UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report Nos.: 50-250/78-26 and 50-251/78-26

Docket Nos.: 50-250 and 50-251

License Nos.: DPR-31 and DPR-41

Licensee: Florida Power and Light Company
9250 West Flagler Street
Miami, Florida 33101

Facility Name: Turkey Point Units 3 and 4

Inspection at: Turkey Point Site, Homestead, Florida

Inspection conducted: October 30 - November 3, 1978

Inspector: R. W. Zavadoski

Reviewed by: A F Gibson 11/21/78
A. F. Gibson, Chief Date
Radiation Support Section
Fuel Facility and Materials Safety Branch

Inspection Summary

Inspection on October 30 - November 3, 1978 (Report Nos. 50-250/78-26 and 50-251/78-26)
Areas Inspected: Routine, unannounced inspection of gaseous radioactive effluent releases, liquid radioactive effluent control, records and reports of radioactive effluents, procedures for controlling effluent releases ALARA evaluations, neutron dose rates, cable trays, temporary shielding, filtration systems, locks on high radiation areas, posting of high radiation areas, storage of radioactive materials, access to high radiation areas, cleanliness in the containment and followup on previous items. The inspection involved about 34 inspector hours on site by an NRC inspector.
Results: Of the fourteen areas inspected, no apparent items of noncompliance or deviations were identified in nine areas; five apparent items were identified in five areas. (repeat infraction - access control to high radiation areas (78-26-01)(paragraph 4.b); repeat infraction - improper storage of contaminated material (78-26-02)(paragraph 4.c); repeat infraction - improper posting of high radiation area (78-26-03)(paragraph 4.d); infraction - refuse in the containment (78-26-04)(paragraph 4.c); repeat infraction - locks on high radiation areas (78-26-05)(paragraph 5).

DETAILS I

Prepared by: R. W. Zavadoski 11/21/78
R. W. Zavadoski, Radiation Specialist Date
Radiation Support Section
Fuel Facility and Materials
Safety Branch

Dates of Inspection: October 30 - November 1, 1978

Reviewed by: A. F. Gibson 11/21/78
A. F. Gibson, Chief Date
Radiation Support Section
Fuel Facility and Materials
Safety Branch

1. Persons Contacted

*H. E. Yaeger, Plant Manager
*J. K. Hays, Plant Superintendent, Nuclear
*H. F. Storey, Corporate Health Physicist
*P. W. Hughes, Health Physics Supervisor
*J. M. Puckett, Health Physics Operations Supervisor
*J. S. Wade, Jr., Chemistry Supervisor
*D. W. Haase, Technical Supervisor
R. L. Logsdon, Documentation Specialist
*J. E. Moore, Superintendent, Nuclear Operations
A. T. Hall, Results Assistant
*R. J. Spooner, Quality Assurance, Operations Supervisor
*B. C. Kilpatrick, Maintenance Supervisor
*R. E. Tucker, Quality Assurance Operations
*J. P. Mendieta, Instrumentation and Control Supervisor
*C. O. Woody, Manager of Power Resources, General Office
*O. F. Pearson, Director, Licensing and Environmental Planning
*J. R. Pendland, Licensing Engineer
*G. D. Whittier, Licensing Engineer
*T. E. Knox, Primary Maintenance Supervisor
T. Coleman, Health Physics Shift Supervisor
J. Bates, Health Physics Shift Supervisor
J. L. Danek, Health Physics Training Supervisor
J. Ferguson, Health Physics Administrative Assistant
T. S. Peck, Health Physics Administrative Supervisor
*D. W. Jones, Quality Control Supervisor
E. R. Lapierre, Radiochemist

The inspector also talked with and interviewed other licensee employees, including radiation protection personnel, chemistry personnel, operations personnel, and members of the technical staff.

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (50-250/78-11; 50-251/78-11): Retraining of radiation protection personnel. The licensee has instituted a retraining program and held training sessions on July 7, 20, 27 and October 4 and 5, 1978 for radiation protection personnel.

(Closed) Unresolved (50-250/77-24; 50-251/77-24): Prerequisite Tests for Testing Nuclear Air Cleaning Systems. The licensee has, to the extent possible, performed the prerequisite tests required by ANSI NS10-1975 on all the containment emergency filtration systems.

3. Unresolved Items

No new unresolved items were identified during this inspection.

4. Plant Tour

a. During the period of the inspection, the inspector toured various areas of the facility to observe radiological controls, radwaste systems in operation, work practices, housekeeping, instrumentation, etc. The inspector noted four conditions which were identified as items of noncompliance.

b. On October 31, 1978, the inspector observed the entrance to the pipe chase at the ten foot elevation in the Reactor Auxiliary Building was unlocked and the area unoccupied. The inspector also observed the entrance to the Waste Hold Up Tank Room was unlocked and the area unoccupied. The inspector later questioned a licensee representative who had surveyed the areas as to the radiation levels in the areas and was told that each area had radiation levels in excess of 1000 mr/hr when last surveyed and had not changed since the last survey. The inspector reviewed the survey records for each area and found for the ten foot elevation pipe chase records of the spent resin lines readings of 2000 to 3000 mr/hr on October 26, 1978 and for the Waste Hold Up Tank 1000 to 2000 mr/hr at waist level on October 30, 1978. The inspector informed the licensee representative that the open entrances were contrary to Section 6.13.b of the Technical Specifications and that this was an item of noncompliance (78-26-1). The areas were locked before the inspector left the site.

c. On October 31, 1978, the inspector accompanied by a licensee representative with a survey meter, observed various parts and supplies being stored under the tool room in the Reactor Auxiliary Building. The inspector requested the licensee representative to survey the stored parts and supplies. The inspector noted several articles to be unbagged, in opened single polyethylene bags and in unlabeled bags. Radiation levels ranged up to 5 mr/hr on an unlabeled, opened, single polyethylene bagged unidentified part. On the same date, on the rampway from the four foot elevation to the ten foot elevation pipe chase the inspector noted material stored in an opened, unlabeled, single polyethylene bag. The radiation level at eighteen inches from the bag was 25 mr/hr. The inspector informed the licensee representative that storage of material in opened, unlabeled, single polyethylene bags was contrary to the requirements of procedure HP-41, "Movement of Materials Inside the Radiation Control Area," and that failure to follow this procedure was noncompliance with Technical Specification 6.11 (78-26-2).

d. On October 30-31 and November 1, 1978, the inspector observed, on three separate occasions, the entrance to the North Filling Room was unposted and unbarricaded. From the licensee's survey, the inspector noted that the highest radiation levels in the North Filling Room was 120 millirem/hr. The inspector informed the licensee's representative that failure to properly post and barricade a high radiation area was contrary to Technical Specification 6.13.1.a and was an item of noncompliance (78-26-3). The area was posted and barricaded before the inspector left the site.

e. On November 1, 1978, the inspector, accompanied by the licensee's representative entered the Unit 3 containment with the reactor at 100% power. The inspector noted that there were two open, unsecured containers one-half to three-quarters full of anticontamination clothing (rubbers, plastic bags and tape) inside the containment at the personnel hatch. In addition, the inspector noted unsecured electrical extension cords, a clip board and separate paper, tygon tubing, a flashlight, miscellaneous tools and several lead blankets with polyethylene covers. The inspector informed licensee representatives that failure to maintain cleanliness in the containment during operation was contrary to the requirements Operating Procedure 0202.1, Section 8.3 required by Section 6.8.1 of the Technical Specifications and was an item of noncompliance (78-26-4). Licensee representatives informed the inspector that the two containers of anticontamination clothing had been removed from the containment.

5. Locks on High Radiation Areas

Technical Specifications Section 6.13.1 requires high radiation area to be barricaded and posted when the dose rate is greater than 100 mR/hr and requires that these areas be locked when the dose rate is greater than 1000 mR/hr. 10 CFR 20.203(c)(2) requires that the controls on a high radiation area (e.g. lock on the entrance) shall be established in such a way that no individual will be prevented from leaving a high radiation area. An inspector observed several high radiation areas during a plant tour and noted that although the entrances were locked, the locks were pad locks or bolts located on the outside of the door. An individual inside of the area would not be able to exit the area with the lock in place. In particular, the entrance to the Waste Hold Up Tank Room in the Reactor Auxiliary Building had a steel door with a sliding bolt lock and the entrances to the Residual Heat Removal Rooms and Demineralizer Rooms had pad locks. This problem had been previously identified (IE Report 77-5, paragraph 12.b) and the licensee had committed by letter (FP&L to USNRC, Region II, dated January 17, 1978) to resolve the problem by June 30, 1978. Although new gates and locks have been installed in some areas, the old doors and their locks had not been removed. The inspector informed licensee management that this constituted an item of noncompliance with 10 CFR 20.203(c)(2) (78-26-5).

6. Gaseous Radioactive Effluent Releases

The inspector examined selected gaseous release permits, gaseous waste management running logs and licensee scheduling records for the period January - October, 1978. An inspection was also made of the waste gas decay tanks, compressor, monitor and surge tank. Based on the records reviewed and discussions with licensee representatives, the licensee appeared to be in compliance with Section 3.9, Technical Specifications requirements related to: (1) noble gas instantaneous and quarterly release rates; (2) release rates for radioiodines; (3) establishment of gaseous waste monitor alarm settings; (4) maximum activity in decay tanks; (5) sampling and analysis of radioactive material in gaseous wastes. The inspector also verified that adequate meteorological information was available during a release. No items of noncompliance or deviations were identified.

7. Liquid Radioactive Effluent Control

The inspector examined selected liquid release permits, liquid waste management running logs, and chemistry department scheduling records for the period January - October 1978. Based on these examinations and subsequent discussions with licensee representatives, the inspector determined that the licensee appeared to be in compliance with Technical

Specification, Section 3.9, requirements relating to: (1) instantaneous release limits; (2) cumulative release limits; (3) establishment of alarm setpoints for the effluent control monitor; (4) and sampling and analysis of liquid radwastes. No items of noncompliance or deviations were identified.

8. Records and Reports of Radioactive Effluents

The inspector verified from selected records of liquid and gaseous releases made during the period early 1978 to mid 1978, that records required by Section 6.9.1.a(3) of the Technical Specification were maintained. The inspector also noted that the licensee had submitted the Semiannual Radioactive Effluent Release Report for the period January 1 - June 30, 1978, as required by Technical Specification Section 6.9.1. No items of noncompliance or deviations were identified.

9. Procedures for Controlling Effluent Releases

The inspector reviewed Nuclear Chemistry Procedures: NC-40, "Determination of Dissolved Fission and Activation Gases in a Typical Liquid Release," dated February 11, 1977; NC-41, "Determination of Sr-89-90 Activity in Monthly Liquid Release Composite, dated February 11, 1977; NC-42, "Sample Preparation, Analysis and Documentation of Weekly and Monthly Liquid Release Composites," dated February 11, 1977; NC-43, "Sampling and Analysis of the Contents of Liquid Waste Tanks for Gross $\beta=\gamma$ or isotopic Radioactivity," dated February 11, 1977; NC-44, "Preparation of a Liquid Release Permit," dated February 11, 1977; NC-45, "Determination of Tritium Activity for Liquid Release Composites," dated February 11, 1977; NC-46, "Determination of Gross $\beta=\gamma$ and/or Gross α activity for Liquid Release Composites," dated February 11, 1977; NC-47, "Determination of Ratio of Isotopic Concentrations to Maximum Permissible Concentration (Ci/MPC) in Liquid Releases," dated February 11, 1977; NC-52, "Sampling and Analysis, Preparation and Documentation of Gas Decay Tank Releases," dated February 11, 1977; NC-53, "Sampling and Analysis of Containment Atmosphere for Preparation and Documentation of Instrument Bleed Line and Containment Purge Release," dated February 11, 1977; NC-54, "Method for Monthly Accounting of Gas Leakage from the Auxiliary Building," dated February 11, 1977; NC-55, "Seven Day Gross b=q and Gross a Activity on the Plant Vent and Spent Fuel Pit NMC Particulate Filters," dated February 11, 1977.

The inspector had no comments on procedure content or comments concerning recent revisions. Based on a review of the procedures and discussions with licensee representatives, the inspector determined that revised procedures received the reviews and approvals required by licensee procedures. The aforementioned procedures required that liquid and gaseous releases be done under a permit system. Based on a review of

licensee releases records for the period January - October 1978, the licensee appeared to be utilizing the permit system for all liquid and gaseous releases. No items of noncompliance or deviations were identified.

10. ALARA Evaluations

a. From discussions with licensee representatives, the inspector noted that an evaluation of the dose received for each radiation work permit issued will be attempted for the upcoming refuelings (late December 1978 through April 1979). The purpose of the evaluation is to establish a data base for projections of future exposures during refuelings. The data base will be used to highlight high exposure tasks where extra efforts, such as additional training, mockups or shielding, could most effectively be considered to reduce overall exposures.

b. The inspector noted that significant preplanning had already gone into the inservice inspection requirements for the Unit 3 pressurizer. Particular attention was being paid to high expousre jobs, such as the removal of the lagging on the pressurizer. Consideration was being given to mockup training for high exposure jobs.

c. Licensee representatives showed the inspector copies of tabulations of radiation exposures being sent to plant supervisors from the health physics supervisors. The purpose of the tabulation was to inform supervisors of their employee exposures in order to more uniformly distribute the load.

The inspector noted that the evaluations, preplannings and tabulations appeared to be in the best interest of maintaining exposures as low as reasonably achievable (ALARA) and had no further questions.

11. Neutron Dose Rates

The inspector independently measured the neutron levels outside the reactor buildings and at the Radiation Control Area (RCA) fence with a Region II portable neutron rem meter, Model No. PNR-4. The inspector was accompanied by a licensee representative with his own portable neutron rem meter. Neutron levels at the Unit 4 equipment hatch were measured to be 3.5 mr/hr by the inspector and 2.5 mr/hr by the licensee representative. At the boundary of the (RCA) the inspector measured 0.5 to 1.0 mr/hr and the licensee representative measured less than 0.1 mr/hr. There appeared to be a problem in the inspector's instrument at low levels of neutron radiation. The inspector also independently measured neutron levels inside the containment (Unit 3 at

full power operation). The inspector was accompanied by a licensee representative with his own portable neutron rem meter. Measurements of neutron levels were taken at all three elevations outside the biological shield wall and the levels were found to be 10 to 225 mr/hr. Both instruments agreed inside containment. The inspector had no further comment or observation on neutron levels.

12. Cable Trays

The inspector, accompanied by a licensee representative, noted a leak in the hallway to the Waste Hold Up Tank Room, at the four foot elevation in the Reactor Auxiliary Building. The leak appeared to be coming from the ceiling above and dripping directly onto two cable trays, designated 3 FDT 10 and 3 FCT 40. Approximately two feet of the lower cable tray appeared wet. The wet area was surrounded by crystaline stalagtite formations approximately a few inches long. The lower cable tray appeared rusted in the vicinity of the leak. The condition of the upper cable tray was not readily apparent. The inspector requested an air and liquid sample be taken. The liquid sample showed approximately 20 to 25% of the water MPC limits for soluble cesium-134 and cesium-137 defined in Appendix B, Table I, of 10 CFR 20. The liquid sample indicated the presence of boric acid (approximately 600 ppm) and other unknowns (pH=7.5), probably leached from concrete. The air sample was less than 1% of the air MPC limits specified in Appendix B, Table I, of 10 CFR 20. From discussions with licensee representatives, the inspector noted that: (1) the leak was caused by a corroded floor drain in the evaporator room above; (2) the leak has been present for a period of at least two years; and (3) safety related cables were in the trays. In January of 1978, licensee representatives made a determination that the cables in the trays could withstand boric acid leaks and decided to replace the rusted portions of the cable trays during the January 1979 refueling outage. Before the inspector left the site, licensee representatives used an awl to determine the degree of rusting of the cable trays and found their condition to be satisfactory. The inspector had no further questions, but referred the entire question to the Region II project inspector (see RII inspection report 78-27).

13. Temporary Shielding

The inspector noted that temporary lead shielding blankets had been installed on portions of the spent resin line located in the pipe chase at the 10 foot elevation in the Reactor Auxiliary Building and also noted temporary lead shelding blankets around portable air filtration units at the basement level of the Unit 3 containment. From previous inspections, the inspector had noted the use of lead blankets on the regenerative heat exchangers in the Unit 4 containment. He was

told by licensee representatives that the lead blankets on the regenerative heat exhangers had been removed prior to power accension. The inspector reviewed and discussed Health Physics Procedure HP-55, entitled, "Temporary Shielding," dated August 24, 1976 with licensee representatives. Licensee representatives stated that they were in the process of sorting out their temporary lead shielding, and, in the process, would be reviewing their procedures. The inspector pointed out that, at present, Section 8.4 of Health Physics Procedure HP-55 gives the Health Physics Supervisor the final authority on temporary shielding problems including weight restrictions. Licensee representatives noted that the final authority of use of temporary shielding should realisticly include more than the Health Physics Supervisor, especially on safety related systems. The inspector had no further questions.

14. Filtration Systems

The inspector reviewed the licensee's program for ensuring compliance with Technical Specifications, Section 4.7.1, on Emergency Containment Filtering systems. The inspector also reviewed a report entitled "Air Capacity/Velocity/Air Aerosol Mixing Uniformity/Adsorber Residence Time, Data Evaluation," Turkey Point Plant, Unit 4 Refueling, September 1978, and found that, to the extent possible, the licensee has made use of ANSI N510-1975, "Testing of Nuclear Air-Cleaning Systems," including the prerequisite tests of Sections 8 and 9. The reviewed report satisfies the commitments made in IE Report 77-24, paragraph 10.c. and satisfies the prerequisite requirements of ANSI N510, Sections 10 and 12.

15. Exit Interview

a. At the conclusion of the inspection on November 3, 1978, the inspector met with licensee representatives (denoted in paragraph 1). The inspector summarized the scope and findings of the inspection, including the items of noncompliance. With regard to the noncompliance item concerning posting of the North Filling Room, the Plant Manager stated that the posting had been rearranged to preclude its improper disposition in the future. With regard to the noncompliance item on locked egress from a high radiation area, the Plant Manager stated that the hasp for the pad lock on the door to the demineralizer room had been removed. With regard to the item of noncompliance concerning loose refuse containers in the Unit 3 containment, the Plant Manager stated that the containers had been removed.

b. On November 3, 1978, after the exit interview, O. F. Pearson and C. O. Woody of Florida Power and Light Corporate Management

contacted R. Lewis, Section Chief of the Reactor Operations and Nuclear Support Branch, via telephone and stated that they were concerned about the findings of this inspection. They stated that they are determined to eliminate the types of problems found, and to that end, had taken the following actions:

(1) Posted ten new health physics positions, effective November 6, 1978.

(2) Assigned two mechanics indefinately to Health Physics for the sole purpose of working on Health Physics problems requiring maintenance assistance.

(3) Ordered the Corporate Health Physicist to spend two days per week at the plant for the next three months to monitor health physics compliance.

(4) Directed the plant to review all previous noncompliances and review corrective actions taken.

(5) Directed that emphasis be placed on plant personnel to assure compliance with proper health physics practices.

(6) Directed the plant to review all access controls to assure compliance with the controls and that compliance is easy to attain.

(7) Directed that the administrative functions of the Quality Control Supervisor be assigned to the Technical Supervisor.

(8) Directed that the Quality Control Inspectors be assigned directly to the Quality Control Supervisor.

(9) Directed that personnel be reoriented to be more compliance oriented.