



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA STREET, N.W.
 ATLANTA, GEORGIA 30323

Report Nos.: 50-250/87-33 and 50-251/87-33

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: June 22 - July 20, 1987

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| Inspector: | <u><i>[Signature]</i></u> | <u>Aug 7, 87</u> |
| | D. R. Brewer, Senior Resident Inspector | Date Signed |
| | <u><i>[Signature]</i></u> | <u>Aug 7, 87</u> |
| | K. W. Van Dyne, Resident Inspector | Date Signed |
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| | J. B. Macdonald, Resident Inspector | Date Signed |
| Approved by: | <u><i>[Signature]</i></u> | <u>8/7/87</u> |
| | Bruce Wilson, Section Chief | Date Signed |
| | Division of Reactor Projects | |

SUMMARY

Scope: This routine, unannounced inspection entailed direct inspection at the site, including backshift inspection, in the areas of annual and monthly surveillance, maintenance observations and reviews, engineered safety features, operational safety, plant events, and plant procedures.

Results: Four violations were identified: Failure to meet Technical Specification 3.18 requirements for operability of the auxiliary feedwater system (paragraph 10); Failure to promptly evaluate the significance of an auxiliary feedwater system steam leak (paragraph 11); Failure to meet Technical Specification requirements for reducing reactor protection trip settings (paragraph 10); and the failure to establish an adequate fire protection procedure (paragraph 10).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

C. M. Wethy, Vice President
*C. J. Baker, Plant Manager-Nuclear
*F. H. Southworth, Maintenance Superintendent
D. A. Chaney, Site Engineering Manager (SEM)
*D. D. Grandage, Operations Superintendent
*T. A. Finn, Training Supervisor
J. Webb, Operations - Maintenance Coordinator
*D. H. Taylor, Operations System Enhancement Coordinator
J. W. Kappes, Performance Enhancement Coordinator
R. A. Longtemps, Mechanical Maintenance Department Supervisor
D. Tomasewski, Instrument and Control (IC) Department Supervisor
J. C. Strong, Electrical Department Supervisor
*W. Bladow, Quality Assurance (QA) Superintendent
R. E. Lee, Quality Control Inspector
E. F. Hayes, Quality Control (QC) Supervisor
*J. A. Labarraque, Technical Department Supervisor
R. G. Mende, Operations Supervisor
*J. Arias, Regulation and Compliance Supervisor
R. Hart, Regulation and Compliance Engineer
*W. C. Miller, Senior Technical Advisor
V. Kaminskis, Reactor Engineering Supervisor
P. W. Hughes, Health Physics Supervisor
*G. Solomon, Regulation and Compliance Engineer
J. Donis, Engineering Department Supervisor
*W. Pike, Safety Engineering Group Engineer
*F. Irizarry, Administrative Supervisor
*V. B. Wager, Licensing Engineer
*G. Marsh, Reactor Engineer

Other licensee employees contacted included construction craftsmen, engineers, technicians, operators, mechanics, and electricians.

NRC Personnel

*H. O. Christensen, Project Engineer

*Attended exit interview on July 20, 1987.

2. Exit Interview

The inspection scope and findings were summarized during management interviews held throughout the reporting period with the Plant Manager - Nuclear and selected members of his staff. An exit meeting was conducted

on July 20, 1987. The areas requiring management attention were reviewed. The licensee acknowledged the findings without exception. No proprietary information was provided to the inspectors during the reporting period.

Four violations were identified:

Failure to meet Technical Specification 3.18 requirements for operability of the auxiliary feedwater system (paragraph 10, 251/87-33-01).

Failure to meet the requirements of 10 CFR 50, Appendix B, Criterion XVI, in that the significance of an auxiliary feedwater system steam leak was not promptly evaluated (paragraph 11, 251/87-33-02).

Failure to meet Technical Specification requirements for reducing reactor protection trip settings (paragraph 10, 251/87-33-03).

Failure to meet the requirements of Technical Specification 6.8.1, in that fire protection procedure 0-OP-016.1 was not adequate (paragraph 10, 250, 251/87-33-04).

3. Summary of Plant Operations

Unit 3 has remained in mode 5, cold shutdown, since entering a refueling outage on March 6, 1987. The Unit 3 Engineered Safeguards Integrated Test, 3-OSP-203, was successfully completed on July 5 after first being attempted on June 30, 1987. The initial test was unsatisfactory because the A emergency diesel generator (EDG) did not start. The diesel governor was adjusted, correcting the problem and the EDG was returned to service on July 4, 1987. On July 14 two of four conoseals (Northwest and Southeast) were found to be leaking. Repairs were completed on July 19. However, during post maintenance testing, three thermocouple connections were observed to be leaking at the threaded connections above three of the four conoseals. Repairs are in progress.

On March 13, 1987 excessive Unit 4 conoseal leakage was identified. The Unit 4 reactor was placed in cold shutdown while repairs were implemented. Subsequently, additional operability issues were identified and evaluated by the licensee and the NRC. These issues were the subject of a May 5 meeting between members of the NRC and licensee staffs. The issues discussed included: Augmented Inspection Team (AIT) findings; EDG wiring discrepancies; sequencer testing; Raychem environmentally qualified splice replacements; and post accident recirculation swapover changes. In a July 3, 1987 letter to the licensee, the NRC specified that there remained no outstanding issues preventing the restart of the Turkey Point Units.

The Unit 4 reactor was restarted on July 7, 1987. Power operation continued until July 15 when a condenser tube leak caused unacceptably high level of steam generator chlorides and conductivity. The reactor was shutdown on July 17 due to an out of service Auxiliary Feedwater (AFW) train. Condenser and AFW repairs were completed and the reactor was restarted on July 20, 1987.



4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations of requirements or deviations from commitments. No unresolved items were identified during this inspection period.

5. Follow-up on Items on Noncompliance (92702)

A review was conducted of the following noncompliances to assure that corrective actions were adequately implemented and resulted in conformance with regulatory requirements. Verification of corrective action was achieved through record reviews, observation and discussions with licensee personnel. Licensee correspondence was evaluated to ensure that the responses were timely and that corrective actions were implemented within the time periods specified in the reply.

(Closed) Violation 250,251/85-30-03; Failure to meet requirements of TS 6.5.1.6, Temporary System Alteration Not Reviewed by the Plant Nuclear Safety Committee (PNSC) Prior to Implementation. Corrective action for this violation, as stated in the licensee's March 14, 1986 response, included significant changes to O-ADM-503, Control and Use of Temporary System Alterations and the issuance of Training Brief 106. Corrective action appeared adequate and was verified to be in place. This item is closed.

(Closed) Violation 250, 251/86-05-01, Failure to follow Procedure AP 0103.4, In-Plant Equipment Clearance Order. The licensee had re-emphasized the importance of adherence to procedural requirements and issued a letter, to all Operations Department Personnel from the Plant Manager - Nuclear, dated February 4, 1986, emphasizing the importance of clearance procedures. This item is closed.

(Closed) Violation 250, 251/85-26-03, Failure to establish measures to assure conditions adverse to quality were promptly identified and corrected, in that, water was not prevented from entering the instrument air system. The licensee has implemented shiftly surveillance requirements in procedure 3/4-OSP-201.3, NPO [Nuclear Plant Operator] Daily Logs. Additionally, operation and maintenance department personnel were instructed to identify instances where particular problem continue to recur. This item is closed.

(Closed) Violation 250, 251/85-26-01, Four examples of failure to comply with procedures when conducting auxiliary feedwater system maintenance. The individuals involved in the violation examples were counseled on the importance of procedure compliance. Additionally, the following procedures were revised to correct noted deficiencies; ONOP 0208.1, Shutdown Resulting from Reactor Trip or Turbine Trip and AP 0190.19, Control of Maintenance on Safety Related and Quality Related Systems. Maintenance personnel received instructions on the requirements of AP 0190.19 and Administrative Procedure O-ADM-701, Plant Work Orders Preparation. This item is closed.

(Closed) Violation 250, 85-24-02, Failure to properly implement control rod drop time measurements as required by OP 1604.8. The rod drop times were recalculated by the licensee and the individuals involved in the non-compliance were counselled on procedural compliance. This item is closed.

(Closed) Violation 250/85-26-02, Failure to comply with TS 6.8.3 in performing a temporary change to procedure 3-OSP-075.1, Auxiliary Feedwater (AFW) Train 1 Operability Verification and procedure 3-OSP-075.2, AFW Train 2 Operability Verification. The licensee re-performed the surveillance procedures in their entirety and instructions in the night order log were issued to increase personnel awareness of the necessity to complete surveillance procedures or obtain an approved procedure change. This item is closed.

(Closed) Violation 250, 251/85-30-04, Failure to identify the root cause of AFW pump overspeed trips. The maintenance department reviewed the root cause section of procedure O-ADM-701, Plant Work Order Preparation. Additionally, the licensee has established an event response team to review and determine root causes to problems. This item is closed.

(Closed) Violation 250/85-42-01, Two examples of failure to follow procedures; one concerning source range nuclear instrumentation, and the other concerns the condensate system. The individuals involved received counselling, a reminder to follow procedures was placed in the night order log and the two examples resulted in LERs which were trained on during the 1985-1986 Cycle V operator requalification class. Additionally, procedure 3/4-OP-073, Condensate System, was revised to require plant clearances for steam generator feedwater pump motor breakers. This item is closed.

(Closed) Violation 250, 251/85-23-01, Failure to meet the requirements of 10 CFR 50.59 in the use of the spent fuel pool (SFP) cooling system contrary to the FSAR. The licensee has revised procedures O-ADM-100, Procedures Preparation, Review and Approval; AP-0109.1, Preparation, Revision, Approval, and Use of Procedures; AP-0109.3, On The Spot Changes to Procedures; and AP-0109.6, Temporary Procedures, to provide improved guidance to individuals responsible for preparing procedure changes. These revisions included guidance on conducting FSAR and Technical Specification reviews. A special NRC inspection was conducted (Report 250, 251/87-24) to evaluate engineering procedures and controls for engineering evaluations. This inspection concluded that the licensee had adequate controls for conducting safety evaluations. Additionally, the licensee is taking long term corrective actions in the area of 10 CFR 50.59 reviews as a result of Enforcement Action 86-20. This item is closed.

(Closed) Violation 250, 251/84-09-05, Failure to adequately review design changes on safety-related electrical busses. The licensee stated that the design changes were not performed due to being classified as non-nuclear safety related design changes. Procedure AP 0190.15, Plant Changes and



Modifications (PC/M), was revised to require all PC/Ms be reviewed by the Plants Nuclear Safety Committee. This item is closed.

(Closed) Other 251/83-39-01, Failure to maintain adequate procedure specifying reporting requirements. Procedure AP 0103.12, Notification of Significant Events to NRC, dated April 14, 1987, appears adequate in the reporting requirements for reactor trips. This item is closed.

(Closed) Other 251/83-39-03, Failure to implement procedure following a reactor trip. The licensee has implemented new procedure 3/4-ONOP-059.3, Nuclear Instrumentation Malfunction, dated January 23, 1987, which requires the operator to confirm shutdown margin when both source range channels are malfunctioned. This item is closed.

(Closed) Violation 251/83-39-06, Failure to follow procedure when conducting a reactor startup. Procedure 3/4-ONOP-028, Reactor Control System Malfunction, contains guidance on determining when a control rod is misaligned. This item is closed.

(Closed) Violation 251/83-39-08, Failure to implement off-normal procedures for a failed Pressurizer Power Operated Relief Stop Valve. Procedure ONOP-1208.1, Pressurizer Power Operated Relief System - (Reliefs and MOV's) - Malfunction, dated July 24, 1986, provides adequate guidance to operators on what to do for a failed stop valve. This item is closed.

(Closed) Violation 251/83-39-09, Failure to process field procedure changes. The licensee has stressed procedure verbatim compliance policy, additionally these requirements are in AP-0103.2, Responsibilities of Operators and Shift Technicians on Shift and Maintenance of Operations Logs and Records. This item is closed.

(Closed) Violation 251/83-39-11, Failure to implement procedures when conducting a feedwater system periodic test. The plant management issued circulars to all plant personnel stressing procedural compliance. Procedure AP-0103.2 was revised to require procedural verbatim compliance. This item is closed.

(Closed) Violation 251/83-39-12, Failure of on shift operators to take action to investigate problems. The licensee restressed the importance of responding to problems and taking corrective action by the operators, this was placed in the night order log. This item is closed.

(Closed) Violation 250/86-17-01, The control room operator failed to properly implement the unit startup procedures. The Plant Manager - Nuclear re-issued a letter to all nuclear plant personnel on the importance of verbatim procedural compliance. New procedures, 3/4-GOP-301, Hot Standby to Power Operation and 3/4-GOP-503, Cold Shutdown to Hot Standby, have been implemented with improved guidance. This item is closed.

(Closed) Violation 251/83-38-01, Both Unit 4 Containment spray pumps were inoperable during power operations. This was caused by having the manual header stop valves inadvertently closed. The licensee took the following corrective actions. The operations management held meeting to discuss incident; the valves in question were placed under Administrative Control as locked open valves in procedure O-ADM-205, Administrative Control of Valve, Locks and Switches; the labels and locks for these valves have been color coded to help prevent wrong unit/wrong train events. This item is closed.

(Closed) Violation 250,251/83-38-02, Failure to notify the NRC on 10 CFR 50.72 events. The operations personnel received instructions on reporting requirements. This item is closed.

(Closed) Violation 250,251/84-04-02, the licensee failed to provide adequate procedures or to control the operations of safety related equipment. These failures resulted in a breakdown in management control of plant operations. The procedural deficiencies noted in this violation have been corrected. Additionally, the licensee implemented the Performance Enhancement Program (PEP) to improve overall plant performance. This program is on-going and its progress is being tracked by the NRC. This item is closed.

(Closed) Violation 250/84-29-03 and 251/84-30-04, The PNCS did not adequately review facility operations in that potential safety hazards in the Intake Cooling Water System, Component Cooling Water System, Emergency Containment Coolers, 120 Volt AC Vital Bus Inverters and remote shutdown instrumentation were not detected. The deficiencies noted in the violation have been corrected and the procedures have been revised. The licensee has implemented a program for improved operation. This item is closed.

(Closed) Violation 250, 251/82-24-02, Failure of personnel to follow the requirement of a Radiation Work Permit (RWP) on protective clothing. The individual involved were counselled. Additionally, the licensee requires all personnel entering the radiation controlled area to read and sign a log stating that they understood the requirements of the RWP. This item is closed.

(Closed) Violation 250,251/86-25-01, Failure to properly implement OP-1004.2, Reactor Protection System - Periodic Testing, and OP-4304.1, EDG - Periodic Test. The operators involved were counselled on the importance of procedural adherence. Procedure OP-1004.2 has been replaced by 3/4-OSP-049.1, Reactor Protection System Logic Test and Procedure OP 4304.1 has been replaced by O-OSP-023.1, Diesel Generator Operability Test. The deficiencies noted in the old procedures have been corrected. This item is closed.

(Closed) Violation 250,251/85-13-01, Failure to implement procedures in the area of contaminant exclusion, radiation work permit requirements and housekeeping. Procedures MP-3207.2, Residual Heat Removal Pump - Disassembly and Repair, and Procedure MP-1407.7, Reactor Vessel STUD Tensioner Operators, have been revised to include contaminant exclusion requirements. The individuals involved in the RWP and housekeeping non-compliances were counselled and specific training developed to address each of these problems. This item is closed.

(Closed) Violation 250,251/85-02-1, Diesel Generator exceeded voltage limit during full load rejection testing. The NRC staff reviewed this concern and determined that a short duration voltage transient was not of concern as long as the EDG voltage stabilized at or below the limiting voltage. The licensee has submitted a TS change to limit the transient time to two seconds following the load rejection. This item is closed.

It should be noted that twelve of the above violations that are closed involved failures to implement and/or follow procedures. The licensee's corrective action in the past has primarily been counselling, procedure changes, and issuance of reminder letters concerning the importance of verbatim compliance with procedures. The NRC continues to be concerned over the licensee's program to correct this continuing problem. These violations in this report have been closed since there is no practical reason to further track these individual examples. The Performance Enhancement Program has included several projects specifically aimed toward the improvement of and compliance with procedures (Project 2, Operations Enhancement and Project 5, Procedures). The NRC will continue to closely monitor the licensee's progress in the implementation of these programs.

6. Followup on Unresolved Items (URIs), Inspector Followup Items (IFIs), Inspection and Enforcement Information Notices (IENs), IE Bulletins (IEBs) (information only), IE Circulars (IECs), and NRC Requests (92701).

A review was conducted of the following items to assure that the licensee completed adequate applicability reviews, made appropriate distributions and if required, implemented adequate and timely corrective actions.

(Closed) URI 250, 251/85-03-02, Throttling of RHR Discharge Stop Valves, This item was changed into a violation in inspection report 250, 251/86-44. This item is closed.

(Closed) IFI 250,251/85-06-05. Maintenance attention needed for chronic problems with the area radiation monitoring system (ARMS). From January 1986 to August 1986, four contract I&C technicians were employed full time to maintain the ARMS and process radiation monitoring (PRM) Systems. From September 1986, to the present, two FPL I&C technicians have been assigned to these systems on a full time basis. Using the same technicians to perform maintenance on these systems enabled them to become more experienced with the equipment, improved the quality of maintenance and contributed to increased system reliability. The licensee plans to replace the existing system in the future on a priority derived through the Integrated Schedule process.



(Closed) URI 250, 251/85-20-04, Licensee personnel may not be adequately familiar with some technical specifications (TS). This unresolved Item addresses a concern for the failure to comply with TS Surveillance requirements and for removal of mechanical snubbers without performing evaluations required by TS 3.13.3 as identified in the following LERs:

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| LER 250-85-01 | LER 250-85-09 |
| LER 250-85-08 | LER 250-85-11 |

These LERs were previously addressed and closed in Inspection Report 250, 251/86-39. Additionally, missed TS Surveillance requirements were addressed as a violation (250,251/86-39-02) and subsequently closed in Inspection Report 250, 251/87-10. This item is closed.

(Closed) IFI 250,251/85-06-06. Develop a procedure for operating the spent fuel pool (SFP) leakage detection system. This IFI was resolved by revising OP-0204.2. Subsequently, the daily requirement to check for SFP leakage was incorporated into O-OSP-201.2, SNPO Daily Logs. This item is closed.

(Closed) URI 250, 251/85-20-03. Evaluate the advisability of blocking safety injection while maintaining hot standby conditions. The licensee has modified 3-GOP-305, Hot Standby to Cold Shutdown Procedure, to more clearly define the conditions which must be satisfied to place the safety injection block switch in the block position. These conditions were verified to be in conformance with current TS requirements. This item is closed.

(Closed) IFI 250,251/85-24-08. Improve procedural guidance for containment evaluation alarm and high flux at shutdown alarm. Additional guidance for setting and maintaining at least one alarm channel in service for the containment evacuation alarm and the high flux at shutdown alarm is specified in 3/4-OSP-059.6. This item is closed.

(Closed) IFI 250,251/85-24-05. Determine adequacy of procedures for making temporary changes per TS 6.8.3. AP 0109.7, Responsibilities of the Procedure Upgrade Program Group, and AP 0109.3, On the Spot Changes to Procedures, were reviewed and determined to adequately comply with the review and approval requirements of TS 6.8.3. This item is closed.

(Closed) URI 250,251/85-26-06. Evaluate advisability of rescaling interim power range currents. OP 0204.5, Nuclear Design Check Tests During Startup Sequence After Refueling, specifies performing a Nuclear Instrumentation System (NIS) detector mini-calibration per OP-12304.9 prior to exceeding 50% power. The data obtained are not required to be used for resetting NIS voltages and currents. However, if tilt calculations (per ONOP 12308.2) exceed TS limits and flux map data is not used to prove that an actual tilt condition does not exist, then the requirements of TS 3.2.6 (h) and 3.2.6 (i) will be implemented, as applicable. This item is closed.



(Closed) IFI 250,251/85-30-02, Determine if new equipment is promptly added to calibration program. Administrative Procedure (AP) 0190.15 step 3.4.14, requires a meeting coordinated by the Engineering Department to review PC/Ms for operability and maintainability. Step 5.8.4 requires the PC/M coordinator to implement the required maintenance/calibration schedule in the General Equipment Management program. This item is closed.

(Closed) IFI 250,251/84-09-04, Failure to implement an adequate post trip reviews. AP-0103.16, Duties and Responsibilities of the Shift Technical Advisor, Dated March 10, 1987, Appendix B, contains adequate guidance for performing a post trip review. Additionally, the trip review requires the Plant Manager - Nuclear to give permission for unit restart. This item is closed.

(Closed) Deviation 250/84-04-07, Failure to fully implement TMI item I.C.6, Independent Verification. Procedure O-ADM-031, Independent Verification dated June 25, 1987, provides plant policy and detailed direction on the implementation of independent verification requirements. This item is closed.

(Closed) IFI 250/84-26-01, Reactor coolant system (RCS) leak rate calculation did not address RCS temperature and pressurizer level. Procedure 3/4-OSP-041.1, RCS Leak Rate Calculation, dated May 29, 1987, has been revised to include RCS temperature and pressurizer level. This item is closed.

(Closed) IFI 250, 251/80-06-03, Residual heat removal system (RHR) suction isolation valves MOV 750 and 751 are not environmentally qualified. Additionally, the licensee has not prioritized the RHR recirculation switchover sequence. The MOVs 750 and 751 are considered environmentally qualified (EQ) and are listed on the licensee's EQ list. The licensee has a new emergency operating procedure EOP-ES-1.3, Transfer to Cold Leg Recirculation, which prioritizes the RHR switchover sequence. This item is closed.

(Closed) IFI 250, 251/80-06-04, Provide adequate training for management personnel in the area of accident analysis. The licensee has conducted training in the area of Mitigating Core Damage, which is TMI item II.B.4, this item was closed in inspection report 250, 251/81-33. This item is closed.

(Closed) IFI 250/84-18-03, Review the adequacy of the piping and supports associated with the containment instrument air lines for both units. The licensee completed an evaluation dated August 16, 1985 and noted that seismic boundary anchors were needed to meet the current standards to isolate the safety related portions of the piping from non-safety related portions. The licensee has completed the installation of these anchors, Unit 3 on May 29, 1987 and Unit 4 on February 15, 1986. This item is closed.

(Closed) IE Circular 81-13, Torque Switch Electrical By Pass Circuit for Safeguard Service Valve Motors. This circular required the licensee to verify that all valves important to safety which have the torque switch bypass circuits installed do in fact have these circuits and to establish controls to assure that torque switch bypass circuits are not inadvertently removed. This circular is administratively closed and the completion of the circular's requirements will be tracked under the response to IE Bulletin 85-03, Motor-Operated Valve Common Mode Failure During Plant Transients Due to Improper Switch Settings. This item is closed.

(Closed) IFI 250/84-39-05 and 251/84-40-04, The adequacy of I&C plant work order documentation and procedural guidance. The licensee has implemented new procedures that provide guidance. These procedures are O-GMI-102.1, Troubleshooting and Repair Guidelines, and O-ADM-701, Plant Work Order Preparation. This item is closed.

(Closed) IFI 250, 251/84-09-02, Failure to take prompt corrective actions. The action taken by the licensee for violation 250, 251/84-04-02, and the implementation of the PEP program should provide adequate guidance on taking prompt corrective actions. This item is closed.

(Closed) IFI 250, 251/84-04-03, Corrective action for Leeds and Northrup Speedomax chart recorders. The licensee has implemented controlled plant work order (84-30, 84-31) to replace the records capillary system with disposable markers. This item is closed.

(Closed) IFI 250, 251/84-09-06, Review of AFW and Air/Nitrogen System. The licensee completed a review of the AFW system, letter dated May 15, 1984, Subject - Auxiliary Feedwater System Improvement Project. Additionally, the AFW system was included in the licensee's PEP program and the phase II select system review. This item is closed.

(Closed) URI 250, 251/86-25-06, Determine the basis for allowing maintenance activities which can affect the performance of safety-related equipment to begin without requiring that the maintenance be preplanned or performed in accordance with written procedure. Procedure AP-0190.19, Control of Maintenance on Safety Related and Quality Related Systems, requires a PWO be initiated for all maintenance work and that work performed for emergency situations be thoroughly documented by the journeyman. This item is closed.

(Closed) IFI 250, 251/85-02-06, Research, document and then set the torque switch and limit switch setting for all motor operated valves. This item will be administratively closed and action tracked under IEB 85-03, Motor-Operated Valve Common Mode Failure During Plant Transients Due to Improper Switch Setting. This item is closed.

(Closed) URI 251/86-06-03, Evaluate the probable cause of the misalignment of the 4B containment spray pump. On July 16, 1986, the licensee completed an evaluation of the misaligned containment spray pump and



determined the following. The 4B containment spray pump shaft failed as a result of not verifying pump rotation and not performing a realignment prior to conducting surveillance testing. The misalignment may have resulted due to improper installation on a pipe elbow that had minimum wall thickness. Procedure MP 4207.2, Containment Spray Pump Disassembly, Repair and Assembly, was revised to include hand rotation of the pump and alignment of pump to motor prior to running the pump. This item is closed.

7. Onsite Followup and In-Office Review of Written Reports Of Nonroutine Events (92700/92712)

The Licensee Event Reports (LERs) discussed below were reviewed and closed. The Inspectors verified that reporting requirements had been met, root cause analysis was performed, corrective actions appeared appropriate, and generic applicability had been considered. Additionally, the Inspectors verified that the licensee had reviewed each event, corrective actions were implemented, responsibility for corrective actions not fully completed was clearly assigned, safety questions had been evaluated and resolved, and violations of regulations or TS conditions had been identified.

(Closed) LERs 250/84-19 and 250/84-20, TS-RCS Leakage. These two LERs were generated as a result of excessive RCS leakage that caused two Unit 3 shutdowns. The root cause of the events was failed gland flanges on seven 3/4 inch Rockwell-Edwards stop valves. The flanges were replaced with carbon steel strong backs via PC/M 84-129. Technical correspondence PTN-Tech-87-182, to the maintenance department specifies maximum vendor torque values for the flange bolts to prevent overtightening which would lead to intergranular stress corrosion cracking. LERs 250/84-19 and 250/84-20 are closed.

(Closed) LER 250/85-25, Appendix R Safe Shutdown Review. This LER was generated by the licensee to make advanced notification to the NRC of preliminary results of the Unit 3 Appendix R safe shutdown review. The Region II Appendix R inspection findings are documented in IE Report 250, 251/86-09. LER 250/85-25 is closed.

(Closed) LER 250/85-33, LOCA Analysis Discrepancy. This LER was a voluntary report made by the licensee to advise the NRC of a discrepancy between a Westinghouse (W) LOCA analysis and the Turkey Point FSAR. The W analysis assumes the failure of one of the four High Head Safety Injection (HHSI) pumps, the FSAR assumes the failure of two HHSI pumps. A W safety evaluation reported that the Emergency Core Cooling System (ECCS) safety criteria as stated in 10 CFR 50.46, would not be impacted by the FSAR scenario of two failed HHSI pumps. LER 250/85-33 is closed.

(Closed) LER 251/85-05, Engineered Safety Feature (ESF) Actuation-Safety Injection. On February 7, 1985, following a Unit 4 trip, a spurious safety injection signal was generated in the ESF system. No safety

injection flow was delivered to the RCS. All equipment actuated and functioned as designed. The root cause of the event was a blown fuse on a flow comparator (FC-485) of the B steam generator (SG) coincident with an electrical spike in the circuitry of a flow comparator (FC-475) of the A SG. The blown fuse was replaced and instrument calibration checks were performed on A SG flow instrumentation. LER 251/85-05 is closed.

(Closed) LER 251/85-07, TS-Containment Spray Pump (CSP). On February 18, 1985, with Unit 4 at 100% power, the 4A CSP was declared inoperable. The 4A CSP 480V power supply breaker closing springs were discharged and the closing spring charging motor was turned off. The pump beaker could not have closed in response to a start signal. It was presumed that this condition had existed since the last operability surveillance test was performed on February 6, 1985. Power was immediately restored to the closing springs and an operability test was performed on the pump. Operations personnel were briefed on the significance of the event. LER 251/85-07 is closed.

(Closed) LER 251/85-09, TS-EDG. On April 25, 1985, with Unit 4 at 100% power, the A EDG was taken out of service for periodic maintenance coincident with the 3B 4160V bus being out of service. This rendered the 3A, 4A and 3B high head safety injection pumps inoperable, which is in noncompliance with TS. Upon recognition of this event, the A EDG was tested and returned to service. Operations personnel were briefed on the importance of ensuring the operability of opposite train ESF equipment prior to electively removing an EDG from service. LER 251/85-09 is closed.

(Closed) LER 251/85-18, TS Heat Tracing. On June 23, 1985, with Unit 4 at 27% power, two channels (8A & 8B) of critical heat tracing on the boric acid pump suction lines were declared out of service. TS allow only one channel to be inoperable. A plant shutdown was implemented as required by TS 3.0.1. The root cause of the failed channels was a short circuit created when excess heat tracing wiring from circuit 9 contacted circuit 8. Both circuit 8 channels were repaired and returned to service. Circuit 9 was shortened to prevent it from contacting circuit 8. LER 251/85-18 is closed.

(Closed) LERs 251/84-09 and 251/85-20, TS-Containment Integrity. These LERs were generated as a result of events in which Operations personnel didn't fully appreciate the TS requirements for containment integrity. Later similar events led to issuance of violation 251/86-41-01. The corrective actions to this violation, as stated in the licensee's response, address the corrective actions of the LERs. LERs 251/84-09 and 251/85-20 are closed.

(Closed) LER 250/85-39, On November 29, 1985, the Engineering Department notified Turkey Point that portions of the accumulator fill line were not seismically installed. PC/Ms 86-80 and 86-004, Unit 3 and 4 Accumulator Makeup Header - Seismic Upgrade, have been completed by the Nuclear Startup Department and turned over to Operations. This item is closed.

(Closed) LER 251/86-08, On March 29, 1986, the 4A Intake Cooling Water (ICW) Pump Was Inadvertently Started. The actuation was due to a construction worker physically disturbing the relay. The construction worker received instructions to use caution when working in the vicinity of safeguards equipment. This item is closed.

(Closed) LER 250/85-34, On October 23, 1985, the 3A Residual Heat Removal (RHR) Pump was declared out of service due to failure to meet the seal leakage acceptance criteria during an operability test. The licensee repaired the pump's mechanical seal and conducted a post maintenance test. This item is closed.

(Closed) LER 250/85-40, On November 11, 1985, Unit 3 subcritical reactor trip occurred as a result of manually re-inserting nuclear instrumentation system channel N-32 instrument power fuses while attempting to energize the channel. The licensee repaired the voltage power supply and replaced a capacitor in the channel pre-amplifier. Additionally, all post-maintenance testing was satisfactorily completed. This item is closed.

(Closed) LER 250/85-41, On December 4, 1985, AFW initiated due to an improper alignment of the condensate system. The licensee properly aligned the condensate system, the operators involved were counselled on the need for clear and concise inter shift turnovers and procedure 3/4-OP-073, Condensate System, was revised to require a plant clearance for the Steam Generator Feedwater pump motor breaker when the condensate system was aligned in the recirculation cleanup mode. This item is closed.

(Closed) LER 250/86-25, On June 12, 1986, the 3A and 3C charging pumps were out of service, exceeding TS requirements. The 3C pump was repaired and retested satisfactory. The 3A pump cracked weld was repaired and satisfactorily placed back into service. Additionally, the licensee developed a PC/M to replace the pump packing with longer life packing. This item is closed.

(Closed) LER 251/86-09, On April 10, 1986, it was determined that a flow reversal condition existed concerning the component cooling water (CCW) supply to high head safety injection (HHSI) pumps seal and thrust bearing coolers. The licensee has completed PC/M 83-008, to correct piping misrouting. This item is closed.

(Closed) LER 251/86-17, On August 9, 1986, the Unit 4 Auxiliary Feedwater System was actuated during a system test due to personnel error. The operator received counselling concerning his actions. This item is closed.

(Closed) LER 251/86-19, On September 6, 1986, while Unit 4 was at 38% power, a reactor trip occurred due to a 4C steam generator feedwater isolation circuitry failure. The failed circuitry, a light socket, was replaced and the other sockets for Unit 4 were inspected. The turbine

trip solenoid was replaced and procedure 3/4-OSP-089, Main Turbine Valves Operability Test, was revised to test the turbine trip solenoids. This item is closed.

(Closed) LER 251/86-21, Unit 4, Shutdown on September 16, 1986, due to Rod Position Indication (RPI) System Malfunction. The failed line voltage regulator was replaced. The licensee developed a preventative maintenance procedure, O-PME-028.1, RPI Inverter Maintenance. This item is closed.

The following LERs were reviewed and closed based on an in-office review. The inspectors verified that reporting requirements had been met, root cause analysis was performed, corrective actions appeared appropriate, and generic applicability had been considered. In addition, each LER was reviewed for and determined not to require further onsite inspector followup.

LER 250/85-22, Reactor Protection Actuation - Reactor Trip
LER 250/85-31, Engineered Safety Features Actuation - Turbine Runback

8. Monthly and Annual Surveillance Observation (61726/61700)

The inspectors observed TS required surveillance testing and verified: that the test procedure conformed to the requirements of the TS, that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation (LCO) were met, that test results met acceptance criteria requirements and were reviewed by personnel other than the individual directing the test, that deficiencies were identified, as appropriate, and were properly reviewed and resolved by management personnel and that system restoration was adequate. For completed tests, the inspectors verified that testing frequencies were met and tests were performed by qualified individuals.

The inspectors witnessed/reviewed portions of the following test activities:

Unit 3 Engineered Safeguards Integrated Test, 3-OSP-203
Auxiliary Feedwater Train 1 Operability Verification, 4-OSP-075.1
Nuclear Plant Operator Logsheets, 4-OSP-201.3
Auxiliary Feedwater System Flowpath Verification, 4-OSP-075.5
Safety Injection Pumps Inservice Test, 0-OSP-062.2

No violations or deviations were identified within the areas inspected.

9. Maintenance Observations (62703/62700)

Station maintenance activities of safety related systems and components were observed and reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides, industry codes and standards and in conformance with TS.

The following items were considered during this review, as appropriate: that LCOs were met while components or systems were removed from service; that approvals were obtained prior to initiating work; that activities were accomplished using approved procedures and were inspected as applicable; that procedures used were adequate to control the activity; that troubleshooting activities were controlled and repair records accurately reflected the maintenance performed; that functional testing and/or calibrations were performed prior to returning components or systems to service; that QC records were maintained; that activities were accomplished by qualified personnel; that parts and materials used were properly certified; that radiological controls were properly implemented; that QC hold points were established and observed where required; that fire prevention controls were implemented; that outside contractor force activities were controlled in accordance with the approved QA program; and that housekeeping was actively pursued.

The following maintenance activities were observed and/or reviewed:

- Intake Cooling Water Pump Motor - Overhaul and Maintenance, MP 3407.6
- Auxiliary Feedwater Pump C Steam Leak Repair, PWO 69-2507
- Auxiliary Feedwater Pump C Trip and Throttle Valve Repair, PWO 69-5668
- Emergency Diesel Generator A Skid Tank Leak Repair, PWO 300812
- Emergency Diesel Generator A Governor Troubleshooting
- Steam Trap ST-53 Drip Leg Drain Valve Repair, PWO 019

No violations or deviations were identified within the areas inspected.

However, violation 251/87-33-02 discussed in paragraph 11 appears to have resulted due to maintenance personnel failing to inform appropriate managers that a suspected valve packing leak was observed to originate at a degraded weld in the train 1 auxiliary feedwater system.

10. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs, conducted discussions with control room operators, observed shift turnovers and confirmed operability of instrumentation. The inspectors verified the operability of selected emergency systems, verified that maintenance work orders had been submitted as required and that followup and prioritization of work was accomplished. The inspectors reviewed tagout records, verified compliance with TS LCOs and verified the return to service of affected components. Additionally, by observation and direct interviews, verification was made that the physical security plan was being implemented. Plant housekeeping/cleanliness conditions and implementation of radiological controls were also observed. Tours of the intake structure and diesel, auxiliary, control and turbine buildings were conducted to observe plant equipment conditions including potential fire hazards, fluid leaks and excessive vibrations.

The inspectors walked down accessible portions of the following safety related systems to verify operability and proper valve/switch alignment:

- A and B Emergency Diesel Generators
- Auxiliary Feedwater
- Control Room Vertical Panels and Safeguards Racks
- Intake Cooling Water Structure
- 4160 Volt Buses and 480 Volt Load and Motor Control Centers
- Fire Protection Deluge Valves

a. Technical Specification Requirements Not Implemented For Reactor Protection Setpoint Reductions

On July 12, 1987, during routine backshift inspection at approximately 7:00 p.m., while the Unit 4 reactor was at 76 percent power, the inspector determined that the licensee was not in compliance with TS 3.2.6.(i). This specification requires, in part, that when the Quadrant Power Tilt Ratio (QPTR) exceeds two percent for 24 hours and the reactor hot channel factors have not been determined to be acceptable, then reactor protection setpoints for Over-Power Differential Temperature (OPDT) and Over-Temperature Differential Temperature (OTDT) shall be reduced. QPTR is a measure of radial power differences existing in the upper and lower quadrants of the reactor core as measured by the four excore power range nuclear instruments (PRNIs).

The licensee took immediate action to verify that the hot channel factors were acceptable by performing and evaluating a Unit 4 flux map using moveable incore detectors. Subsequent evaluation, completed on July 13, 1987 at approximately 1:50 a.m., verified that the hot channel factors were acceptable. This alleviated the need to reduce the OPDT and OTDT setpoints. The incore detectors indicated that the quadrant power ratios did not exceed two percent.

The QPTR annunciators are, by design, inoperable below 50 percent reactor power. Standard TS and the licensee's interim TS address QPTR in terms of compensatory actions only when reactor power exceeds 50 percent. During initial reactor startup following refueling and PRNI detector replacements, QPTR calculations are likely to be erroneous until the PRNI can be calibrated. Consequently, by administrative procedure, the licensee performs flux maps prior to exceeding 50 percent power to allow interim calibration of each PRNI. Calibration of the PRNI at 50 percent power causes the QPTR (as calculated using the excore PRNIs) to closely agree with the quadrant power ratios measured during the flux mapping.

The licensee performed two flux maps at 50 percent power on July 8, 1987, because the detector for PRNI N-41 had been replaced during a recently concluded outage. One map indicated a QPTR of 2.5 percent for the lower core with peaking factors which would have precluded reactor operation at 100 percent power. This flux map was suspected



of containing erroneous data due to maintenance problems which had been experienced with the moveable detector drive mechanisms. A second flux map indicated no QPTR greater than 2 percent. Additionally, the results of this second map compared favorably with similar maps performed prior to the outage. Calibration data derived from the flux maps was not installed in the PRNIs because one instrument, N-44, was out of service. Taking a second instrument out of service for calibration would result, by design, in a reactor trip. Since calculated QPTR was less than two percent, power escalation was authorized by the Reactor Engineering Supervisor. Power was slowly increased between July 10-11. QPTR calculations performed in the morning and evening on July 10 were less than two percent. However, a QPTR calculation which was begun on July 10 at 11:50 p.m. and completed on July 11 at 12:01 a.m. indicated an upper detector tilt of 2.84 percent.

The increase in QPTR with increasing power was not expected and was not clearly understood. Consequently, when the Reactor Engineering Supervisor was contacted at home and informed of the change, he recommended that reactor power be maintained below full power by two percent for each 1 percent of QPTR. This action implemented the requirements of TS 3.2.6.(h). QPTR was calculated numerous times between the early morning on Saturday July 11 and the early evening on July 12, a period of approximately 43 hours. All results indicated that the QPTR was greater than two percent. Additionally, the magnitude of the tilt appeared to change. By July 11 at 7:50 a.m. it had increased to 5.2 percent. It then decreased to 2.0 percent on July 12 at 11:30 a.m. and began to increase reaching 2.4 percent at 7:05 p.m. on July 12.

Discussion with members of the Operations staff on July 12 revealed a lack of concern for the indicated condition. Several reasons were presented as to why the condition was not a concern. These included: (1) a belief that the flux maps performed on July 8 adequately verified that the indicated QPTR was not real; (2) a perception that the QPTR was relatively stable; (3) a belief that the high ratio was caused by the inability to install corrected calibration currents in the PRNIs because instrument N-44 was out of service; and (4) a belief that the safety significance of the indicated problem was diminished since reactor power had been maintained below the limits specified in TS 3.2.6.(h). Additionally, the Operations staff did not appear to be aware of the requirements to reduce the OPDT and OTDT setpoints as specified in TS 3.2.6.(i).

Discussions with an NRC core physics inspector confirmed that the above reasonings, evaluated singularly and in unison, did not provide an engineering basis upon which to verify that the indicated QPTR condition was not real. Such a verification would generally have been accomplished through the performance of additional flux maps at the power level and control rod position that existed when the QPTR exceeded two percent. The licensee declined to perform additional

flux maps even though the reactor had been increased from 50 percent to 90 percent power and had suffered a small turbine runback since the last flux maps were taken. This option is authorized by TS as long as all appropriate compensatory power reductions and reactor protective setpoint reductions are implemented.

This failure to implement the requirements of TS 3.6.2.(i) is a violation. This violation applies to Unit 4 only (251/87-33-03).

b. Licensee Determined That The Auxiliary Feedwater (AFW) System Was Inoperable

On July 15, 1987, with the Unit 4 reactor at 100 percent power, the licensee determined that the Unit 4 AFW system was inoperable because both trains of safety-related nitrogen for the automatic flow control valves were isolated. The discrepancy was discovered during a routine inspection by a Turbine Operator tasked with logging the status of the nitrogen system on a periodic (4 hour) basis. The discrepancy was immediately reported to the Operations Department staff and the erroneously closed valves were opened, returning the system to service. Procedure 4-OP-065.2, AFW and Main Steam Isolation Valve (MSIV) Nitrogen Gas Supply System, revision dated June 18, 1987, was expeditiously performed to verify that all valves were in the correct position.

The discrepancy received the highest levels of management attention, including the establishment of a human performance review team to investigate and identify the root cause of the valve misalignments. It was determined that valves which were required to be open had been closed earlier on July 15, 1987 by a Turbine Operator. The operator had previously been assigned for an extended period of time to Unit 3, which was in an extended refueling outage. The AFW system was not required by TS to be operable on Unit 3 because of the shutdown status of the reactor. Apparently the operator was not aware that a June 1987 revision to procedure 4-OP-065.2 required 3 nitrogen bottles per train be in service, as opposed to one bottle which had previously been acceptable. During his 1:00 a.m. inspection of the nitrogen bottles he noticed that three bottles were in service instead of one. Believing this to be a discrepancy, he realigned the bottles without the use of the approved procedure. This caused all bottles to be isolated, either by the valve on top of the bottle or the in-line isolation valve further down stream being closed. This valve realignment was performed for both AFW nitrogen trains, rendering both inoperable.

The perceived discrepancy was not reported to the Operations staff by the Turbine Operator. No quality record was created to document the realignment. Logs taken on the nitrogen system status at 5:00 a.m., 9:00 a.m., and 1:00 p.m. documented (erroneously) that 1 bottle was in service per train. The 5:00 p.m. log reading indicated that no bottles were in service but this fact was not brought to the

attention of supervisory personnel. The Turbine Operator taking the 9:00 p.m. log readings identified the discrepancy.

TS 3.18 requires that the AFW be operable when the reactor is heated above 350 degrees. One train is allowed to be out of service for 72 hours. Two trains are not allowed to be simultaneously out of service. The Turkey Point AFW system design basis document, developed under the Performance Enhancement Program, specifies that the AFW system shall be capable of automatic operation upon loss of instrument air for a period of two hours without any required operator action outside the control room. The AFW flow control valves normally use the non-safety related, non-seismic instrument air system for automatic valve positioning. The instrument air system can not, because of its unqualified nature, be assumed to exist for post accident AFW operation. The nitrogen system, although it is often referred to as a backup system, is required to be operable to support post accident AFW system operation. For this reason, the nitrogen system, like the AFW system, is both safety-related and seismically installed.

During the 20 hours that the nitrogen trains were out of service the instrument air system remained in service and operated normally. If instrument air pressure had become excessively low, existing administrative procedures require that the reactor be shutdown.

The failure to implement the requirements of TS 3.18 for AFW system operation is a violation which applies to Unit 4 only, (251/87-33-01).

c. Inadequate Procedure For Deluge Fire Systems, Repeat Violation

On July 14, 1987, the inspectors performed a walkdown of the fire suppression systems for the Unit 3 and 4 component cooling water (CCW) pump rooms. One Unit 3 deluge valve, 10-837, was not correctly aligned in that a pressure switch was isolated. This discrepancy did not prevent the deluge valve from operating but it did prevent the activation of the control room and local area actuation alarms. Since the pressure switch was isolated, the activation of the deluge station would not be received at the control room and local alarm panels. Indication of fire protection system actuation would be only by secondary means such as low fire main pressure or fire pump initiation. The ability to remotely verify flow through the appropriate deluge station would be lost.

This discrepancy is a repeat of a similar problem described in Inspection Report 250, 251/86-33 dated September 3, 1986. Violation 250,251/86-33-03 was issued because adequate procedures for the control of the deluge valves did not exist, contrary to the requirements of TS 6.8.1. The licensee responded to the Notice of Violation on October 3, 1986 in PTN-TECH-86-743. The proposed corrective action was to revise procedure O-OP-016.1, entitled Fire Protection Water System, to incorporate deluge system valve lineups.

Procedure O-OP-016.1 was revised on December 9, 1986 to include the auxiliary support valves necessary to properly align the deluge system. However, for each deluge system, the isolation valve for the alarm pressure switch was omitted from the lineup sheets. Consequently, the procedure remained inadequate because the pressure switches for the alarm stations remain isolated when the deluge systems are returned to service.

TS 6.8.1 requires that written procedures and administrative policies be established that meet or exceed the requirements and recommendations of Appendix A of USNRC Regulatory Guide 1.33.

Regulatory Guide 1.33, Appendix A, states that procedures should be established for the operation of plant fire protection equipment.

The failure to have an adequate procedure for the alignment of fire protection deluge systems is a repeat of violation 250, 251/86-33-03 (250, 251/87-33-04).

11. Engineered Safety Features Walkdown (71710)

To verify system operability the inspectors performed a complete walkdown of all accessible equipment of the Unit 4 Auxiliary Feedwater (AFW) system. One train of steam to the AFW pumps was found to be degraded as described below. This matter was immediately brought to the attention of the licensee and NRC Region II management. The licensee declared the train inoperable and implemented the shutdown requirements of TS 3.0.1. Unit 3 remained in cold shutdown (mode 5) during the inspection period and consequently its Engineered Safety Features were not required to be in service. The following criteria were used, as appropriate, during the walkdown:

- a. System lineup procedures matched plant drawings and the as-built configuration.
- b. Equipment conditions were satisfactory and items that might degrade performance were identified and evaluated (e.g. hangers and supports were operable, housekeeping was adequate).
- c. Instrumentation was properly valved in and functioning and that calibration dates were not exceeded.
- d. Valves were in proper position, breaker alignment was correct, power was available, and valves were locked/lockwired as required.
- e. Local and remote position indication was compared and remote instrumentation was functional.
- f. Breakers and instrumentation cabinets were inspected to verify that they were free of damage and interference.

A walkdown of the Unit 4 portion of the AFW system was performed between July 17 and July 20, 1987. On July 17, plant parameters were steady and no demand for AFW system operation existed. The reactor was critical at less than 1 percent power and the turbine generator had been removed from service due to apparent condenser tube leakage.

On July 17 the inspector observed a pinhole leak in the steam supply piping which supplies turbine driven AFW pumps A and C. The leak was located on a two inch diameter pipe that branches from the four inch diameter train 1 steam line. The two inch pipe supplies steam trap 53 and system low point drain AFSS 43. The leak was located adjacent to AFSS 43. Additionally, the 2 inch diameter pipe was heavily corroded.

The licensee determined that a maintenance concern had been identified on July 11, 1987, when plant personnel reported seeing small amounts of water drop from the vicinity of drain valve AFSS 43. This resulted in the issuance of a deficiency tag and Plant Work Order (PWO) which stated that either AFSS 43 had a valve stem packing leak or the steam pipe was leaking. A definitive evaluation of the source of the leak could not be made because the area of concern was obscured by insulating lagging. The PWO was erroneously classified as Non-Nuclear Safety Related (NNS) and therefore did not receive high priority. Troubleshooting did not begin until the morning of July 14, 1987, when the lagging was removed and a Journeyman confirmed the existence of the corroded pipe and the pinhole leak. Between July 14-17, a weld repair plan was developed by the Mechanical Maintenance Department. No evaluation of the extent of the degradation was performed and no operability assessment of the Train 1 steam supply was performed. The steam header remained in service and aligned for automatic operation. The PWO remained classified as non-safety related.

In the early afternoon on July 17, the inspector requested that the licensee evaluate the extent of the pipe corrosion and its effect on AFW system operability. The licensee determined that the piping was actually safety related and a Non-Conformance Report (NCR) was issued to the Engineering Department for evaluation. At approximately 4:30 p.m. it was determined that, based on the extensive visible corrosion and the observed pipe leak, the integrity of the steam line was suspect and could not be assured without further testing. A specific concern existed that the weld joint at which the pinhole leak originated was of unknown quality and that pipe wall thinning in excess of allowed tolerances could have resulted from the observed corrosion.

The licensee determined that the train 1 steam line was inoperable and that sufficient evidence of the inoperable condition had been obtained during the July 14 pipe inspection and was not effectively evaluated. Consequently, the licensee determined that AFW train 1 had been out of service in excess of the 72 hour Limiting Condition for Operation (LCO) allowed by TS 3.18 for single train operation.

TS 3.0.1 requires, in part, that when an LCO is not met then the reactor shall be placed in hot standby (mode 3) within six hours. Licensee interviews with the Journeyman revealed that he started work on July 14 at 7:00 a.m. but his recollection was that he did not remove the lagging and expose the source and nature of the leak until approximately 11:00 a.m.. Consequently, the licensee determined that the 72 hour LCO expired at 11:00 a.m. on July 17 and mode 3 was required at 5:00 p.m. At 5:12 p.m. on July 17, 1987 the Unit 4 reactor was placed in hot standby and plans were implemented to bring the unit to cold shutdown (mode 5) as required by additional portions of TS 3.0.1.

This event is of concern because the licensee identified a condition adverse to quality and initially failed to recognize it as such. Maintenance troubleshooting and repairs were erroneously identified as non-safety related. This resulted in a three day delay before the potential through wall pipe leak postulated in the PWO was investigated (July 11-14). An appreciation for the potential of train failure through weld degradation and/or pipe wall thinning was not shown by the Mechanical Maintenance Department subsequent to the July 14 inspection.

10 CFR 50, Appendix B, Criterion XVI, as implemented by Florida Power and Light Topical Quality Assurance Report FPLTQAR 1-76A, Revision 10, and TQR 16.0, Revision 5, entitled Corrective Action, requires, in part, that measures be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

FPL Quality Assurance Manual, Quality Procedure 16.1, Revision 8, delineates requirements for assuring that conditions adverse to quality are promptly corrected.

The failure to promptly identify and correct a condition adverse to quality is a violation. This violation applies only to Unit 4 (251/87-33-02).

12. Plant Events (93702)

The following plant events were reviewed to determine facility status and the need for further followup action. Plant parameters were evaluated during transient response. The significance of the event was evaluated along with the performance of the appropriate safety systems and the actions taken by the licensee. The inspectors verified that required notifications were made to the NRC. Evaluations were performed relative to the need for additional NRC response to the event. Additionally, the following issues were examined, as appropriate: details regarding the cause of the event; event chronology; safety system performance; licensee compliance with approved procedures; radiological consequences, if any; and proposed corrective actions. The licensee plans to issue LERs on each event within 30 days following the date of occurrence.



On July 1, 1987, while Unit 3 was in cold shutdown, Unit 3 underwent a safety injection automatic initiation from a containment high pressure signal. Electrical department technicians required a hose connection to test penetration canisters on Unit 4. To accomplish this they borrowed an I&C pressure regulator from Unit 3 being utilized in preparation for initiating a containment high pressure signal for safeguards testing. The high pressure nitrogen supply was manipulated to verify valve closure. This caused a high containment pressure signal.

On July 5, 1987, while Unit 3 was in cold shutdown, the D-MCC [Motor Control Center] was deliberately de-energized during Unit 3 Integrated Safeguards testing. D-MCC supplies power to the 4A emergency containment cooler fan and associated CCW valves. On loss of power, these associated CCW valves failed open as designed, causing Unit 4 CCW flow to increase which lowered header pressure. This caused the 4B CCW pump automatic start on low pressure signal.

On July 15, 1987, due to an incorrect valve alignment, while Unit 4 was operating at 100% power, train 1 and 2 AFW backup Nitrogen was unavailable for approximately 20 hours. This issue is discussed in detail in paragraph 10. The licensee promptly returned the system to operation when the problem was discovered.

On July 17, 1987, Unit 4 was placed in hot shutdown due to a leak on AFW train 1 steam supply line. Licensee personnel determined that the leak, which was very small, existed due to a degraded weld in the AFW system train 1 steam header. Since repairs were not initiated within the allowed 72 hour LCO specified in Technical Specification 3.18, the licensee placed Unit 4 in mode 3 and subsequently, mode 4, as required by TS 3.0.1. This issue is discussed in detail in paragraph 11.

13. Summary of International Atomic Energy Agency (IAEA) Activities

In fulfillment of the Safeguards Agreement between the United States and the IAEA, the IAEA selected, on July 19, 1985, Turkey Point Unit 4 for participation in its international safeguards inspection program. A major portion of this program requires the continuous surveillance of the fuel inventory through camera monitoring and seal wire placement. The surveillance program ensures that the fuel inventory does not change between physical audits.

The inspectors verified, during routine tours of the Unit 4 Spent Fuel Pool (SFP) and the accessible portions of the containment building, that seal wires were in place and intact and that surveillance cameras were operable. Seal wires are placed by IAEA inspectors on the containment equipment access hatch, the missile shields and the reactor vessel head seismic restraints. Only the seal wires on the equipment hatch can be observed from outside the containment building. The containment building is not normally entered during power operation. Two surveillance cameras are installed in the Unit 4 SFP. The SFP area is always accessible through locked and alarmed doors.

Two IAEA inspectors, accompanied by an NRC representative, visited the site on July 16, 1987. Work performed included changing the film in the two Unit 4 spent fuel pool monitoring cameras, placing seal wires on the Unit 4 equipment hatch, and reviewing fuel inventory records. By mutual IAEA, NRC and licensee agreement, seal wires were not placed on the Unit 4 missile shields because neutron dose rates near the reactor head are prohibitively high while the reactor is critical. These seals will be installed during a subsequent visit when the reactor is subcritical.

14. Plant Procedures (42700)

A review was performed of selected plant procedures to verify, that overall plant procedures are in accordance with regulatory requirements, that procedure changes are made in accordance with TS requirements and that procedures are adequate.

Numerous procedures, including administrative procedures (ADM), emergency operating procedures (EOP), off-normal operating procedures (ONOP), operating procedures(OP), and surveillance procedures (OSP) were reviewed to verify that appropriate reviews and approvals were performed prior to issuance. It was determined that an effective procedure review and approval program exists and is being implemented in a manner consistent with TS requirements. These requirements include review of proposed procedures by the Plant Nuclear Safety Committee (PNSC) and approval by the Plant Manager-Nuclear. Of the 40 procedures selected at random, all had been reviewed by the PNSC and approved by the Plant Manager-Nuclear.

A review was performed to verify that procedure changes were made to reflect TS changes and license revisions. TS amendment numbers 118 and 112, for Units 3 and 4 respectively, established TS 3.20, Standby Feedwater Systems, which requires two standby feedwater pumps to be available with 60,000 gallons of water in the demineralized water storage tank. The licensee implemented, on October 14, 1986, procedure 0-OP-074.1, to provide standby feedwater operating instructions and valve alignment guidance. Additionally, surveillance procedure 0-OSP-074.3, Standby Steam Generator Feedwater Pumps Availability Test, has been developed to implement the surveillance requirements specified in TS 4.21 for the system. Procedure 0-OSP-200.1, Schedule of Plant Checks and Surveillances, revision dated July 17, 1987, implements the monthly requirement to perform 0-OSP-074.3. Procedures also existed for the verification of demineralized water storage tank level (each shift, OP-0204.2) and testing the standby feedwater pumps using the cranking diesels (each refueling outage, 0-OSP-074.4).

Also reviewed were TS Amendment numbers 124 and 118. This change required that condensate storage tank level be verified to contain at least 185,000 gallons of water twice a day. This requirement is verified in procedure 3-OSP-201.1. The volume check is performed each shift, exceeding the 12 hour TS surveillance periodicity.



Temporary procedure changes are governed by the requirements of TS 8.3. Temporary changes to procedures may be made provided that: the intent of the original procedure is not altered; the change is approved by two members of the plant management staff, at least one of whom holds a Senior Operators License, on the unit affected; and the change is documented, reviewed by the PNSC and approved by the Plant Manager--Nuclear within fourteen days of implementation. The requirements of TS 6.8.3 are implemented by Administrative Procedure 0109.3, entitled On the Spot Changes (OTSC) to Procedures, revision dated June 18, 1987. The procedure effectively implements TS 6.8.3. Specific requirements exist specifying that changes be evaluated against eighteen criteria to determine whether the change must receive prior PNSC review before issuance. The guidelines include consideration as to whether a proposed change: modifies a TS or FSAR requirement; decreases personnel safety; changes the design of a safety related component or system; changes the Emergency Plan; or involves a less conservative method of performing an activity. Affirmative answers to these and other similar questions result in the change being reviewed by the PNSC prior to incorporation. This method of review appears to effectively prevent changes of intent from being implemented via temporary changes.

The OTSC logbook was reviewed to verify that temporary changes were approved as required by TS 6.8.3. Approximately 50 OTSCs were reviewed. No discrepancies were identified with respect to required approval signatures, license qualifications or time constraints. Various procedures were selected at random from the control room procedure files. Those procedures having OTSCs were clearly marked. Copies of the applicable OTSCs were readily available.

An examination of the plant working file for procedures resulted in no identifiable out of date procedures. However, it was determined that approved temporary changes to procedures (OTSCs) are not available in the working file. The sole record of these temporary changes is located in the control room. Consequently, personnel who take a procedure from the working file, located in the Nuclear Administration Building (NAB), have no indication as to whether a temporary change has been made to the procedure. The possibility exists that an outdated version of a procedure could be used by supervisory personnel in the NAB during the performance of their duties. This has not posed a problem for operating personnel because they use copies of procedures supplied by the Shift Administrative Technician from the control room file.

Significant procedural improvements have been realized during the past two years due to the Procedure Upgrade Program (PUP). This program uses qualified technical writers to develop enhancements in procedure content and format. Several hundred procedures have been rewritten to improve their effectiveness. Additional procedures are being developed to implement the preventative maintenance program and to implement additional surveillances which will be required when the custom TS are superseded by upgraded, standardized TS.



The quality of the plant procedures can be attributed to the PUP which has maintained high standards for procedure content, format and review. Writers guides have been issued to standardize the developmental process in the areas of administration and operations (O-ADM-101), health physics (O-ADM-106), maintenance (O-ADM-107), off-normal (O-ADM-108), and emergency (O-ADM-109) procedures. The plant staff has been intimately involved in the review of proposed procedure upgrades. This has, for the most part, prevented the issuance of procedures which can not be effectively implemented due to field conditions.

Specific procedures have been reviewed and evaluated during routine and reactive NRC inspections between January and July 1987. As indicated in the respective reports, procedural discrepancies have been identified. However, these appear to be individual, isolated procedural oversights and are not indicative of a programmatic weakness. Numerous older plant procedures have not yet been revised by the PUP. Discrepancies which are identified in these procedures are handled on a real-time basis through use of OTSCs. The plant's policy of verbatim compliance has generally precluded "working around" procedural inadequacies and typically results in a halt to procedural implementation until the discrepancy is corrected.