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Report Nos.: 50-250/94-06 and 50-251/94-06

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: March 28, 1994 through April 1, 1994

Inspector: McKenzie Thomas 4-25-94
 M. Thomas Date Signed

Accompanying Inspector: G. Wiseman

Approved by: C. Casto 4/26/94
 C. Casto, Chief Date Signed
 Test Programs Section
 Engineering Branch
 Division of Reactor Safety

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of design changes and plant modifications, and engineering and technical support activities.

Results:

In the areas inspected, violations or deviations were not identified.

- The plant changes or modifications (PC/M) packages reviewed were technically adequate with sufficiently detailed 50.59 safety evaluations. This included both major and minor modifications. Adequate post modification test requirements were specified.
- Two examples of weaknesses in the implementation of PC/Ms were identified: One example involved PC/M 93-168 (which modified feedwater heater 6A and 6B thermal relief valves), where the total equipment data base and an instrument setpoint drawing were not updated properly to

reflect the as-built plant condition. The other example involved PC/M 88-315, (which modified the component cooling water heat exchanger) where the updated vendor technical manual was not transmitted to Site Document Control.

- The licensee had implemented an effective process for prioritizing and scheduling plant modifications important to reactor safety. This process was one of the primary contributors to the successful PC/M backlog reduction efforts.
- Drawing changes associated with the PC/Ms reviewed were clear and legible. However, one example related to the feedwater heater thermal relief valve modification (PC/M 93-168 discussed above) did not accurately reflect the as-built plant condition.
- The control of temporary modifications was effective. This was evident in the low number of temporary modifications and in the level of management review.
- Management initiatives were addressing the area of backlog reduction. Considerable effort had been expended to reduce the backlog of PC/Ms. This effort has had a positive impact on the overall configuration control process (e.g., completion of partially implemented PC/Ms and cancellation of some older PC/Ms that were considered unnecessary).
- Documented justifications for some of the previously canceled PC/Ms lacked sufficient technical detail. However, the appropriate personnel (i.e., PC/M sponsor and the applicable system engineer/component specialist) were included in the review process and concurred in the cancellations.
- Organization and staffing levels for Engineering appeared to be adequate to perform the assigned duties and responsibilities.



REPORT DETAILS

1.0 Persons Contacted

Licensee Employees

C. Bible, Site Manager, Engineering
S. Brain, Project Engineer, Production Engineering Group
B. Dunn, Lead Mechanical Engineer, Engineering
K. Frehafer, Licensing Engineer, Engineering
*J. King, Licensing Engineer, Engineering
*J. Knorr, Licensing Specialist
*R. Kundalkar, Engineering Manager
*M. Laca, Supervisor, Plant Change Control
V. Laudato, Fire Protection Supervisor
*J. Luke, Manager, Production Engineering Group
*L. Pearce, Plant General Manager
*T. Plunkett, Site Vice President
*D. Powell, Manager, Technical Department
J. Reed, Supervisor, Document Control
I. Rioseco, Configuration Supervisor
*R. Rose, Nuclear Materials Manager
E. Thompson, Project Engineer, Engineering
*M. Wayland, Maintenance Manager
*E. Weinkam, Licensing Manager

Other licensee employees contacted during this inspection included engineers, operators, technicians, and administrative personnel.

Other NRC Employees

*B. Desai, Resident Inspector
T. Johnson, Senior Resident Inspector

*Attended exit meeting

2. Design Changes and Plant Modifications (37700)

a. Plant Modifications to Improve Reactor Safety

The inspectors reviewed the licensee's initiatives taken to identify and implement plant modifications to improve reactor safety and plant operation. Documentation reviewed during this effort included:

- Procedure O-ADM-510, Requests for Engineering Assistance (REA), December 18, 1993
- Top 20 Prioritized Plant Mods List, Unit 3, Cycle 14, March 25, 1994
- Top 30 Prioritized Plant Mods List, March 25, 1994



- Top 20 Prioritized Plant Mods List, Unit 4, Cycle 15, March 25, 1994
- List of Minor PC/Ms to be Worked During Unit 3, Cycle 14, March 17, 1994
- List of Minor PC/Ms to be Worked During Unit 4, Cycle 15, February 28, 1994
- Real Time Engineering 20 List per procedure 0-ADM-510, March 16, 1994

The inspectors determined that responsibility had been assigned to the Plant Change Control Supervisor for maintaining a list of prioritized plant modifications. The process used to prioritize plant modifications was described in procedure 0-ADM-510. This process consisted of performing an operability review by the system engineer and assignment of a prioritization number by the Plant Change Control Supervisor in accordance with established screening criteria. A Project Review Board (PRB), which consisted of senior site managers, reviewed and approved proposed plant modifications for inclusion on the Top 20 Lists or the Top 30 List. The PRB reviewed the modifications to ensure that they met the needs of the plant. The inspectors attended a PRB meeting where the Top 20 Lists of prioritized major scope modifications were reviewed and discussed. There was a Top 20 List for each unit. The Top 20 Lists of modifications were approved by the PRB for implementation during upcoming refueling outages. Items were also discussed for inclusion on the Top 30 List of prioritized plant modifications. The Top 30 List included modifications for either unit that can be implemented during non-outage or short notice outage periods. To ensure the expeditious implementation of plant modifications on the Top 20 or Top 30 Lists, guidelines have been established to cancel a Top 20 List modification if it is not implemented within one fuel cycle; and to cancel a Top 30 List modification if it is not implemented within 52 weeks.

Based on review of the above documentation and discussions with licensee engineering personnel, the inspectors concluded that the licensee had demonstrated the use of an effective prioritization process for identifying and implementing plant modifications important to reactor safety. This process was a positive contributor to the successful PC/M backlog reduction effort.

b. Planning, Development, and Implementation of Plant Modifications.

The inspectors reviewed the completed PC/Ms listed below to: (1) determine the adequacy of the safety evaluation screenings and the 10 CFR 50.59 safety evaluations; (2) verify that the modifications were reviewed and approved in accordance with Technical Specifications (TS) and applicable administrative controls; (3) verify the modifications were installed and had proper signoffs;

(4) verify that applicable design bases were included and design documents (drawings, plant procedures, FSAR, TS, etc.) were revised; (5) verify that the modifications were properly turned over to operations; and, (6) verify that both installation testing and post modification test requirements were specified and that adequate testing was performed. The following plant modifications were examined:

PC/M 88-315	Component Cooling Water Heat Exchanger Tube Removal and Plugging
PC/M 92-019	Relocation of Unit 4 Alternate Shutdown Steam Generator Pressure Transmitters
PC/M 92-163	Replacement of Seal Table Fittings and Thimble Tube Lengthening
PC/M 92-179	Replacement of Unit 4 Main Feedwater System No. 6 Feedwater Heater Thermal Relief Valves
PC/M 93-168	Resetting of Units 3 & 4 Main Feedwater System No. 6 Feedwater Heater Thermal Relief Valves

The inspectors reviewed selected plant procedures and quality instructions (QI) relative to design changes and modifications to determine the adequacy of the controls governing the design change process. The following procedures were reviewed:

O-ADM-500	Control and Use of Vendor Manuals, July 1, 1993
O-ADM-510	Requests For Engineering Assistance (REA), December 18, 1993
QI 3-PTN-1	Design Control, December 29, 1993
JPN QI 2.3	Safety Classifications, Revision 5
JPN QI 2.8	Total Equipment Data Base (TEDB), Revision 3
JPN QI 3.1	Design Control, Revision 21
JPN QI 3.1-3	Engineering Package (EP), Revision 8
JPN QI 3.14	Minor Engineering Package (MEP), Revision 3
JPN QI 6.4	Control of Vendor Manuals, Revision 2
JPN QI 8.3	Item Equivalency Evaluations (IEE), Revision 4

The inspectors concluded from reviewing the above documentation that adequate controls were in place to ensure effective implementation of design changes.



Selected plant documentation associated with each PC/M was reviewed to verify that the changes were incorporated into the latest revision of the documents. The inspectors reviewed affected instrument set point index drawings, vendor manuals, total equipment data base (TEDB), fire brigade prefire plans and procedures, fire protection Safe Shutdown Analysis (SSA), and FSAR tables and figures, to determine if the applicable documents had been updated to accurately reflect the modifications. The inspectors performed field inspections for some of the modifications and verified that the PC/Ms were installed in accordance with technical requirements specified in the applicable PC/M packages and procedures. During review of the above PC/Ms, the inspectors identified some discrepancies and weaknesses relative to the implementation of several modification packages. These discrepancies and weaknesses are discussed below.

- (1) During review of PC/M 88-315, the inspectors noted that Attachment D of the PC/M provided information that was to be added to the controlled vendor technical manual (VTM) as a result of the PC/M. This information included the procedure for removing tubes and plugging the tubesheets for the component cooling water heat exchangers. The inspectors reviewed the controlled copy of VTM N154, Instruction Manual for Auxiliary Heat Exchangers, Revision 2, dated September 25, 1992. The inspectors noted that this revision of VTM N154 did not include the information contained in PC/M 88-315. The inspectors questioned licensee engineering personnel concerning why VTM N154 had not been updated to incorporate the information from the PC/M. Juno Plant Nuclear Engineering (JPN), which is the licensee's design organization, was responsible for the control and distribution of VTMs in accordance with quality instruction JPN QI 6.4. Licensee personnel indicated that, although the controlled copy of VTM N154 had not been updated at the site, the controlled copy of the VTM maintained by JPN in the corporate offices was revised in October 1993 to reflect the changes from the PC/M. Additionally, the Document Management System (DMS), which is a controlled computerized database, had also been updated to reflect the changes. DMS was controlled by JPN and was part of the licensee's configuration control program. The inspectors were provided a copy of Revision 3 of VTM N154 dated October 6, 1993. The inspectors verified that Revision 3 contained the information added by PC/M 88-315. The inspectors also reviewed the DMS and verified that the latest revision of the VTM was entered in the database. Licensee personnel further indicated that administrative controls delineated in site procedure O-ADM-500 required the user of any VTM at the plant to verify the VTM's latest revision against the DMS. The inspectors reviewed procedure O-ADM-500 and concluded that adequate controls existed to ensure proper use of VTM N154.



- (2) During the review of PC/M 92-179 and PC/M 93-168, the inspectors noted that the plant TEDB was not updated to reflect a change in valve vendor and model number for Units 3 and 4 main feedwater system No. 6 feedwater heater thermal relief valves RV-3-3416, RV-3-3417, and RV-4-3417. The TEDB was a design document and was part of the licensee's configuration control program.

The inspectors questioned licensee personnel concerning the update of the TEDB and found that licensee personnel had not requested the appropriate updates to the TEDB during implementation of the PC/Ms. The PC/Ms had provided engineering justification through item equivalency evaluation (IEE) No. PTNP-93-0574 for the replacement of thermal relief from Crosby Company Model JRL-41TD to Anderson Greenwood Model 83MC68-4L. However, there had been no drawing change request (DCR) initiated to update the vendor identification and model number in the TEDB.

During further review of PC/M 93-168, the inspectors also noted that change request notice (CRN) CRN M-5906 initiated to revise the relief set points of the Units 3 & 4 main feedwater system No. 6 feedwater heater thermal relief valves on instrument set point index drawing 5610-M-311, sheet 260, failed to reflect the change in valve vendor and model numbers for the Unit 3 relief valves. This error appeared to contribute to licensee personnel not recognizing the need to update the TEDB to reflect the as-built plant condition.

The licensee wrote DCR-TPM-94-0061 dated March 30, 1994, to correct the discrepancies in the TEDB for valves RV-3-3416, RV-3-3417, and RV-4-3417 and revise drawing 5610-M-311 to reflect the correct installed relief valves. The inspectors considered the above discrepancies as a lack of attention to detail to procedural documentation requirements necessary to adequately maintain plant configuration control. This was considered to be a weakness in the implementation of these PC/Ms.

Additionally, the inspectors noted that PC/M 92-179 had not been fully effective in achieving the desired result of preventing feedwater oscillations during evolutions when the reactor unit was in startup or hot shutdown. In 1992 modification PC/M 92-179 was implemented to replace the Unit 4 thermal relief valves on the tube side of the high pressure feedwater heaters. This change was intended to reduce the blowdown characteristics of the valves and prevent the reseating failures which had required the



feedwater system to be in an abnormal configuration with both high pressure feedwater heaters valved out during plant startup. However, on August 16, 1993, Unit 4 experienced a feedwater transient induced reactor trip caused by operator errors while trying to place the two isolated high pressure feedwater heaters in service during low power operation. This event was discussed in Unit 4 Licensee Event Report (LER) 93-003 and NRC Inspection Report 50-250, 251/93-21. Subsequently, PC/M 93-168 was implemented to uprate the design pressure of the feedwater system heaters such that the system lineup that caused the problem could be avoided during routine plant startups. The NRC inspectors concluded that the original thermal relief valve modification failed to achieve the desired design intent. That failure was also a contributing factor to the reactor trip event.

c. Temporary Modifications

The inspectors reviewed the licensee's temporary system alterations (TSA) process to determine its adequacy for controlling and tracking temporary changes to the plant's configuration. Design safety evaluations for TSAs were prepared by the system engineers/component specialists within the Technical Department. Procedure O-ADM-503, "Control and Use of Temporary System Alterations," provided requirements and controls for the preparation, installation, and removal of TSAs. At the time of this inspection there were seven open TSAs for Units 3 and 4. TSAs were examined to verify that: (1) adequate safety evaluations were performed; (2) testing was specified and performed where applicable; (3) TSA logs and files were adequately maintained; and (4) TSAs installed greater than 90 days were reviewed and controlled in accordance with Procedure O-ADM-503. The following open TSAs were reviewed:

TSA 3-93-59-10	Unit 3 Flux Map Detector System Enhancements to Install Drip Covers, Purge Air Supplies, and Alternate Jumper Cabling for Incore Instrumentation Drive Units
TSA 3-93-57-15	Support Eroded Unit 3 A & B Condensate Drain Lines of the Normal Containment Coolers (NCC) and Add Splash Guards Over Cable Trays Below NCC

The inspectors determined from reviewing the above TSA packages that the technical content and quality were good. The safety evaluations provided sufficient detail for determining the safety impact of the TSA on plant operations. The inspectors noted that the Plant Nuclear Safety Committee (PNSC) reviewed the TSAs and established the length of time that the TSAs were to be installed. The inspectors noted that PC/Ms had been developed and approved



for restoration of the TSAs reviewed. Implementation of the PC/Ms was scheduled for the Unit 3 refueling outage which was scheduled to begin on April 4, 1994.

The inspectors concluded that the licensee's process for the installation, control, and restoration of TSAs was effective. This was evident in the low number of TSAs and the level of management review (i.e., PNSC review).

Violations or deviations were not identified in the areas inspected.

3. Engineering and Technical Support Activities (37700)

a. Organization and Staffing

Engineering and technical support were provided by both onsite and corporate organizations. Onsite support was provided mainly by JPN Site Engineering and the Technical Department (which included the system engineers). Corporate engineering support was provided mainly by the Production Engineering Group within JPN. The inspectors held discussions with licensee personnel and reviewed documentation of selected plant activities to evaluate the engineering involvement and support of day-to-day plant operations. This support included preparing PC/Ms, TSAs, PC/M and REA backlog reduction, responding to REAs and condition reports, preparing IEEs, resolving operator work-arounds, etc. This inspection focused on the licensee's PC/M backlog reduction efforts.

The inspectors reviewed staffing and determined that the current staffing levels within the various departments appeared to be adequate to provide support to the plant.

b. PC/M Backlog Reduction

The licensee's backlog reduction effort was initiated as the Site Vice President's Strategic Team in 1992, and carried as an objective of the Plant Change Control Department in 1993. Considerable effort has been expended to reduce the backlog of REAs and PC/Ms. The objectives of the backlog reduction effort were:

- Eliminate REA and PC/M backlogs.
- Initiate process enhancements to provide strict screening and work controls to ensure that projects were focused on plant and budget constraints; and the projects will be engineered, implemented, and closed in a timely manner.
- Eliminate partially implemented PC/Ms.
- Closure of PC/Ms in the "audit" phase.



Plant procedure QI-3-PTN-1, Design Control, provided requirements for the cancellation of PC/Ms. These requirements included: (1) review and concurrence in all PC/M cancellations by the sponsor of the PC/M and the applicable system engineer/component specialist, (2) PNSC review of the cancellation and Plant General Manager approval or disapproval for PC/Ms initially reviewed and approved by the PNSC, and (3) PC/M cancellation may be approved or disapproved by the Technical Manager if the PC/M was initially approved by the Technical Manager.

The criteria used for determining which PC/Ms would be reviewed for possible cancellation was any PC/M that was greater than two years old and was not on the Top 20 or Top 30 Lists, or was not on a scheduled list to be worked. During 1992, the number of PC/Ms was reduced from 740 to 503. In 1993, the number of PC/Ms was reduced from 503 to 152. This overall reduction in the number of PC/Ms was in addition to the new PC/Ms that were generated and implemented during this same time period. This reduction effort included both the implementation and the cancellation of PC/Ms. Licensee personnel indicated that their goal was to reduce the backlog to approximately 100 PC/Ms by December 1994. The inspectors focused their attention on the canceled PC/Ms.

The inspectors noted that a number of the PC/Ms classified as "canceled" were canceled because they were superceded by another process in the licensee's design control program. These processes included DCRs, IEEs, or another PC/M. There were some PC/Ms canceled because they were either never issued to the plant or the licensee determined the PC/Ms to be unnecessary.

The inspectors reviewed the PC/M Cancellation Notifications for selected PC/Ms to determine if an adequate basis or justification for cancellation was documented. Cancellation Notifications for the following canceled PC/Ms were reviewed:

PC/M 79-125	PC/M 81-143	PC/M 84-105	PC/M 85-019
PC/M 85-020	PC/M 85-084	PC/M 86-248	PC/M 87-132
PC/M 87-137	PC/M 87-139	PC/M 87-153	PC/M 87-238
PC/M 87-369	PC/M 88-002	PC/M 88-061	PC/M 88-240
PC/M 89-043	PC/M 89-270	PC/M 89-284	PC/M 89-442
PC/M 89-553	PC/M 90-230	PC/M 90-231	PC/M 90-296

During review of the above PC/M Cancellation Notifications, the inspectors noted that the documented justifications for some of the previously canceled PC/Ms lacked sufficient technical detail. The inspectors discussed this matter with licensee personnel who indicated that, although it was not clearly documented, concurrence on the PC/M Cancellation Notifications by the PC/M sponsor and the system engineer/component specialist was an indication that their review also included a technical review of the canceled PC/M. Some of the PC/M Cancellation Notifications reviewed by the inspectors referenced PNSC meetings. Licensee

personnel provided the inspectors with additional documentation for the canceled PC/Ms that were discussed at PNSC meetings. The inspectors noted that the additional documentation contained more detailed justifications for the applicable PC/Ms that were canceled. In addition to reviewing the PC/M Cancellation Notifications, the inspectors also reviewed the PC/M package for selected canceled PC/Ms. The following canceled PC/M packages were reviewed:

PC/M 87-287	Additional Supports for Auxiliary Steam Supply Line in Boric Acid Batching Tank Area
PC/M 87-369	AFW Turbine Mechanical Overspeed Trip Modification
PC/M 88-002	Replacement of Breakers in the AFW Turbine Steam Supply Panel
PC/M 89-284	Actuator Cylinder Material and Locknut Modifications for Emergency Containment Coolers (ECC) Isolation Valves

After reviewing the above PC/M Cancellation Notifications, canceled PC/M packages, and other related documentation, and discussions with licensee engineering personnel, the inspectors concluded that, although there was not a sufficiently documented justification for all cases, the PC/Ms received adequate reviews prior to being canceled. Cancellation of the above PC/Ms did not adversely affect plant reliability or safety. The licensee's PC/M backlog reduction effort has had a positive affect on the overall configuration control of the plant by completing partially implemented PC/Ms and cancelling old PC/Ms that were no longer considered necessary.

Violations or deviations were not identified in the areas inspected.

4. Exit Interview

The inspection scope and results were summarized on April 1, 1994, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection findings. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

5. Acronyms and Initialisms

CRN	Change Request Notice
DCR	Drawing Change Request
DMS	Document Management System
ECC	Emergency Containment Coolers
EP	Engineering Package
FSAR	Final Safety Analysis Report

IEE	Item Equivalency Evaluation
JPN	Juno Plant Nuclear Engineering
LER	Licensee Event Report
MEP	Minor Engineering Package
NCC	Normal Containment Coolers
PC/M	Plant Changes or Modifications
PNSC	Plant Nuclear Safety Committee
PRB	Project Review Board
QI	Quality Instruction
REA	Request for Engineering Assistance
SSA	Safe Shutdown Analysis
TEDB	Total Equipment Data Base
TS	Technical Specifications
TSA	Temporary System Alteration
VTM	Vendor Technical Manual

