

Enclosure:
Inspection Report Nos. 50-335/82-31
and 50-389/82-38

cc w/encl:
C. M. Wethy, Plant Manager
N. Weems, Assistant QA
Construction Manager
B. J. Escue, Plant Manager

bcc w/encl:
NRC Resident Inspector
Document Management Branch
State of Florida

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KLandis
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HCDance
9/22/82



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

September 22, 1982

Report No. 50-335/82-31 and 50-389/82-38

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

Facility Name: St. Lucie 1 and 2

Docket No. 50-335 and 50-389

License No. DPR-67 and CPPR-144

Inspection at St. Lucie site near Fort Pierce, Florida

Inspector: JR Collins 9/17/82
for: R. Wray Date Signed

Approved by: K. P. Barr 9/17/82
K. P. Barr, Section Chief Date Signed
Technical Inspection Branch
Division of Engineering and Technical Programs

SUMMARY

Inspection on August 30 - September 3, 1982

Areas Inspected

This routine, unannounced inspection involved thirty-six inspector-hours on site in the areas of radioactive liquid and gaseous effluents releases, reactor coolant chemistry, radioactive transportation activities, external exposure control program, internal exposure control program, licensee audits, and the ALARA program for Unit 1. Preoperational activities inspected for Unit 2 included installation of the liquid radwaste system, gaseous radwaste system, area radiation monitoring system, and procurement of portable radiation instruments and equipment.

Results

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

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *C. Wethy, Plant Manager
- *J. Barrow, Operations Superintendent
- *R. Parks, Assistant Project Manager
- *W. Windecker, Assistant Superintendent Planning and Scheduling
- H. Buchanan, Health Physics Supervisor
- *R. Frechette, Chemistry Supervisor
- *N. Weems, Superintendent - Quality Assurance
- *A. Bailey, Operations QA Supervisor
- *H. Mercer, Assistant Health Physics Supervisor
- *R. McCullers, Health Physics Operations Supervisor
- *S. Perle, Power Resources Specialist - General Office
- *R. Anderson, Operations QA Engineer
- *P. Bailey, Health Physics
- *H. Ruff, Quality Control
- *C. Miller, Quality Control
- *I. Garner, Start-up
- G. Green, Health Physics
- R. Cox, Chemistry
- J. Walls, QC Inspector

Other Organizations

- *G. E. Grace, Licensing Engineer - Ebasco

NRC Resident Inspector

- *S. Elrod, Senior Resident Inspector
- H. Bibb, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on September 2, 1982, with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Licensee Action on Previous Inspector Followup Items

(Closed) (335/80-06-06) Increasing the ratio of supervision to temporary employees. The inspector discussed the present outage organization with a licensee representative and reviewed the size of the health physics permanent staff. Two additional HP supervisory positions have been added to each shift for outage work to increase supervision of contract workers. This is up from one HP shift supervisor on each shift. The inspector had no further questions.

(Closed)(335/82-20-01) Two point calibrations on each scale. The inspector reviewed changes to procedures, work sheets, and completed calibration records and verified that the licensee is performing two point calibrations on instruments where appropriate as recommended by ANSI 323-1978. The inspector had no further questions or comments.

(Closed) (389/78-CI-03) Packaging greater than type A quantities of LSA materials for transport. The inspector verified that radwaste shipments from Unit 2 operations will be controlled from Unit 1 and that the personnel responsible for this program are knowledgeable of the contents of this circular. The inspector had no further questions.

(Closed) (389/80-CI-18) 10 CFR 50.59 Safety evaluations for changes to radioactive waste treatment systems. The inspector reviewed a memo dated August 31, 1982, stating that the appropriate organizations within Unit 2 had been notified of the concern of the circular. The circular was previously reviewed by Unit 1 personnel. The inspector had no further questions or comments.

6. Radioactive Liquid and Gaseous Effluents

- a. The inspector examined selected gaseous release records, gaseous waste logs and other licensee records for the period January - September 1982. Based on the records reviewed and discussions with licensee representatives, the inspector determined that the licensee is in compliance with Technical Specification 2.4.3 and 2.4.4, specifying noble gas and radioiodine release rates, maximum activity in decay tanks, discharged gaseous waste through the plant vent, sampling and analysis of radioactive material in gaseous waste. No items of non-compliance or deviations were identified.

The inspector noted that release permit 82-21 was not on file in the vault and stated that improvements should be made to ensure that appropriate discharge records are sent to document control.

- b. On August 31, the inspector examined the ventilation units on the upper level of the Auxiliary Building and noted the differential pressure readings across their filter banks as registered on local Magnehelic gauges were all in the acceptable range except for HUE-106 Reactor Auxiliary Building Main Exhaust prefilters. The gauge indication was offscale high (greater than 1.0 inch water). The inspector notified a

licensee representative and was informed that the maintenance department changes the prefilters in that unit monthly pursuant to PM-293. Records indicated that PM-293 was last performed on August 16. Further investigation revealed that PM-293 address the role-type filter medium upstream of the pre-filters which are monitored by the differential pressure gauge. After PM-293 was performed on September 2, the differential pressure remained higher than acceptable at 0.8 inches water.

The cognizant licensee representative stated that it was believed PM-293 addressed changeout of the prefilters and not the filter medium upstream of the prefilters. The inspector was informed that this communication discrepancy will be verified and the prefilters will be properly replaced. The HUE-10 filter system is not a Technical Specification system but the inspector stated that each exhaust system should be operated under optimum conditions. This will be reviewed during future inspections. (82-31-01)

- c. The inspector examined selected liquid release records for the period of January - December 1982. Based on examination of these records and discussions with licensee representatives, the inspector determined that the licensee is in compliance with Technical Specification, Section 2.4.1 and 2.4.2, requirements relating to release rates, sampling and analysis of liquid radwastes, specific release points, limits on activity contained in tanks and analysis for specific radio-nuclides. No items of noncompliance or deviations were identified.
- d. The inspector reviewed a major modification to the liquid radwaste system. The capacity is substantially being enlarged by the addition of two 40,000 gallon waste monitor tanks. Processed liquid wastes will be stored and sampled in these tanks prior to final discharge. Release of the liquid to the environment will be controlled by a radiation monitor. The inspector observed that the sample points for the monitor are upstream of the closure valve which secures the release on a high level signal from the monitor. The inspector asked the licensee to actuate the valve from a signal from the monitor. Although it appeared that the distance between the monitor and the valve was short compared to the closure time of the valve, the inspector determined that adequate administrative and engineering controls were present to ensure liquid releases to the unrestricted area did not exceed 10 CFR 20 Appendix B limits. The modification also added two ion exchanges and filters to improve processing capability. It appeared the modifications to the system would provide substantial improvements to the liquid radwaste system.
- e. The inspector verified from selected records of liquid and gaseous releases made during the period of January 1982 through August 1982 that records required by Technical Specification, Section 6.10.2 were maintained in terms of frequency and content.

The inspector reviewed the licensee's submittal dated August 27, 1982, entitled "Semi Annual Radioactive Effluent Release Report - January 1,

1982 through June 30, 1982." No anomalies were identified. The report met the requirements to Technical Specification 5.6.1. No violations or deviations were identified.

- f. Technical Specification 2.4.1.e requires the operability of each automatic isolation valve in the liquid radwaste discharge line be demonstrated quarterly. Technical Specification 2.4.2.f requires all liquid effluent radiation monitors be calibrated at least quarterly to a NBS traceable source, functionally tested monthly, and the instrument checked prior to making a release. Technical Specification 2.4.4.d states that all waste gas effluent monitors must be calibrated at least quarterly to an NBS traceable source, functionally tested at least monthly and the instrument checked at least daily. The inspector reviewed records and procedures for the calibration of liquid and gaseous effluent monitors and verified that the requirements of the Technical Specification were being met. The inspector noted that the required quarterly calibration of the Gaseous Waste Process Monitor (Chemistry Procedure C-65) dated May 14, 1982, was not on file in document control. The inspector stated that improvements in the system should be made to ensure that required documentation is sent to the vault. (See paragraph 6.a). Based on discussions with licensee representatives and a review of liquid waste discharge permit, the requirements of Technical Specification 2.4.1.e were verified. No violations or deviations were identified.

7. Reactor Coolant Chemistry

- a. Technical Specification Table 3.4-1 lists the maximum coolant concentration limits for dissolved oxygen, chloride and fluoride when the coolant temperature is above 250°F. Sampling frequencies are specified in Technical Specification Table 4.4-3. The inspector reviewed plant chemistry records for the period January 1982 through August 1982 and verified that the required tests were performed at the specified frequencies and that the results were within the appropriate limits. The inspector had no further questions.
- b. Technical Specification 3.4.8 specifies the limit for the specific activity of the reactor coolant system. Technical Specification Table 4.4-4 specifies the sampling frequencies for gross activity and determination. The inspector reviewed plant chemistry records for various periods during calendar year 1982 and verified that specified analyses were performed as required by the technical Specifications and that the results were within limits, where applicable.
- c. Technical Specification 3.4.8 specifies the limit for dose equivalent iodine-131 concentration in reactor coolant system. Technical Specification Table 4.4-4 specifies the minimum sampling frequency for isotopic analyses for Dose Equivalent I-131 concentration and I-131, I-133, and I-135. The inspector reviewed the plant chemistry records for the period January 1982 through August 1982 and verified that the required tests were performed at the specified frequency and that the

results were within limits. The inspector noted that during reactor scrams on May 5 and June 4, the dose equivalent iodine in the reactor coolant system exceeded one microcurie per gram. Records indicated that shortly afterward levels dropped to pre-scram concentrations. Licensee Event Reports (LER 82-17 and LER 82-20) were submitted to the NRC pursuant to Technical Specification requirements. A licensee representative stated that exceeding one microcurie per gram is a normal occurrence following scrams but RCS concentrations return to normal within hours. The cognizant licensee representative stated that other plants have similar histories. The inspector reviewed RCS data from other Combustion Engineering plants which showed that the St. Lucie Unit 1 facility has average fuel performance. At approximately 10:30 am on July 2, an unplanned scram occurred. At 1:45 pm dose equivalent iodine exceeded one microcurie per gram. By 5:15 am on July 3, the value had decreased to 0.86 microcurie per gram at 100% power. The inspector verified that RCS samples were taken and analyzed for dose equivalent iodine at the required frequency. A licensee representative stated that a LER will be initiated for this event in accordance with Technical Specification requirements. The inspector had no further questions.

8. Radioactive Transportation Activities

The inspector selectively reviewed radwaste shipping records for 1982. Nineteen waste shipments had been made as of this inspection. The records appeared to be complete. The inspector verified that copies of licenses were available on-site for licensees authorized to receive radioactive material. The inspector noted a laundry shipment of protective clothing was made to the utility's other nuclear facility and that the St. Lucie facility acted as transporter as well as shipper. A review of records revealed that the appropriate instructions and precautions were followed. No violations of NRC or DOT regulations were identified. The inspector reviewed Table 3 of the "Semi-Annual Radioactive Effluent Release Report dated August 27, 1982, and verified the data presented on solid waste shipments.

9. External Exposure Controls

The inspector reviewed official records of external exposures for calendar year 1982. All individuals issued a dosimetry device pursuant to 10 CFR 20.102(a) had received exposures less than the applicable limits of 10 CFR 20.101. The licensee uses self reading pocket dosimeters (PD) for daily exposure control and thermoluminescent dosimeters (TLD) for permanent records of external exposures. A licensee representative stated that for exposures greater than 500 mrem, discrepancies between TLD and PD results greater than 30 percent are investigated. The licensee utilizes an albedo TLD system for measuring neutron exposures. The albedo TLD results are considered the official neutron exposure record while daily control of neutron exposure is afforded by survey records and stay time calculations. The inspector examined neutron exposure data for 1982. In June, approximately thirty entries were made with variations of up to 150 percent between

calculated neutron exposures and albedo TLD results (generally TLD results were higher). In other months, as much as a factor of 2 or 3 was evident with the TLD results appearing lower. A licensee representative stated the neutron dose rates sometimes vary during the job or from different instruments or technicians and average dose rates are used to calculate neutron exposure. The inspector stated that since daily exposure is based on calculated neutron exposures, better correlation with albedo TLD should be experienced, and that improved investigations into the discrepancies should be performed. (82-31-02)

10. Internal Exposure Controls

The inspector discussed the internal exposure control program with a licensee representative, and reviewed the program as it pertained to 10 CFR 20.103, plant procedures, and good health physics practices. Health Physics procedures HP-35, "Bioassay Program", discusses the urinalyses and body count programs. Paragraph 8.3 states that if a whole body count (WBC) gives a result greater than 10 percent of a maximum permissible organ burden (MPOB), followup surveys will be performed to determine if the result is a valid indication of internal deposition. If the WBC result cannot be adequately determined to be external contamination, then it is recorded as an internal deposition. The inspector reviewed WBC results for 1982 and identified no internal deposition greater than 10 percent MPOB. Discussions with licensee representatives revealed that followup body counts are normally conducted at approximately 0.5 percent MPOB. The records reflect that this informal policy is routinely followed. The inspector, noted that while the whole body counter was inoperative, a urinalysis program was used in accordance with HP-35.

The whole body counter trailer is outside the restricted area. The inspector noted that when a positive WBC is obtained, the person showers in the trailer. The shower drains to the sewerage system which is sampled and monitored monthly by the Chemistry department for effluent records. However, the shower is not routinely surveyed for buildup of contamination. The inspector stated that this appeared to be a poor practice even though the potential levels of contamination indicated by WBC results appeared to be very low. The inspector accompanied by a licensee representative conducted a loose and fixed contamination survey of the shower stall and found no indication of radioactivity. The inspector stated that the WBC trailer shower should be routinely surveyed for potential contamination. (82-31-03)

The inspector selectively reviewed individual WBC results. In May, a worker received a WBC which indicated 10 percent Co-60 and no iodine. The worker showered and was recounted immediately. The second WBC indicated no Co-60 and 2.5 percent I-131. A licensee representative stated that calibration of the counter consisted of using a Cobalt and a Cesium source and establishing a calibration curve from the three energy peaks obtained. No special isotope is used for iodine calibration. The calibration of the WBC and the uncertainty of the I-131 levels will be examined during future inspections. (82-31-04)

11. Licensee Audits

The inspector discussed the audit and surveillance program related to radiation protection, radioactive waste management and transportation with licensee representatives. An inspector reviewed Quality Assurance Operations Audits performed within the past year in accordance with Technical Specification 6.5.2.8. Audits of the health physics program, chemistry program, ventilation and filtration units, Special Nuclear Material Manual, and environmental releases were included.

The inspector reviewed selected Quality Control surveillances in the areas of health physics activities, radioactive waste processing and shipments of radioactive waste to offsite burial facilities which were performed in 1981 and 1982.

The inspector evaluated the frequency, scope and followup action and had no further questions. No violations or deviations were identified.

12. ALARA Program

The inspector discussed the implementation of the ALARA program with licensee representatives and reviewed records of ALARA activities and ALARA Committee meetings. The program appears to be providing some positive results in the area of exposure control and documentation, contamination control, and training. The licensee has modified the RWP system to better keep track of individual exposures on extended RWPs. The sign in forms are reviewed daily by the ALARA technician who ensures proper documentation and follows man-rem expenditures. Reviews are being made of specific locations and jobs in preparation for the refueling outage to begin next year. Shielding has been added in some areas resulting in dose rate reductions in some areas of nearly a factor of ten. Equipment has been ordered to reduce stay times in certain areas. State-of-the-art walk through portal monitors have been installed at the exit of the radiation control area and at each plant exit. Records indicate that the addition of the portal monitors, used with RM-14 friskers, has improved the licensee's contamination control program.

13. Installation of Liquid Radioactive Waste System-Unit 2

- a. FSAR Section 11.2 describes the liquid radioactive waste processing system, including design objectives, and system design and operation. FSAR Table 11.2-5 lists the design parameters of the major components in the liquid waste processing system.
- b. The inspector toured the Unit 2 auxiliary and containment buildings and observed that most major components of the liquid radwaste system were installed in accordance with FSAR Section 11.2 and that piping and electrical installation was progressing.
- c. The inspector compared nameplate data of equipment with the design parameters listed in FSAR Table 11.2-5 making estimates of tank capa-

cities where necessary. The inspector noted, however, that the Liquid Waste Concentrator Bottoms Storage Tank and Pump were not installed. This equipment was discussed in Question Number 401.1(11.2) in the FSAR and has been the source of further correspondence between NRR and the licensee. The inspector stated that the resolution of the installation of the Liquid Waste Concentrator Bottoms Storage Tank will be followed closely. The inspector had no questions on the installation of the remainder of the Liquid Waste Processing System.

14. Installation of Gaseous Radioactive Waste System-Unit 2

- a. FSAR Section 11.3 describes the gaseous radioactive waste processing system, including design objectives, and system design and operation. FSAR Table 11.3-3 lists the design parameters of the components in the gaseous waste processing system.
- b. An inspector toured the gaseous radioactive waste system with a licensee representative and observed the major components installed in the system. The inspector compared nameplate data of equipment with the design parameters listed in FSAR Table 11.3-3 making components capacity estimates where necessary. The inspector had no questions on the installation of the system.

15. Installation of Area Radiation Monitoring System - Unit 2

The area Radiation Monitoring System is described in FSAR Section 12.3.4.1.3. Table 12.3-2 lists the areas where the gamma monitors are located and the instrument ranges, sensitivities, and alarm setpoints. The inspector toured the facility with a licensee representative to determine the status of the area detector and microprocessor installations. Of the 41 microprocessor units listed in Table 12.3-2, three were not installed. These units were in the Refueling Canal Area, HUAC Room Area, and the Boric Acid Concentrator Area. The inspector also noted that 23 of the 41 radiation detectors were not installed. A licensee representative stated that some of the detectors will not be installed until after construction work in the area is completed so as not to physically damage the instrument. The inspector stated that full installation of the Area Radiation Monitoring System will be examined during future inspection. (389/82-38-01)

16. Portable Radiation Detection Equipment - Unit 2

The inspector reviewed with a licensee representative the present and ordered inventory of portable radiation detection equipment. Section 12.5.2 of the FSAR describes the equipment instrumentation and facilities necessary to implement the radiation protection program. Table 12.5-2 lists the portable instruments used for radiation monitoring. The inspector observed that most of the monitoring instruments listed in Table 12.5-2 are in storage and are being calibrated. A licensee representative stated that there is an error in Table 12.5-2 regarding the quantities of High Range (10r/hr to 20,000 r/hr) Ion Chambers (Eberline R0-7) and Beta Air Monitors

(Eberline AMS-3). They have ordered six RO-7 and two AMS-3 rather than two of the former and four of the latter as listed. The inspector noted that although on order, eleven instruments have not arrived including six neutron remmeters, one alpha monitor, and four 3-stage airborne monitors. Final acquisition of these instruments will be verified during future inspection. (389/82-38-02)