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

Report Nos: 50-250/95-20 and 50-251/95-20

Licensee: Florida Power and Light Company
9250 West Flagler Street
Miami, FL 33102

Docket Nos.: 50-250 and 50-251 License Nos.: DPR-31 and DPR-41

Facility Name: Turkey Point 3 and 4

Inspection Conducted: November 6 - 9, 1995

Inspector: R. P. Carrion 5 Dec '95
R. P. Carrion, Radiation Specialist Date Signed

Approved by: J R Decker 12/5/95
T. R. Decker, Acting Branch Chief Date Signed
Plant Support Branch
Division of Reactor Safety

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of the organization of the Chemistry Department and Radwaste Group, audits, plant water chemistry, the Annual Radioactive Effluent Release Report, the Radiological Environmental Monitoring Program (REMP), the Control Room Emergency Ventilation System, the Meteorological Monitoring Program, radioactive materials handling and transportation documentation, and volume reduction of solid radwaste.

Results:

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

The licensee's organization and staffing levels of its Chemistry Department and Radwaste Shipping Unit satisfied Technical Specification (TS) requirements. (Paragraph 2)

The licensee's audit process was capable of identifying programmatic weaknesses, documenting deficiencies, making recommendations for corrective action, and following up on previous findings. (Paragraph 3)

Enclosure

The licensee had maintained an effective over-all chemistry program to inhibit degradation due to corrosion/erosion of components of both the primary and secondary systems. (Paragraph 4)

The licensee's Control Room Emergency Ventilation System was adequate for its intended function and was being maintained in compliance with the applicable TSs. (Paragraph 5)

The licensee's Annual Radioactive Effluent Release Report was complete and satisfied regulatory requirements. (Paragraph 6)

The licensee had an effective program in place to monitor radiological effluents, direct radiation, etc. due to plant operations and the report was in compliance with the TSs. In 1994, plant operations had negligible impact on the surrounding environment, resulting in virtually no dose to members of the general public. (Paragraph 7)

The licensee's Meteorological Monitoring System was well-maintained and capable of fulfilling its required functions. (Paragraph 8)

The licensee had implemented effective Quality Assurance (QA) and management control programs for the handling, packaging, and transport of radioactive material (including the required paper documentation) and regulatory requirements were satisfied. (Paragraph 9)

The licensee had made a good effort to reduce radwaste. (Paragraph 10)

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*T. V. Abbatiello, Licensing Specialist
J. E. Berg, Radiochemistry Supervisor
J. M. Donis, Balance of Plant Supervisor
*J. Gianfrancesco, Maintenance Planning Supervisor
R. W. Heistand, Plant Analyst II, Land Utilization
*R. J. Hovey, Assistant to the Site Vice President
*D. E. Jernigan, Plant Manager
*J. E. Kirkpatrick, Fire Protection/Safety Supervisor
*R. Kundalkar, Engineering Manager
D. J. Lee, Primary Operations Supervisor
*J. D. Lindsay, Health Physics (HP) Supervisor
*C. Mowrey, Compliance Specialist
C. M. Murray, Radiochemistry Supervisor
K. W. Petersen, Site Superintendent of Land Utilization
*T. F. Plunkett, Vice President
*R. E. Rose, Materials Manager
*A. Singer, Operations Manager
*R. N. Steinke, Chemistry Supervisor
*D. J. Tomaszewski, Acting Technical Manager
*E. J. Weinkam, Licensing Manager

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

Nuclear Regulatory Commission (NRC)

*B. B. Desai, Resident Inspector

*Attended exit interview.

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

2. Organization (84750)

Technical Specification (TS) 6.2.2 describes the licensee's onsite facility organization. The inspector reviewed the licensee's organization, staffing levels, and lines of authority as they related to the Chemistry Department 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 discussed the organization of the Chemistry Department with the Chemistry Supervisor. The structure of the department had remained unchanged since the last review. Specifically, it was divided into the following five functional units: Radiochemistry, Primary Operations,

Secondary Operations, Hazardous Materials, and the Technical Group. (Refer to Paragraph 2 of Inspection Reports (IRs) 50-250, 251/95-05 of March 1995.) The most important change to the department noted by the inspector was that the number of technicians had been reduced from eighteen to fifteen over that time frame. (The inspector noted that there had been twenty-two approximately a year ago.) The goal of the department was to increase productivity through the use of on-line monitors tied directly to the computer system (which eliminated logging data by hand) and reducing the department's activities to only those required and/or essential to operate the plant.

The inspector concluded that the organization and staffing levels satisfied TS requirements.

No violations or deviations were identified.

3. Audits (84750)

TS 6.5.2.1 specifies the types and frequencies of audits to be conducted under the cognizance of the Company Nuclear Review Board (CNRB). The inspector reviewed audits conducted during the past eighteen months by the CNRB within the scope of this report. In order to evaluate compliance with the TSs and assess quality of the licensee's programs, the inspector reviewed the following audits:

- QA Audit QAO-PTN-94-017, "Chemistry," conducted August 9 through December 2, 1994.
- QA Audit QAO-PTN-95-004, "Radioactive Effluents," conducted February 3 through March 29, 1995.
- QA Audit QAO-PTN-95-009, "Radiation Protection," conducted April 4 through August 4, 1995.

The audits were found to be well-planned and documented and summarized findings. Corrective actions for previous audit findings were reviewed for adequacy and were closed out formally or left open, as appropriate. The inspector also reviewed four Quality Reports, used by the licensee to record observations and conditions noted by QA inspectors in the course of gathering real time field information about procedure execution and compliance to TSs. The inspector noted that the scopes of the respective audits were sufficiently broad to ensure comprehensive results. The inspector also noted that the comments and recommendations based on audit observations were detailed and would aid the implementation of adequate corrective actions. The inspector verified that the audit program was conducted in accordance with the TSs.

The inspector concluded that the licensee's audit process was capable of identifying programmatic weaknesses, documenting deficiencies, making recommendations for corrective action, and following up on previous findings.

No violations or deviations were identified.

4. Plant Water Chemistry (84750)

During the inspection, Turkey Point Units 3 and 4 were both operating at 100 percent power. However, Unit 3 was forced to reduce power production for a period of time to trouble shoot a problem with a flow control valve. Unit 3 was in its fifteenth fuel cycle and Unit 4 was in its fifteenth fuel cycle. Unit 3 had completed its latest refueling outage in early October while Unit 4 was scheduled to begin its next refueling outage in March 1996. The inspector reviewed the plant chemistry controls and operational controls affecting plant water chemistry.

a. Primary Plant Water Chemistry

1. TS-Required Parameters

TS 3.4.7 specifies that the concentrations of dissolved oxygen (DO), chloride, and fluoride in the Reactor Coolant System (RCS) be maintained below 0.10 parts per million (ppm), 0.15 ppm, and 0.15 ppm, respectively. TS 3.4.8 specifies that the specific activity of the primary coolant be limited to less than or equal to 1.0 microcuries/gram (μCi/g) dose equivalent iodine (DEI).

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 and fluoride parameters are based on providing protection from halide stress corrosion. The activity parameter is based on minimizing personnel radiation exposure during emergency operation and maintenance.

Pursuant to these requirements, the inspector reviewed tabular daily summaries which correlated reactor power output to chloride, fluoride, and dissolved oxygen concentrations, and DEI of the reactor coolant for the period of July 1, 1995 through August 31, 1995 and determined that all of the parameters were maintained well below TS limits. Typical values for DO and chloride were less than two parts per billion (ppb) and less than five

ppb, respectively, for both units. Typical fluoride concentrations were less than five ppb for both units. Typical DEI values were 3.8E-3 μCi/g for Unit 3 and 1.4E-3 μCi/g for Unit 4.

There was no evidence of leaking fuel in either unit at this time.

2. Early Boration

The inspector discussed the licensee's early boration program with the Primary Operations Supervisor. For the recently-completed Unit 3 outage, the licensee had not calculated the amount of activity removed. Instead, the licensee determined the bowl dose rate of the Steam Generators (SGs) and compared it to previous bowl dose rates. For the last three outages (including the most recent), the average bowl dose rate had been between 6 and 7 rem per hour. This represents a new "plateau." Prior to those outages, the average bowl dose had been between 9.5 and 11.5 rem per hour. The decrease was attributed to the strict water chemistry controls employed plus the fact that the fuel had been very good over that period. The licensee expected to improve upon these results by "fine tuning" the boron and lithium concentrations to reach a lower "plateau."

b. Secondary Water Chemistry

TS 6.8.4.c requires the licensee to establish, implement, and maintain a Secondary Water Chemistry Program to inhibit SG tube degradation.

The inspector reviewed and discussed the results of the licensee's program, including sludge lancing and tube plugging. The licensee had used an All-Volatile Treatment (AVT) regimen, i.e., hydrazine and ammonia, since the SGs had been replaced in the early 1980's. Tube plugging has been minimal. (Some re-plugging had been done due to industry experience and management's goal to preempt potential problems.) No indications had been observed due to tube vibrations. However, some indications had been observed in the casing around the low pressure turbine, which is a relatively high acid environment.

Sludge lancing had been carried out during the respective refueling outages of each unit since the replacement of the SGs. (Refer to Paragraph 3.b.1.a of IRs 50-250, 251/95-05 for a summary of sludge removed up to the recent Unit 3 outage.) The licensee

had not yet calculated the results of that outage but estimated that 150 to 200 pounds (lbs) of sludge had been removed from each of the three SGs, which compared favorably to the results of past sludge lancing efforts.

The inspector also discussed the recent Unit 3 outage as it related to the parameters of the secondary system. In general, those parameters (fluoride, sulfate, sodium, and cation conductivity, for example) were higher than where the Chemistry Department normally preferred to operate. They were slowly declining, but were approximately two to four times the level of the Unit 4 values, although all were well below an Action Level. This condition was the result of the licensee's outage schedule which did not allow for a more complete cleanup (via use of the condensate polishers) of the secondary chemistry prior to unit restart. The licensee expected the levels to be within their normal ranges in approximately a month.

The inspector concluded from the above that the licensee had maintained an effective over-all chemistry program to inhibit degradation due to corrosion/erosion of components of both the primary and secondary systems.

No violations or deviations were identified.

5. Control Room Emergency Ventilation System (84750)

Per 10 CFR 50, Appendix A, Criterion 19, licensees shall assure that adequate radiation protection be provided to permit access to and occupancy of the control room under accident conditions and for the duration of the accident. Specifically, operability of the control room emergency ventilation system ensures that: 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system, and 2) the control room remains habitable for operations personnel during and following all credible accident conditions such that the radiation exposure to personnel occupying the control room is limited to 5 rem or less whole body, or its equivalent.

TS 3.7.5 defines operability requirements for the control room emergency air cleanup systems under the various design scenarios. TS 4.7.5 sets the surveillance requirements for the system.

The inspector reviewed Piping and Instrumentation Diagram (P&ID) 5610-M-3025, Rev. 3, "Control Building Ventilation Control Room HVAC," which showed the general layout of the components of the Control Room Air Conditioning System. The inspector reviewed the System Description (Section 9.9 of the Final Safety Analysis Report (FSAR)) and discussed system operation under both normal and emergency conditions with the System Engineer. The inspector walked down the system, from the air

intake to the Control Room, to air exhaust, noting the major components, such as isolation dampers, filter banks, and fans as well as detectors for radiation, etc. All components were well maintained, with no sign of physical degradation.

The inspector selectively reviewed several past TS-required surveillances conducted for HEPA filter testing and carbon adsorption, and determined that TS compliance had been met and the acceptance criteria satisfied.

Based on the scope of this review, the inspector concluded that the system was adequate for its intended function and that it was being maintained in compliance with the applicable TSs.

No violations or deviations were identified.

6. Annual Radioactive Effluent Release Report (84750)

TS 6.9.1.4 and 10 CFR 50.36a(a)(2) require the licensee to submit an Annual Radiological Effluent Release Report within the time periods specified covering the operation of the facility during the previous year of operation. The TS also states the requirements for the content and format of the report. The inspector reviewed the reports for 1994 and compared the results to those of 1991, 1992, and 1993 to verify compliance and to determine trends which might have occurred in liquid and gaseous effluent releases. These data are summarized as follows.

Turkey Point Nuclear Plant
Radioactive Effluent Release Summary

		1991	1992	1993	1994
Unplanned Releases					
a.	Liquid	3	0	0	0
b.	Gaseous	0	0	0	0
Activity Released (curies)					
a.	Liquid				
1.	Fission and Activation Products	7.36E-1	3.74E-1	5.16E-1	5.45E-1
2.	Tritium	1.13E+2	4.42E+2	5.76E+2	7.52E+2
3.	Gross Alpha	< LLD	< LLD	< LLD	< LLD
b.	Gaseous				
1.	Fission and Activation Gases	1.84E+1	1.23E+2	5.66E+2	2.77E+1
2.	Iodines	1.27E-3	2.08E-4	2.90E-3	4.77E-3
3.	Particulates	3.46E-5	2.38E-5	3.57E-6	4.39E-5
4.	Tritium	2.91E-1	3.96E-2	9.26E+0	1.03E+0

Enclosure

A comparison of data from liquid and gaseous effluents 1991, 1992, 1993, and 1994 showed an slightly increasing trend in liquid tritium. No trends were evident from the other data.

The inspector reviewed the hypothetical maximum yearly dose estimates to a member of the public located at the site boundary from radioactive materials in gaseous and liquid effluents released during 1994 as reported in the Radioactive Effluent Release Report. The table on the following page includes the annual dose calculations due to gaseous and liquid effluents for 1994.

Turkey Point Power Station
Cumulative Estimated Doses from Effluents

Dose Pathway	1991	1992	1993	1994	Annual Limit
Airborne					
Gamma Air Dose (mrad)	1.30E-4	9.54E-4	4.52E-3	2.54E-4	10
Beta Air Dose (mrad)	3.68E-4	2.51E-3	1.30E-2	5.41E-4	20
Max Organ Dose (Infant Thyroid - mrem)	2.00E-2	3.28E-3	2.04E-2	8.17E-2	15
Liquid					
Total Body Dose (Teenager - mrem)	4.56E-3	5.04E-3	2.68E-3	2.82E-3	3

The release of radioactive material to the environment from Turkey Point for the year was a small fraction of the 10 CFR 20, Appendix B and 10 CFR 50, Appendix I limits. As can be seen from the data presented previously, the annual dose contributions to the maximum-exposed individual from the radionuclides in liquid and gaseous effluent released to unrestricted areas were all less than one per cent of the limits specified in the Off-site Dose Calculation Manual (ODCM). The inspector noted that, for the four-year period, the reported doses showed no trends.

There were no changes to the Process Control Program (PCP).

The Off-site Dose Calculation Manual (ODCM) was revised during this reporting period to implement setpoint calculations for iodine and particulate channel alarm points.

No gas storage tanks exceeded the limits allowed by TS 3.11.2.6 (70,000 Curies of noble gas, considered as Xe-133 equivalent) during this reporting period.

No liquid or gaseous effluent monitoring instrumentation was inoperable for a period of time greater than allowed by TSs 3.3.3.5 or 3.3.3.6.

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

Turkey Point Solid Radwaste Shipments

	1991	1992	1993	1994
Number of Waste Disposal Shipments	38	39	28	28
Volume (cubic meters)	188.9	210.2	90.4	80.1
Activity (curies)	11.6	230.0	140.2	1530.3*

*Note: This activity includes 1484 curies of irradiated components which were disposed of in 1994.

For solid radwaste, the inspector noted a generally declining trend for both volume and activity (when "backing out" the activity associated with the irradiated components) over the last three years.

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

No violations or deviations were identified.

7. Annual Radiological Environmental Operating Report (84750)

TS 6.9.1.3 requires that the Annual Report be submitted prior to May 1 of the following year. TS 6.9.1.3 also states format and content requirements for the Report.

a. 1994 Annual Radiological Environmental Operating Report

The inspector reviewed the Annual Environmental Operating Report for calendar year 1994 to verify compliance with the TSs. The Report had been submitted in compliance with TS 6.9.1.3 on April 21, 1995, and the format and contents were as prescribed by the TS. There were no changes to the environmental monitoring network during 1994. The inspector determined that the Report was in compliance with the TSs.

The Turkey Point Nuclear Plant Environmental Monitoring Program is designed to detect the effects, if any, of plant operation on environmental radiation levels by monitoring airborne, waterborne, ingestion, and direct radiation pathways in the area surrounding the plant site. It also supplements the Radiological Effluent Monitoring Program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways. Indicator sampling stations are located where detection of the radiological effects of the plant's operation would be most likely, where the samples collected should provide a significant indication of potential dose to man, and where an adequate comparison of predicted radiological levels might be made with measured levels. Control stations are located where radiological levels are not expected to be significantly influenced by plant operation, i.e., at background locations. An environmental impact assessment of plant operation is made from the radiological measurements of the sampling stations. Those measurements verified that the dose to members of the public were well within the limits established by 10 CFR 50, Appendix I.

Specifically, the report noted the following:

1) Direct Radiation

Direct radiation exposure in the plant environs was measured by the placement of thermoluminescent dosimeters (TLDs) at twenty-one locations around the plant, which were collected and analyzed quarterly. The results were consistent with those of previous years. The mean of seventy-four samples from indicator locations was 5.2 micro-Rad/hour (μR/hr).

2) Air Particulates/Radioiodine

208 air samples were collected from indicator stations and 52 from control stations throughout 1994, with the following results:

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

- The mean gross beta activity was the same for the indicator stations vs. the control stations (1.2E-2 picocuries per cubic meter (pCi/m^3)). The only identified radioisotopes were the naturally-occurring Be-7 and K-40 at levels consistent with past measurements. 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.

3) Waterborne

a. Surface Water

Twenty-four surface water samples were collected from indicator stations and 12 from control stations throughout 1994, with the following results:

- Eleven of twenty-four samples indicated a presence of tritium (a beta emitter) which was attributed to plant operations. However, the highest reported tritium concentration (299 pCi/l) was less than one percent of the reporting value specified in the TSs. The mean activity levels had remained consistent with past measurements.

- Gamma analyses of monthly composites of surface water samples detected no radionuclides typical of plant effluents.

b. Sediment

No radionuclides of plant origin were detected in the four samples of shoreline sediment. Consistent with past measurements, only naturally-occurring radionuclides were detected.

4) Ingestion

a. Fish and Invertebrates

Two samples of free-swimming fish and two samples of bottom-feeding crustacea were collected throughout 1994. The results for the year were consistent with those of previous years; only naturally-occurring radionuclides were detected.

b. Broadleaf Vegetation

One control and two indicator stations were utilized for sampling broadleaf vegetation. Twenty-three of twenty-four samples taken from the indicator sites contained concentrations of Cs-137 with an average of 1.0E+2 picocuries per kilogram (pCi/kg) (wet), while one of twelve of the samples taken from the control

site contained a detectable concentration of Cs-137 (3.0E+1 pCi/kg (wet)). The maximum concentration (236 pCi/kg) was approximately twelve per cent of the reporting level.

b. Analytical Comparison of 1994 Report

Radiological environmental monitoring for the Turkey Point Plant is conducted by the State of Florida, Department of Health and Rehabilitative Services (DHRS). Samples are collected and analyzed by DHRS personnel at the DHRS Environmental Radiation Control Laboratory in Orlando, Florida.

The NRC contracts with the Radiological and Environmental Sciences Laboratory (RESL) to analyze samples split between the State of Florida and the NRC. The NRC compares the RESL results to those of the State of Florida for analysis confirmation.

The inspector compared a random selection of analytical results for gross beta in air particulates at Sample Station T-58, as reported in the 1994 Annual Report. After adjusting for the different units used by the different laboratories to report the results, the inspector determined that the reported results compared favorably with those of RESL. A typical value for gross beta in the air particulates was 0.010 pCi/m^3.

The inspector discussed his findings with the Chemistry Supervisor and concluded that the State of Florida was capable of analyzing environmental samples as required for the Annual Radiological Environmental Operating Report.

From a review of the licensee's environmental report and a review of the RESL comparison, the inspector concluded that the licensee had an effective program in place to monitor radiological effluents, direct radiation, etc. due to plant operations and that the Report was in compliance with the TSs. In 1994, plant operations had negligible impact on the surrounding environment, resulting in virtually no dose to members of the general public.

No violations or deviations were identified.

8. Meteorological Monitoring Program (84750)

The information obtained from the Meteorological Monitoring Program is integral to the determination of offsite dose projection. TS 6.9.1.4 requires an annual summary of hourly meteorological data collected over the previous calendar year, including wind speed, wind direction, atmospheric stability, and precipitation (if measured).

The inspector reviewed the Meteorological Monitoring Program of Turkey Point. The review included direct observation and discussions with a cognizant licensee representative. The inspector determined that the site had two meteorological towers, one primary and one secondary.

a. Meteorological Tower

The inspector walked down the primary meteorological tower and associated instrumentation to verify by direct observation that its instrumentation was operable and maintained. The tower was located as specified in TS 5.5. on the plant property known as South Dade and supported instruments at ten and sixty meters. The monitoring instrumentation was housed in a monolithic structure located on a mound constructed beside the tower. The mound was designed to be higher than any anticipated flood. (It was several feet higher than the flood experienced during Hurricane Andrew.) The instrumentation was powered by an uninterruptable power source (UPS) of line power from the plant, with backup from two separate redundant diesel generators, which had a 30-day supply of fuel. The instruments continuously monitored information concerning the various meteorological parameters (including upper wind speed and direction, lower wind speed and direction, upper temperature, lower temperature, differential temperature, solar radiation, and rainfall) and sent the information to the Land Utilization Office to the Emergency Response Data Acquisition and Display System (ERDADS) in the Control Room by a VHF radio transmitter. In the event that the tower was out of service, there was a secondary tower near the Land Utilization Office.

b. Calibration of Instrumentation

The inspector reviewed the licensee's most recent semiannual calibration of the meteorological instrumentation for both the primary and secondary towers. The "South Dade Meteorological Tower Calibration Report," Rev. 0, was used to report the results of the instrumentation calibration of the primary tower. Calibrations of the wind speed and wind direction at the upper and lower levels, as well as for precipitation and solar radiation were reviewed. The "Land Utilization Meteorological Tower Calibration Report," Rev 1, was used to report the results of the instrumentation calibration of the secondary tower. The calibrations were conducted in late June 1995. All calibrations were satisfactorily performed.

c. Control Room

The inspector went to the Unit 3 Control Room to verify the capability of the ERDADS to call up the required meteorological data. The system functioned well, supplying wind speed, wind direction, and air temperature at both the ten- and sixty-meter stations of the primary tower.

Based on the scope of this review, the inspector determined that the Meteorological Monitoring System was capable of fulfilling its required functions.

No violations or deviations were identified.

9. Radioactive Material Processing and Transportation (86750)

10 CFR 71.5 (a) requires that 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. 10 CFR 71 Subpart H establishes the quality assurance (QA) program requirements applicable to transportation of radioactive materials. 10 CFR 20.2006 and Appendix F to 10 CFR 20 specify the requirements for control of transfers of radioactive waste intended for disposal at a land disposal facility and for establishing a manifest tracking system for those transfers. 10 CFR 61.55 and 61.56 establish the requirements for classification and characterization of radioactive waste shipped to a near-surface disposal site.

Pursuant to these requirements, the inspector reviewed the licensee's activities affiliated with these requirements, to determine whether the licensee effectively packages, stores, and ships radioactive solid materials.

The licensee's program for the packaging and transportation of radioactive materials, including solid radwaste, was conducted by the Radioactive Waste Group within the Health Physics Department. Radwaste was processed and packaged (including the preparation of shipping documentation) by the Radwaste Group, with the assistance of Radiation Protection Men (RPM) on loan from the Health Physics Operations Department to complete specific tasks, such as loading a shipment or compacting contaminated material.

a. Quality Assurance Program

10 CFR 71.101(c) requires the licensee to obtain NRC approval of the QA program prior to the use of any package for shipment of licensed material subject to 10 CFR 71 Subpart H.

The inspector determined that the licensee's QA program had been approved by the NRC Office of Nuclear Material Safety and Safeguards upon its issuing of "Quality Assurance Program Approval for Radioactive Material Packages No. 0169," Revision 5 on August 10, 1994.

b. NRC Certificate of Compliance Packaging

10 CFR 71.12(c)(1) requires the licensee to maintain copies of certificates of compliance (CoC) for NRC approved packages used for transport of radioactive material.

The inspector verified that the licensee possessed a current copy of the CoC for the following packages: CNS 8-120A, a shielded cask (USA/6601/A); CNS 8-120B, a shielded cask (USA/9168/B(U); CNS 21-300, a shielded cask (USA/9096/A); and NUPAC 14/210L, NUPAC 14/210H, CNSI 14-215H Series A, LN 14-195L, and LN 14-195H, all of which were for shielded cask USA/9176/A.

c. Radioactive Material Shipping Documentation Packages

Per 49 CFR 172.200, the licensee is required to prepare shipping papers describing hazardous materials offered for transport in the manner specified in 49 CFR 172 Subpart C. Also, per 10 CFR 20.2006, the licensee is required to prepare shipping manifests for each shipment of radioactive waste to a licensed land disposal facility such that they meet the requirements of Appendix F to 10 CFR 20.

Per 10 CFR 20.2006(d) and Section III.A.1 of Appendix F to 10 CFR 20, the licensee is required to prepare all radioactive waste shipped to a licensed land disposal facility or waste collector such that the waste is classified according to 10 CFR 61.55 and meets the waste characteristics requirements in 10 CFR 61.56.

Per 49 CFR 173.425(b)(9) and 173.441(c), the licensee is required to provide specific written instructions for maintenance of the exclusive use shipment controls to the carrier of packages of radioactive material consigned as exclusive use. Those instructions were required to be included with the shipping paper information.

Per 10 CFR 71.47, 10 CFR 71.87(i) and (j), 49 CFR 173.441, 49 CFR 173.443 and 49 CFR 173.475(i), the limits for external radiation levels and for removable surface contamination levels of packages offered for shipment are delineated.

To verify that the licensee was in compliance with these and other applicable regulations, the inspector reviewed two arbitrarily-

chosen documentation packages: Radioactive Material Shipment (RMS) No. 95-09, a Low Specific Activity (LSA) shipment of seven containers of resin-handling equipment, destined for the disposal facility; and RMS No. 95-12, an LSA shipment of two Sea-Land containers of Dry Active Waste (DAW) destined for processing (incineration and/or compaction) before final disposal. The documentation packages contained thorough documentation about the respective shipments and the above-referenced items. The radiation and contamination survey results were within the 49 CFR requirements and the shipping documents were being maintained as required. The documentation packages included a copy of the instructions provided to the drivers, with respect to the exclusive use status of their shipment and emergency information. The inspector also determined from the reviewed shipping records that the licensee classified and characterized waste shipments through the use of the RAMSHP computer software.

The inspector concluded that the shipping papers for the selected shipments of radioactive materials satisfied regulatory requirements.

Based on the above reviews, the inspector concluded that the licensee had implemented effective QA and management control programs for the handling, packaging, and transport of radioactive material (including the required paper documentation) and that regulatory requirements were satisfied.

No violations or deviations were identified.

10. Solid Low Level Radwaste (LLW) Volume Reduction (84760)

The licensee's Radwaste Minimization Team had reviewed all aspects of solid radwaste in an effort to reduce it at all steps of the generation cycle. It made recommendations including the following:

- changing procedures and work processes,
- using washable materials in place of disposables for everything from protective clothing to tool bags,
- establishing a materials issue room at the entrance of the Radiation Control Area (RCA),
- frisking out with white cotton gloves on and then depositing them in the clean trash if no radioactivity is detected,
- depositing smear sample pads in the clean trash if no radioactivity is detected, and

- carefully frisking trash in the RCA to determine if it can be released as clean trash.

The licensee implemented many of the recommendations for the Unit 3 outage and realized better than expected results. The licensee had set a goal of generating less than 6400 cubic feet of radwaste during the Unit 3 outage but actually generated 4175 cubic feet. For 1995, the licensee expected to make a total of three shipments of DAW totaling approximately 7680 cubic feet. Expectations for 1996, which includes one refueling outage, was for radwaste to total less than 6000 cubic feet.

The inspector concluded that the licensee had made a good effort to reduce radwaste.

No violations or deviations were identified.

11. Exit Interview (84750 and 86750)

The inspection scope and results were summarized on November 9, 1995 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.

12. Acronyms and Initialisms

AVT - All-Volatile Treatment
Ci - curie
CFR - Code of Federal Regulations
CNRB - Company Nuclear Review Board
CoC - Certificate of Compliance
DAW - Dry Active Waste
DEI - Dose Equivalent Iodine
DHRS - Department of Health and Rehabilitative Control
DO - Dissolved Oxygen
DOT - Department of Transportation
ERDADS - Emergency Response Data Acquisition and Display System
FSAR - Final Safety Analysis Report
g - gram
HEPA - High Efficiency Particulate Air
HP - Health Physics
hr - hour
IR - Inspection Report
kg - kilogram
l - liter
lb - pound
LLD - Lower Limit of Detection

LLW	- Low Level Radwaste
LSA	- Low Specific Activity
μCi	- micro-Curie (1.0E-6 Ci)
μRad	- micro-Rad (1.0E-6 Rad)
m	- meter
mRad	- milli-Rad
mrem	- milli-rem
NRC	- Nuclear Regulatory Commission
ODCM	- Off-site Dose Calculation Manual
P&ID	- Piping and Instrumentation Diagram
pCi	- pico-Curie (1.0E-12 Ci)
PCP	- Process Control Program
ppb	- parts per billion
ppm	- parts per million
QA	- Quality Assurance
RCA	- Radiation Control Area
RCS	- Reactor Coolant System
REMP	- Radiological Environmental Monitoring Program
RESL	- Radiological and Environmental Sciences Laboratory
Rev	- Revision
RMS	- Radioactive Material Shipment
RPM	- Radiation Protection Man
SG	- Steam Generator
TLD	- Thermoluminescent Dosimetry
TS	- Technical Specification
UPS	- Uninterrupted Power Supply