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

Report Nos. 50-250/81-02 and 50-251/81-02

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

Facility Name: Turkey Point

Docket Nos. 50-250 and 50-251

License Nos. DPR-31 and DPR-41

Inspection at Turkey Point site near Homestead, Florida

Inspectors: MB Shymlock for — 3/16/81
A. J. Ignatonis — Date Signed

MB Shymlock for — 3/16/81
W. C. Marsh — Date Signed

Approved by: Paul Kellogg for — 3/16/81
H. Dance, Chief, RPS 2C, RRP1 Branch — Date Signed

SUMMARY

Inspection on January 1-28, 1981

Areas Inspected

This routine inspection involved 120 resident inspector-hours on site in the areas of (1) followup on previous inspection findings; (2) followup on licensee event reports; (3) surveillance test observations; (4) inspection applied to IE Bulletin 80-24 and followup on licensee's response to IE Bulletin 79-21; (5) review of Emergency Procedures for adequacy in dealing with an ATWS event; (6) followup of implementation of post-TMI requirements in accordance with NUREG-0737; (7) plant operations; and (8) plant tours.

Results

Of the eight areas inspected, no apparent violations or deviations were identified in six areas; one apparent violations was found in one area (Violation - inadequate procedures which caused inadvertent safety injection system actuation - paragraph 10; one deviation was found in one area (Deviation - failure to perform surveillance test on control switches within the commited time interval in response to IE Bulletin 80-20 -paragraph 3).

DETAILS

1. Persons Contacted

Licensee Employees

*H. E. Yaeger, Site Manager
*J. K. Hays, Plant Manager - Nuclear
J. E. Moore, Operations Superintendent - Nuclear
V. B. Wager, Operations Supervisor
D. W. Haase, Technical Department Supervisor
J. Wade, Chemistry Supervisor
P. W. Hughes, Health Physics Supervisor
J. P. Mendietta, Maintenance Superintendent
J. Lowman, I&C Department Supervisor
R. E. Garrett, Plant Security Supervisor
W. R. Williams, Assistant Superintendent Electric Maintenance
*D. W. Jones, QC Supervisor

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

NRC Resident Inspectors

*A. J. Ignatonis

*W. C. Marsh

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on February 9, 1981 with those persons indicated in Paragraph 1 above. The site and plant managers acknowledge the stated violation and deviation.

3. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item 50-251/80-34-01, Failure to perform timely inspection of type W-2 Spring return Switches in response to IEB 80-20. Based on further review and discussions with the regional office inspection personnel, this Unresolved Item has been changed to a Deviation. The licensee missed their own commitment date in performing continuity testing on the safety related control switches of Unit 4 in response to Item 2 of IEB 80-20. The licensee had committed to perform quarterly inspections (every 92 days) on the subject control switches, contrary to the NRC requirement of every 31 days after the initial test and after each manipulation of the switch per Item 2 of IEB 80-20. More than ninety-two days elapsed before a continuity test was repeated on the control switch for Unit 4. This constitutes a deviation from a commitment made to the NRC. Per recent discussion with the licensee Assistant Superintendent of Electrical

Maintenance, the inspector has been informed that the continuity tests on the control switches have been repeated on both Units 3 and 4 on January 7, 1981. The licensee is preparing a supplemental response to this bulletin to address a more frequent surveillance.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. New Unresolved Items

No new unresolved items were identified during this inspection period.

6. Licensee Event Report (LER) Followup

During this inspection the following Licensee Event Reports were reviewed to assure the accuracy and completeness of the report, that regulatory requirements had been met, and that appropriate corrective actions were being taken. The LER's listed below were reviewed with comments as appropriate.

250-80-28 Heater Drain Pump Breaker Malfunction

250-80-26 "4B" 125 VDC Battery Out of Service for greater than 24 hours

250-80-24 Feedwater Flow Control Valve Failures

In reviewing the licensee corrective actions taken for the 3B Heater Drain Pump breaker malfunction report, the inspector noted that the rerouted circuit wiring and conduit from the electrical box near the Heater Drain Pumps provides only a short-term fix. Per discussions with the Electrical Department Supervisor the circuit wiring appeared to have shorted out at an electrical junction block inside the electrical box. Further investigation revealed another short circuit in the wiring somewhere between the electrical box and the 4160 Volt breaker 3AB10. This circuit wiring has been disconnected and no longer used. The apparent cause of the shorting out of the circuit, possibly at both places, was due to steam entering the electrical box generated from a leaking seal on the 3B Heater Drain Pump. The electrical supervisor has stated that a work order will be written to seal the electrical boxes affecting both Units 3 and 4. The LER 250-80-28 will remain open pending implementation of corrective actions and an follow-up inspection.

The review of LER number 250-80-24, pertaining to the Unit 3 Feedwater Flow Control valve failures and the rupture of the two inch non-safety related bypass line was initiated during this inspection reporting period. The inspector expects to complete the evaluation and report in a subsequent inspection report.

7. Surveillance Test Observations

Portions of the containment Integrated Leak Rate Testing (ILRT) and low power core physics testing on Unit 4 were observed by the inspector. The inspector ascertained that the licensee activities were conducted in accordance with the license requirements. No violations or deviations were identified within the areas inspected.

On January 4, 1981 the inspector witnessed in its entirety the annual engineered safeguards initiation test performed on Unit 4 per O.P. 4104.2, "Engineered Safeguards and Emergency Power Systems -Integrated Test". Attention was given to the following aspects of of the surveillance test:

a. Review of the surveillance procedure for conformance to technical specification requirements and proper licensee review.

b. Verification that test instrumentation was calibrated.

c. Observation of the removal of the system from service.

d. Observation of the conduct of the surveillance test.

e. Observation of the restoration of the system to service.

f. Review of the test data for accuracy and completeness. Independent calculation of selected test results data to verify its accuracy.

g. Confirmation that surveillance test documentation was reviewed and test discrepancies are rectified.

h. Verification that test results technical specification requirements.

i. Verification that testing was done by qualified personnel.

j. Verification that surveillance schedule for this test was met.

No violations or deviations were identified for the areas inspected above.

8. Inspection Followup on IE Bulletins

The inspector reviewed licensee actions in response to IE Bulletin 80-24, Prevention of Damage Due to water Leakage inside Containment and IE Bulletin 79-21, Temperature Effects on Level Instruments.

With regard to IE Bulletin 80-24, the inspector complied and submitted information per TI 2515 on the leakage history of all systems and components inside the containment. Neither Unit 3 or 4 have open systems inside containment, hence, tabulated information is related to only the closed systems. The inspection on the IE Bulletin was performed in accordance with IE Procedures.

The inspector reviewed the licensee responses to IE Bulletin 79-21 dated September 18, 1979. During discussions with the licensee Technical Department personnel the inspector has determined that there is no margin of safety in the established low-low steam generator level trip setpoint for safety injections and auxiliary feedwater initiation. This is the NRR required event of a 3% minimum level reference to be used for all NTOL applications prior to adding allowance for all other errors such as transmitter error, channel draft, and reference leg heatup errors. The plant safety analyses require that the trip be actuated when the actual water level is at or above 0% of span. Both Turkey Point Units 3 and 4 have operating level trip setpoints at 15% of span.

9. Review of Licensee Emergency Procedures for Provisions to Adequately Dealing with an ATWS Events

The following licensee procedures were reviewed against the inspection and acceptance criteria to determine if procedures address and direct operator action in case of anticipated transient without a scram (ATWS).

- Emergency Procedure 20000, Immediate actions and Diagnostics.*
- Emergency Procedure 20006, Loss of Normal feed water flow or steam generator level.
- Operating Procedure 0103.2, Duties and Responsibilities of Operators on shift and maintenance of operating logs and Records.
- Off-Normal Operating Procedure 1008.3, Loss of Reactor Coolant Flow.
- Off-Normal Operating Procedure 1608.1, Full Length RCC -Malfunction.
- Off-Normal Operating Procedure 0208.1, Shutdown Resulting from reactor trip or turbine trip.
- Off-Normal Operating Procedure 2608.1, Chemical and Volume Control System Emergency Boration.

(*Note: EP 20000 covers immediate action for spurious safety injection, Loss of Reactor Coolant, Loss of Secondary Coolant, and Steam Generator Tube Rupture.)

The Inspection criteria were addressed in the above procedures as follows:

a. Failure to scram when required - EP 20000, EP 20006, O/N OP 1008.3, and O/N OP 0208.1 Directs the operator to manually scram if automatic initiation should have occurred but did not. O/N 1608.1 refers the operator to O/N OP 0208.1 for action if the reactor has tripped.

b. Failure to complete scram when initiated automatically or manually - O/N OP 2608.1 requires emergency boration to be commenced and maintained for at least 5 minutes in the event that more than one rod control cluster (RCC) fails to fully insert on a trip. The other

procedures under discussion are not consistent in requiring a verification that all rods are fully inserted after a trip. O/N OP 0208.1 and EP 20006 do require the verification; EP 20000 and O/N OP 1008.3 do not.

c. Inability to Move or Drive Control Rods - O/N OP 1608.1 Addresses inability to move rods or to control rod motion. It does not address failure of rods to fully insert on a trip.

d. Failure to Automatically Scram When A Parameter Exceeds Its Trip Value - EP 20000, EP 20006, O/N OP 0208.1, and O/N OP 1008.3 require the reactor to be manually tripped if a condition demanding automatic trip exists and it has not occurred. O/N OP 1608.1 requires Manual trip if the Unit cannot be maintained within allowed operating parameters or if manual rod control is ineffective.

e. Criteria for Use of Standby Liquid Control System or Emergency Boration System - O/N OP 2608.1 requires initiation of emergency boration upon loss of shutdown margin, uncontrolled cooldown following a trip, unexplained or uncontrolled reactivity increase, or two or more rod position indicators showing rods not fully inserted after a reactor trip.

f Reactor Trip or Scram - EP 20000, EP 20006, O/N OP 1008.3, O/N OP 0208.1 and O/N OP 2608.1 address reactor trips as discusses in the first five items of above O/N OP 0208.1 provides direction to the operator for placing the plant in a stable condition following a trip.

g. Anticipated Transient Without Scram - ATWS as an entity is not covered by licensee procedures.

The inspector determined that the licensee's written procedures do not direct operator actions in an ATWS circumstance beyond depressing the manual scram button in the event an automatic scram failed to actuate when required and then emergency borating when the manual scram was incomplete or ineffective. Discussions with the plant manager, assistant operations superintendent, training department supervisor, two nuclear watch supervisors, and two other licensed operators indicated that the licensee training program does cover actions to be taken subsequent to manual scram should that also be ineffective. At least some of the recent simulator training sessions included such ATWS senarios. All licensed personnel interviewed knew how to deenergize the CRDM's from other locations should the control board manual scram buttom fail to work (additional scram button on vertical panel B, local trip of scram breakers, CRDM motor generator breakers, and CRDM motor generator load center supply breakers). OP 0103.2 sections 5.1.1, 5.2.4, and 5.3.2 give the nuclear watch supervisor, watch engineer, and nuclear control center operators (in that order) the authority and responsibility to "Shutdown one or both Units and take any other action necessary to ensure the units are in a safe condition." This blanket authority includes initiation of emergency boration as detailed in O/N OP 2608.1 and discussed in paragraph item 5 of above.

10. Followup on Post-TMI Requirements Implementation (NUREG-0737)

The inspector reviewed the licensee's implementation of Post-TMI requirements described in Enclosure 1 of the NUREG-0737 document. Specifically, the following clarification items of the subject document enclosure were verified to be implemented except as noted.

(a) I.A.1.1, Shift Technical Advisor, items 1 through 4.

(b) I.A.1.3, Shift Manning, item 1.

(c) I.A.2.1, Immediate Upgrading of RO&SRO Training and Qualifications, item 4.

(d) I.C.5, Feedback of Operating Experience, an item for the licensee to implement procedures.

(e) I.C.6, Verify Correct Performance of Operating Activities, an item to revise performance procedures.

(f) II.E.4.2, Containment Isolation Dependability, items 5.a and 6.

(g) II.K.3, Final Recommendations, B&O Task Force, item 9.

(h) III.D.3.3, Inplant Radiation Monitoring, items 1 and 2.

For items (e) and (f) (item 5a) of above the licensee did not meet the implementation date schedule. The new schedule completion for these items are March 1, 1981 and July 1, 1981, respectively. Item (g) does not apply to Turkey Point Units 3 and 4 because they do not have proportional integral deviation (PID) controllers in the primary system. The inspectors will followup on items with new implementation dates. No further questions were asked.

11. Plant Operations

The inspector kept informed on a daily basis of the overall plant status and any significant safety matters related to plant operations. Discussions were held with plant management and various members of the operations staff on a regular basis. Selected portions of daily operating logs and operating data sheets were reviewed on at least a weekly basis during the report period.

The inspector conducted various plant tours and made frequent visits to the control room. Observations included witnessing work activities in progress, status of operating and standby safety systems, confirming valve positions, instrument readings and recordings, annunicator alarms, housekeeping, radiation area controls, and vital area controls.

Informal discussions were held with operators and other personnel on work activities in progress and status of safety-related equipment or systems.

During the refueling outage maintenance for unit 4, two separate inadvertent Engineered Safety Features (ESF) actuations occurred on January 3 and January 6, 1981. These two inadvertent actuations resulted from maintenance on safety-related equipment using inadequate procedures which resulted from the failure to follow administrative procedure AP0190.19, Control of Maintenance on Nuclear Safety-Related Systems.

The Licensee Administrative Procedure AP0 190.19 control of Maintenance on Nuclear Safety Related Systems requires in paragraph 8.1 that:

1. A decision by supervision be made as to whether or not a maintenance procedure is required for the work under consideration, and if not,

2. The plant work order (PWO) be sufficiently detailed to accomplish the work safely, and

3. Any required maintenance procedures be listed on the PWO.

In paragraph 8.4, the procedure requires adequate consideration of concurrent or sequential maintenance, testing, or operating activities.

On January 3, 1981 maintenance personnel were working under PWO 7922 on Unit 4 Feedwater Regulating Valves. The repairs had been completed and it was desired to stroke the valves over their full travel to verify proper operation. The plant was in a cold, refueling, shutdown condition. Work on a partially completed surveillance on steam flow had been suspended for several days with two steam flow channels left in a tripped (high flow) condition. The existing conditions of the shutdown (Reactor trip with low TAVG) had made up the necessary inputs to the protective system to generator feedwater isolation signals which prevented stroking the valves. To clear the feedwater isolation signals, the maintenance personnel inserted a test signal into the TAVG circuitry greater than the TAVG setpoint. That action accomplished the desired result of clearing the feedwater isolation signals but also unblocked ESF actuation so that when the test signal was removed, the true, low TAVG signal in conjunction with the two high steam flow signals completed the required inputs to the protective system to initiate ESF actuation.

PWO 7922 was inadequate in that:

1. Proper consideration of the safety consequences of concurrent maintenance and actual operating conditions was not included, and

2. The PWO did not include written steps which authorized the insertion of test signals to override the existing protective system output. Failure to include such steps prevented meaningful review of the consequences of that action by supervisory personnel as required by AP 0190.19.

On January 6, 1981 maintenance personnel working under PWO 8927 on Unit 4 steam dump valves obtained a clearance to electrically deenergize the valve

control circuits by removing the power supply fuses F-3, and F-4 to Safeguards Panels 4QR43 and 45. The plant was in a cold, refueling shutdown condition. Work was still suspended on the steam flow surveillance and two channels were still in a tripped (high flow) condition. Removing F-3 and F-4 failed to deenergize that portion of the valve control circuit desired; however, removing F-3 and F-4 had the effect of deenergizing the ESF block "seal-in" relay. This relay energizes and seals in the ESF block signal so that the signal is maintained after the block switch is allowed to return to its neutral position. When F-3 and F-4 were subsequently reinstalled, the operations personnel failed to observe requirements of off-normal operating procedure 4008.1, Re-energizing Safeguard Racks After Loss of Single Power Supply. This would have provided for establishing the ESF block signal as the racks were re-energized and prevented the inadvertent ESF actuation which occurred. The ESF resulted because the relays in 4QR43 and 45 which energize to cause operation of ESF equipment (when the required protection signals are prevent) were energized without the presence of the block signal and in conjunction with the two high steam flow signals and existing low TAVG.

PWO 8927 was inadequate in that (1) it did not properly consider the safety consequences of concurrent maintenance and actual operating conditions, and (2) it did not call out the provisions of off-normal operating procedure 4008.1 for re-energizing the safeguards racks.

Both of the inadvertant ESF actuations were involved with the partial completion of Maintenance procedure 14007.16 Steam Generator Level, Feedwater Flow and Steam Flow Instrumentation Calibration such that the two steam flow channels were left in a tripped (high flow) condition. This action is allowed by the procedure in that the precautions of paragraphs 4.3 and 4.4 which require testing of only one channel at a time with all other channels untripped are not required by the note immediately following paragraph 4.2 when the plant is in a refueling shutdown. The licensee should consider modifying MP 14007.16 and other similiar procedures to require circuit conditions to be returned to normal if work is suspended prior to completion to reduce the likelyhood of future unnecessary challenges to safety systems. The licensee should also consider modifying AP0190.19 to recognize that procedures other than maintenance procedures may be required to be followed in accomplishing maintenance under a Plant Work Order to preclude unnecessary challenges to safety systems.

PWO 7922 and PWO 8927 are two examples of inadequate procedures which constitute a single apparent violation of Techincal Specification 6.8 procedures (251/81-02-01).