



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

MAR 26 1986.

Report Nos.: 50-250/86-12 and 50-251/86-12

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

Inspection Conducted: February 24-28, 1986

Inspector: William J. Cooper  
W. T. Cooper

3-20-86  
Date Signed

Approved by: Ray W. Weddleton  
O. M. Hosey, Section Chief  
Division of Radiation Safety and Safeguards

3-20-86  
Date Signed

SUMMARY

Scope: This routine unannounced inspection involved 44 inspector-hours on site in the areas of the training and qualifications of selected members of the chemistry and contract health physics (HP) staffs, external exposure control and personal dosimetry, internal exposure control and the control of radioactive materials, surveys and monitoring.

Results: No violations or deviations were identified.

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## REPORT DETAILS

## 1. Persons Contacted

## Licensee Employees

\*C. Wethy, FPL Site Vice President  
 \*C. Baker, Plant Manager  
 \*D. Grandage, Operations Superintendent  
 \*R. Acosta, Quality Assurance Superintendent  
 \*J. Kappes, Maintenance Superintendent  
 \*G. Madden, Nuclear Licensing  
 \*A. Rice, Radiochemist, Nuclear Chemistry  
 \*J. Danek, Corporate Health Physics  
 \*J. Arias, Jr., Regulation and Compliance Supervisor  
 \*B. Abrishami, Technical Department Supervisor  
 \*W. Miller, Training Superintendent  
 L. Bladow, Quality Assurance Operations Supervisor  
 E. LaPierre, Nuclear Chemistry Supervisor  
 \*P. Hughes, Health Physics Supervisor  
 R. Brown, Health Physics Operations Supervisor  
 J. Bates, Health Physics ALARA Coordinator  
 M. Givens, Health Physics ALARA Engineer  
 T. Coleman, Health Physics Dosimetry Supervisor  
 T. LaGarde, Health Physics Radwaste Supervisor  
 J. Ferrare, Quality Assurance Engineer

Other licensee employees contacted included eight technicians and six office personnel.

## NRC Resident Inspectors

T. Peebles, Senior Resident Inspector  
 R. Brewer, Resident Inspector

## 2. Exit Interview

The inspection scope and findings were summarized on February 28, 1986, with those persons indicated in Paragraph 1 above. An unresolved item\* involving the evaluation of alpha radiation in the Unit 4 containment was discussed in detail with licensee management (Paragraph 5). The formulation of a sampling and analysis program for alpha radiation (Paragraph 5) and additional training for quality assurance personnel who audit health physics activities (Paragraph 6) were also discussed. The licensee acknowledged the inspection findings and took no exception. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.

\*An Unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation or deviation.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Training and Qualifications (83723)

The licensee was required by Technical Specification (TS) 6.3 to qualify radiation protection and chemistry technicians in accordance with ANSI 18.1. The inspector reviewed selected resumes of licensee chemistry technicians and contract health physics (HP) technicians. The inspector discussed separately with two contract HP technicians their previous experience and training to determine if it was comprehensive or if it had been limited to selected tasks. The inspector also discussed the training and qualification program the licensee had provided and controls established for the tasks the technicians were allowed to perform.

No violations or deviations were identified.

5. Control of Radioactive Materials and Contamination, Surveys and Monitoring (83726)

The licensee was required by 10 CFR 20.201(b) and 20.401 to perform surveys to show compliance with regulatory limits and to maintain records of such surveys. Chapter 12 of the FSAR further outlined survey methods and instrumentation. TS 6.8 required the licensee to follow written procedures. Health physics procedures further outlined survey methods and frequencies.

During a review of air sample data, the inspector noted the presence of alpha emitting radionuclides on the sample analysis forms. Licensee representatives stated that the presence of alpha radiation on the samples was due to the presence of radon decay products present on the filter. Air samples collected on February 1, 1986 and February 24, 1986, indicated the presence of alpha radionuclides. The samples, however, had not been recounted at a later time to allow the decay of the short half-life radon-thoron daughter products to demonstrate that the contributing factor of alpha radiation was due to radon decay products. A gamma isotopic analysis performed on other containment air samples indicating the presence of alpha radiation, revealed the presence of lead-214 and bismuth-214, both of which were decay products of radon. The inspector requested that smear samples be taken inside the Unit 4 containment and that ten percent of the air samples collected during the backshift on February 25-26, 1986, be decay counted for alpha immediately after beta counting and again after the short-lived radon-thoron daughter products had decayed. Two smears were taken in the Unit 4 refueling cavity above the water line. Initial smear analysis was 2.1E6 disintegrations per minute (dpm) beta radiation and 1800 dpm alpha radiation and did not decay when recounted. Eleven air samples were analyzed for alpha activity during the shift. The air samples decayed with an average half-life of 47 minutes. The inspector reviewed the licensee's procedures for air sampling and smear surveys. The procedures did not address sampling methods or provide guidance for the sampling,



analysis or evaluation of the presence of alpha emitting radionuclides. A licensee representative stated that one of the smears taken in the reactor cavity above the water line would be sent to an independent laboratory for an alpha spectroscopy analysis. The inspector stated that, if the laboratory analysis indicated the presence of transuranics or other long lived alpha emitters, 10 CFR 20 would require that the licensee control work in the Unit 4 containment based upon the unknown alpha maximum permissible concentration (MPC) of 6E-13 microcuries per milliliter ( $\mu\text{Ci/ml}$ ).

A licensee representative stated that implementation of a program for the sampling, analysis and evaluation of alpha radiation would be in place April 30, 1986. This item was identified as an inspector followup item and will be reviewed during subsequent inspections (50-250, 251/86-12-01). Failure to evaluate the presence of alpha radiation on air samples would be considered an apparent violation of 10 CFR 20.201(b). However, pending receipt of the licensee's alpha spectroscopy analysis, this item was identified as unresolved (50-250, 251/86-12-02).

6. Licensee Audits and Surveillance (83722, 83723, 83724, 83725, 83726, 83728, 84722, and 86721).

The inspector reviewed selected audits from 1985 related to radiation protection, radioactive waste management and transportation of radioactive material. The inspector discussed quality assurance (QA) auditor qualifications with a licensee representative. QA auditors performing audits of the HP program receive the site general employee training and attend a course in radioactive material transportation offered by a vendor. The inspector stated that the scope of the QA audits appeared to be adequate, but lacked depth, possibly due to the minimal HP experience of the auditors. A licensee representative stated that additional HP training would be provided for QA auditors. The HP training for QA auditors was identified as an inspector followup item (50-250,251/86-12-03).

7. External Occupational Dose Control and Personal Dosimetry (83724)

During plant tours, the inspector observed the posting of survey results and the use of controls specified on six radiation work permits (RWP's).

The licensee was required by 10 CFR 20.202, 20.201(b), 20.101, 20.102, 20.104, 20.405, 19.13, 20.407, and 20.408 to maintain worker's doses below specified levels and keep records of and make reports of doses. The licensee was required by 10 CFR 20.203 and Technical Specification 6.12 to post and control access to plant areas. FSAR Chapter 12 also contained commitments regarding dosimetry and dose controls. During observation of work in the plant, the inspector observed the wearing of TLDs and pocket dosimeters by workers. The inspector discussed the assignment and use of dosimeters with radiation protection technicians. During plant tours, the inspector observed the posting of areas and made independent measurements of dose to assure proper posting. The inspector reviewed recent changes to plant procedures regarding the use of TLDs and dosimeters.



The inspector reviewed the TLD results for the first quarter of 1985 and reviewed Form NRC 4s for seven individuals who received greater than 1.25 rems in the quarter. The inspector reviewed selected records for cases of off-scale dosimeters to evaluate the methods and conclusions regarding the assignment of dose.

No violations or deviations were identified.

8. Internal Exposure Control and Assessment (83725)

The licensee was required by 10 CFR 20.103, 20.201(b), 20.401, 20.403 and 20.405 to control uptakes of radioactive material, assess such uptakes, and keep records of and make reports of such uptakes. FSAR Chapter 12 also included commitments regarding internal exposure control and assessment. The inspector reviewed the licensee's maximum permissible concentration hour (MPC-hr) log for the first quarter 1985. No licensee personnel were noted as having uptakes greater than two MPC-hrs in a day or ten MPC-hrs in a week. A licensee representative stated that during 1985 there were no whole body counts exceeding one percent maximum permissible organ burden. The inspector reviewed the quarterly analysis of the plant breathing air system. The analysis indicated that the breathing air was well within Grade D specifications and there was no indication of radionuclide cross contamination in the system. The licensee performed breathing air analysis on a quarterly basis, prior to an outage and after any maintenance on the system.

No violations or deviations were identified.

9. Facility Statistics

During 1985, the licensee generated 20,438 cubic feet (ft<sup>3</sup>) of solid radioactive waste containing approximately 1495 curies of activity. The licensee made 38 radwaste shipments in 1985 consisting of 21,457 ft<sup>3</sup> of solid radwaste containing approximately 1495 curies of activity. As of February 27, 1986, the licensee had made eight shipments of solid radwaste consisting of 2564 ft<sup>3</sup> of waste containing approximately 59 curies of activity. The radwaste goal for 1986 is 18,000 ft<sup>3</sup>.

Prior to 1986, the licensee tracked personnel contaminations which exceeded 500 counts per minute (cpm). In 1986, the licensee will be tracking personnel contaminations greater than 100 cpm. In 1985, there were a total of 115 personnel contaminations. In 1986, through January, there were a total of 18 personnel contaminations greater than 500 cpm and 21 personnel contaminations greater than 100 cpm.

The licensee began tracking plant contaminated areas in 1986. The total square footage (ft<sup>2</sup>) for all plant areas was 65,628 excluding the containment. Of that total, 28,727 ft<sup>2</sup> or 44 percent of the plant was maintained as contaminated.

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The total exposure for 1985 was 1199 man-rem, which was a one percent reduction from 1984.