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Enclosure 2

EXECUTIVE SUMMARY
Turkey Point Units 3 And 4

Nuclear Regulatory Commission Inspection Report 50-250,251/98-05

This integrated inspection to assure public health and safety included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a six-week period April 19 to May 30, 1998 of resident inspection. In addition, the report includes a regional announced inspection of maintenance.

Operations

- Operator performance during a Unit 3 planned load reduction and related power change was excellent. In addition, timely and prompt operator action to a turbine plant cooling water system malfunction prevented a possible unit transient (Section O1.1).

- Operator response to a Unit 4 main condenser vacuum problem was proactive and prompt, prevented a possible unit transient, and was in accordance with procedure requirements (Section O1.2).

- Control Room conduct including alarm response, communications, access control, and command and control, was positive (Section O1.3).

- Good reactor control operator shift reliefs and turnovers were observed, and related activities were noted to be performed very professionally (Section O1.4).

- The inspector concluded that operations conservatively monitored the plant during a planned Unit 4 startup transformer outage (Section O2.1).

Maintenance

- The Unit 3 turbine valve test was well planned and briefed, effectively coordinated and conducted, and oversight was evident (Section M1.2).

- A surveillance test of the reactor protection logic was completed successfully, and the licensee properly followed the Technical Specification requirements. Pretest briefings were effectively and thoroughly conducted (Section M1.3).

- Maintenance activities were performed in a quality manner and documentation was good. Procedures were in place and were being conscientiously followed by qualified maintenance personnel. Interface between maintenance and operations personnel was good. Applicable foreign material exclusion controls, measuring and test equipment controls, post maintenance test requirements, and quality control hold points were being accomplished in accordance with requirements (Section M1.4).

- The licensee was aggressive in the reduction and the control of the maintenance backlog. However, the number of overdue preventive maintenance (PM) tasks, and moving scheduled PMs from outage to on-line work without adequate planning were considered a weakness (Section M1.5).

- In general, housekeeping was found to be good, and material condition was considered adequate (Section M2.1).

Engineering

- The licensee's response to a shift technical advisor (STA) availability issue was proper. Based on recent inspector observations both in the plant and in the simulator, the STA program and function remains effective (Section E1.1).

- The licensee's decision to retain the current trip of charging pumps during a safety injection was appropriate (Section E2.1).

- A residual heat removal system design deficiency was identified by the license and properly corrected with a modification. The issue remains open pending submittal of a licensee event report and subsequent NRC review (Section E2.2).

- An engineering meeting was a good format to exchange information (Section E8.1).

- The inspectors concluded that failure to update the Final Safety Analysis Report for the performance of a full core off loads was a violation of 10 CFR 50.71(e) requirements (Section E8.2).

Plant Support

- Poor follow up of Nuclear Safety Speakout recommendations from a report that reviewed a fitness for duty issue was considered to be a weakness (Section S1.1).

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REPORT DETAILS

Summary of Plant Status

Unit 3

At the beginning of this reporting period, Unit 3 was operating at or near full reactor power and had been on line since February 19, 1998. The unit operated at or near full power during the period except for a load reduction to 40% power to perform routine periodic maintenance and testing (Section 01.1).

Unit 4

At the beginning of this reporting period, Unit 4 was operating at or near full reactor power and had been on line since October 14, 1997. The unit operated at or near full power during the period.

I. Operations

01 Conduct of Operations

01.1 Unit 3 Planned Load Reduction for Maintenance and Testing (71707)

The licensee reduced power on Unit 3 during the period May 13-14, 1998, in order to perform routine testing and maintenance. A unit load was reduced to 40% reactor power in order to conduct turbine valve testing and turbine trip testing. In addition, steam generator feedwater pump maintenance, turbine plant cooling water (TPCW) heat exchanger cleaning, condenser water box cleaning, and other miscellaneous secondary plant works were performed. The licensee planned the work through a detailed schedule in the plan-of-the-day document. Each major task had an appointed individual to ensure timely implementation of the plans. In addition, training in the simulator was conducted to ensure a high level of operator performance.

During Unit 3 TPCW heat exchanger swapping operations at 4:15 p.m. on May 13, 1998, a low surge tank alarm condition occurred. Operators responded per alarm response procedures (ARPs) and off normal operating procedures (ONOPs) requirements and refilled the tank prior to possible TPCW pump losses due to cavitation and prior to any unit threats. The cause of the low level condition was a ruptured tube in the 3B TPCW heat exchanger. The licensee isolated the heat exchanger and plugged the leaking tube. Longer term corrective actions include TPCW heat exchanger tube replacements scheduled for the upcoming outage.

The inspector reviewed the load reduction plans; observed portions of the training, operating, maintenance, and test activities: and, dis-

cussed the load reduction and related activities with appropriate licensee personnel. The inspector concluded that the licensee's plans were thorough, and that the power changes and maintenance activities were well coordinated and effectively implemented. Operator performance during the power changes was excellent, and the simulator training conducted was well performed and was effective. In addition, timely and prompt operator action for the TPCW problem precluded a possible unit transient.

01.2 Operator Response to a Unit 4 Condenser Leak (71707)

The inspector reviewed the licensee's response to a partial loss of a main condenser vacuum event on Unit 4 that occurred on April 29, 1998. The previous shift had hung a clearance on the Unit 4 heater drain pump dump valve. Apparently, the closed valve did not provide adequate isolation, resulting in a slow loss of the vacuum (e.g., 25 megawatts electric turbine load loss in five minutes). Operators responded per ONOP requirements, identified and corrected the problem, and initiated Condition Report (CR) No. 98-735 to document corrective actions.

The inspector reviewed the CR and control room log entries, discussed the event with operations, reviewed ONOP requirements, and independently verified corrective actions. The inspector concluded that operator response was proactive and prompt, prevented a possible unit transient, and was in accordance with procedure requirements.

01.3 Conduct of Operations

a. Inspection Scope (71707)

The inspector observed normal Control Room operations for both units during multiple periods of the inspection period. These observations were compared with the licensee's expectations as dictated in procedure 0-ADM-200, Conduct of Operations.

b. Observations and Findings

The operators fulfilled the expectations of the ADM and their management. All operators were intimately familiar with evolutions that were in progress on their units. They were knowledgeable of the equipment that was out-of-service and the plans for their units. Both Assistant Nuclear Plant Supervisors (ANPSs) and the Nuclear Plant Supervisors (NPSs) were fully aware of the status of both units and maintained their supervisory roles at all times. Transfer of the command and control function was formal, and all personnel in the Control Room were aware of the person with this responsibility.

The inspector observed portions of the Reactor Protection System logic test performed on Unit 4 on May 12, 1998 (See section M1.3 for further details). The crews' briefings were thorough and included all elements expected as defined in procedure 0-ADM-200, Conduct of Operations, Section 5.6.19. Specifically, all personnel involved in the surveil-

lance attended the briefing. All individuals were familiar with the procedure. The appropriate sections of the procedure were covered and all personnel had their own copies of the procedure. Each participant's activities were covered in the briefing, and discussion of expected results and possible problems were included. Overall, the inspector concluded that both briefings were well done, meeting Operations Management's expectations.

The inspector noted that Control Room communications usually met the expectations of Section 5.6.24 of ADM-200. Although communications were concise, the inspector did not always observe three point communications for information exchange. The inspector noted that the ADM did not require three point communications for information exchange, and the inspector did not note any errors in communications among the operators because of this issue. However, the operators did not have a significant amount of communication traffic during the observed period.

Generally, operator response to alarms was good. The inspector noted one instance in which the Reactor Controls Operator (RCO) was completing a personal telephone conversation and was slow to inform the ANPS or NPS that a DC ground alarm had been received. The ANPS was informed approximately six minutes after the receipt of the alarm. Also, it required several more minutes for him to inform a non-licensed operator about the alarm for investigation. The inspector spoke to an off-duty NPS who took prompt corrective actions.

Control Room access was good. Personnel conducted their business outside the Control Room surveillance area, and incidental conversations were noted to be minimized. Personnel observed surveillance area access controls without exception.

c. Conclusions

The inspector concluded that Control Room conduct was generally positive. The observed briefing fully met Operations Management's expectations. An area for improvement was observed with the use of three point communications for information exchange. Alarm annunciator response was generally noted as good, but one instance of slow response was noted and corrected. Access control for the Control Room was good.

01.4 Reactor Control Operator (RCO) Unit Duty Shift Relief and Turnover

a. Inspection Scope (71707)

The inspector reviewed the Reactor Control Operators shift relief and turnover requirements, observed various turnovers, and verified that the reactor operators were meeting station procedural requirements relating to the turnovers.

b. Observations and Findings

RCO turnover requirements are described in procedure 0-ADM-202, Shift Relief and Turnover. Typically, the oncoming operator would begin the shift turnover approximately a half hour before the start of the shift and would review the RCO logbooks and Control Room logs for as far back as necessary to obtain a good awareness of the unit activities and status. For example, some RCOs would return from a training week or vacation and would need to review back a longer period of time, as apposed to other RCOs that only needed a one day review.

Out-of-service equipment was reviewed and discussed. The board walk downs were thorough and well performed. Detailed discussions relating to unit out-of-service equipment and evolutions were noted, and several examples were also noted of good questioning attitude by the oncoming RCOs. Also, the RCOs exhibited good ownership of the units.

Appropriate control room announcements were made once the turnover was complete and the oncoming RCO was taking over the Control Room unit responsibilities. Throughout the observations of the shift turnovers and reliefs, the inspector noted that the reactor operators communicated and performed in a very professional manner.

The inspector observed numerous turnovers and verified adherence with the procedural requirements and that the RCO checklist was being appropriately used. On a number of times after the turnover, the inspector questioned the RCO on the unit status and planned activities. For example, discussions were held relating to planned surveillance, unit load threats, ongoing evolutions, locked annunciators, and out-of service equipment. The inspector found that in all cases the RCOs were very well informed and aware of the unit status and activities.

The inspector reviewed Attachment 4 of 0-ADM-202, RCO Unit Duty Shift Relief Checklist, which was used by the RCOs to perform the shift relief and turnover. The form has two parts to it. Part one is to be filled out by the off-going RCO and part two is to be filled out by the oncoming RCO. The inspector found that in general the forms were appropriately filled out and complete, and that both RCOs had signed the forms as required. However, the inspector found that on one form, the oncoming RCO had not checked off any of the boxes describing the required reviews. The inspector reviewed this item with the ANPS, NPS and Operations Support Supervisor and it was believed that the missing checkoffs were an oversight on the RCO's part. That is, Operations believed that the reviews were in fact completed but that the RCO did not check off the boxes. Additionally, the Operations Support Supervisor indicated that he reviews these forms on a weekly basis and that this was probably an isolated case because it had not been identified before. Operations wrote a night order to reinforce that the shift relief sheets had to be thoroughly completed.

c. Conclusions

Good reactor control operator shift reliefs and turnovers were observed, and related activities were noted to be performed very professionally.

O2 Operational Status of Facilities and Equipment

O2.1 Unit 4 Startup Transformer Outage (71707)

The licensee removed the Unit 4 startup transformer from service at 5:50 a.m. on May 20, 1998, for a 36-hour planned maintenance and testing outage. Technical Specification (TS) 3.8.1.1 and the required surveillance requirements were followed. The Unit 4 emergency diesel generators (EDGs) were conservatively tested satisfactorily prior to removing the transformer from service. The work plan was documented in the plan-of-the-day, and operators maintained a close oversight of progress. No load threatening work was allowed, no work in the secondary plant, and no other safety equipment was allowed to be removed from service. The transformer was returned to service several hours after the planned return, and well within the TS allowed time.

The inspector verified TS compliance, monitored work activities, discussed issues with Operations, and independently walked down EDG, vital AC, and related support systems. No system issues were noted. The inspector concluded that operations conservatively monitored the plant during the Unit 4 startup transformer outage.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope (61726 and 62707)

The inspector witnessed or reviewed portions of the following maintenance activity in progress:

- Unit 3 secondary plant activities (Section O1.1).

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

- Unit 3 turbine valve test (Section M1.2).
- Unit 4 reactor protection test (Section M1.3).

b. Observations and Findings

For those maintenance and surveillance activities observed or reviewed, the inspectors determined that the activities were conducted in a

satisfactory manner and that the work was properly performed in accordance with approved maintenance work orders.

The inspectors also determined that the above testing activities were performed in a satisfactory manner and met the requirements of the Technical Specifications.

c. Conclusions

Observed maintenance and surveillance activities were well performed.

M1.2 Unit 3 Turbine Valve Test (61726)

The inspector observed portions of the Unit 3 periodic turbine valve test per operations surveillance procedure 3-OSP-089, Main Turbine Valves Operability Test. The test was well briefed and controlled. Maintenance, engineering, supervision, and management were involved in assisting the operators. Some difficulties with the valve test motors were observed. This issue is currently tracked as an open operator work around, and is scheduled for repair during the upcoming Unit 3 fall 1998 refueling outage.

The inspector concluded that the Unit 3 turbine valve test was well planned and briefed, effectively coordinated and conducted, and oversight was evident.

M1.3 Unit 4 Reactor Protection System (RPS) Logic Test (61726)

The licensee performed procedure 4-OSP-049.1, Reactor Protection System Logic Test, on Unit 4 to meet the surveillance requirements of TS 4.1.1. The briefing was thorough and effective. The test portion was completed according to the procedure and without incident. However, a non-licensed operator (NLO) believed the A Reactor Trip Breaker was not fully racked in. The NLO did some minor mechanical agitation on the breaker and it tripped. Fortunately for the licensee, the bypass breaker was still shut. The licensee decided to retest the shutting and tripping ability of the breaker by using a modified version of procedure 4-OSP-049.1. The procedure was performed again without the sections that were previously successfully completed.

Technical Specification Table 3.3.1 required that both reactor trip breakers be operable with the plant in Mode 1. Table 3.3.1 further required that, with only one of the two reactor trip breakers operable, then be in at least hot standby within six hours; however, one channel may be bypassed for up to two hours for surveillance testing. The licensee recognized that they would exceed the allowed two hours with the reactor trip bypass breaker shut, and then actually exceeded the allowed two hours by 45 minutes. Since they were able to conduct a normal plant shutdown in less that two hours, they did not need to begin shutting down the plant during this evolution. The step of closing the reactor trip breaker was well briefed and was performed with engineering

involvement and oversight at the breaker. No significant anomalies were noted, and the surveillance was completed acceptably.

The inspector concluded that the surveillance of the RPS logic was completed successfully. Pretest briefings were effective and thorough. A minor problem was encountered when the reactor trip breaker was agitated, but the licensee was able to regroup and complete the test. The licensee appropriately entered a six-hour action statement when they exceeded the two hours that TS allows the reactor trip bypass breaker to be shut.

M1.4 NRC Specialist Observations

a. Inspection Scope (62700 and 61726)

The inspector observed maintenance and surveillance activities for selected components to evaluate the effectiveness of the licensee's maintenance program.

b. Observations and Findings

The inspector observed maintenance/surveillance activities for selected portions of the following work order (WOs) and reviewed the associated documentation to verify that maintenance was planned, controlled and performed in a manner to enhance safe operation of the plant:

- WO 98008369 01, Perform 18-month PM and surveillance on 125 VDC Station Battery 4D24 in accordance with Procedure 0-SME-003.4
- WO 98008652 01, Perform periodic breaker inspection on 4.16 KV Breaker 4AB05 (breaker to a startup transformer) in accordance with procedure 0-PME-005.3
- WO 96025895 01, Perform periodic breaker inspection on 4.16 KV Breaker 4AA05 (breaker to a startup transformer) in accordance with Procedure 0-PME-005.3
- WO 96028037 01, Perform 24-month PM/inspection of Valve MOV-6543B (control building HVAC supply fan suction damper D-11B) in accordance with Procedure 0-GME-102.9
- WO 96027837 01, Perform 24-month PM/inspection of Valve MOV-6543A (control building HVAC supply fan suction damper D-11A) in accordance with Procedure 0-GME-102.9
- WO 98002761 01, Change Reactor Coolant System Filter 3F200A in accordance with Procedure 0-PMM-47.10
- WO 98002377 01, Overhaul pump and motor for Lube Water Pump 3P13B

- WO 97025040 01, Perform calibration and functional testing of Containment Post Accident Hydrogen Monitoring (PAHMS) Channel AE-3-6307B in accordance with Procedure 3-PMI-094.2

- WO 98010381 01, Calibrate Diesel Fire Pump P101 Pressure Switch PS-711 in accordance with Procedure 0-GMI-102.1

- WO 98027609 01, Perform 18-month Startup Transformer X03 fire suppression deluge test in accordance with Procedure 0-SMM-016.9

- 18-month PM on Startup Transformer X03

- WO 98009423 01, Perform calibration of Steam Generator Level L-496 Hagen Racks in accordance with Procedure 3-PMI-071.4

During observation of the above maintenance work, the inspectors evaluated procedure use, assignment and performance of QC hold points, foreign material exclusion (FME) controls, measuring and test equipment (M&TE) controls, post maintenance testing (PMT) and qualification of maintenance personnel. The applicable revisions of procedures were in place and were being conscientiously followed by qualified maintenance personnel. Personnel had a questioning attitude and had procedure or WO requirements clarified before proceeding with an activity. Maintenance supervision was closely involved with monitoring maintenance work. A good interface among maintenance, health physics, and operations personnel was observed. Applicable FME controls, M&TE controls, PMT requirements, and QC hold points were being accomplished in accordance with requirements. The inspectors also observed that work activities were properly documented and problems encountered during the performance of the work activities were appropriately resolved.

During evaluation of PMT activities, the inspectors noted the following two areas where Procedure 0-ADM-737, Post Maintenance Testing, dated 3/4/98, needed clarification or enhancement:

- For pump motor maintenance/replacement, Attachment 2 to Procedure 0-ADM-737 specified pump bearing vibration checks, but did not clearly specify vibration checks for the motor bearings. The licensee's practice included vibration checks on both the pump and the motor after pump motor maintenance.

- For WO 98002377 01, the inspectors noted that the Post Maintenance Test Sheet specified "Vibration Check" after an overhaul of pump 3P13B pump and motor with a space to document whether the check was "SAT" or "UNSAT". The sheet was not clear as to who documented the results. Based on discussions with maintenance personnel and the technician who perform vibration checks, documentation of vibration checks on Post Maintenance Test Sheets has not always been consistent. Sometimes the technician performing the check would verbally tell the maintenance journeyman that the test had been performed and the journeyman would document the results, rather than have the technician document the results.

The licensee agreed that the above two areas of Procedure 0-ADM-737 needed clarification and stated that clarifications would be made in a procedure revision that was currently in process.

c. Conclusions

Maintenance activities were performed in a quality manner and documentation was good. Procedures were in place and were being conscientiously followed by qualified maintenance personnel. Interface between maintenance and operations personnel was good. Applicable FME controls, M&TE controls, PMT requirements, and QC hold points were being accomplished in accordance with requirements.

M1.5 Control of Maintenance Backlog

a. Inspection Scope (62700)

The inspectors reviewed the licensee's control of the maintenance backlog to determine if identified corrective maintenance and preventive maintenance items were being accomplished in a timely manner.

b. Observations and Findings

Based on discussions with licensee personnel, reduction of the maintenance backlog has had a high priority. The status of the backlog is highlighted in management meetings. The non outage backlog includes all Type 1 (deficiencies), Type 3 (projects), and Type 5 (trouble and breakdown) WOs. The target was to have the total non outage backlog of WOs less than 800. Review of trend data revealed that, at the end of April 1998, the backlog was 747 items. The 747 open items were compared to a backlog of approximately 1180 items in October 1997. The backlog of Type 5 WOs had been reduced from approximately 95 in January 1997 to approximately 65 at the end of April 1998. Only six of the 65 open items were greater than six months old, and none were greater than 12 months old.

The inspectors noted a high number of overdue electrical and instrumentation and control (I&C) PMs, i.e., PMs that were more than 25% past their due date. There were approximately 40, or 20 in each discipline. Only a few of these were safety-related or risk significantly. The licensee's program required that all overdue PMs have an extension request documented and approved, and that the extension be approved by engineering for safety-related and risk significant equipment. The safety-related and risk significant overdue PMs received a lot of attention and were tracked and trended in the plant performance indicators. The inspectors verified that all overdue PMs had extension requests issued and that the safety-related and risk significant ones had engineering approval and appropriate justification.

The licensee indicated that the overdue non-safety-related and non-risk-significant PMs were related to either resources or plant conditions,

i.e., having the plant in the desired condition to take the equipment out of service for the PM. A number of the PMs overdue because of plant conditions were for non-safety-related 480V load centers "F" and "G" equipment that had previously been performed during outages, but had been moved from outage to on-line prior to the last outage. The licensee found that performance of the PMs on line will require more planning and coordination. Therefore, the PMs have been delayed until the required planning has been completed and necessary contingencies are in place. The number of overdue PMs and moving PMs from outage to on-line without adequate planning to ensure PM performance by due dates was considered a weakness.

c. Conclusions

Based on the above review, the inspector concluded that the licensee was aggressive in reduction and control of the corrective maintenance backlog. However, the number of overdue PM tasks, and moving scheduled PMs from outage to on-line work without adequate planning was considered a weakness.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Material Condition and Housekeeping Observations (62707)

In addition to observations during inspection of maintenance activities, the inspectors performed a general walk down inspection of the turbine and auxiliary buildings to observe plant material condition and housekeeping. In general, housekeeping was found to be good, and material condition was considered adequate.

III. Engineering

E1 Conduct of Engineering

E1.1 Shift Technical Advisor (STA) Availability (37551)

The inspector reviewed an issue documented in CR No. 98-677 regarding STA availability for response to the Control Room that occurred on April 21, 1998. During the midnight shift at about 3:00 a.m., the control room paged the on-shift STA over the public address (PA) system. When no response resulted, the NPS (who was on a plant tour) found the STA in a relaxed and an apparent inattentive state in the administrative building. The licensee removed the STA from duty pending an investigation.

The STA underwent a medical examination and it was concluded that a sleep deprivation condition existed. The condition was treatable, and the STA received appropriate medical treatment. The licensee declared the STA fit for duty effective May 11, 1998. Based on the ten minute availabilities required for the STA per site procedures, the Technical Specification administrative section 6.1 requirement was met. Further,

the control room did not use the STA's telephone nor his personal pager in an effort to contact him. An apparent PA sound deficiency was also identified in the area of STA offices in the administrative building. The licensee intends to address this PA volume and coverage issue.

The inspector reviewed the CR and discussed this issue with licensee management. The inspector concluded that licensee's response was proper. Based on recent inspector observations of STA performance during routine and transient plant operations, and during simulator training drills and exercises, the STA program and function remain effective.

E2 Engineering Support of Facilities and Equipment

E2.1 Charging Pump Trip on Safety Injection (SI) Signal (37551)

During a SI initiation signal, the charging pumps trip and are locked out for two minutes. These pumps (three per unit) are not part of the emergency core cooling systems (ECCS). The EOPs direct the SI signal to be reset, at which time the operators can restart the charging pumps. The high head safety injection (HHSI) pumps are part of the ECCS; however, they are 1600 psig discharge pressure pumps. Therefore, if reactor pressure remains high, it is important for the operators to restore charging pump flow to the reactor. The licensee reviewed this issue under request for engineering assistance (REA) No. 96-018, and initially concluded a plant change/modification (PC/M) should be developed. However, after further detailed engineering assessments, the licensee concluded that a PC/M would not be appropriate. This was based on making the steam generator tube rupture event more severe, and changes necessary to tank interactions which could air bind the charging pumps. Thus, the licensee will not modify the current acceptable design.

The inspector initially reviewed this issue during NRC Inspections 50-250,251/96-04 and 97-12. The inspector discussed the REA and PC/M, and the current change in philosophy and decision not to modify the charging pump trip on SI actuation. The licensee's basis appeared to be sound, and the inspector had no further questions at this time.

E2.2 Residual Heat Removal (RHR) Design Deficiency

a. Inspection Scope (37551)

On May 13, 1998, at 9:55 a.m., the licensee identified a condition outside the design basis for the Unit 3 B and Unit 4 B trains of RHR. The inspector reviewed the licensee's actions regarding this issue.

b. Observations and Findings

During a design review by engineering in response to CR No. 98-387 for the 120 Volt Alternating Current (VAC) instrument buses, a condition outside Turkey Point's design basis was identified. A separation

concern was identified concerning auxiliary relays PC-3/4-600X. The safety related RHR pressure interlock circuits to MOV-3/4-862B and MOV-3/4-863B were discovered to have other non safety loads powered from the same breaker without adequate isolation. The circuits were powered from breaker 3(4)P06-10 along with five non safety loads which were located within containment. During a Loss of Coolant Accident (LOCA), the non safety loads powered from breaker 3(4)P06-10 could fail due to LOCA conditions inside containment and cause a trip of breaker 3(4)P06-10. The trip of this breaker would prevent MOV-3/4-862B and MOV-3/4-863B from opening. MOV-3/4-863B was normally closed and MOV-3/4-862B was normally open. This interlock did not affect post LOCA closure of MOV-3/4-862B. Valve MOV-3/4-863B was required to open and MOV-3/4-862B was required to close during the recirculation phase to provide a piggyback flowpath arrangement for containment sump water from the discharge of the RHR pump to the suction of the SI and Containment spray (CS) pumps.

The licensee immediately declared the B trains of RHR inoperable for both units. The A trains for both units were not affected as the redundant auxiliary relays PC-3/4-601X were properly powered and designed.

Because the A RHR recirculation loop remained operable, both units entered a 72-hour Technical Specification 3.5.2.a Action Statement (TSAS) for having one of two emergency recirculation loops out of service. Though the B loop of RHR was declared inoperable, it remained available. Corrective actions to modify the power for the affected pressure controllers from appropriately protected safety related power supplies were initiated. In addition, CR No. 98-804 was also written.

The license implemented PC/M No. 98-25 to modify the power for the affected B train relays. Engineering and the PNSC approved the PC/M, and wiring changes were completed during the midnight shift on May 14, 1998. At 8:35 a.m., after completing the PC/M turnover and acceptance, and post modification testing, the B trains of both units' RHR systems were declared operable. TSAS 3.5.2.a was exited.

The inspectors reviewed the issue, including the CRs, PC/Ms, wiring diagrams, electrical schematics and breaker lists. The issue was discussed with engineering, operations, and maintenance personnel, and with plant management. The inspector observed PC/M activities in the field.

c. Conclusions

Licensee action to identify the design deficiency was considered to be positive. Effective and timely action to modify the logic circuit problem was noted. The licensee intends to submit an LER for this issue. The NRC will make final disposition of this issue after reviewing the LER.

E8 Miscellaneous Engineering Issues

E8.1 Engineering Meeting (37551)

The resident inspectors attended an engineering meeting at the corporate FPL office in Juno Beach, FL., on April 22, 1998. The licensee and the residents discussed current engineering issues and programs, including engineering performance indicators, self-assessment initiatives, regulatory issues, problem solving and root cause analysis, and initiatives.

The inspectors concluded that the meeting was a good forum to exchange information related to engineering support of the units.

E8.2 (Closed) Unresolved Item 50-250,251/96-02-03, Failure to Update the UFSAR (92903)

As documented in NRC Inspection Report 50-250,251/96-02, during an evaluation of spent fuel pool (SFP) decay heat removal and refueling practices, the inspectors reviewed licensing basis documents for Turkey Point Units 3 and 4. The documents included the Updated Final Safety Analysis Report (UFSAR) and documents associated with Amendment No. 111 to the Turkey Point license dated November 21, 1984 (rerack amendment). Unresolved item 96-02-03 was opened to address the fact that UFSAR Section 9.5 and 14.D did not reflect nor analyze the practice of a full core off loads.

The inspectors reviewed licensing documents further and concluded that there were numerous instances of inaccurate and contradictory statements in the UFSAR. For example, UFSAR Section 9.3.1 stated: "During normal conditions 1/3 of a core is stored in the pool." This statement was inaccurate in that under current conditions, the spent fuel pool was housing fuel assemblies from numerous past refueling outages comprising multiple fractions of a core.

In a second example UFSAR Section 9.3.1 further stated: "When 1/3 of a core is present, the pump and spent fuel heat exchanger will handle the load and maintain a pit water temperature less that 141F. When 1-1/3 cores are stored in addition to the previously discharged fuel, the pit is maintained below 180F." This was contrasted with Section 14D 3.2.1 which stated: "When a freshly discharged core is stored in addition to the one third of a recently discharged core, the pool temperature is maintained below 150F. This was further contrasted with Section 14D3.2.2 which stated: "When a freshly discharged core is stored in addition to the one-half of a recently discharged core, and the heat load from previously discharged fuel (i.e., 1-1/2 cores), the pool water is maintained less than 180F."

The inspectors concluded that the statements were representative of different analyses performed at various times over the life of the plant and that the licensee had failed to adequately update the UFSAR to reflect which was the analysis that served as the current design basis.

The inspectors examined issues associated with the performance of full core off loads. Statements such as those in UFSAR Section 14D 3.2.2 reflected that the ability of the spent fuel pool cooling system to dissipate the decay heat associated with a full core off-load was analyzed. However, the only value of decay heat expressed in the UFSAR Section 14D.3.2.2 was 16.98 Million BTU/hour which was not indicative of the decay heat associated with a refueling full core off-load as discussed below.

The inspectors examined licensee submittals associated with license Amendment Nos. 111/105. In a letter dated October 5, 1984, the licensee provided a detailed series of assumptions for analysis of the spent fuel pool cooling system design. The licensee included clear discussion of two decay heat load cases. The first case, which was labeled the "normal ½ core refueling" reflected a calculated heat load of 17.9 million BTU/hour. In the "normal ½ core" case, the most recent core fraction is assumed to be a half core unloaded 150 hours after a shutdown. In the second case, the "full core" case, the licensee assumed the decay heat from a full core off loaded 150 hours after a shutdown and a half core discharged 36 days prior to the full core off-load. The calculated decay heat load for this case is 35.0 million BTU/hour. For the "normal ½ core" case the licensee calculated that the single SFP cooling pump could maintain spent fuel temperature at 143F or less. For the "full core" case, the licensee calculated that the single SFP cooling pump could maintain spent fuel pool water temperature at 183F or less.

The analysis in the October 5, 1984, letter was the analysis considered by the NRC staff and cited by the staff in issuing the safety evaluation for Amendments Nos. 111/105. However, numerous important parameters in the July 1984 analysis were not reflected in the UFSAR, including the maximum calculated decay heat and calculated maximum spent fuel pool temperature for the full core off-load case. The inspectors considered that this failure to update the UFSAR as required by 10 CFR 50.71(e), to reflect the effects of the safety analysis performed to support the 1984 rerack license amendment application, was a violation (50-250,251/98-05-01, Failure to Update the UFSAR for Full Core Offload).

Notwithstanding the failure of the licensee to adequately update the UFSAR, the inspector concluded that the effects of a full core off-load were clearly articulated in the July 2, 1984, submittal and were clearly reflected in the NRC staff's approval of the associated amendment. None of the assumptions or calculated values are dependent upon assumptions regarding the frequency with which the full core is off-load. Further, in the July 2, 1984, submittal; the licensee analyzed the operation of the spent fuel pool at a sustained pool temperature of 212F and concluded that pool structural integrity and pool function could be maintained indefinitely under those conditions. The structural analysis was reviewed by the staff and discussed in the safety evaluation for amendments 111 and 105. The inspectors concluded that the performance of full core off loads was analyzed and that no restrictions on the

frequency of such full core off loads stem from the licensing documents reviewed.

As noted in NRC Inspection Report No. 50-250,251/96-02, the licensee did not have procedures to assure that various licensing and design assumptions were met. Specifically, the licensee did not reflect the assumed 150-hour decay time prior to off loading the full core. The inspectors determined, however, that the licensee did not actually off-load fuel faster that the 150 hour assumptions. Similarly, the inspectors determined that refueling outage planning did not adequately assure that the spare spent fuel pool cooling pump was maintained in an available status during a full core off-load conditions. These issues were characterized as weaknesses in that report.

Unresolved item 50-250,251/96-02-03 is closed.

IV. Plant Support

S1 Conduct of Security and Safeguards Activities

S1.1 Fitness For Duty (FFD) Program (71750)

The inspector reviewed the licensee's Nuclear Safety Speakout (NSS) reports from 1995 to 1998 and noted ten cases related to sick time policy. The inspector reviewed those ten concerns. NSS Report Nos. 97-36 and 97-53 documented concerns due to the lack of formalization and promulgation of the licensee's sick time policy. The concern was that employees were reluctant to take sick days, were coming to work sick, and may be not be fit for duty. Recent NSS Report Nos. 97-100 and 98-08 reviewed the same concern, and noted lack of timely correction action from the 1997 report recommendations. During this review, the inspector reviewed two examples where workers reported to work sick and were sent home due to illness. There were no examples of employees actually working and performing safety-related duties while sick and not fit for duty. The inspector concluded that the licensee was in compliance with their fitness for duty (FFD) program in that employees not fit for duty due to illness were identified and sent home.

The licensee also identified that NSS corrective action recommendations were not all tracked to assure completion. In one example, NSS corrective actions related to sick time policy had been "closed to a promise" that a certain plant department was going to complete them. The licensee had committed to track NSS corrective action recommendations in a letter (L-96-160) dated June 20, 1996. The letter was in response to NRC Inspection Report No. 50-250,251/96-05. In this letter the licensee had stated: "Tracking of (NSS) recommendations will be enhanced to require that they be tracked through final dispostion." The inspector noted that 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, requires that conditions adverse to quality be corrected. The inspector concluded that the sick time policy was not a condition adverse to quality because employees that were not fit for duty did not perform

safety-related duties but instead were sent home. However, NSS did handle other concerns regarding conditions adverse to quality. Consequently, NSS performed a review of recent corrective action recommendations to assure that there were none related to conditions adverse to quality that were not being accomplished in a timely manner. No additional problems were noted.

The inspector concluded that the licensee provided poor follow up of corrective actions from a previous 1997 NSS review, particularly in view of a commitment made to the NRC in a June 20, 1996, letter on the Speakout Program. The lack of licensee tracking of corrective actions for all NSS concerns to assure they were completed in a timely manner was considered to be a weakness.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on June 4, 1998. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. V. Abbatiello, Quality Assurance Manager
R. J. Acosta, Director, Nuclear Assurance
J. C. Balaguero, Plant Operations Support Supervisor
P. M. Banaszak, Electrical/I&C Engineering Supervisor
T. J. Carter, Maintenance Support Supervisor
B. C. Dunn, Mechanical Systems Supervisor
R. J. Earl, QC Supervisor
S. M. Franzone, I&C Maintenance Supervisor
G. E. Hollinger, Licensing Manager
R. J. Hovey, Site Vice-President
M. P. Huba, Nuclear Materials Manager
D. E. Jernigan, Plant General Manager
T. O. Jones, Operations Supervisor
M. D. Jurmain, Electrical Maintenance Supervisor
A. N. Katz, Mechanical Maintenance Supervisor
J. E. Kirkpatrick, Protection Services Manager
G. D. Kuhn, Procurement Engineering Supervisor
R. J. Kundalkar, Vice President, Engineering and Licensing
M. L. Lacal, Training Manager
E. Lyons, Engineering Administrate Supervisor

C. L. Mowrey, Licensing Specialist
H. N. Paduano, Manager, Licensing and Special Projects
M. O. Pearce, Maintenance Manager
K. W. Petersen, Site Superintendent
T. F. Plunkett, President, Nuclear Division
K. L. Remington, System Performance Supervisor
R. E. Rose, Work Control Manager
C. V. Rossi, QA and Assessments Supervisor
W. A. Skelley, Plant Engineering Manager
R. N. Steinke, Chemistry Supervisor
E. A. Thompson, Site Engineering Manager
D. J. Tomaszewski, Systems Engineering Manager
J. C. Trejo, Health Physics/Chemistry Supervisor
G. A. Warriner, Quality Surveillance Supervisor
R. G. West, Operations Manager
S. F. Wisla, Health Physics Supervisor

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

List of Inspection Procedures Used

IP 37551: Onsite Engineering
IP 40500: Effectiveness of Licensee Controls in Identifying, Resolving, and Prevent Problems
IP 61726: Surveillance Observations
IP 62700: Maintenance Program
IP 62703: Maintenance Observations
IP 71707: Plant Operation
IP 71750: Plant Support Activities
IP 92903: Followup - Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

Type	Item Number	Status	Description and Reference
VIO	50-250,251/98-05-01	Opened	Failure to Update the UFSAR for Full Core Offload (Section E8.2)

Closed

Type	Item Number	Status	Description and Reference
URI	50-250,251/96-02-03	Closed	Failure to Update the UFSAR (Section E8.2)

LIST OF ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
ADM	Administrative (Procedure)
A.W.	Auxiliary Feedwater
a.m.	Ante Meridiem
ANPS	Assistant Nuclear Plant Supervisor
ANSI	American National Standards Institute
ARE	Annunciator Response Procedure
BTU	British Thermal Unit
CFR	Code of Federal Regulations
CR	Condition Report
CS	Containment Spray
DC	Direct Current
DPR	Power Reactor License
DRS	Division of Reactor Safety
EA	Escalated Enforcement (No.)
ECCS	Emergency Core Cooling Systems
EDG	Emergency Diesel Generator
e.g.	For Example
EDP	Emergency Operating Procedure
F	Degrees Fahrenheit
FFD	Fines For Duty
FL	Florida
FME	Foreign Material Exclusion
FPL	Florida Power and Light
GM(E)I	General Maintenance Electrical (I&C)
HHSI	High Head Safety Injection
HVAC	Heating, Ventilation, and Air Conditioning
I&C	Instrumentation and Control
I.W.	Intake Cooling Water
IFI	Inspector Followup Item
ISI	In-service Inspection
IST	In-service Test
KV	Kilovolt
L	Letter (licensing)
L	Level
LER	Licensee Event Report
LOCA	Loss-of-Coolant Accident
LPDR	Local PDR
MOV	Motor-Operated Valve
MWe	Megawatts Electric
M&TE	Measuring and Test Equipment
NCV	Non-Cited Violation
NLO	Non licensed operator
No.	Number
NOV	Notice of Violation
NP	Nuclear Policy
NPS	Nuclear Plant Supervisor
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
NSS	Nuclear Safety Speakout

ONOP	Off-Normal Operating Procedure
OSP	Operations Surveillance Procedure
PA	Public Address (System)
PAHMS	Post-Accident Monitoring System
PC	Pressure controller
PC/M	Plant Change/Modification
PDR	Public Document Room
p.m.	Post Meridiem
PM(E,M,I)	Preventive Maintenance (Electrical,Mechanical,I&C)
PMT	Post Maintenance Test
PNSC	Plant Nuclear Safety Committee
POD	Plan of the Day
psig	Pounds Per Square Inch Gauge
PTN	Project Turkey Nuclear
PWO	Plant Work Order
PWR	Pressurized Water Reactor
QA	Quality Assurance
QC	Quality Control
RCO	Reactor Control Operator
REA	Request for Engineering Assistance
RHR	Residual Heat Removal
RO	Reactor Operator
RPS	Reactor Protective System
SFP	Spent Fuel Pit
SI	Safety Injection
SME(M)	Surveillance Maintenance Electrical (Mechanical)
SRO	Senior Reactor Operator
STA	Shift Technical Advisor
TPCW	Turbine Plant Cooling Water
TS	Technical Specification
TSAS	TS Action Statement
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VAC	Volt AC
VIO	Violation
WO	Work Orders