



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

AUG 14 1991

Report Nos: 50-335/91-15 and 50-389/91-15

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

Docket Nos.: 50-335 and 50-389 License Nos.: DPR-67 and NPF-16

Facility Name: St. Lucie 1 and 2

Inspection Conducted: July 15-19, 1991

Inspector: *JR McKee for* 8/13/91
 R. P. Carrion Date Signed

Accompanied by: N. G. McNeill

Approved by: *JR McKee* 8/13/91
 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 radiological effluents, plant water chemistry, transportation of radioactive waste, environmental monitoring, process and effluent monitors, training of the Radwaste Group, organization of the Chemistry Department and Radwaste Group, and Control Room Ventilation/Habitability.

Results:

The Chemistry Department was staffed by a competent staff and staffing has been stable over the past several years (Paragraph 2).

The Training and Retraining Program appeared adequate to maintain a pool of capable workers (Paragraph 3).

The Control Room Emergency Ventilation Systems were well-maintained, with no sign of physical degradation of any component (Paragraph 4).

The licensee had established a good Count Room radiochemical analysis program (Paragraph 5).

Plant water chemistry was maintained well within Technical Specification (TS) limits (Paragraph 6).

The effluent and process monitors have experienced minor malfunctions but the program was able to assure compliance with the TSS (Paragraph 7).

Liquid and Gaseous Release Records indicated that the releases were made in compliance with the TSS (Paragraph 8).

The Radiological Environmental Monitoring Program was adequate. The sampling stations were functioning properly and the staff was knowledgeable of the program (Paragraph 9).

Radwaste processing and transportation were done by a capable, well-trained staff. The Volume Reduction Plan had resulted in a downward trend in the generation of radioactive waste over the past several years (Paragraph 10).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *G. Boissy, Plant Manager
- *R. Cox, Chemistry Effluents Supervisor
- *R. Dawson, Maintenance Superintendent
- *D. Faulkner, Primary Chemistry Supervisor
- *R. Frechette, Chemistry Supervisor
- *J. Holt, Licensing Engineer
- H. Leifhelm, Nuclear Radiation Protection Training Instructor
- *H. Mercer, Health Physics Technical Supervisor
- *C. Pell, Assistant to Site Vice President
- R. Somers, Radioactive Waste Supervisor
- *T. Ware, Technical Training Supervisor

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

Florida Department of Health and Rehabilitative Services

V. Mangold, Public Health Physicist II

Nuclear Regulatory Commission

- *S. Elrod, Senior Resident Inspector
- *M. Scott, Resident Inspector

*Attended exit interview

2. Organization (84750)

TS 6.2 describes the licensee's organization.

The inspector reviewed the licensee's organization, staffing levels, and lines of authority as they related to the Chemistry Department and Radioactive Waste 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. The Chemistry Supervisor, who reports to the Operations Superintendent, emphasized the stability of his 25-man department, in which the junior-most member had been at his post for over two years.

The use of overtime is addressed in TS 6.2.2.f and was reinforced in policy statement NP-306, approved by the President of the Nuclear Division on March 8, 1991. Overtime was used sparingly during normal work scenarios but

more heavily during outages. The Chemistry Supervisor estimated that annual overtime amounts historically have been in the 14 percent-20 percent range, with periods as high as 30 percent-35 percent during outage periods and 2 percent-5 percent during routine, non-outage periods.

- b. Radioactive Waste Management is under the auspices of the Health Physics (HP) Department. The Radioactive Waste Supervisor reports to the HP Technical Supervisor, who, in turn, reports to the HP Department Supervisor. The Radioactive Waste Supervisor outlined his organization to the inspectors. The organization basically consisted of just the Supervisor and a Coordinator. When work requiring the use of RPM (compacting DAW or shipping radioactive material, for example) is to be done, the RPM are "borrowed" from HP to do that specific task and are returned upon completion of the task. It was noted that this was one of the many areas included in RPM training (see Paragraph 3).

No violations or deviations were identified.

3. Training and Qualification (86750)

TS 6.4.1 requires the licensee to maintain a training program for the plant staff to assure that the minimum education and experience requirements of Section 5.5 of ANSI/ANS-3.1-1978 and Appendix "A" of 10 CFR 55 and the supplemental requirements specified in Sections A and C of Enclosure 1 of the March 28, 1980 NRC letter to all licensees are met before a person can be considered to be qualified to perform his duties independently. The program shall include familiarization with the relevant operational experience.

The inspector interviewed the licensee's Nuclear Radiation Protection Training Instructor about the Training/Qualification Program, specifically in the areas of Radioactive Waste and Health Physics. The instructor explained the system used at the plant. At the end of the year, the Training Review Committee (TRC) meets with representatives of the various departments to evaluate the current year's training and to formulate a plan for the upcoming year's training based upon critical tasks, identified weaknesses, program deficiencies, etc. Special difficulties are reviewed and anticipated needs are planned for. Feedback from class participants is evaluated to improve training content and/or presentation.

The inspector reviewed Administrative Procedure (AP) No. 0005737, Revision (Rev.) 8, entitled "Radiation Protection Man Training Program," approved on January 29, 1991. The procedure outlined the requirements to be met for trainees in the program as well as the continuing training required for fully qualified Radiation Protection Men (RPM). Trainees were required to complete the Safety and Fundamental Engineering (SAFE) Course. It was developed by Combustion Engineering, Inc. (CE), contained eleven

general courses of study and included topics in theoretical areas as well as specific equipment topics related to the nuclear industry.

The inspector reviewed one of the lesson plans which was part of the RPM requalification. It was entitled "Radioactive Material: Health Physics Activities" and was four hours in length. The objective of the class was to enable the HP technician to identify and emphasize the contribution of HP actions in the packaging, transportation, and disposal of radioactive materials.

The inspector reviewed selected training/qualification records of three RPM including tests and their results. The files of the three individuals were in order. Based on the records reviewed, the program was implemented appropriately.

The inspector noted that the licensee was also encouraging its RPM to take the qualification examination to become members of the National Registry of Radiation Protection Technologists (NRRPT) by conducting classes after working hours to help prepare for the test. This interest in the continuing education of its technicians was considered to be a strength of the program.

No violations or deviations were identified.

4. 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 3.7.7 defines operability requirements for the control room emergency air cleanup systems under the various design scenarios. TS 4.7.7 sets the surveillance requirements for the system.

The inspector reviewed Piping and Instrumentation Diagrams (P&IDs) from the FSARs of Units 1 and 2, respectively, which showed the general layout of the components of the Control Room Air Conditioning System. The inspector walked down the systems of both units, 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 discussed system operation under both normal and emergency conditions with the Supervisor.

The inspector reviewed surveillances conducted in the last 18 months for HEPA filter testing and carbon adsorption, as required by TS, and determined that TS compliance had been met and acceptance criteria satisfied.

No violations or deviations were identified.

5. Count Room (84750)

To evaluate the licensee's analytical capability to make consistently accurate radioactivity measurements, the inspector examined the Count Room. It was equipped with three High Purity Germanium (HpGe) gamma spectroscopy detectors with a Nuclear Data ND 9900 analysis system. The Count Room also contained two Nuclear Measurement Corp. (NMC) gas flow proportional alpha/beta counting systems. The Count Room personnel were familiar with the operation of each of the systems. Adequate control chart and quality assurance check records were available and current. From the observations made during this inspection, the licensee demonstrated that a good Count Room radiochemical analysis program was in place.

No violations or deviations were identified.

6. Plant Water Chemistry (84750)

TS 3.4.7 specifies the limits within which the reactor coolant system must be maintained for dissolved oxygen (DO), chloride, and fluoride. TS 3.4.8 specifies the limits for the specific activity of the reactor coolant. These parameters are related to corrosion resistance and fuel integrity.

Chemistry Procedures C-50 through 61 state the requirements for plant chemistry and radiochemistry for primary systems, secondary systems, and other cooling systems. The inspectors toured the secondary laboratory and both primary laboratories, examining equipment and sampling locations. The secondary laboratory was equipped with a sample sink for each unit. From these sinks, samples could be collected from Main Steam Lines "A" and "B", Heaters "5A" and "5B", the Condenser Pump Discharge Header, and the four hotwells. On line instrumentation on the secondary system measured conductivity, dissolved oxygen, and hydrazine. The laboratories were also equipped with an atomic absorption/atomic emission spectrophotometer and two chromatography units (anion and cation). The primary laboratories of both units were equipped with atomic absorption/atomic emission spectrophotometers for the measurement of calcium, magnesium, and sodium; and in the flame mode, for the measurement of iron and calcium. For all of the laboratories, systems were maintained within control chart limits and the records were retained for verification. The over-all quality control program showed that the capability existed for close

chemistry control. The inspectors determined that the plant chemistry was maintained under close control.

Pursuant to the TS requirements, the inspector reviewed tabular summaries which correlated reactor power output to chloride, fluoride, and dissolved oxygen concentrations, and specific activity of the reactor coolant for the period of January 1, 1991 through June 30, 1991, for both units. All of the reviewed parameters satisfied the TS requirements.

No violations or deviations were identified.

7. Effluent and Process Radiation Monitors (84750)

- a. TS 4.11.2.1.2 requires that representative samples of radioactive gaseous effluents be taken and analyzed.

Pursuant to this TS, the inspectors observed a Plant Technician take a Unit 1 Plant Vent Noble Gas grab sample. While assembling the required sampling tray, the technician reviewed Chemistry Operating Procedure No. C-72, Rev. 28, approved August 8, 1990, entitled "Processing Gaseous Waste," Section 8.4.1.E. The inspector reviewed the procedure and referred to it as the technician actually took the sample to assure that it was being properly implemented. The technician used good technique and obtained the sample without incident. The sample was immediately taken to the Count Room for analysis. The sample was counted for fifteen minutes and had an activity of less than $3.55E-8$ uCi/ml.

The inspector reviewed thirteen calibration and maintenance records for the Unit 1 Plant Vent Stack Radiation Monitor, RSC-26-1, for the period from mid-1988 through the end of 1990 to check for chronic problems or long periods when it may have been out of service. The monitor appeared to have experienced numerous rather minor malfunctions, such as a blown fuse and leaking inlet isolation valve, especially early in the reviewed period. The calibrations appeared to have been completed within the TS-required time limits.

- b. TSs 3/4.3.3.9 and 3/4.3.3.10 define the operation and surveillance requirements for monitors of radioactive liquid and gaseous effluent streams.

The inspector and a licensee's technician walked down eleven process and effluent monitoring stations to become familiar with their physical location in the plant and to observe their state of maintenance and operability. The monitors appeared to be well-maintained and operable.

No violations or deviations were identified.

8. Liquid and Gaseous Releases (84750)

TSs 3/4.11.1.1 through 3/4.11.1.3 define the operation and surveillance requirements for radioactive liquid effluents released to unrestricted areas, including limits for the concentration of radioactive material released in liquid effluents, sampling frequencies, types of analyses, limits for dose to members of the public, etc.

TSs 3/4.11.2.1 through 3/4.11.2.6 define the same parameters for the gaseous radwaste treatment systems.

The inspector reviewed three liquid release and four gaseous release packages for batch releases made during the first half of 1991. All of the selected packages were completed in accordance with approved procedures and the releases were well within the requirements of the TSs.

No violations or deviations were identified.

9. Radiological Environmental Monitoring Program (84750)

TS 3/4.12 states the requirements for the conduct of the Radiological Environmental Monitoring Program (REMP). The Program was conducted at the St. Lucie Plant by the Office of Radiological Control, Florida Department of Health and Rehabilitative Services (DHRS). The REMP was discussed with the Florida DHRS Health Physicist. The inspectors reviewed the 1991 Annual Radiological Environmental Operating Report, and observed the collection of several environmental samples by the DHRS personnel. The inspectors observed that the samples were properly collected, that the sampling equipment was properly calibrated and in good working order. The DHRS Health Physicist also pointed out TLD sample locations as well as the numerous water, vegetation, and soil sample locations. The reports showed that the program was conducted in accordance with requirements and that supplemental sampling and analyses were performed.

No violations or deviations were identified.

10. 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 (including the preparation of shipping documentation) by the Radwaste Group, with the assistance of RPM on loan from the Health Physics Operations Department to complete specific tasks, such as loading a shipment or compacting contaminated material.

a. Facility Familiarization

The Radioactive Waste Supervisor showed the inspector through his facilities and explained how various operations (compaction of Dry Activated Waste (DAW), dewatering of spent bead resins, etc.) were conducted. DAW was collected in bags and barrels throughout the plant and compacted once or twice each week, as required. The inspector was shown where the dewatering process for the spent resins is carried out, as well as the Dry Storage Building, which has the capacity to store DAW for a five-year period. The licensee had a Volume Reduction Program to reduce radioactive waste generated for burial. The inspector reviewed records illustrating a steady reduction in the volume over the last several years.

b. Radwaste Shipments

Shipment of radioactive materials was the responsibility of the Radioactive Waste Group, which prepared all shipping documents and procured the necessary disposal containers and shipping casks. The inspector reviewed five randomly selected shipping packages for radwaste shipments, one from 1989, two from 1990, and two from 1991. They were Radwaste Shipment Nos. 89-42, 90-05, 90-15, 91-11, and 91-21. 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. No shipments were made during the period that the inspector was onsite and, therefore, no observation of the actual activities involved therein could be made to evaluate the effectiveness of training, activities of personnel, etc.

c. Discussion of Information Notice (IN) 90-82

The inspector discussed IN 90-82, entitled "Requirements For Use Of Nuclear Regulatory Commission-Approved Transport Packages For Shipment Of Type A Quantities Of Radioactive Material," with the Radioactive Waste Supervisor to be sure that he and his staff were cognizant of it and its implications. The inspector was assured that the licensee was familiar with it.

No violations or deviations were identified.

11. Exit Interview

The inspection scope and results were summarized on July 19, 1991, 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

ANS - American National Standard
 ANSI - American National Standards Institute, Inc.
 AP - Administrative Procedure
 CE - Combustion Engineering, Inc.
 Ci - curie
 CFR - Code of Federal Regulations
 DAW - Dry Activated Waste
 DHRS - Department of Health and Rehabilitative Control
 DOT - Department of Transportation
 HEPA - High Efficiency Particulate Air
 HP - Health Physics
 HpGe - High purity Germanium
 HVAC - Heating Ventilation and Air Conditioning
 IN - Information Notice
 ml - milli-liter
 NMC - Nuclear Measurements Corporation
 NRC - Nuclear Regulatory Commission
 NRR - Nuclear Reactor Regulation
 NRRPT - National Registry of Radiation Protection Technologists
 ODCM - Off-site Dose Calculation Manual
 P&ID - Piping and Instrumentation Diagram
 PSL - Plant Saint Lucie
 QA - Quality Assurance
 QC - Quality Control
 RCS - Reactor Coolant System
 REMP - Radiological Environmental Monitoring Program
 Rev - Revision

RPM - Radiation Protection Man
SAFE - Science and Fundamental Engineering
TLD - Thermoluminescent Dosimetry
TRC - Training Review Committee
TS - Technical Specification
uCi - micro-Curie ($1.0E-6$ Ci)