



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

Report Nos. 50-250/81-31 and 50-251/81-31

Licensee: Florida Power and Light Company
 9250 West Flagler Street
 Miami, FL 33152

Facility Name: Turkey Point 1 and 2

Docket Nos. 50-250 and 50-251

License Nos. DPR-31 and DPR-41

Inspection at Turkey Point site near Homestead, Florida

Inspector: H.C. Dance for
 S. A. Elrod

1/8/82
 Date Signed

Approved by: H.C. Dance
 H. C. Dance, Section Chief, Division of
 Resident and Reactor Project Inspection

1/8/82
 Date Signed

SUMMARY

Inspection on December 1-3, 1981

Areas Inspected

This special unannounced inspection involved 20 inspector-hours onsite in the area of exceeding technical specification pressure limits during cold shutdown conditions.

Results

Of the one area inspected, two apparent violations were found. (Inadequate procedures for alignment of instrumentation root valves prior to filling the reactor coolant system - paragraph 5.f., failure to conduct adequate surveillance of the overpressure mitigating system - paragraph 5.f.).

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DETAILS

1. Persons Contacted

Licensee Employees

H. Yeager, Site Manager
J. Hays, Nuclear Plant Manager
C. Baker, Acting Operations Superintendent
V. Wager, Operations Supervisor
J. Labarraque, Technical Staff Supervisor
J. Kappas, Instrumentation and Controls Supervisor
L. Huenniger, Nuclear Plant Supervisor
D. Jones, Quality Control Supervisor
E. Hayes, Instrumentation and Control Technician

Other licensee employees contacted included technicians, operators, and office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on December 3, 1981, with those persons indicated in paragraph 1 above. The Nuclear Plant Manager acknowledged the two violations discussed in paragraph 5.f. He agreed to resolve the item discussed in paragraph 6 and to communicate that resolution to the Senior Resident Inspector. He also agreed to develop a method of identifying on each record, such as clearances, that are corrected after completion because of Quality Control or other reviews.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. New unresolved items identified during this inspection are discussed in paragraph 6.

5. Reactor Pressure Excursions Above Allowed Limits

a. The inspector inquired into the circumstances concerning two Unit 4 reactor system pressure excursions above technical specification limits that occurred on November 28 and 29, 1981. This inquiry included interviews, review of the Nuclear Plant Supervisor and reactor control operator logs, review of operating procedures, review of interval notes made following these pressure excursions, review of certain instrument



calibrations affecting the overpressure mitigating system and review of plant drawings used by the operations staff.

Procedures reviewed included: operating procedure 1001.1 dated October 30, 1980 - Filling and Venting the Reactor Coolant System; operating procedure 0202.1 dated August 20, 1981 - Reactor Startup - Cold Condition to Hot Shutdown Conditions; and operating procedure 0202.1 dated August 20, 1981 - Reactor Startup - Cold Condition to Hot Shutdown Conditions; and operating Procedure 1004.4 dated May 7, 1981 - Overpressure Mitigating System Functional Test of Nitrogen Backup system.

Though some preliminary information concerning the sequence of events was available, the licensee had not yet completed a rigorous internal investigation. Some persons involved were not available for interview during the time of this inspection. Though several factors which contributed directly to the result were identified, the inspector was unable to identify the initiating events with any certainty.

- b. The plant operators were performing OP 0202.1 - Reactor Startup - Cold Condition to Hot Shutdown Conditions. The Reactor Coolant System (RCS) had been filled solid. The let down path was via the Residual Heat Removal (RHR) system suction valves MOV-4-750 and 751, which close at 465 psig to protect the RHR pump suction lines. The RHR system was cross-connected to the letdown portion of the Chemical and Volume Control System (CVCS) downstream of the RHR heat exchangers at valve HCV-4-142. Letdown flow control to the volume control tank and consequently, RCS pressure was controlled by pressure control valve PCV-4-145 in the letdown portion of the CVCS. One charging pump was in operation providing both makeup into the RCS and Reactor Coolant Pump seal injection flow. RCS Temperature was about 110°F and pressure about 340 psig.
- c. With the plant alignment described above, any flow blockage in the letdown path would cause an immediate increase in RCS pressure because the charging pump would be charging into a solid system. Designated mitigating devices include an alarm at 400 psig warning of impending overpressure mitigating system (OMS) protective action and two independent OMS channels designed to both alarm and operate at 415 psig (at low temperature) and prevent an unacceptable pressure excursion.
- d. The following conditions were identified which could contribute to pressure excursions.

The primary OMS valve (PORV) train was known to be inoperable, with the PORV block valve shut. Maintenance was being conducted on the high pressure controls for the PORV. Apparently unknown at the time, a blown fuse in the OMS comparator output rendered inoperable the alarm that signals demand for primary OMS protective action at 415 psig.



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Unknown at the time of the first pressure excursion, the backup OMS train pressure transmitter PT-4-405, root isolation valve was found shut but was reported to "leak through". This condition would at least preclude response to a rapid pressure change - rendering the backup OMS also inoperable.

- No procedure was found that aligns RCS instrumentation root valves prior to RCS fill.

- The backup OMS temperature summator, which generates the "pressure set point", which loop pressure is compared with to generate the OMS actuation signal, had failed high - about 2335 psig - also rendering the backup OMS inoperable. This condition was unknown because of an inadequate surveillance procedure used to satisfy technical specification 4.26-1 and 4. The procedure is OP 1004.4 - Overpressure Mitigating System Functional Test of Nitrogen backup System dated - May 7, 1981. This procedure did not test the summator.

- When unisolated, PT-4-405 (backup OMS input) was reading about 110 psig higher than actual RCS pressure. This was determined from past event testing. The transmitter had been relocated and the sensing line had been hydrostatically tested. This transmitter also controls RHR suction line isolation valve MOV-4-751 which isolates at 465 psig, thereby isolating letdown when in this plant alignment.

- Pressure Transmitter PT-4-401 does not actuate the OMS, but provides at 400 psig an alarm called "OMS High Pressure Alert" to warn of impending OMS protection action. PT-4-402 had not been aligned after maintenance, though the alarm bistable setpoint had been checked. The accuracy of this signal loop was therefore suspect. Operations personnel indicated that this alarm had not functioned.

- Operations personnel indicated that the control action of PCV-4-145, which was controlling RCS pressure, was thought to be erratic. This could initiate a pressure excursion. The hand-auto controller was replaced after the pressure excursions and subsequent control action appeared smooth, however erratic behavior of the removed hand-auto controller could not be demonstrated during shop tests after replacement. The other components in this control system, including PCV-4-145, had not been investigated for erratic action as of the conclusion of this inspection.

e. Resultant Pressure Transients

- At 1053 pm on November 28, the operator observed RCS pressure increasing above 500 psig, attempted to control pressure with PCV-4-145, noticed that MOV-4-750 had shut due to the pressure interlock (465 psig), stopped 4B RCP, de-energized pressurizer heaters,



and opened PORV-4-455C manually. Pressure peaked at 1100 psig. The overpressure condition lasted about two minutes. MOV-4-751 did not shut apparently due to the pressure transmitter root valve being isolated.

At 12:55 a.m. on November 29 apparently after PT-4-405 was unisolated, a second excursion to 750 psig occurred. This time both MOV-4-750 and MOV-4-751 closed. Since PT-4-405 was indicating 110 psig higher than other detectors, MOV-4-751 shutting at about 355 psig actual RCS pressure could have been the initiating event in this case. Final determination is yet to be made.

- f. The inspector identified two apparent violations of technical specifications in this area.

-Failure to include in procedures the alignment of instrumentation root valves appears to violate Technical Specification 6.8.1 which requires that written procedures be established, implemented and maintained that meet or exceed the requirements of sections 5.1 and 5.3 of ANSI N18.7-1972 and Appendix "A" of USNRC Regulatory Guide 1.33, (Violation 250/81-31-01, 251/81-31-01).

-Deficient test procedure resulted in the failure to conduct an adequate functional test of the overpressure mitigating system. Technical specification 4.16 requires such testing. The test performed did not meet the definition of functional test. The OMS summator was not included in the test. (Violation 250/81-31-02, 251/81-31-02).

6. Documentation of Reactor Coolant Pressure

During post inspection review of the Safety Evaluation for operating license amendments 55 for license DPR-31 and 47 for license DPR-41, the inspector encountered a requirement for "pressure and temperature instrumentation to provide a permanent record of the transient" and some requirements affecting the type of recorders to be used. During the inspection, the inspector had sought to determine if such records existed and understood that they did not. This matter is unresolved pending determination by the licensee and resident inspector whether or not such records actually exist. (250/81-31-03, 251/81-31-03).

7. Quality Control Review of Documents Prior to Storage

During the course of this inspection, the inspector observed Quality Control personnel obtaining corrections to completed equipment clearance forms prior to permanent storage in the QC Records Vault. The corrections would have added stamps indicating that the equipment was safety-related or had independent verification of actions performed, etc. Since this correction would modify a record to show considerations not actually made at the time, the inspector requested the licensee explain.



The licensee had recently initiated this program in good faith to respond to a NRC Notice of Violation concerning lack of corrective action for improperly executed clearances, etc. The intent was to improve plant staff performance through education and feedback of errors. The licensee stated that nonconformance reports did exist documenting corrected documents, but that a technique of also marking corrected documents themselves would be developed. This was discussed with NRC Region II management and found to be an acceptable course of action. This item will be followed up by the resident inspector. (IFI 250, 251/81-31-04).



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