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

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Report Nos.: 50-250/86-42 and 50-251/86-42

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

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

Facility Name: Turkey Point 3 and 4

Inspection Conducted: November 3-7, 1986

Inspectors: for J. D. Harris — 11/21/86 Date Signed

for P. G. Stoddart — 11/21/86 Date Signed

Approved by: J. B. Kahle, Section Chief — 11/21/86 Date Signed
Division of Radiation Safety and Safeguards

SUMMARY

Scope: This routine, unannounced inspection was conducted in the areas of radioactive liquid and gaseous treatment systems, radioactive effluents, radiological environmental monitoring, and post accident sampling system.

Results: Of the areas inspected, no violations or deviations were identified.

# REPORT DETAILS

1. Persons Contacted

Licensee Employees

*G. Salamo, Regulation and Compliance
*J. Anderson, Supervisor, Quality Assurance
*D. Baker, Power Plant Engineering
*S. Quinn, PASS Chemist, Chemistry
*T. Abbatiello, Supervising Engineer, Performance Monitoring
*M. Jimenez, Health Physics
*A. Rice, Associate Radiochemist, Nuclear Chemistry
*E. English, Supervisor Nuclear Chemistry
*D. Grandage, Superintendent, Operations
*C. Wethy, Site Vice President, Turkey Point
*E. Preast, Manager, Site Engineering
*M. Strollo, Technical Department
*J. Arias, Jr., Regulation and Compliance Supervisor
E. R. LaPierre, Plant Radiochemist
J. Riveron, Instrumentation and Calibration Support Engineer
V. Edwards, System Engineer, Technical Department
C. Beck, System Engineer, Technical Department
A. Gould, Staff Specialist

Other licensee employees contacted included construction craftsmen, engineers, technicians, operators, mechanics, security force members, and office personnel.

Other Organizations

A. Paine, Electrical/Control System Engineering, Bechtel
N. Goel, Instrumentation and Calibration, Bechtel
L. Kennedy, LUSC/Instrumentation and Calibration Supervisor, Bechtel
L. Dallas, Public Health Physicist, State of Florida Department of Health and Rehabilitative Services

NRC Resident Inspectors

Kirk Van Dyne
J. B. MacDonald

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 7, 1986, with those persons indicated in Paragraph 1 above. Licensee personnel expressed no adverse comments to the inspection summary. The licensee did not

identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

(Closed) VIO 84-27-01, Failure To Analyze Charcoal Samples Removed From Emergency Containment Filter System Within 45 Days.

The inspector reviewed operating procedures and testing records of charcoal removed from emergency safety feature filter systems. The procedures specify the 45-day limit and the test results for recent filter testing indicate compliance. The licensee has plans to implement the 31-day limit given in proposed new Technical Specification (TS) when such TS are implemented.

4. Audits (80721, 84723, 84724)

Technical Specification 6.5.2.8 lists the requirements for station activities to be audited, including the audit frequency.

The inspector reviewed the following audits performed by corporate and station personnel:

Supplier Audit 08.11.FLS**.86.1 State of Florida, Department of Health and Rehabilitative Services, Division of Radioactive Monitoring Services, April 3, 1986

Supplier Audit 08.11.FLS**.85.1 State of Florida, Department of Health and Rehabilitative Services, Division of Radioactive Monitoring Services, April 9, 1985

Quality Assurance Audit QAO-PTN-86-744 TS4.6 and 4.7, Emergency Containment Cooling, Filtering and Ventilation Systems, June 2, 1986 - June 30, 1986

Quality Assurance Audit QAO-PTN-86-758 T.S. 3.9, Radioactive Material Release, July 7, 1986 - August 27, 1986

QAS-ENR-86-1, Radiological Environmental Monitoring Program, June 12, 1986 - September 19, 1986

Quality Assurance Surveillance Report 08.06.FLS.86.2 Collection of Iodine and Air Particulate Samples Within a 20 Mile of the Turkey Point Plant, April 8, 1986

The audits appeared to be very through and probing. No major deficiencies were noted in the audits reviewed. Mechanisms exist to ensure timely response to audit findings or to seek further corrective actions that the auditor function might feel necessary.

No violations or deviations were identified.

5. Radiological Environmental Monitoring (80721)

Technical Specification 4.12 gives the requirements for the conduct of the Radiological Environmental Monitoring Program.

The inspector reviewed the Annual Radiological Environmental Operating Report for 1985, submitted as required by TS 6.9. The results for 1985 revealed no radioisotopes attributable to plant effluents in environmental media greater than the regulatory reporting levels given in TS Table 4.12-2. All lower limits of detection were met or exceeded, and only three samples were missed during the year.

The radiological environmental monitoring program is conducted by the State of Florida Department of Health and Rehabilitative Services. The inspector discussed operational history and equipment reliability of collecting samples over the past year with the State of Florida Health Physics personnel. No reccurring problems had been noted.

No violations or deviations were identified.

6. Liquid Radwaste (84723)

Technical Specification 3.9.1 gives the requirements for concentrations of radioactive material in liquid effluents released to unrestricted areas, for the sampling and monitoring program, and for dose to a member of the public.

The licensee utilizes a closed cooling canal system to recycle plant effluent water, contaminated and non-contaminated. Theoretically, radioactive material in liquid effluents never leaves the owner controlled area. Several sample locations for the radiological environmental monitoring program are located in this cooling canal. The inspector reviewed selected liquid release permits for September 1986. All releases met the regulatory limits for dose to members of the public and for the concentration of radioactive material in liquid effluents. The inspector discussed the operational experience with the liquid radwaste processing system with cognizant licensee personnel. Currently the licensee is working closely with a vendor on their associated demineralizer system. The licensee is in the process of evaluating possible improvements made so far with the system as further developmental studies are conducted.

The inspector verified by review of laboratory logs and sample sheets that the routine sampling program was performed in accordance to regulatory requirements.

No violations or deviations were identified.

7. Gaseous Radwaste (84724)

Technical Specification 3.9.2 lists requirements for concentrations of radioactive material in gaseous effluents released to unrestricted areas, for the sampling and monitoring program, and for dose to a member of the public.

The inspector reviewed selected aspects of the gaseous effluent treatment systems with licensee personnel. The licensee conducts in-place leak testing of HEPA and charcoal absorber banks for Engineered Safety Feature (ESF) filter systems, but not for filter systems associated with the plant vent and Unit 3 Spent Fuel Pit Building. The inspector toured the non-ESF and noted that they appeared to be in compliance with industry accepted standards and practice.

The systems were in good physical condition with signs of good maintenance. The inspector discussed the performance of radiation monitoring instrumentation over the past year. The licensee uses Eberline's SPING-4 monitors. The licensee was aware of the design limitations of these systems as noted in IE Information Notice 86-30, Design Limitations of Gaseous Effluent Monitoring Systems. The licensee was satisfied with the performance of their systems so far. The licensee had also evaluated its maintenance program in regard to IE Information Notice 86-42, Improper Maintenance of Radiation Monitoring System.

The inspector reviewed gaseous release permits for 1986. Only three releases had been made from the waste gas decay tanks up to the period covered by the inspection. No excessive concentrations of hydrogen or oxygen were noted. The inspector reviewed laboratory logs and sample analysis sheets to confirm that the sampling and analysis program was conducted as required.

No violations or deviations were identified.

8. Post-Accident Sampling System (PASS) - (84723)

The inspector reviewed the current status of the post-accident sampling system with licensee staff. The PASS had previously been evaluated during Inspection 50-250, 251/84-13 and had been found acceptable, with the exceptions of procedures specifying requirements for periodic surveillance testing, calibration methods, frequency of calibration and surveillance testing and a finding that the reactor coolant hydrogen analysis method did not meet the acceptance criteria (±5 cc/kg for values less than 50 cc/kg). The exceptions noted were cleared in Inspection Report Nos. 50-250/84-27, 50-251/84-28, 50-250/84-40 and 50-251/84-41.

The Turkey Point PASS was shared between Units 3 and 4. The PASS was literally a "one-of-a-kind" system built by Applied Physical Technology (APT) and consisted largely of active component subsystems provided or manufactured by subcontractors and of passive components manufactured or assembled to APT specifications. The original system, as delivered and

installed, had no provisions for bypass of any in-line component, which in concept had the potential for the entire system to be inoperable if any one component failed. Shortly after installation, the licensee modified the system by providing bypasses around principal component subsystems, adding several solenoid operated valves to an already complex system.

The inspector's review of the PASS included Audit Reports QAO-PTN-85-683, covering the period September 19, 1985, to October 9, 1985, and QAO-PTN-86-780, covering the period September 9-30, 1986. Those reports noted a PASS status of "inconsistent operability for the last 14 months prior to audit" (May 1984 to September 1985) and that PASS inoperability remained an outstanding finding as of September 30, 1986.

In discussions held on November 4, 5, and 6, 1986, between the inspector and licensee representatives concerning the audit report findings of "inconsistent operability," licensee personnel described a series of problems which had arisen independently and at various times over the life-span of the PASS. These problems collectively prevented the PASS from being declared "fully operational" but have not prevented the PASS either from providing most of its design functions or from meeting the minimum Technical Specification requirements for an operable system.

For much of the time beginning in 1984, and up to May 1986, the licensee was unable to obtain sufficient flush water flow with which to flush the sample and sample process lines after sampling primary reactor coolant to present possible solidification of boric acid. The problem was finally traced to an improperly designed solenoid valve; replacing the valve corrected the flushing problem. Flushing of the sample system lines after sampling was not a NUREG-0737 criterion and the system was capable of obtaining a reactor coolant sample and analyzing it in the allotted time; therefore, the system was not considered to be inoperable.

Other problems have included failure of solenoids in solenoid-actuated valves, failure of the hydrogen analyzer, failure of the dissolved oxygen analyzer, failure of the neutron detector in the online boronometer, failure of the intrinsic germanium detector in the Automated Isotope Measurement System (AIMS), external leaks from connections and joints, internal leaks past "closed" valves, water intrusion into the hydrogen detector, inadequate pressure regulation, and failure of a gas flow indicator.

Since September 1985, the licensee has had a program in place -- the PASS Enhancement Project -- to resolve the PASS problems and to modify the PASS to assure its full operability and to substantially improve its reliability. At the time of the inspection, this program involved two corporate personnel, two Bechtel engineers, and six FP&L site personnel. Since July 1986, updates were being prepared approximately weekly. The inspector reviewed updates dated October 24, 1986, and November 6, 1986. The October 24th update listed some 24 identified task items; the November 6, 1986, update showed 9 of the 24 task items had been completed and that substantial progress had been made on 7 of the remaining 15 items. The

degree of progress reflected in the two reports confirmed that substantial effort was being made to resolve the PASS problems.

The inspector did a walkdown of the PASS in the company of a licensee representative. The PASS room was crowded and space was limited. Modification work was ongoing at the time of inspection and system operation was not practicable. Based on the observations of the inspector and on review of documentation and discussions with plant personnel, it was apparent that the licensee was exerting substantial, well-directed effort toward resolving PASS operational problems and was using an interpreted engineering approach.

No violations or deviations were identified.

9. Inspector Followup Items

(Closed) IFI 84-32-01 Review of Intra and Inter-Laboratory Cross Check Program

The inspector reviewed cross check results for 1985 and first two quarters of 1986. The samples represented a variety of analyses for radionuclides. This review revealed some weaknesses in the licensee's radiological measurement program. The inspector discussed the areas involved with cognizant licensee personnel. The licensee response to unfavorable agreement was timely and thorough.

(Closed) UNR 84-32-02 Evaluation of Gas Marinelli Efficiency Calibrations

The inspector noted that the gas marinelli geometries had been recalibrated. Checks made during the licensee's intra-laboratory comparison demonstrated good agreement with the vendor laboratory. This evaluation did not identify the exact cause of the original differences between the gamma spectroscopy detection systems, but, with the improved laboratory quality assurance program, the problem was corrected in a timely manner.

(Closed) IFI 84-32-03 Evaluation and Verification of Strontium 89, 90 and Iron-55 Analyses

The inspector reviewed the licensee's analysis results of a liquid sample provided by the NRC's contract laboratory. The licensee was in agreement for all isotopes.

(Closed) IFI 86-IN-42, IE Information Notice 86-42, Improper Maintenance of Radiation Monitoring Systems

The inspector discussed the notice with cognizant personnel in relation to current maintenance practices within the plant. The licensee had reviewed the notice and felt that appropriate controls were in place to prevent the problems discussed in the notice.