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

APR 27 1992

Report Nos: .50-250/92-09 and 50-251/92-09

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: March 23-27, 1992

Inspector: R. P. Carrion — 27 APR '92
R. P. Carrion — Date Signed

Approved by: T R Decker — 4/27/92
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 organization of the Chemistry Department and Radwaste Group, audits conducted by the licensee, plant water chemistry, the Post Accident Sampling System (PASS), changes to the Chemistry Program, the Semi-Annual Radioactive Effluent Release Report, radwaste processing and shipping, contingencies for long-term storage of Low Level Radwaste (LLW), and decommissioning planning records.

Results:

The Chemistry Department was stable and staffed by competent, dedicated personnel who were constantly in search of innovative methods to upgrade the program. (Paragraphs 2 and 6).

Audits were found to be well-planned and documented with detailed comments and recommendations to aid the implementation of corrective actions. (Paragraph 3).

Plant water chemistry was maintained well within Technical Specification (TS) limits. (Paragraph 4).

The licensee's PASS was adequate to accomplish its design function and there was a sufficient number of qualified technicians to assure timely, effective operation. (Paragraph 5).

Changes to the Chemistry Program have been made to improve system operation and safety. (Paragraph 6).

The Semi-Annual Radioactive Effluent Release Report was complete. (Paragraph 7).

Radwaste processing and shipping was conducted in a competent, professional manner. (Paragraph 8).

The licensee had commissioned a study to prepare contingencies for long-term storage of low level radioactive waste in the event that the current disposal facility closes as scheduled. (Paragraph 9).

The licensee's records for decommissioning planning were appropriate and adequate for regulatory compliance. (Paragraph 10).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*W. M. Eades, Quality Assurance (QA) Engineer
*O. Hanek, Licensing Engineer
*J. E. Knorr, Regulation and Compliance Specialist
*J. D. Lindsay, Health Physics (HP) Supervisor
*L. W. Pearce, Plant Manager
*T. F. Plunkett, Vice President
R. K. Rowe, Health Physics Engineer
R. J. Schuber, Plant Supervisor (Radwaste)
*R. N. Steinke, Chemistry Supervisor
*G. A. Warringer, Quality Support Supervisor

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

Nuclear Regulatory Commission

M. W. Branch, Senior Resident Inspector (Acting)
*L. Trocine, Resident Inspector

*Attended exit interview

2. Organization (84750 and 86750)

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 and Radioactive Waste (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.

a. Chemistry Department

No such changes had occurred, although a minor change had occurred in the Chemistry Department. The Department had reduced its number of sections from six to five by combining the duties of two former sections into one, while the other four remained as before. The Department consisted of 26 people, representing a reduction of two since the last inspection. The Chemistry Supervisor oversaw the work of five coordinators, who, in turn, oversaw the work of 20 technicians. The coordinators had rotated to different sections since the previous inspection. The technicians were part of a sixteen-week rolling

rotation, which enabled them to experience a variety of assignments over a period of time and reduced the chance of complacency and/or boredom. Generally, one person per group rotated each four weeks, thereby maintaining a sufficient level of expertise in all sections to function effectively while bringing the newest member "up to speed."

The inspector discussed the training/qualification program with the Chemistry Supervisor and reviewed Procedure 0-ADM-302, "Nuclear Chemistry Training," which provided guidance for the conduct of training for Chemistry Personnel. Responsibilities of the various supervisors, instructors, and training coordinators were outlined. Initial training for new technicians as well as continued training for qualified technicians was described in detail, including duty areas, Job Performance Measures (JPMs), and required minimum acceptable test scores. Initial training generally took about six months to complete. Continued training topics were identified as a result of ongoing evaluations of the training program and/or observed deficiencies in technician performance. Selected topics included critical items such as plant specific systems, Technical Specifications (TS), industry events, and special items, as necessary. Performance-based training was the goal of the Chemistry Department.

The Chemistry Department had been stable and had no vacancies at the time of this inspection.

b. Radwaste Group

The Radwaste Group was organized within the HP Department. The Radwaste Supervisor oversaw a staff of five and reported to the Operations Supervisor, who reported to the HP Supervisor. In addition, two members of the ALARA Section often assisted the Radwaste Group. The Group was responsible for field operations in the sampling, packaging, marking, labeling, surveying, and loading of radioactive material shipping from the site. It also assisted in the preparation of shipment documentation.

Training was provided to all personnel (not only those of the Radwaste Group) who were involved in the processing, handling, segregating, packaging, and shipment of radwaste. The training was conducted in

the areas of Federal regulations related to packaging, shipping; and burial facility requirements as well as the identification of low level mixed hazardous waste and RCRA/EPA hazardous waste.

The inspector determined that staffing levels were adequate to accomplish their respective responsibilities and that the staff was knowledgeable and competent.

No violations or deviations were identified.

3. Audits (84750 and 86750)

TS 6.5.2.8 specifies the types and frequencies of audits to be conducted under the direction of the Company Nuclear Review Board (CNRB). The inspector reviewed audits conducted by CNRB within the scope of this inspection. In order to evaluate compliance with the TSs and assess quality of the licensee's programs, the inspector reviewed the following audits:

- Radioactive Materials Release and the Offsite Dose Calculation Manual (ODCM), QAO-PTN-90-033, conducted May through July, 1990.

- Process Control Program (PCP) and Radioactive Effluents, QAO-PTN-91-036, conducted May through September, 1991.

- Radwaste Audit, QAO-PTN-91-045, conducted June through July, 1991.

The audits were found to be well-planned and documented and included findings which were addressed by the responsible group by a written response which included: actions taken or planned to correct and/or prevent recurrence of the identified finding; date when corrective action was (or will be) achieved; identification of the individual(s) responsible for the corrective action; the results of their review and investigation of the findings. The inspector noted that the comments and recommendations 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 audit process was capable of identifying programmatic weaknesses and making recommendations for corrective action.

No violations or deviations were identified.

4. Plant Water Chemistry (84750)

At the beginning of the inspection, Turkey Point Units 3 and 4 were operating at 86 percent and 100 percent power, respectively. (Unit 4 experienced a trip on March 26, and had not been returned to service by the conclusion of the inspection.) Unit 3 was in its twelfth fuel cycle and Unit 4 was in its thirteenth fuel cycle. Refueling outages were scheduled for August 1992 (Unit 3) and the first quarter of 1993 (Unit 4). The inspector reviewed the plant chemistry controls and operational controls affecting plant water chemistry during the second half of 1991.

a. TS 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 (uCi/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 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 specific activity of the reactor coolant for the period of December 1, 1991 through February 29, 1992 and determined that the parameters were maintained well below TS limits. Typical values for DO, chloride, and fluoride were less than one part per billion (ppb), less than four ppb, and less than five ppb, respectively, for both units. Typical DEI values at steady-state conditions were 1.7E-2 uCi/g for Unit 3 and 6.0E-3 uCi/g for Unit 4.

The licensee suspected a pin-hole leak in the Unit 3 fuel, based on a small iodine spike. No leakers were suspected in Unit 4.

b. Crud Bursts

The licensee had induced crud bursts in both units as the units were brought down for outage work. They were designed to reduce out-of-core radiation/contamination levels by solubilizing fission and activation products deposited on out-of-core metal surfaces. The crud bursts were accomplished in a two-step process. The first step involved shifting the pH from 6.9 to 5.4 by the addition of boron while maintaining the primary system at between 340 to 350 degrees Fahrenheit (F). This was followed by the addition of hydrogen peroxide, which yielded an acid reducing environment and enhanced the solubilization of the fission and activation products. This technique had resulted in a reduction of steam generator (SG) bowl doses to an average of about 4 Rem/hour. Several years ago, typical SG bowl doses were in the range of 11-12 Rem/hour.

Future operations will use a boron-lithium balance to control and maintain the pH at 6.9 in the primary system.

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

No violations or deviations were identified.

5. 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.

TS 6.8.4.d requires that a program be established, implemented, and maintained to ensure the capability to obtain and analyze, under accident conditions, reactor coolant, radioactive iodides and particulates in plant gaseous effluents, and containment atmosphere samples. The PASS should provide these capabilities and should enable the licensee to obtain information critical to the efforts to assess and control the course and effects of an accident.

The inspector discussed the PASS with the licensee's responsible supervisor and reviewed procedures 3-NCZP-094.1, "Obtaining a Unit 3 PASS Sample During Emergency Conditions," approved October 11, 1991 and 3-NCZP-094.2, "Obtaining a Unit 3 PASS During Non-Emergency Conditions,"

approved October 11, 1991. The procedures were complete, including purpose, prerequisites, precautions/limitations, and special tools/equipment, as well as the detailed procedure for obtaining the sample, complete with cautionary notes for individual steps. In addition, the procedures included numerous enclosures and attachments such as graphs relating the total dissolved gas (in cc/kg) to the total gas cask gauge pressure (in psig), the formula for determining the dissolved hydrogen concentration, calibration input for the PASS chloride analyzer, the PASS Analysis Data Sheet, and Sample Cask Shipment Data Sheet.

Although the PASS was required to be exercised on a monthly basis, it was operated on a weekly basis. This practice gave the technicians much greater "hands on" experience and familiarity which yielded a higher degree of confidence than would otherwise be attained. Operation of the system was normally done by two-man teams. When a newly-qualified technician operated the system, he was paired with the senior-most technician available. The weekly sample taken by the PASS was compared to the daily grab samples of the RCS. As of the date of this inspection, 17 technicians were qualified to operate the PASS.

Changes/Modifications to the system included the replacement of valves during the most recent outage, which increased the reliability of the system's flow indicators. Also, a new chloride analyzer, an in-line chromatograph, had been added for improved reliability over the range of 0.5 ppm to 20.0 ppm. A future modification will be the replacement of the hydrogen analyzer. Although adequate for emergency situations, its flow is too high and constant for normal operation. PCM 91-164 had been initiated to replace the analyzer and bids for the work were being evaluated. The work was expected to be completed and the system turned over by year end.

The inspector determined that the licensee's PASS was adequate to accomplish its design function and that there was a sufficient number of qualified technicians to assure timely, effective operation.

No violations or deviations were identified.

6. Changes to the Chemistry Program (84750)

The inspector reviewed the impact/status of the changes to the Chemistry Program since the last inspection (91-29). Because both units were down at that time, many of the changes had not actually been implemented, although they had been formalized in procedures, etc. The following changes reviewed:

a. Use of Gradient Ion Chromatograph (IC) for Sulfate Determination

The Primary Laboratories of both units had been upgraded to utilize the gradient ion chromatograph method to determine concentrations of sulfates in the same analysis performed for fluorides and chlorides. Previously, two separate IC runs were required to be performed for these analysis, a carbonate eluent for sulfates, and a borate eluent for fluorides and chlorides. Two gradient methods had been developed, one using a borate eluent and the other a sodium hydroxide eluent. In addition to saving resources (analytical time and associated costs), this technique enabled the licensee to quantify sulfates despite potential interference with fluorides in the presence of high sulfate concentrations. Although the licensee had not experienced high sulfate concentrations, the potential for such a condition existed and this upgrade was undertaken to preempt that potential.

b. EPRI Guideline Implementation for Primary Chemistry During Startup

The licensee had fully implemented the EPRI Guidelines for Primary Chemistry during startup. The guidelines were incorporated into Procedures 0-NCOP-001, "Primary Chemistry Control During Startup" and 3-GOP-301, "Hot Standby to Power Operations" and provided the prerequisites, precautions, limitations, and instructional guidance for plant startup. These upgraded procedures had been utilized after the outage and the licensee was generally pleased with the results. The biggest advantage was the ability to take the reactor critical with a hydrogen concentration as low a 15 cc/kg (vs 25 cc/kg previously). This action resulted in saved time during startup.

c. Development of Action Levels and Hold Points for Secondary-Side Chemistry During Startup

The Chemistry Department developed a set of Action Levels and Hold Points to aid preconditioning and enhance cleanup of the secondary side for startup. These steps were used to clean the condenser by flushing debris which could not be collected manually as well as by breaking down and dissolving organic debris which could be taken out of solution by the condensate polishers. The results of this exercise were considered to be successful because no chemistry-induced holds occurred (due to the good sulfate and conductivity controls) to retard the

startup process. These Action Levels and Hold Points will be formalized in a Temporary Procedure or Test Procedure in the future.

d. Operation of Secondary System Polishers for Crud Removal

The licensee had operated the polishers of the Secondary Side as an in-line filter 100 percent of the time to remove crud. It was estimated that 90 percent of the crud was removed via this mechanism, in the form of filterable, predominately-iron solids. The licensee had developed the technique to reduce exposure levels of plant personnel during outages.

e. Water Quality of the Water Treatment Plant (WTP)

The licensee continued to contract with a vendor to utilize a Reverse Osmosis (RO) process to produce very high water quality for the WTP. Good performance had been experienced from the ion exchange beds. The anion and cation beds had processed one million and one and a half million gallons of water, respectively, before break-through. The performance of the mixed beds had improved to processing twelve to fifteen million gallons of water before break-through when new membranes were used in the RO system instead of merely backflushing the membranes. Backflushing only enabled the membranes to effectively process a few million gallons of water before break-through.

The inspector concluded that these changes had improved the general Chemistry Program and added to its overall efficiency.

No violations or deviations were identified.

7. Semiannual Radioactive Effluent Release Reports (84750)

TS 6.9.1.4 requires the licensee to submit a Semiannual Radiological Effluent Release Report within 60 days after January 1 and July 1 of each year covering the operation of the facility during the previous six months. The TS also states the requirements for the content and format of the Report. Changes to the Process Control Program (PCP) and Offsite Dose Calculation Manual (ODCM), per TSs 6.13.2.a and 6.14.2.a, respectively, are also included in the report. The inspector reviewed the report for July through December 1991 and compared the annual 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.

Radioactive Effluent Release Summary

| Turkey Point, Units 3 and 4 | 1989 | 1990 | 1991 |
|---|---|---|---|
| Activity Released (curies) | | | |
| a. Liquid | | | |
| 1. Fission and Activation Products | 3.16E-1 | 2.52E-1 | 7.36E-1 |
| 2. Tritium | 4.58E+2 | 6.44E+2 | 1.13E+2 |
| b. Gaseous | | | |
| 1. Fission and Activation Gases | 3.41E+3 | 1.28E+3 | 1.84E+1 |
| 2. Particulates and Iodines | 6.18E-4 | 6.52E-3 | 1.30E-4 |

Units 3 and 4 had been shut down since late 1990 for an extensive outage. Both units were brought back on line during the fourth quarter of 1991. The licensee theorized that the higher levels of liquid fission and activation products released during 1991 was the result of induced crud bursts in an attempt to remove Co-60 and thereby reduce personnel exposures. Also, the extended shutdown accounted for the reduced release values seen in the other parameters in 1991.

There were no unplanned releases during the second half of the year.

The following table summarizes solid radwaste shipments offsite for burial of disposal for the previous three years. These shipments typically include spent resins, filter sludges, dry compressible waste, and contaminated equipment.

Turkey Point Solid Radwaste Shipments

| | 1989 | 1990 | 1991 |
|---|---|---|---|
| Volume (cubic meters) | 346.4 | 215.0 | 188.9 |
| Activity (curies) | 2.3 | 693.8 | 11.6 |

For solid radwaste, the only noted trend was that the total annual disposal volume decreased on a year-to-year basis for the period reviewed.

Minor changes to the PCP were made in the first half of 1991, as referenced in Inspection Report 91-29. During the second half, two changes were reported. First, Turkey Point Operating Procedure 11550.48, "Process Control Program for Dewatering Radioactive Waste Liners," was cancelled and replaced by Procedure O-HPS-042.8, "Dewatering Controls for Radioactive Waste Liners." The change was made only to revise the PCP so that it reflected the licensee's upgraded format for procedures. The technical content of the procedure was not altered. The changes were administrative only and had no impact on the licensee's conformance to the requirements of 10 CFR 61 and disposal site licenses. Second, the Solidification Process Control Procedure of a vendor was approved for work done on site during this reporting period and subsequently cancelled following completion of the waste solidification work (in September, 1991). The vendor's PCP, plus the supporting Topical Report, provided assurance that the waste form produced conformed to the requirements of 10 CFR 61 and disposal site licensees.

The ODCM was completely rewritten during the first half of 1991, as described in Inspection Report 91-29. There were no changes during the second half.

The inspector concluded that the Semi-Annual Radioactive Effluent Release Report met regulatory requirements.

No violations or deviations were identified.

8. Radwaste 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.

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, including solid radwaste, was conducted by the Radioactive Waste Group within the Health Physics Department. Radwaste was processed and packaged by the Radwaste Group, including loading shipments, and preparing shipping documentation.

a. Radwaste Shipping Documentation

The inspector reviewed shipping packages for four shipments made in 1991 (Nos. 91-21, 91-32, 91-61, and 91-79, which was involved in the incident in Jasper, Florida, where the driver of the truck noticed liquid dripping from a LSA container) for completeness and compliance with the regulations. The shipments reviewed included two of limited quantities (shipped non-exclusive use) and two of Low Specific Activity (LSA) solid metal oxides (shipped exclusive use). The packages 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. The radiation and contamination survey results were within the limits specified and the shipping documents were being maintained as required.

b. Shipment 91-79

i. The Incident

Due to the incident involving Shipment 91-79, the inspector took special interest in reviewing the circumstances surrounding the event. The shipping documentation showed that it was a typical shipment. Specifically, it consisted of two 20-foot long Sea-Land containers loaded with contaminated scaffolding consigned to a recycling center for decontamination. The containers had been thoroughly inspected (both before and after loading) for defects which could compromise their integrity and no leakage was observed. The shipment left the site on December 5, 1991 as LSA material via an exclusive use carrier.

The next morning, while checking his cargo before continuing the trip, the driver observed a small amount of liquid, described as "an oily watery substance," which had leaked onto the ground from one of the containers. The driver immediately notified HP, which requested the consignee to dispatch its Gainesville, Florida-based radiological emergency response team to the incident site to take radiological measurements and report their findings to the licensee. Meanwhile, local authorities quickly secured the area around the vehicle. FP&L dispatched a team as did the State of Florida. No contamination was detected by any of the teams when the leak site

was surveyed. The door of the leaking container was opened to ascertain the source of the leak. Condensation was observed on the ceiling of the container and there was evidence that some water had run down the side to the floor of the container and escaped through the lower seal.

The door was closed and sealed with a silicon sealant to assure that no further leaking could take place. The shipment was returned the Turkey Point for unloading, inspection, and reloading.

ii. Corrective Actions

Three actions were taken immediately by the licensee to assure that such an incident would not recur. They included:

- The immediate suspension of all Sea-Land container shipments pending completion of a procedure revision.

- Revision of Procedure 0-HPS-041.4, "Packaging Low Specific Activity Radioactive Waste for Shipment to Waste Processors," so that the Sea-Land containers would be lined with an absorbent material to trap condensation and also to caulk the door seals with flexible silicon sealant to prevent liquids from leaking from the container.

- Unload, inspect, and reload the eleven containers on site which were filled and ready for shipment.

The inspector concluded that the Radwaste Group had acted in a competent, professional manner to assure that any radiological conditions resulting from the incident were mitigated and, furthermore, that proactive measures had been taken to prevent recurrence.

c. Radwaste Shipments

The 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.

Although no radwaste shipments were made during the period that the inspector was on site, the inspector observed the activities involved in the final preparation of a shipment prior to its leaving the site and therefore had the opportunity to evaluate the effectiveness of training, activities of personnel, procedures, etc. A shipment (92-018) of LSA material in the form of two large metal containers of non-compacted metal scrap, wood scrap, soil, and dry active waste (DAW) was being sent to a volume reduction center for processing and disposal. The inspector reviewed Procedure 0-HPS-041.4, referenced above, to assure that it had been revised as called for after the above-referenced incident.

The inspector observed the closing and sealing of the doors of one of the containers.The inspector also observed part of the process of placing the moisture-absorbing material as specified in the preparation of a Sea-Land container prior to its loading. In both cases of observed work, the inspector noted that the technicians were closely following the procedure.

The inspector reviewed Procedure 0-HPS-044.1, "Exclusive Use Vehicle Inspection," and observed part of its implementation by technicians on an incoming vehicle as it was processed through the "truck trap." The procedure was complete (checking such items as tires and rims, mirrors, horn, air brakes, and general physical condition of the tractor and tires and rims, lights and reflectors, suspension and support beams for the trailer) and adequate to assure the "road worthiness" of the vehicle to haul radioactive material. (The procedure called for a similar inspection of the vehicle before it was permitted to leave the site with a cargo of radioactive material.)

The inspector concluded that the Radwaste Group was stable, staffed with competent personnel, and executed its responsibilities in a professional manner.

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. Turkey Point 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 Radioactive Waste Supervisor explained to the inspector that Turkey Point did not currently have a LLW storage facility, per se. However, the licensee did have its Dry Storage Warehouse in which contaminated tools, welding machines, scaffolding, etc. were stored for possible future use. The licensee had undertaken an effort to reduce the volume of material stored there. Since the beginning of the year, about 10000 cubic feet (of an estimated 39000 cubic feet) had been removed. The long-term LLW storage issue was being addressed by FPL management via a study commissioned to evaluate existing radwaste storage capabilities for interim storage for the period during which the Southeast Compact may not have access to a disposal facility. The licensee considered numerous strategies in preparation for the closing of the Barnwell facility including continued disposal (out of Compact at a licensed LLW disposal facility, at a DOE LLW disposal facility, and even out of the United States via export to a foreign country) and interim storage (on-site storage, at a DOE LLW disposal facility, at a licensed regional LLW storage facility, and at a vendor/contractor facility under contract to the licensee). Management opted for a two-pronged strategy whereby it would support efforts to extend the operating licensee for Barnwell while preparing plans and implementing changes necessary for short-term on-site storage.

The Engineering Department had been directed to develop a plan for an on-site storage facility for spent resins. Potential storage locations, generated radwaste quantity data, and existing facilities were considered. Shielding estimates were made based on expected radwaste generation and adherence to ALARA principles, site license limits, and the new 10 CFR 20 limits. Although various storage schemes were proposed, a detailed plan for an on-grade facility to house spent resin contained in High Integrity Containers (HICs) was developed. A safety evaluation justifying the facility and its use for five years was to be done per 10 CFR 50.59 in the near future.

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. 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. The licensee produced a list of events, which included a brief description and remarks about each event, as well as packages of the events. Each package contained detailed accounts of its event (such as circumstances, flow rates and quantities), and diagrams/maps of affected areas, as appropriate. Some included engineering/consultant studies of items such as direction of subsurface tritium movement.

The inspector determined that the records were appropriate and adequate for compliance to the regulations.

No violations or deviations were identified.

11. Exit Interview

The inspection scope and results were summarized on March 27, 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.

## 12. Acronyms and Initialisms

ALARA - As Low As Reasonably Achievable
cc - cubic centimeter
CFR - Code of Federal Regulations
CNRB - Company Nuclear Review Board
DAW - Dry Active Waste
DEI - Dose Equivalent Iodine
DO - Dissolved Oxygen
DOE - Department of Energy
DOT - Department of Transportation
EPA - Environmental Protection Agency
EPRI - Electrical Power Research Institute
F - Fahrenheit
FP&L - Florida Power and Light Company
g - gram
HIC - High Integrity Container
HP - Health Physics
IC - Ion Chromatograph
JPM - Job Performance Measures
kg - kilogram
LLW - Low Level Radwaste
LSA - Low Specific Activity
No. - Number
NRC - Nuclear Regulatory Commission
ODCM - Off-site Dose Calculation Manual
PASS - Post Accident Sampling System
PCP - Process Control Program
ppb - parts per billion
ppm - parts per million
psig - pounds per square inch gauge
QA - Quality Assurance
RCRA - Resource Conservation and Recovery Act
RCS - Reactor Coolant System
RO - Reverse Osmosis
SG - Steam Generator
TS - Technical Specification
uCi - micro-Curie (1.0E-6 Ci)
WTP - Water Treatment Plant