report No: 50-261/92-10

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: April 20 - 24, 1992

Inspector: R. P. Carrion 21 MAY '92
R. P. Carrion Date Signed

Approved by: T R Decker 21 May 92
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, unannounced inspection was conducted in the areas of the organization of the Environmental and Radiation Control (E&RC) Unit and the Radwaste Unit, personnel training and qualification, audits, plant water chemistry, radiological effluent processing and monitoring instrumentation, the Semiannual Effluent Release Report, the Post Accident Sampling System (PASS), Low Level Radwaste (LLW) Storage, the Volume Reduction Program, shipping of radioactive material, on-site contaminated soil, and decommissioning planning records.

Results:

The Environmental and Radiation Control Unit and Radwaste Group were staffed by a competent staff and has been stable. (Paragraph 2).

The Training Program was well-structured to support plant operations with a pool of well-trained technicians. (Paragraph 3).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*S. A. Billings, Technical Aide, Regulatory Compliance
*W. A. Christensen, Chemistry Supervisor, Environmental and Radiation Control (E&RC)
*M. D. Crabtree, Radwaste Supervisor, E&RC
*C. R. Dietz, Vice President, Robinson Nuclear Power Division
*J. A. Eaddy, Manager, E&RC Technical Support
*D. Gainey, Nuclear Assessment Department (NAD)
*J. L. Harrison, Manager, Regulatory Compliance
R. R. Hitch, Senior Specialist, E&RC Support
J. Lucas, Senior Specialist, Technical Training
*J. A. Padgett, Manager, E&RC
*D. C. Stadler, On-Site Licensing Engineer/Nuclear Licensing
A. L. Taylor, Environmental and Chemistry Technician I

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

NRC Inspectors

*L. Garner, Senior Resident Inspector

*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 Environmental and Radiation Control (E&RC) Department and Radwaste Group to verify that the licensee had not made organizational changes which would adversely affect the ability to control radiation exposures or radioactive material. The inspector determined that no such changes had occurred. The organizations were stable, with very limited turnover.

The inspector concluded that the organization and staffing levels were satisfactory and met TS requirements.

No violations or deviations were identified.

Licensee management indicated that improvements in its audit program to identify programmatic weaknesses and/or make recommendations to management were being made. (Paragraph 4).

Plant water chemistry was maintained well within TS limits. (Paragraph 5).

The licensee's program for liquid and gaseous processing and monitoring was successfully implemented. (Paragraph 6).

The licensee's Semiannual Radioactive Effluent Release Report satisfied regulatory requirements. (Paragraph 7).

The Post Accident Sampling System (PASS) was recently modified to eliminate the in-line oxygen analyzer. Technician qualification was being revised to increase the number of technicians who could operate the system. (Paragraph 8).

Licensee's management was pursuing the contingencies of long-term Low Level Radwaste storage in a prudent manner. (Paragraph 9).

The licensee's Volume Reduction Plan had been effective in reducing the amount of radioactive material generated on site. (Paragraph 10).

The Radwaste staff was competent and carried out its duties in a dedicated, professional manner. Shipping documentation of previous shipments was well maintained. (Paragraph 11).

Although there was some contaminated soil identified on site, its activity was below that of naturally-occurring radioisotopes. (Paragraph 12).

Decommissioning records were not segregated into one readily identifiable area. (Paragraph 13).

3. Training and Qualification of Personnel (84750)

Training requirements for plant staff are specified in TS 6.4 and must meet or exceed the requirements and recommendations of Section 5.5 of ANSI N18.1-1971 and Appendix A of 10 CFR 55.

The inspector reviewed the Training and Qualification Program for E&RC personnel with the licensee's Training Coordinator. The basis of the program was task analysis, developed with technical input and content provided by applicable plant functional units. The program was divided into training levels (the number was based upon the job performance requirements of an employee's classification), each of which contained generic training, plant specific training, and designated qualification cards.

a. Qualification

The qualification card was the focal point for employee qualification. The card generally listed applicable generic training, plant specific training, and lower level qualification cards which were prerequisite for its completion. The procedure for qualification started with the Initial Qualification Phase when an individual entered the E&RC/RC Technician classification. This phase was a classroom training phase which required passing a written examination. The next phase was the On-the-Job Training (OJT) Phase whereby the technician worked under the guidance of an OTJ trainer to attain job skills to master tasks. The final phase was the OJT Evaluation Phase wherein a designated OJT evaluator appraised the knowledge, skills, and task performance of the Trainee. If the Trainee successfully performed the task, the evaluator signed the Qualification Checkout Card (QCC) for item completion and the Trainee was considered qualified to perform the work addressed in the QCC.

A review of each employee's qualification was done each two years by the EC/RC supervision. Documentation of the qualification review was accomplished by the Qualification Review Form or the appropriate QCC.

b. Training

Two training classifications were recognized, Initial Training and Continuing Training. Initial Training was that training which supported an employee's QCCs and consisted of Generic, Basic Plant Systems, and Mitigating Core Damage Training. Generic Training consisted of two levels of classroom instruction and laboratory exercises. Basic Plant Systems and Mitigating Core Damage were part

of the Plant-Specific Training required prior to completion of the Training and Qualification Program and were required to be completed within three years after entry into the program. Continuing Training was designed to reinforce, maintain, and improve job-related skills and knowledge. Typically, it included procedural changes, plant modifications, operating experiences/events, newly-identified job skills, etc. The Plant Peer Panel reviewed the needs of Continuing Training on an annual basis for the selection of appropriate subject material. Continuing Training was also accomplished by on-site or off-site courses, equipment vendors, consultants, temporary assignments to gain experience in a specific skill, etc. Continuing Training was held on a quarterly basis for eight hours and 100 percent departmental attendance was required. Documentation of Continuing Training was done by maintaining a course description and/or topical outline, class roster, and test results (if necessary) by the Plant Training Unit.

The inspector reviewed Initial Training Lesson Plan CH401R, "Post Accident Sampling System." It was a sixteen-hour class which included clearly stated purposes and objectives, class handouts, transparencies and slides, review questions, and written examination. The inspector concluded that the lesson was adequate for training purposes.

The inspector reviewed the Instructor Outline for Environmental and Chemistry (E&C) Continuing Training for the first quarter of 1992. It was an eight-hour session and covered several topics directly related to outage work (such as "Experience with Early Boration" and "Unplanned Boron Dilutions from Shutdown Conditions") because the plant was about to enter a scheduled refueling outage. In addition, NRC Information Notice 90-33, "Sources of Unexpected Occupational Radiation Exposures at Spent Fuel Storage Pools" and other items were presented. The inspector concluded that the information was timely and informative.

The inspector randomly selected the names of three technicians and reviewed their respective QCCs to assure that the training records were being accurately maintained. No irregularities were identified and the inspector concluded that training documentation was good.

The inspector concluded that the Training Program was well structured to provide a pool of well trained E&C technicians.

No violations or deviations were identified.

4. Audits (84750 and 86750)

TS 6.5.3.2(d) specifies the types and frequencies of audits to be conducted under the direction of the Nuclear Assessment Department (NAD). To evaluate compliance with the TSs and assess quality of the licensee's audit programs, the inspector requested the most recent audits in the areas of the Radiological Environmental Monitoring Program (REMP), Off-site Dose Calculation Manual (ODCM), Process Control Program (PCP), and solid radwaste handling. The inspector reviewed the E&RC Assessment Report, Report # R-ERC-92-01 by the NAD. The report included an evaluation of site activities to determine the effectiveness of Environmental and Radiological Controls at Robinson emphasizing performance-based, real-time observations; technical reviews; and interviews with personnel.

The scope of the assessment was very broad, encompassing eighteen separate areas (including those requested by the inspector). These were synthesized to four general issues which were identified for management's review and consideration for action. However, the assessment only nominally addressed the TS-required programs. Therefore, the effectiveness of the licensee's audit program in the specific TS-related areas was difficult to determine.

The inspector could not conclude that the assessment process was capable of identifying programmatic weaknesses in the individual areas referenced and/or making recommendations for corrective action. However, the TS-required items had been addressed.

The inspector noted that this assessment was conducted by the newly-organized NAD. Improvement in this area is expected and this issue will be reviewed during a subsequent inspection.

No violations or deviations were identified.

5. Plant Water Chemistry (84750)

The unit had completed its fourteenth fuel cycle on March 27, 1992 and was in a refueling outage at the time of this inspection. The inspector reviewed the plant chemistry controls and operational controls affecting plant water chemistry for late 1991 and early 1992.

TS 3.1.6 specifies that the concentrations of dissolved oxygen (DO) and chloride in the Reactor Coolant System (RCS) be maintained below 0.10 parts per million (ppm) and 0.15 ppm, respectively, when the reactor coolant temperature exceeds 250 °F. TS 3.1.4 specifies that the total specific activity of the reactor coolant be limited to less than or equal to

1.0 microcuries/gram (uCi/g) dose equivalent iodine (DEI) under all modes of operation.

These parameters are related to corrosion resistance and fuel integrity. The oxygen parameter is based on maintaining levels sufficiently low to prevent general and localized corrosion. The chloride parameter is based on providing protection from halide stress corrosion. The activity parameter is based on minimizing personnel radiation exposure during operation and maintenance.

Pursuant to these requirements, the inspector reviewed graphical daily summaries which correlated reactor power output to chloride and dissolved oxygen concentrations of the reactor coolant for the period of December 1, 1991 through February 29, 1992. Additional summaries for specific activity for the period of January 1, 1991 through March 31, 1992 were reviewed. The inspector determined that the parameters were maintained well below TS limits. Typical values for DO and chloride were less than one part per billion (ppb) and less than four ppb (when analyzed using an ion chromatograph), respectively. Typical DEI values at steady-state conditions were 7.0E-4 uCi/g.

The inspector concluded that the Plant Water Chemistry was being maintained well within the TS requirements.

No violations or deviations were identified.

6. Liquid and Gaseous Effluent Processing and Monitoring (84750)

a. Liquid and Gaseous Monitoring Instrumentation

TSs 3.5.2.1 and 3.5.3.1 define the operation and surveillance requirements for monitors of radioactive liquid and gaseous effluent streams, respectively. This instrumentation is provided to monitor and control the releases of radioactive materials in effluents during effluent releases. The alarm/trip setpoints for these instruments is calculated in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR 20.

The inspector walked down nine process and effluent monitoring stations to become familiar with their physical location in the plant and to observe their state of maintenance and operability. All monitors were found to be well-maintained and operable.

The inspector reviewed the calibration of monitor R-14, the Plant Vent Monitor. E&RC Surveillance Test Procedure RST-012, "Calibration of Radiation Monitoring System,

Monitor R-14," Rev. 8 had been followed in its calibration. No irregularities were identified.

b. Release Permits

TSs 3.9.1 and 3.9.2 state requirements for liquid effluent concentrations and TSs 3.9.3, 3.9.4, and 3.9.5 state requirements for gaseous concentrations. TSs 3.5.2 and 3.5.3 define the operating requirements for the radioactive liquid and gaseous effluent instrumentation systems, respectively. The inspector reviewed one Liquid Radioactive Waste Permit and two Gaseous Radioactive Waste Permits for April, 1992, including LRW # 92-100, GRW # 92-92, and GRW # 92-101, to verify compliance. The liquid release was a continuous condensate polisher water effluent release while the gaseous releases were continuous plant vent releases. Pre-release calculations were complete and included dose projections to the public (including whole body and critical organ) as well as the percentage of 10 CFR 50 quarterly and annual limits.

The inspector observed the activities associated with Liquid Radioactive Waste Permit # 92-120, from Waste Condensate Tank (WCT) C. After recirculating the tank volume as required by procedure, a sample was taken for analysis by a technician. The inspector observed the technician as he obtained the sample and noted that he used good technique. The technician took the sample directly to the laboratory to be analyzed. The analysis showed that the sample's activity was low enough to allow the tank's contents to be released to an Unrestricted Area. The technician filled out the pre-release data and completed pre-release calculations, including establishing the setpoints for the Liquid Waste Disposal Radiation Monitor (R-18), maximum release rate, and dose assessment, as prescribed in Environmental Monitoring Procedure (EMP) 023, "Liquid Waste Release and Sampling, Rev. 14. The technician conducted his activities in a competent, professional manner. The Release Permit was then turned over to Operations to actually make the release and coordinate other plant activities. The inspector requested a copy of the completed release permit. A minor problem was encountered during the release. As it was begun, the radiation level spiked to the setpoint of R-18. The monitor automatically closed the release valve, thereby terminating the release. The speculation was that some residual material from the previous release had passed the monitor. However, the entire permit process had to be done again (recirculating the WCT, taking another sample, analyzing the sample, etc.). The second release attempt was successful. A copy of the successful release was provided to the

inspector the next day and showed that 8841 gallons were released with an activity of 4.138E+00 curies, which would yield a dose of 2.46E-04 mrem to the gastrointestine-lower large intestine (GI-LLI).

The inspector concluded that the program for liquid and gaseous processing and monitoring was being successfully implemented.

No violations or deviations were identified.

7. 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 reports for 1991 and compared the results to those of 1989 and 1990 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

	1989	1990	1991
Abnormal Releases			
Liquid	0	0	0
Gaseous	0	0	0
Activity Released (curies)			
a. Liquid			
1. Fission and Activation Products	2.81E-1	3.60E-1	2.35E-1
2. Tritium	1.63E+2	3.53E+2	1.88E+2
3. Gross Alpha	<LLD	0.00E+0	0.00E+0
b. Gaseous			
1. Fission and Activation Gases	2.78E+1	7.21E+0	2.26E+0
2. Iodines	3.17E-6	1.09E-7	0.00E+0
3. Particulates	1.38E-4	1.34E-4	1.73E-4
4. Tritium	4.18E+0	4.44E+0	4.48E+0
Dose Estimates (mrem)			
1. Gaseous Effluents			
Whole Body	3.49E-2	4.16E-2	3.41E-2
Skin	5.73E-2	5.11E-2	4.18E-2

2. Liquid Effluents			
Liver	4.68E-2	1.30E-2	1.61E-2

No abnormal releases were reported in 1992 through the date of this inspection.

A comparison of data from liquid fission and activation products, tritium, and gross alpha, as well as gaseous iodines, particles, and tritium data for 1989, 1990, and 1991 showed no significant trends. Nor did the dose estimates. Gaseous fission and activation products showed a decreasing trend.

There were no changes to the Land Use Census, the Process Control Program, or the Radioactive Waste Systems in 1991.

However, five changes to the ODCM had been made and had been reviewed in Inspection Report 91-25.

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

No violations or deviations were identified.

8. Post Accident Sampling System (PASS) (84750)

NUREG-0737 requires that the licensee be able to obtain a sample of the reactor coolant and containment atmosphere. Furthermore, the sample must be promptly obtained and analyzed (within three hours total) under accident conditions without incurring a radiation exposure to any individual in excess of 3 and 18 3/4 rem to the whole body or extremities, respectively.

a. Technician Qualification

The inspector discussed with the Chemistry Supervisor the status of the efforts to expand the pool of qualified technicians. One additional technician had become qualified since November 1991. Also, a new Chemistry Procedure, CP-088, "Post Accident Diluted Liquid Sampling," had been drafted and was awaiting approval. Its purpose was to detail the steps required to operate the PASS to obtain a liquid sample remotely. This procedure was the result of a decision to have two levels of qualification for the PASS, one which would allow a technician to take samples and do normal operations and another (higher) level which could trouble-shoot and maintain the system as well as do the normal operations. Approval of the new procedure was expected within a few weeks and would be required training for all Chemistry Technicians.

b. Plant Modification (PM) 956

PM M-956 removed the oxygen analyzer and its associated meter from the PASS. It also added an "on-off" switch for the Boron Indicator. The oxygen analyzer had a leaking cell which presented a maintenance problem each time that the PASS was operated as well as being potentially radioactive (which presented a potential ALARA concern). While removal of the oxygen analyzer had no impact on normal plant operations, it did eliminate in-line oxygen concentration measurement capability. Future information concerning oxygen concentration in the reactor coolant would have to be analyzed from grab samples in the laboratory.

Revisions to procedures CP-080 and CP-081 have been made to reflect the actions of PM M-956, while revisions were pending for procedures CP-082, CP-083, and CP-084. (They were minor: a drawing change for CP-082 and CP-083; removal of the oxygen calculation for CP-084.)

c. Procedure Revision Review

The inspector selectively reviewed procedure CP-080, "PASS Operational Check and System Flush," Rev. 8 to assure that revisions to Rev. 7 had been properly incorporated. Also reviewed was procedure CP-081, "Post Accident Liquid Sampling," Rev. 10, for the same reason. No irregularities were identified in either procedure's revisions.

The inspector concluded that the licensee was making progress in improving the PASS and in expanding the number of qualified technicians to operate it.

No violations or deviations were identified.

9. Low Level Radwaste (LLW) Storage (84760)

a. Background

On December 22, 1980, Congress passed the LLW Policy Act. The Act made LLW the responsibility of each state and suggested that LLW be managed through regional compacts. Eight southeastern states voted to form the Southeast Compact for this purpose in 1983. In 1985, the Congress enacted the Low Level Radioactive Waste Amendments Act, which required all states to provide for disposal of LLW. Barnwell, South Carolina was selected and has served as the Compact's LLW disposal site since that time but it is scheduled to close on December 31, 1992. North Carolina was chosen as the next host state for the LLW burial

facility on September 11, 1986. In 1987, the North Carolina General Assembly established the North Carolina Low Level Radioactive Waste Management Authority, chartered with the responsibility to site, build, lease, or operate a LLW disposal facility in North Carolina for the Southeast Compact so that members could properly dispose of waste by-product materials produced by nuclear generators. On April 30, 1990, the Authority selected two sites for further evaluation and site suitability characterization; one in Richmond County and one in Wake/Chatham Counties. In June 1990, the Authority announced that the new disposal site would not be ready by 1992. If the current facility closes as scheduled, members of the Southeast Compact will be without a disposal facility for an estimated three to four year period. Furthermore, if disposal capacity is not available by 1996, each LLW generator becomes responsible for its own LLW.

On October 25, 1991, the Southeast Compact Commission passed a resolution identifying the continued operation of the disposal facility in Barnwell as the preferred option for LLW management during the interim period (until the North Carolina facility is ready) and requesting that the South Carolina General Assembly and the South Carolina Board of Health and Environmental Control take the necessary actions to extend the operating permit of the Barnwell facility.

The governor of South Carolina, the South Carolina Budget and Control Board, and the South Carolina Department of Health and Environmental Control have recommended keeping the Barnwell facility open to regional and non-regional radwaste generators. However, legislative action by the South Carolina General Assembly is required to extend the license and determine under what conditions and cost.

b. Robinson Contingencies

The inspector requested to see the licensee's long-term LLW storage facilities to review issues such as ensuring integrity of packaging and maintenance of waste form (shielding from the elements and extremes of temperature and humidity); procedures and equipment available to repackage waste, should the need arise; and locating wastes in a restricted area secured against unauthorized removal.

The E&RC Manager explained to the inspector that Robinson did not currently have a LLW storage facility. However, the issue was being addressed by CP&L management via a study which evaluated the generation rate of processed

radwaste vs. the existing capacity to store that waste for an extended period of time. Assumptions made in the development of the evaluation included:

- All DAW/resin volume are reduced to the maximum extent possible (by supercompaction/incineration and/or dewatering).

- Resin/filter storage areas are modified (shielded) to be in conformance with current regulatory guidelines.

- No event occurs to increase radwaste generation.

- Existing inventories of radwaste are shipped for disposal prior to the closure of the burial facility.

The study included an inventory of potential site storage capacity. It included approximately 7200 cubic feet in the radwaste building, which could accommodate the storage of processed Dry Active Waste (DAW) for two years. Also, there were two concrete shields (with two additional at a sister plant which could be recalled for use, if necessary) in an outside area which could be utilized for storage of resins and liquid process filters in 150- to 200-cubic foot liners. Storage of resins/filters could be accommodated for three years. It was noted that higher activity resins would pose significantly greater shielding problems if storage were attempted using the current storage shields. Therefore, the concrete shields would require modification or replacement prior to extended storage use.

Fuel pool waste included five trash baskets, containing thimble plugs, in-core thimble pieces, and control rod parts. In addition, there were six vacuum filters, that would eventually be disposed of as DAW. There was an estimated thirty cubic feet of waste in the pool at the time of this inspection. Projected additions through 1995 was one trash basket (with a volume of about thirteen cubic feet) per year.

Numerous recommendations to management were made including to dispose of all DAW, resins, filters, and other identified radioactive wastes prior to the projected closure of the current burial facility. Management was continuing its evaluation to determine which course of action to pursue.

The inspector concluded that the plan was complete and appropriate for the storage of LLW and that the licensee's

management was proceeding in a prudent manner.

No violations or deviations were identified.

10. Volume Reduction Program (86750)

The licensee had implemented a Volume Reduction Program to reduce the volume of radioactive material ultimately disposed of at a burial site. The problem had been attacked from several fronts including:

- Reducing the amount of material which could potentially become contaminated. (Specific examples included: not allowing wooden pallets in the Radiation Control Area (RCA); removing non-essential packaging from materials before entering the RCA; and questioning personnel about the amount of materials that they were taking into the RCA to assure that they took the minimum necessary to complete a given task).

- Frisking all material placed in contaminated radwaste bags and releasing as clean that on which no activity had been detected. (For the first quarter of 1992, 1226 cubic feet of such material had been frisked. Of that, 967 cubic feet had been released as clean.)

- Sorting materials into incinerables and non-incenerables before sending to Scientific Ecology Group, Inc. (SEG) for processing (incineration and compaction/supercompaction) and maximizing the use of incinerable articles. (Reduction factors had proven to be about 7 to 1 for non-incinerable materials while those for incinerable materials were between 100 and 200 to 1.)

- Training of personnel to request Health Physics (HP) assistance to properly classify and dispose of items used in maintenance, cleaning, installation, etc.

The inspector reviewed data of annual total radwaste shipped from the site. A dramatic decrease was evident. The volume shipped off site declined from 22,386 cubic feet (in 1985) to 2,289 cubic feet (in 1991). The rate of decrease had slowed over the last two years, reflecting the fact that further improvements will be more difficult to achieve because the most obvious measures had been incorporated into plant operations. However, the licensee's goal was to decrease its volume again this year (1992).

The inspector concluded that the licensee's Volume Reduction Program was effective.

No violations or deviations were identified.

11. Transportation (86750)

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 DOT in 49 CFR Parts 170 through 189.

Pursuant to these requirements, the inspector reviewed the licensee's activities affiliated with these requirements, to determine whether the licensee effectively processes, packages, stores, and ships radioactive solid materials. The licensee's program for the packaging and transportation of radioactive materials was conducted by the Radiowaste Group within the E&RC Department. Radwaste was processed and packaged (including the preparation of shipping documentation) by the Radwaste Group.

a. Radwaste Shipment Documentation Packages

Shipment of radioactive materials was the responsibility of the Radwaste Group, which prepared all shipping documents and procured the necessary disposal containers and shipping casks. Radwaste shipments were classified into four categories: Casks (for disposal at a burial site); Low Specific Activity (LSA) sent to SEG for incineration and/or compaction prior to final disposal; Special Shipments (including virtually anything from spent fuel to samples containing Limited Quantities); and Laundry. The inspector reviewed the three shipping documentation packages for radwaste shipments since the last inspection (November 1991). They included two cask shipments, Radwaste Shipment Nos. C-91-04 and C-92-01, and one LSA shipment to SEG, Radwaste Shipment No. 5/SEG-92-01. The packages thoroughly documented the shipments and included items such as unique shipment and shipping container numbers, waste content and volume, total activity, analytical summary and breakdown of isotopes with a half-life greater than five years, etc. The radiation and contamination survey results were within the limits specified and the shipping documents were being maintained as required.

b. Observation of Shipment

The inspector observed a shipment (Shipment No. SEG-92-02) of two Sea-Land containers of uncompacted contaminated trash. The inspector reviewed Health Physics Procedure HPP-237, Rev. 3, "Vehicle Survey And Inspection," approved on March 23, 1992. The procedure

provided instructions for performing radiological surveys and general inspection of designated vehicles prior to the loading or unloading of exclusive use shipments of radioactive material. The procedure delineated the responsibilities of the Radwaste Supervisor and the Radwaste Technicians, listed prerequisites, precautions and limitations, and acceptance criteria, as well as detailing the activities required by the technicians. One container (Box No. 198) had been sorted to contain only incinerable material while the other (Box No. 252) contained asbestos insulation and "sharps." The inspector also reviewed Health Physics Procedure HPP-307, Rev. 6, "Shipment of LSA Type A Dry Active Waste to Scientific Ecology Group, Inc.," approved March 6, 1991. The procedure provided guidance in the use of SEG services in the reprocessing of DAW and followed the same format of the previously-referenced procedure as to responsibilities, prerequisites, etc. The supervisor and technicians carried out their responsibilities effectively and, except for a brief period of inclement/dangerous weather during a thunderstorm with accompanying nearby lightening, the shipment was loaded, tied down, and given a final inspection (including radiation survey) without incident. The inspector verified radiation levels as shown on the survey sheet, checked the condition of the packaging, and checked the tamper-evident seals of the containers. These items were found to be acceptable for both containers. The inspector reviewed the final shipment documentation package, including emergency response information, and determined that it was in order.

c. Spent Fuel Shipments

Since the first of the year, three rail shipments of spent fuel to the Shearon Harris Nuclear Power Plant (SHNPP) had been made. Additional shipments may be made this spring, depending upon coordination and shipping priorities of the Brunswick Plant.

The inspector concluded that the Radwaste Group was staffed by competent personnel who effectively implemented the program.

No violations or deviations were identified.

12. Contaminated Soil (84750)

The inspector discussed the issue of contaminated soil with the E&RC Manager to determine on-site quantities, activity levels and associated isotopic characterization, contamination sources, and plans for dealing with it.

The licensee had conducted a study in the Spring of 1991 to determine those items. Fourteen samples from various points within the protected area, five samples from the settling pond/waste retention basin area, four samples from the landfill, and four samples from the "microwave storage" area were taken and analyzed. Within the protected area, four samples taken from around the radwaste storage pad showed detectable activity levels of radioisotopes attributable to plant operations (in the form of Co-60, Cs-134, and Cs-137). However, in all cases, the activity levels of naturally-occurring radioisotopes (in the form of K-40, Pb-212, Pb-214, etc.) exceeded those attributed to plant operation. The maximum activity detected due to plant operations was 3.14E-6 uCi/g, whereas the minimum activity detected from those occurring naturally was 4.61E-6 uCi/g. In the only other sample taken from within the protected area to show detectable levels of non-naturally-occurring radioisotopes (from around the waste oil tank), the results were 7.14E-6 uCi/g for naturally-occurring vs 1.85E-7 uCi/g for non-naturally-occurring. Typical values for the "microwave storage" area were about 6.0E-6 uCi/g for naturally-occurring vs about 2.5E-7 uCi/g for non-naturally-occurring. In the settling pond/waste retention area, only two of the five samples showed detectable levels of non-naturally-occurring radioisotopes, at values of about 2.7E-7 uCi/g vs the minimum value of the naturally-occurring radioisotopes of 2.28E-6 uCi/g. No activity from non-naturally-occurring radioisotopes was detected in any of the landfill samples.

The licensee had no plans to remove any of the contaminated soil due to its very low levels of contamination.

There was no contaminated soil stored on site.

No violations or deviations were identified.

13. Decommissioning Planning Records (84750)

10 CFR 50.75(g) requires 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."

The inspector requested the licensee's decommissioning records to verify compliance with the regulations. Discussions with the licensee determined that the subject information was in the licensee's document vault. However, the records were not segregated in one readily identifiable area, nor was a listing identifying such documents available. The inspector was shown the agenda of a scheduled meeting where this item was to be addressed and will revisit this item during a future inspection.

No violations or deviations were identified.

14. Exit Interview

The inspection scope and results were summarized on April 24, 1992, 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.

15. Acronyms and Initialisms

ALARA - As Low As Reasonably Achievable
ANSI - American National Standards Institute, Inc.
CFR - Code of Federal Regulations
Ci - curie
CP - Chemistry Procedure
CP&L - Carolina Power and Light
DAW - Dry Active Waste
DEI - Dose Equivalent Iodine
DO - Dissolved Oxygen
DOT - Department of Transportation
E&C - Environmental and Chemistry
E&RC - Environmental and Radiation Control
EMP - Environmental Monitoring Procedure
F - Fahrenheit
g - gram
GI - Gastrointestinal
HP - Health Physics
LLI - Lower Large Intestine
LLD - Lower Limit of Detection
LLW - Low Level Radwaste
LSA - Low Specific Activity
mrem - milli-rem
NAD - Nuclear Assessment Department
NRC - Nuclear Regulatory Commission
ODCM - Off-site Dose Calculation Manual

OJT - On-the-Job Training
PASS - Post Accident Sampling System
PCP - Process Control Program
PM - Plant Modification
ppb - parts per billion
ppm - parts per million
QCC - Qualification Checkout Card
RC - Radiation Control
RCA - Radiation Control Area
RCS - Reactor Coolant System
REMP - Radiological Environmental Monitoring Program
Rev - Revision
SEG - Scientific Ecology Group, Incorporated
SHNPP - Shearon Harris Nuclear Power Plant
TS - Technical Specification
uCi - micro-Curie (1.0E-6 Ci)
WCT - Waste Condensate Tank