UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos: 50-335/83-10 and 50-389/83-25

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

Docket Nos: 50-335 and 50-389

License Nos: DPR-67 and CPPR-144

Facility Name: St. Lucie 1 and 2

Inspection at St. Lucie site near Ft. Pierce, Florida

Inspector: _____ 4/5/83
J. R. Wray Date Signed

Approved by: _____ 4/5/83
K. P. Barr, Section Chief Date Signed
Operational Programs Branch
Division of Engineering and Operational Programs

SUMMARY

Inspection on March 16 - 18, 1983

Areas Inspected

This routine, unannounced inspection involved twenty-five inspector-hours on site in the areas of Unit 1 plant tours during refueling outage and Unit 2 follow-up of licensee actions on inspector identified items, confirmatory items, Bulletins and Information Notices, and TMI Action Items.

Results

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

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*C. M. Wethy, Plant Manager
*H. F. Buchanan, Health Physics Supervisor
R. Frechette, Chemistry Supervisor
*N. G. Roos, Quality Control Supervisor
*R. R. Jennings, Technical Staff Supervisor
*A. W. Bailey, QA Supervisor
*H. M. Mercer, Health Physics
*P. G. Bailey, Health Physics
*B. W. Kelsey, Chemistry
K. E. Beichel, Chemistry
L. N. Motley, Mechanical Startup Engineer
T. Deplonty, Instrument and Control
R. M. McCullers, H. P. Operations Supervisor

Other Organizations

*G. E. Grace, Licensing Engineer, Ebasco
*J. A. Valente, Licensing, Combustion Engineering
R. P. Williams, Executive Officer, Nuclear Air Filtration Testing Associates, Inc.

NRC Resident Inspector

*S. A. Elrod, Senior Resident Inspector
H. E. Bibb, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 18, 1983, with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Enforcement Matters

(Closed) Deviation (389/82-75-04) Improper Storage of HEPA Filters. The inspector reviewed the licensee's response to this item dated February 14, 1983, and visually verified that onsite HEPA filters are now stored properly on racks. In addition the inspector observed approximately 50 HEPA filters stored in the Unit 2 auxiliary building waiting installation into HVE 9A and 9B and verified they were stacked no more than three high. The inspector also verified that a site procedure revision request to include a reference

to ANSI N-509-1980 regarding filter receipt and storage had been made and that the Unit 1 QA program had incorporated the reference. The inspector had no further questions.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Licensee Action on Bulletins and Information Notices - Unit 2

Bulletins

78-08 (Open) Radiation Levels From Fuel Element Transfer Tubes. The inspector was informed that shielding modifications similar to that constructed on Unit 1 will be installed during the first refueling outage for Unit 2 which will reduce radiation levels near the containment wall from fuel elements while they are being transferred to the refueling building. This item will remain open pending completion of the shielding modification.

80-03 (Closed) Loss of Charcoal From Standard Type II, 2 inch Tray Absorber Cells. The inspector observed that the licensee's safety related charcoal absorber units are not tray type and are welded (not riveted). This appears to satisfy the concerns of this Bulletin. The inspector had no further questions.

Information Notices

The responses to the following information notices were reviewed during this inspection and found to be appropriate. They are considered closed for record purposes.

79-07 Rupture of Radwaste Tanks

79-08 Interconnection of Contaminated Systems with Service Air Systems Used as the Source of Breathing Air

81-27 Flammable Gas Mixtures in the Waste Gas Decay Tanks in PWR Plants

82-14 TMI-1 Steam Generator/Reactor Coolant System Chemistry/Corrosion Problem

82-43 Deficiencies in LWR Air Filtration/Ventilation Systems

82-49 Correction for Sample Conditions for Air and Gas Monitoring

82-47 Transportation of Type A Quantities of Non-Fissile Radioactive Material

82-51 Overexposures in PWR Cavities

6. Licensee Action on NRR Confirmatory Action Items - Unit 2

SER Section 6.2.3 (Open) Perform functional test of shield building ventilation system. The filter testing of the Shield Building Filter system will be performed immediately prior to issuance of an operating license to reduce the potential for contamination from painting and clean-up operations. This item will be inspected during future inspections.

SER Section 12.1.3 (Closed) Measures for reducing exposure and the criteria for implementation of those measures is consistent with R.G.8.8. The inspector reviewed administrative procedure ADM 3300120, "ALARA Program" and discussed the program with cognizant licensee representatives. The inspector noted that the existing Unit 1 ALARA program appears to be functioning adequately and had no further question.

SER Section 12.3.4 (Closed) Install airborne radioactivity monitors in work areas susceptable to airborne radioactivity and ensure periodic calibration. During tours of the facility the inspector observed monitor hook-ups where portable continuous air monitors will be connected to the main radiation monitoring system computer. A licensee representative stated that four General Atomic airborne radioactivity monitors are onsite and will be used in areas, such as near the waste gas system compressors, with high potential for airborne radioactivity. The inspector reviewed procedures for calibration of these monitors and noted the frequency is every refueling not to exceed 18 months. The inspector had no further questions.

SER Section 12.5 (closed) Personnel TLD program. The inspector reviewed procedure HP-30, Rev 11, and discussed the thermoluminescent dosimetry program with cognizant licensee representatives. The licensee requires TLDs to be worn by every person entering the Radioactive Control area where workers can receive 25 percent of the quarterly exposure limits of 10 CFR 20.101 pursuant to the requirements of 10 CFR 20.202.

SER Section II.F.1 (2a) and (2b) (Open) High range Noble Gas, Iodine, and Particulate Effluent Monitors (see paragraph 8).

SER Section II.F.a (2c)(Closed) In-Containment High Range radiation monitors (see Paragraph 8).

7. Licensee Actions on Inspector Identified Items - Unit 2

(Closed)(82-38-01) ARM Installation. The inspector reviewed the status of the area radiation monitor system and was informed that all safety related area radiation monitors have been successfully preoperational tested and calibrated from the detectors to the local and control room indicators and

alarms. The General Atomic software package for remote console indications has not been completely tested but is not required for safety related system functions. The inspector was informed that RM-26-38, one of two monitors located outside containment is presently inside the Fuel Handling Building. This location affords more shielding (FHB walls) than expected and afforded RM-26-39. The licensee will relocate RM-26-38 to a more appropriate position after core load. The inspector stated that relocating RM-26-38 will be verified during a future inspection (389/83-25-01).

(Closed)(82-62-07) Complete revision of the Post Accident Sampling and Analysis Procedures. The inspector reviewed approved Unit 2 chemistry procedures 2-C-113 (Rev. 0), Operation of the CE Post Accident Sampling System (PASS), 2-C-80 (Rev. 0), Determination of Hydrogen Gas in Containment, and C-77 (Rev. 3), Correlation of Process Monitor Readings to Specific Activity. The procedures appeared to be complete and adequate. The inspector had no further questions.

(Open)(82-70-05) Evaluate need for shielding of penetrations in ion exchanger cubicle and spent resin tank valve gallery. The inspector observed that the empty penetration in the ion exchanger cubicle had been filled which eliminated a potential source of radiation to the outside from radiation streaming. This item will remain open pending completion of shielding the penetration in the spent resin tank valve gallery.

(Closed)(82-75-03) Deluge System Modifications and Calculations. The inspector reviewed calculations of heat buildup on charcoal beds due to iodine decay and verified that the temperature of the bed will not exceed the absorber ignition temperature. Modifications are being made to permit fire hose connections on the outside of the ECCS Area Ventilation filter housing. The inspector had no further questions.

8. Licensee Action on NUREG-0737 Items - Unit 2

(Open)(II.B.2) Plant Shielding Modification for Vital Area Access. The plant shielding review for St. Lucie Unit 2 including vital area dose rates, personnel doses, operator stay times, and specific plant modifications appears in Appendix 12.3A of the St. Lucie Unit 2 Final Safety Analysis Report. The assumptions and methodology used in the design review were found to be consistent with the requirements. Source terms were based on guidelines of Regulatory Guide 1.3, 1.7, Standard Review Plan 15.6.5, and Technical Information Document (TID) 14844. The systems identified as potentially containing high levels of radioactivity following an accident were found to be consistent with system functions. Dose rate zone maps were created to show dose rates throughout the auxiliary building at 1, 10, 100, and 1000 hours following an accident and are presented as Figures 12.3A-1 through 12.3A-4 in the FSAR. Maps with preferred personnel routes of travel through the auxiliary building following an accident are also included. Table 12.1-11 lists the plant modifications required to satisfy GDC-19 dose

criteria. The inspector noted some variations from the required modifications for Unit 1 (see Unit 1 FSAR Table 12.1-11 and IE report 50-335/82-46). A licensee representative stated that system differences between the units resulted in eliminating the need to modify the shutdown cooling and CVCS charging pump isolation valves as was done on Unit 1. The inspector was informed that valves V-3432, and V-3444 (LPSI system), and I-V07161 and I-V07164 (containment spray system) will be fitted with motor operators prior to the first Unit 2 refueling outage. This item will remain open pending completion of system modification.

(Open)(II.B.3) Post Accident Sampling System. The status of the Post Accident Sampling System was reviewed by the inspector with cognizant members of the licensee's staff. The inspector was informed and observed that the PASS was installed and about to be turned over from construction for preoperational and functional testing. The licensee plans to complete their work and have the system fully operational before Unit 2 exceeds five percent power. Based on discussions with licensee representatives and representatives of their vendor, observation of the installed system, and review of operational procedures (see Paragraph 7 item 82-62-07), the inspector concluded that meeting this milestone should not be difficult. The inspector traced liquid and containment gas sample lines through the overheads to the PASS with a licensee representative. The sample lines appear to be well shielded from normal access routes. The inspector noted that Appendix 12.3A of the St. Lucie 2 FSAR contains dose rate maps of the auxiliary building following a hypothetical accident. These maps appear to have been generated prior to selecting the existing location for the PASS on the 19.5 foot elevation because the PASS does not appear on the figures. The completion of PASS will be reviewed during future inspections.

(Closed)(II.B.4) Training for Mitigating Core Damage. This item has been discussed in IE reports 50-389/81-18 and 50-389/82-04. During this inspection the inspector verified that health physics personnel have been trained and are retrained periodically in their responsibilities concerning mitigating core damage following an accident. The inspector had no further questions.

(Open)(II.F.1(a), and (b)) High Range Effluent Monitors. The inspector was informed that the process and effluent monitors are all installed and are in the final stages of preoperational testing. Emphasis is being placed on completing monitors RS-26-12, Fuel Handling Building Stack (an isokinetic sampling problem) and RS-26-90, Plant Vent Stack (wide range) before core load. A licensee represntative stated that there should be no difficulty in completing all the preoperational tests for all the monitors before exceeding five percent power. The inspector discussed calibration techniques with a licensee representative and was informed that a high range gas sample from the Unit 1 Volume Control Tank, as that unit was brought down for its refueling outage, was obtained. This sample was used to obtain two calibration points on the mid-scales of the wide range ECCS Area Exhaust

(A&B) and Plant Vent Stack Monitors (RS-26-69; RS-26-70; and RS-26-90). These points appeared to match well with the manufacturer's initial high range calibration. The inspector stated that at least three points should be obtained preferably on every other scale over the entire range of the instrument. A licensee representative stated that obtaining more points on the lower scales would not be difficult but that obtaining a gas sample to calibrate the highest decade of these accident monitors will be difficult and may not prove to be ALARA.

This item will remain open pending completion of the preoperational tests and establishing the calibration techniques for the high range accident monitors.

(Closed)(II.F.1(c)) High Range Containment Monitors. The inspector verified that two high range (10^{0}-10^{8} R/hr) monitors have been installed in containment 180 degrees apart and viewing large segments of the operating floor. A licensee representative stated that the monitors have been calibrated on each scale in their calibration facility and source checked in the field to insure reproducibility between the two locations. The inspector observed control room readouts for RM-26-40 and RM-26-41, reviewed operating/calibration procedures and had no further questions.

(Closed)(III.D.3.3) Improved Inplant Iodine Instrumentation. The inspector verified that the licensee possesses silver zeolite air sampling cartridges and portable single and multi channel analyzers for the preferential sampling and analysis of iodine inplant after an accident. A licensee representative stated that four General Atomic continuous air monitors with Harshaw NaI crystals with an Iodine window are available in Unit 2 (2 units for Health Physics and 2 units assigned to chemistry). Also available from Unit 1 are two Eberline PINGs and two NMC continuous air monitors with portable capability for iodine stripping. Furthermore, the licensee possesses four Ludlum 2218 portable air samplers with NaI crystals and iodine channels. The inspector had no further questions.

9. Unit 2 Filter Systems

The inspector reviewed the status of the HEPA/Charcoal filter systems preoperational tests with the cognizant startup engineer. The licensee is delaying HEPA and charcoal installation for their ESF filter systems until painting and general cleanup is completed in order to prevent accidental degradation of the filter media due to these contaminants. The inspector observed the DOP filter testing of the laundry room filter system and discussed the results and techniques with licensee representatives and their test consultant. The results of the test were satisfactory (greater than 99.97 precent efficient) and the methods and practices used by the test consultant appreared to conform with ANSI N-510 and accepted industry practices. The testing of the Unit 2 HEPA/charcoal filter systems will be reviewed during future inspection in conjunction with inspector followup item 82-75-02.

10. Unit 1 - Plant Tours

During this inspection the inspector toured various areas of Unit 1 which was in a refueling outage to observe radiological control, work practices, housekeeping, instrumentation, etc. These areas included the auxiliary building, portable radiation instrument calibration facility, dry waste storage building, and the containment building. The inspector viewed the contract protective clothing laundry trailers and observed the contract respirator decontamination and particulate filter recertification operations. The respirator decontamination unit utilized recirculated water through self-contained demineralizers and HEPA filtered air exhaust. The filter recertification unit utilized an ATI DOP unit. No violation or deviations were identified.

The inspector noted two craft RCA entrance/exit points constructed for the outage. There appeared to be adequate supplies of protective clothing and locker space for dress-out. A Health Physics technician observed workers frisking their whole bodies when personnel exit the RCA. The friskers in the yard area are shielded from outside tanks producing high background with 55 gallon drums filled with water. Personnel exiting from this point also pass through sensitive portal monitors shielded with lead. The inspector had no further comments or questions.

The inspector toured the Unit 1 containment building, discussed work practices with health physics technicians, and observed work being performed on the operating floor. The inspector noted many areas designated as low dose rate areas established so that workers who remain in the building for their entire shift in accordance with their employer's requests are not exposed to higher levels of radiation than necessary. The inspector stated that this appeared to be a good ALARA practice for the workers who must remain in the containment building for extended periods of time. The inspector discussed with a cognizant licensee representative some recent containment building evacuations. The inspector was informed that building evacuations were performed (and expected) because 1) an area radiation monitor setpoint was exceeded momentarily when lifting the incores to their storage location (this was anticipated, no personnel was unexpectedly exposed), and 2) a local alarm sounded when electricity was cut off to a breathing air filter cart (not a radiological reason).

The inspector reviewed records of respirator use in containment and MPC-hr logs. No worker was exposed to airborne radioactivity greater than the limits of 10 CFR 20.106. The highest exposed person received 39.56 MPC-hrs of Iodine in one seven day consecutive period. This worker was wearing an iodine cannister filtering device on his respirator and whole body counts did not indicate any internal uptake. The inspector observed many jobs in containment which required a respirator or supplied air for the workers cutting and grinding. However, the workers not intimately involved in cutting or grinding operations were usually not required to wear respiratory protective devices. No violations or deviations were identified. The inspector had no further questions.