U. S. NUCLEAR REGULATORY COMMISSION

REGION II

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Licensee:	Florida Power and Light Company
Facility:	Turkey Point Units 3 and 4
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Dates:	March 8 - April 18, 1998
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Enclosure

EXECUTIVE SUMMARY

Turkey Point Units 3 And 4
Nuclear Regulatory Commission Inspection Report 50-250,251/98-04

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 March 8 to April 18, 1998 of resident inspection. In addition, the report includes a regional announced engineering inspection.

Operations

- The Unit 4 Containment Air Lock Doors Operability Test was well performed. Good team work between the various disciplines and good health physics support was noted (Section O1.1)

- A weakness was identified in Operations' knowledge of the emergency diesel generator operability requirements relating to the diesel room ventilation fan. Consequently, Operations had weak controls on the operation of the fan switch and the diesel surveillance procedure lacked specific fan operability verification (Section O1.2).

- Appropriate communications with Health Physics and the control room was noted during the operator rounds. The operators understood the Health Physics requirements. Housekeeping and cleanliness inside the auxiliary building was noted to be good (Section O1.3).

- Excellent self-assessment was noted at the Turkey Point Monthly Status Meeting (Section O7.1).

Maintenance

- A weakness was identified for not implementing and maintaining the component supports Preventative Maintenance inspection program for safety related supports. A strength was identified for the excellent questioning attitude displayed by Quality Control that resulted in the audit for the condition of the supports at the site (Section M7.1).

- Good trouble shooting by the I&C technicians provided for identification of the cause for the spiking on the de-energized source range instrument (Section M1.2).

- The I&C technicians demonstrated good procedure adherence and communications while performing the Unit 3 pressurizer level surveillance test (Section M1.3).

- A weakness was identified for not implementing and maintaining the component supports PM inspection program for safety-related supports. A strength was identified for the excellent questioning attitude displayed by QC that resulted in the audit for the condition of the supports at the site (Section M7.1).

Engineering

- The excellent preparation, knowledge of the subject areas, and knowledge of the modification project for cathodic protection installation for the intake structure displayed during the design review meeting was identified as a positive observation. Also part of the positive observation was the penetrating and detailed questions asked of the presenters by the design review committee (Section E2.1).

- A strength was identified on the system engineer's knowledge of their respective systems (Section E2.2 and E2.3).

- The root cause of the failure to open of the auxiliary feedwater (AFW) turbine trip and throttle valve was not determined. Increased frequency testing of the mechanical trip mechanism on all three AFW pump valves is ongoing. An inspector follow up item (IFI 50-250,251/98-04-02) was opened to review the results of the licensee's increased frequency testing (Section E2.2).

- The Unit 3 and Unit 4 spent fuel cooling water pump lower suction valves were verified to be permanently locked closed with a welded chain. Appropriate administrative controls, including surveillance requirements were verified (Section E2.3).

- A weakness was identified in Engineering's documentation of the initial assessments of the corrosion found on the Unit 3 diesel fuel-oil transfer pump system. An unresolved item (URI 50-250,251/98-04-01) was opened pending further NRC review of the results of the licensee's testing of the defective section of the 3A diesel fuel oil transfer pump discharge piping, a related evaluation of past EDG operability, and a related assessment of the timeliness of the licensee's corrective action (Section E2.4).

- The Air Operated Valve audit team found that there were no regulatory or safety issues with the licensee's Air Operated Valve Program (Section E7.1).

- The Quality organization was effectively following the resolution for its findings identified during a 1997 audit of the corrective action program (Section E8.1).

- A weakness was identified for a safety screening for a fire protection issue (Section E8.2).

- A Motor Operated Valve inspection concluded that the licensee had completed the required follow up items for the program, and no issues were identified (Section E8.3).

Plant Support.

- A comprehensive health physics procedures and operator field practices review, which included Inservice Test, had been completed. Operators had received training and were well versed with health physics controls, specifically with Inservice Test. Unresolved Item URI 50-250,251/98-02-01 was closed (Section R8.1).

- An emergency preparedness drill was well executed and the licensee demonstrated good site evacuation capability and employee accountability (Section P1.1).

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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 100% reactor power and had been on line since February 19, 1998. The unit operated at full power during the period.

Unit 4

At the beginning of this reporting period, Unit 4 was operating at or near 100% reactor power and had been on line since October 14, 1997. The unit operated at full power during the period.

I. Operations

O1 Conduct of Operations

O1.1 Containment Air Lock Doors Operability Test (71707, 61726, and 71750)

The inspector observed the Unit 4 Containment personnel and emergency air lock door latch mechanism and operability test. The test is described in procedure 4-OSP-051.6, Containment Air Lock Operability Test, and is performed to verify compliance with Technical Specification 4.6.1.3c. The inspector reviewed the test procedure and applicable associated procedures prior to the test, verified test prerequisites had been completed, attended the control room briefing, and observed the complete job in the field. Good coordination and team work was noted among Operations, Mechanical Maintenance, Security, and Health Physics. Operations had the lead on the job and the Nuclear Watch Engineer was present and supervised the complete job. Strong procedure adherence, good communications with the control room, and good health physics support was noted. No issues were identified during the test and the surveillance was completed satisfactorily.

O1.2 Emergency Diesel Generator Ventilation Fan

a. Inspection Scope (71707, 61726 and 37551)

On April 10, 1998, the licensee found that the 3A emergency diesel generator (EDG) ventilation fan could not be operated by manual control. It was not immediately apparent to the licensee whether the fan was required for diesel operability. The inspector followed and assessed the licensee's actions when the 3A EDG ventilation fan could not start on manual control.

b. Observations and Findings

On April 10, 1998, at approximately 12:15 a.m., a field operator identified that the 3A EDG ventilation fan would not start on manual control. The purpose of the fan is to pull air out of the EDG room, thereby creating a slight vacuum so that outside ambient air could be drawn into the EDG room and provide a continuous airflow through the room. The operator subsequently informed the control room that the fan would not operate. However, the midnight control room crew did not fully assess the finding or operability of the 3A EDG. It was not until later, during the 7:35 a.m., Control Room briefing, that the oncoming day crew was informed that the 3A EDG ventilation fan could not be started in the manual position.

At 9:18 a.m., during a control room walk down, the inspector found that the licensee was assessing whether the ventilation fan was required for EDG operability. At that time the 3A EDG had not been declared inoperable. Further, upon inquiry, Operations informed the inspector that they had found the thermal switches on the fan control circuitry tripped open. The thermal switches had subsequently been reset (closed) and the fan was operated. In parallel, Operations was discussing the issue with Engineering, trying to determine if the fan was required for EDG operability. The inspector exited the control room at 9:37 a.m. and asked the Systems Engineer Manager if the diesel was operable during a condition with the fan not being functional. Engineering indicated that an evaluation on the requirements on the operation of the EDG without the fan was ongoing. The inspector asked the Plant Manager if the diesel was operable. The Plant Manager indicated he was not aware of the ongoing issue and immediately called the control room and found that just recently, at 9:50 a.m., the 3A EDG had been declared out of service due to the malfunction of the 3A EDG ventilation fan. The licensee entered a 72 hour action statement on Unit 3 and Unit 4 per Technical Specifications (TS) 3.8.1.1 and 3.5.2f, respectively. Later the licensee declared that the time of the 72 hour action statement would start at 12:15 a.m., which was the time when the initial finding was made on the ventilation fan.

Condition Report 98-612 was written to address this issue. Engineering subsequently found that the ventilation fan was required for diesel operability. The inspector found that the control switch on the fan had three settings; ON, AUTO, and OFF. When turned to the ON position the fan would operate immediately. When turned to the AUTO position the fan would operate when the diesel was started. Lastly, if the switch was turn to the OFF position, the fan would not operate. Operations had no administrative controls on the fan switch positions. That is, no procedures were required to change the setting on the ventilation fan switch. Further, through discussions with Operations personnel, the inspector found that, on occasion, the ventilation fan would be turned on to provide ventilation in the diesel room. It was indicated that this would occur during outages and non-outage periods. Review of procedures 3-OSP-023.1, Diesel Generator Operability Test, and 3-OP-023, Emergency Diesel Generator, revealed that there was no fan rotation

verification. However, the surveillance did include a requirement to place the fan switch in the AUTO position. The Technical Specifications did not require a specific fan check.

The inspector reviewed the engineering evaluation and the operability assessment. The licensee determined that the last known time that the fan was operational was in November 1997. This was due to a post maintenance test which was performed after circuit breaker maintenance. The inspector verified the post maintenance work which had been performed in November 1997, and discussed the work with the system engineer. The system engineer recalled having seen the fan operational. The inspector reviewed the analysis approach with the engineers and concluded that it was sound. First, average daily temperatures dating back to November 1997 were used to determine the heat transfer capabilities under natural convection (simulating the fan not working). The licensee determined that enough heat transfer capability existed to maintain diesel operability during that period of time. Secondly, engineering also reviewed the thermal switch set points. Although the root cause for the thermal switches having tripped was not identified, it was determined to be a random failure. Additionally, engineering concluded that the settings were too close to operational levels and a recommendation was made to increase the set points on the thermal switches.

The inspector verified the licensees's immediate corrective actions, which included:

- Writing a procedure change to verify rotation of the ventilation fan during the diesel surveillance,
- Up rating the set points on the thermal switches,
- Tagging the fan switch not allowing change of the switch position without prior control room approval,
- Providing a night order to educate the control room and operators on the importance of the ventilation fan for diesel operability.

The licensee changed the 3A EDG thermal overload setpoints, retested the fan and the EDG, and restored the 3A EDG to operable at 8:20 a.m. on April 11, 1998. The licensee also changed the thermal overload setpoints on the 3B EDG and verified that the fans for the 3B, 4A, and 4B EDGs were in auto and were operable. Overall, the licensee had conservatively declared the 3A EDG inoperable for about 30 hours. However, the licensee's review of past operability, since November 1987 when the 3A EDG ventilation fan was last recorded to be operable, determined that the weather was sufficiently cool from November to April that the EDG was operable without relying on the ventilation fan.

c. Conclusions

A weakness was identified in Operations' knowledge of the emergency diesel generator operability requirements relating to the diesel room ventilation fan. Consequently, Operations had weak controls on the operation of the fan switch and the diesel surveillance procedure lacked

a specific fan operability verification. However, the surveillance did address the fan switch positioning.

01.3 Inside Auxiliary Building Operator Rounds

a. Inspection Scope (71707)

The inspector observed several operators performing their daily inside auxiliary building rounds and assessed the operators knowledge of Health Physics (HP) requirements.

b. Observations and Findings

Appropriate operator communications with HP was noted prior to entering a contaminated boundary area. The inspector observed good operator communications with the control room when any questionable observation or out-of-specification condition was recorded. Additionally, the inspector noted that the operators were thorough when inspecting a component or reviewing a plant work order (PWO). However, several operators commented that a PWO may be administratively cancelled, but that the actual PWO tag may not be removed from the equipment. This, at times they indicated, created uncertainty as to whether a PWO tag was still valid or not on a piece of equipment. Housekeeping and cleanliness was noted to be good. The inspector noted that a high percentage of the auxiliary building had been recently painted. Other than work in progress, no loose tools, mops, or equipment were noted inside the auxiliary building.

c. Conclusions

Appropriate communications with HP and the control room were noted during the operator rounds. Based on the discussions and observations made during the rounds the inspector concluded that the operators understood the health physics requirements. Housekeeping and cleanliness inside the auxiliary building was noted to be good.

07 Quality Assurance in Operations

07.1 Turkey Point Monthly Status Meeting (40500)

On March 30, 1998, the resident inspectors attended the Turkey Point Monthly Status Meeting. The licensee holds this meeting for the purpose of communicating to upper management the status of various departments. The inspectors noted good upper management attendance at the meeting. For example, in attendance was the Nuclear Division President, Turkey Point Site Vice President, Saint Lucie Site Vice President, Vice President of Nuclear Engineering, the Nuclear Assurance Director, and the Business Services Director.

Items discussed included significant accomplishments, site challenges, future activities and directions. Self assessments critiques, including performance indicators and trends, were evident throughout the

presentations. The focus topics of the meeting was the Health Physics Excellence Plan and Maintenance Self Assessment. The inspectors noted openness on critiques and a strong focus on nuclear safety. The inspectors concluded that the licensee management demonstrated excellent self-assessment.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope

Maintenance and surveillance test activities were witnessed or reviewed.

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

- N-4-32 Troubleshooting (Section M1.2)
- Emergency Diesel Generator Fuel-Oil Transfer Pump System Corrosion (Section E2.4)

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

- Pressurizer Level Surveillance (Section M1.3)
- Containment Air Lock Doors Operability Test (Section O1.1)

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 N-4-32 Source Range Spiking While De-energized

a. Inspection Scope (62707 and 37551)

The inspector reviewed the Instrumentation and Control (I&C) trouble shooting and actions taken to address spiking from the N-4-32 source range channel.

b. Observations and Findings

During the morning Plant Managers status meeting, it was reported several times that the N-4-32 Source Range Channel was undergoing trouble shooting by I&C. The channel was noted to be spiking during a de-energized condition. Unit 4 was at 100% power and therefore the source range instruments were de-energized. Maintenance had completed numerous actions to find the cause of the spiking but had not been able to identify the cause. Engineering later added that this was not a new issue and that it had been previously reviewed. Additionally, it was believed that during an energized condition, the electrical noise which created the spiking would actually be within the electrical noise specifications and would not create an out-of-specification condition on the source range reading. However, it was later reported that the cause of the spiking had been found and was attributed to power cables in the area of the sensor lines.

The inspector reviewed procedure 0-GMI-102.1, Trouble Shooting and Repair Guidelines, and also reviewed the associated plant work order. In addition, the inspector reviewed, in the field, the trouble shooting and the maintenance activities related to this job with the two I&C technicians who had performed the work. Numerous electrical components had been inspected and trouble shooting had been performed to find the purpose of the spiking. Towards the end the I&C technicians found some power cables which were too close to the source range sensor lines. The N-4-32 sensor lines were removed from the power line area and the spiking was no longer repeated. The technicians demonstrated the noise coming from the power cable using a cable tracer. Through this demonstration, discussions with the technicians, and visual inspection of the cables at the job site, the inspector noted that there was good initiative and questioning attitude on the part of the technicians which led to the finding. The inspector reviewed the Unit 3 cable configuration relating to the source range sensors. The cable routing was noted to be different and the power lines were not located near the source range sensor lines. Lastly the inspector reviewed this job with an electrical engineering supervisor and discussed items relating to cable bend radius and electrical isolation requirements. The supervisor later informed the inspector that no issues existed relating to cable radius requirement or electrical separation.

c. Conclusions

Good trouble shooting by the I&C technicians provided for identification of the cause for the spiking on the de-energized source range instrument.

M1.3 Pressurizer Level Surveillance (62707 and 71707)

The inspector observed I&C technicians perform the Unit 3 pressurizer level quarterly surveillance. This surveillance is defined by the licensee as a load threat surveillance because the channel being tested is physically tripped. Specifics relating to the procedure requirements, criterion for a satisfactory test, use of electrical equipment required for the surveillance, and training associated with that specific surveillance were discussed with the technicians. The inspector noted that the two I&C technicians performing the surveillance were very well versed with the procedures, test criterion, and with the associated required electrical instrumentation, such as the Eagle 21 system. Strong procedure adherence, good communications between the two technicians and with the Unit 3 reactor operator during the test was noted. At the completion of the surveillance, the inspector reviewed the procedure which was used, 3-SMI-041.11, Pressurizer Level Protection Loops Quarterly Test, and verified the procedure had been properly completed and that the test data and criterion had been appropriately evaluated.

The inspector concluded that the I&C technicians demonstrated good procedure adherence and communications while performing the Unit 3 pressurizer level surveillance test.

M7 Quality Assurance in Maintenance Activities

M7.1 Quality Audit of Component Support Preventive Maintenance (40500 and 37551)

a. Inspection Scope

Quality Assurance (QA) Audit No. QAO-PTN-98-002 evaluated the preventative maintenance (PM) inspection program for component supports at the site. The inspectors attended the exit for the audit and discussed in detail the items and background for the findings.

b. Observations and Findings

During the Unit 3 reactor manual trip of February 16, 1998, and subsequent inspection of auxiliary feedwater (AFW) supports because of a small steam line rupture, it was found that some of the supports were in a degraded condition. The supports were all evaluated as operable. Several of the QC inspectors performing the inspections of the AFW hangers raised a question about the PM program and the generic implications for other supports. This resulted in the performance of

the referenced QA audit. This excellent questioning attitude displayed by the QC inspectors is recognized as a strength.

The audit revealed that in 1987 an NRC inspector found degraded supports, i.e. rusting bolts, missing nuts, etc. An inspector follow up item, IFI 50-250,251/87-52-02, was opened pending the development of the PM program and the corrective action on the rusting condition. This IFI was closed in 1989, Inspection Report 50-250,251/89-47; based on the licensee having a procedure (0-ADM-718) and being in the process of painting/cleaning the supports. The licensee had completed one of three phases for implementing this program. There were three classes of supports covered by this procedure: safety related, quality related, and non-safety related. The auditor found that the safety related supports were mistakenly removed from the procedure in 1990. The audit finding stated, "Failure to Maintain and Implement the Component Supports Preventative Maintenance Inspection Program for Safety Related Supports". In fact the auditor also discovered that there were no QA records to indicate that the program had been implemented on the other two classes of supports.

To support this finding QC also inspected some other supports that were in harsh environments or important supports in safety related systems. Degraded conditions were found on some of these supports and CRs were written. The engineering evaluation revealed that there were no operability problems. Due to the age of this problem (ten years old) and because no operability concerns were identified this problem was identified as a weakness in maintenance.

c. Conclusions

A weakness was identified for not implementing and maintaining the component supports PM inspection program for safety-related supports. A strength was identified for the excellent questioning attitude displayed by QC that resulted in the audit for the condition of the supports at the site.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Design Review for Plant Change/Modification

a. Inspection Scope (37551)

In order to minimize the number of problems encountered in implementing Plant Change/Modifications (PC/M), the licensee has resumed the formal design review process for major modifications. The inspectors attended a design review meeting for PC/M No. 97-055, reviewed part of the package, and reviewed some of the related technical information.

b. Observations and Findings

On April 3,1998, the inspector attended the design review meeting for PC/M No. 97-055, Intake Structure Bay Walls Cathodic Protection Installation. Some of the licensee's recent testing and inspections at the Intake Structure revealed the presence of corrosion damage at several of the steel reinforcing bars embedded in the bay walls. The licensee concluded that to preclude any further corrosion activity and to ensure that the Intake Structure remains within its design basis, installation of an impressed current cathodic protection system was necessary. This system will prevent corrosion of the wall reinforcing steel by causing a direct current to flow from a power source external to the intake structure to the reinforcing steel bars. There will 25 independent anode zones per intake bay. The anodes will be arc-sprayed (metallized) zinc anode with a topcoat of zinc silicate for corrosion protection (non sacrificial corrosion). This system is designed in accordance with National Association of Corrosion Engineers (NACE) International Standard RP0290-90, Standard Recommended Practice-Cathodic Protection of Reinforcing Steel in Atmospherically Exposed Concrete Structures.

The licensee used company fossil plant corrosion experts and an outside vendor to support the design of this system. Other potential methods for controlling the corrosion were also evaluated. The experts and the presenters were well prepared and very knowledgeable of the subject area and contents of the PC/M package. The design review committee asked penetrating and detailed questions. This is identified as a positive observation.

c. Conclusions

The inspectors concluded that the experts and the presenters were well prepared and very knowledgeable of the subject area and contents of PC/M 97-055, Intake Structure Bay Cathodic Protection Installation. The design review committee asked penetrating and detailed questions. This is identified as a positive observation.

E2.2 Auxiliary Feedwater Trip and Throttle Valve Failures

a. Inspection Scope (71707, 37551 and 62707)

The inspector reviewed three failures associated with the Unit 3 and Unit 4 auxiliary feedwater trip and throttle (T&T) valves.

b. Observations and Findings

Unit 3 and Unit 4 share the auxiliary feedwater (AFW) system. The AFW system has three steam driven pumps. The pumps are driven with steam from the unit which loses the normal feedwater. Under emergency conditions, any one pump can supply the total feedwater requirements to both units. Each pump has a T&T valve. The purpose of the T&T valve is to trip closed under an overspeed condition of the turbine pump. Also,

the T&T valve receives an open signal when there is an automatic AFW actuation.

The licensee had completed a modification to remove the electronic overspeed trip from the AFW pumps. On December 17, 1997, during the post maintenance testing related to the modification, the 'B' T&T valve failed to open on demand. During the test, operators indicated they noticed electrical arcing. The suspect relays, 2CR and 7CR, were removed and replaced. However, bench testing on the relays did not reveal any damage which would have resulted in the failure of the T&T valve to open. Engineering reviewed additional potential failure mechanisms and replaced additional electronic components, but did not find the root cause of the failure. The licensee wrote condition report 97-2088 to address this failure.

On January 23, 1998, during the performance of 4-OSP-075.7, Auxiliary Feedwater Train 2 Backup Nitrogen Test, the 'B' T&T valve was slow in opening and failed the timing stroke test. Immediate efforts to repeat the test resulted in the valve failing to open. The valve eventually opened, but subsequently failed an initial attempt to open again. Five subsequent attempts to open the valve were satisfactory. Condition Report 98-109 was written to address this failure.

On March 2, 1998, during performance 3-OSP-075.6, Auxiliary Feedwater Train 1 Backup Nitrogen Test, the 'A' AFW T&T valve failed to trip close after actuating the local mechanical trip lever. Condition report 98-0397 was written to address this failure. The inspector followed Engineering's diagnosis and trouble shooting of the issues and noted that a comprehensive effort was performed on the T&T valve mechanical trip linkages and electronics.

On the 'A' T&T valve, engineering found that the contact surfaces of the trip hook and latch up lever faces were slightly rough. This was identified as one of the potential causes of the failure to trip close. After cleaning up the contact surfaces, the licensee repeated the mechanical trip test and the test was satisfactory. Additional licensee actions included writing a temporary procedure to test the three T&T valves on an increased frequency (every two weeks) for the mechanical trip. The inspector observed the subsequent two mechanical trip surveillance tests on all three T&T valves, attended the control room briefings, and discussed the issues with the system engineers and operators. The valves passed the tests satisfactorily and no additional issues were identified. The licensee continues to test the T&T valves on an increased frequency.

The root cause for the 'B' T&T valve failure to open had not been identified. The licensee listed the potential failure mechanisms. Each potential failure mechanism was reviewed and verified prior to being ruled out as a cause. Operators were interviewed and their feed back was included in the root cause investigation. However, bench testing of the replaced components did not verify any failures. Although additional electrical components were verified to be operable,

engineering conservatively recommended replacement of numerous electrical components. The licensee has one open item relating to this issue. The control room switch that is used to open the 'B' T&T valve will be replaced at the next outage which is scheduled for October 1998. The inspector verified that this switch circuitry is not part of the automatic actuation of the auxiliary feedwater circuitry.

The inspector noted that the responsible system engineer was new at Turkey Point. However, throughout the inspections, observations, and discussions relating to these issues, the inspector noted that the responsible system engineer was very well versed and highly knowledgeable with the details of the two different issues and with the overall AFW system and its function. He had significant amount of experience with AFW systems and was also well versed with industry issues in general on AFW systems.

c. Conclusions

Engineering completed a comprehensive review of the three failures of the T&T valves. However, the root cause of the failure to open of the 'B' T&T valve was not determined. The licensee has one open item on this issue, namely, to replace the control room switch. Increased frequency testing of the mechanical trip mechanism on all three T&T valves is ongoing. An inspector follow up item (IFI 50-250,251/98-04-02), Auxiliary Feedwater Trip & Throttle Valve Failures, was opened to review the results of the licensee's increased frequency testing.

E2.3 Spent Fuel Pool Issues

a. Inspection Scope (71707 and 37551)

The inspector reviewed the licensee's commitment to permanently lock closed the Unit 3 and Unit 4 spent fuel pool cooling water pump lower suction valves. Additionally, the inspector performed a spent fuel pool system walk down with the responsible system engineer.

b. Observations and Findings

The inspector reviewed P&ID 5613-M-3033 and 5614-M-3033, Spent Fuel Pool Cooling System, and verified that the prints required the spent fuel cooling water pump low suction valves, 3-797 and 4-797 to be locked closed with a welded chain. The inspector performed a system walk down with the responsible system engineer. Valves 3-797 and 4-797, the valves for both Unit 3 and Unit 4, respectively, were verified to be locked closed. Further, no pad locks or cable locks were used, instead, the locking mechanism was a stainless steel chain through the yoke and hand wheel, and the ends of the chain were welded. The licensee indicated that this welded chain would prevent anyone from opening the valve. The inspector also noted that the valves were appropriately labeled with a requirement to obtain plant management authorization prior to performing any valve work. The licensee also imposed extra precautions on the valve. Procedure 0-ADM-205, Administrative Control

of Valves, Locks, And Switches, required the valves to be in the locked closed position, and for the chain to be welded. Surveillance procedure 0-OSP-205, 'Verification of Administratively Controlled Valves, Locks, and Switches', also required the licensee to verify that the valves were locked closed with a welded chain.

The Unit 4 system was walked down in its entirety and the Unit 3 system was partially walked down. It was noted that the system engineer demonstrated excellent knowledge of the spent fuel pool system. For example, the inspector reviewed the function and purpose of the locked spent fuel pool lower drain valves with the system engineer. Additionally, operation of various subsystems were discussed throughout the walk down. Industry issues were reviewed. The system engineer was very well versed with each of these items. Housekeeping and cleanliness in the immediate area was adequate.

c. Conclusions

The Unit 3 and Unit 4 spent fuel cooling water pump lower suction valves were verified to be permanently locked closed with a welded chain. Appropriate administrative controls, including surveillance requirements were verified. Excellent system engineer knowledge of the system was noted.

E2.4 Emergency Diesel Generator (EDG) Fuel-Oil Transfer Pump System Corrosion

a. Inspection Scope (71707, 62707 and 37551)

The inspector reviewed the licensee's assessments, activities, and planned corrective actions relating to corrosion that had been identified in November 1997, on the piping of the 3A and 3B EDG fuel-oil transfer pump system. When the issue escalated to a through-wall leak on the piping, the inspector observed the licensee's reactive corrective actions, verified Technical Specification requirements on the operating Units, attended the Plant Nuclear Safety Committee (PNSC) meetings, and observed the field inspections and pipe repair activities.

b. Observations and Findings

During the inspection period on a plant walkdown, the inspector noticed that the Unit 3A and 3B diesel fuel-oil transfer pump systems were tagged with plant work orders (PWO). The PWOs were dated November 11, 1997, and described that corrosion had been identified at the ground level on the suction and discharge piping of the 3A pump and the suction piping of the 3B pump. These three pipes were 2-inch carbon steel schedule 80 and entered the ground into a mixture of cement, rock and dirt. The piping is classified as safety related.

In discussing this observation with plant and engineering management, the inspector was informed that Condition Report 97-1953 was written to address this issue. It was concluded in the evaluation portion of the condition report that the extent of corrosion damage could not be

determined. However, the operability assessment portion of the condition report included a hoop stress calculation which indicated that, based on the application, the minimum acceptable wall thickness was 0.010 inches. The pipe had a nominal wall thickness of 0.218 inches. Additionally, the licensee indicated that there was no evidence of a leak. The inspector noted that there was no discussion on the seismic requirements of the piping. Also, there was no discussion on the attempts which had been performed to measure pipe thickness on the corroded part of the pipes. The inspector later found that attempts to take ultrasonic thickness (UT) measurements on the corroded part of the pipes were not successful because the surfaces were too rough. However, based on the minimum amount of data available at that time, engineering made a judgement decision and stated that the piping corrosion was not considered an operability concern. Additionally, it was engineering's position that additional inspection was required to assess the actual corrosion/degradation of the pipes. Two corrective action items had been identified on the condition report:

- Mechanical maintenance was tasked with completing two PWOs. The work included excavation and submittal of a Quality Control (QC) UT inspection of the piping. The completion date was requested by February 27, 1998.

- Based on the data from the item above. Engineering was to provide a final disposition of the condition report by March 18, 1998.

Plant Manager Action Item (PMAI) 97-12-158 was opened to track the second corrective action. The inspector later (on April 16) obtained a computer print out of the PMAI and found that there had been no updates on the form. For example, the due date of this item was still dated March 18, 1998, and there was no mention of the contingency planning activities.

The inspector found that in February 1998, a portion of the ground around the 3A discharge piping had been excavated. However, plant management had ordered that the job be stopped and postponed until a contingency plan was approved. The Plant Manager's approval (signature) was required prior to continuing the job. The licensee called this a red sheet signature. The contingency plan was to include immediate corrective actions, including environmental safety and repair activities if during the excavation the piping was damaged, i.e., creating a diesel fuel-oil leak, or during the UT inspection the piping was found to be below minimum wall thickness requirements.

On April 14, 1998, the inspector attended a plant manager's meeting. The purpose of the meeting was for Engineering and Maintenance to present to the plant manager the contingency plan and obtain approval to continue the job (red sheet signature). The inspector had found that a previous attempt by Maintenance to obtain the red sheet signature had been rejected by the plant manager. Maintenance and Engineering again did not satisfy the plant manager's questions and the contingency plan once again was not approved. Specific concerns related to welding

requirements, isolation of diesel fuel-oil on the suction piping, and parts availability. Later that afternoon, the inspector questioned engineering management and plant management as to why UT inspection could not be performed on the portion of the piping that had already been dug out. The inspector noted that the condition report conclusions were based on engineering judgement. Engineering did not have any conclusive data of the corroded area of the pipe (other than visual inspection) that would indicated there was no significant corrosion/degradation on the pipe. Further, that evaluation had been completed approximately five months ago. Additionally, the inspector questioned management on the timeliness of the committed corrective actions as described on their condition report.

On April 15, at 9:00 a.m., the inspector attended a plant managers meeting. The subject of the meeting was the diesel fuel-oil piping excavation and inspection. The plant manager opened the meeting and articulated his dissatisfaction with the support on this project, specifically, the contingency planning and its timeliness. After that brief discussion, approval was given for the Maintenance department to continue the excavation activities and perform the UT on the piping.

At approximately 11:15 a.m., during cleaning and preparation of the 3A diesel pump discharge pipe for UT inspection, the licensee indicated they damaged the pipe and caused a small through-wall leak. At 11:23 a.m., the inspector saw a mechanic brush the pipe with a steel brush in the same area of the leak and the leak flow rate significantly increased. The inspector noted that the plant manager was at the job site and he immediately declared the 3A emergency diesel generator out-of-service. Consequently, the licensee entered a 72-hour action statement on Unit 3 and a 72-hour action statement on Unit 4, per Technical Specifications 3.8.1.1 and 3.5.2f, respectively. A housekeeping clamp was put on the pipe to minimize and help contain the leak.

UT measurements revealed that the thinnest wall thickness were approximately in the area between 2.5 and 7 inches below the ground. The thinnest wall measurements obtainable ranged between 0.103 and 0.135 inches. Additionally, the defect in the A pump discharge pipe was approximated to be 1/32 by 1/64 inches. The licensee also found that the three pipes did not appear to be wrapped and coated as called out on the Turkey Point piping specifications.

Various methods for repairing the leak were discussed. Concerns relating to welding methods, environmental safety, NRC and pipe code requirements, and parts availability were reviewed. Inspection plans for the 3A suction and 3B suction pipes were proposed. Engineering reviewed pipe seismic and wall thickness requirements. Operations was noted to take immediate conservative action to get a diesel fuel-oil tanker to the site. The tanker would be able to directly supply diesel fuel-oil into the diesel day tanks. Also, Operations initiated actions in preparations to decrease Unit power (if required), i.e., procedures review, equipment availability, and control room coverage.

The licensee performed a code repair on the 3A pump discharge piping. The defective pipe was cut out and replaced with a new pipe section and was welded on with two couplings. However, the schedule 80 pipe was mistakenly replaced with a schedule 40 pipe. This was a finding made by QC during the inspection of the weld job. The schedule 40 pipe issue was latter addressed at the PNSC meeting and it was found to be acceptable. The inspector observed portions of the repair and inspection activities, verified post maintenance testing on the repair, and verified Technical Specification compliance, discussed the UT inspection results with QC, and reviewed portions of the stress analysis with engineering. Also, the inspector reviewed the cut out section of A pump discharge piping, and the A pump suction line and B pump suction line in the field with the licensee's metallurgist from Juno Beach. The cut out section was later taken to Juno Beach for laboratory analysis.

On April 16, at 5:40 p.m., the licensee had completed the repair, PMT, inspections, and PNSC approvals, and exited the 72 hour action statement. However, at approximately 7:00 p.m., during additional inspections on the 'B' pump suction line, what appeared to be a wet spot was noted on the pipe in the corroded area. The licensee indicated that there was no noticeable leakage. QC performed a non destructive inspection (cleaned the pipe and sprayed developer) and conservatively concluded there existed a through-wall defect in the pipe. A UT wall thickness measurement in that area measured 0.097-inches. Condition report 98-0660 was written to address this issue. Engineering reviewed this finding and no operability or structural concerns were identified and concluded that immediate repair action was not required. The minimum acceptable wall thickness was determined to be 0.045 inches.

Licensee management later informed the inspectors that additional data had been reviewed (in November 1997) to make the initial operability assessment on the condition report. However, through subsequent discussions with Systems Engineering, Design Engineering, and Quality Control, Engineering could not take a firm position on exactly all the data that was used to make the assessments in November 1997.

The licensee has committed to perform permanent code repairs on the 3A and 3B EDG fuel-oil transfer piping during the next outage. Visual inspections are being performed daily on the piping. The A pump discharge piping that was cut out is being evaluated by the licensee's metallurgical laboratory in Juno Beach.

c. Conclusions

A weakness was identified in Engineering's documentation of the initial assessments of the corrosion found on the Unit 3 diesel fuel-oil transfer pump system. An Unresolved Item (URI 50-250,251/98-04-01) was opened pending further NRC review of the results of the licensee's testing of the defective section of the 3A diesel fuel oil transfer pump discharge piping, a related evaluation of past EDG operability, and a

related assessment of the timeliness of the licensee's corrective action.

E7 Quality Assurance in Engineering Activities

E7.1 Air Operated Valve (AOV) Team Audit

On March 24, 1998, an AOV team headed by NRC Headquarters visited the licensee to perform a two day AOV program audit. The team consisted of five members; four experts in air and motor operated valves, and the Turkey Point project manager. The purpose of the audit was to collect data for identification of potential NRC generic requirements. This was the seventh licensee that the team had audited.

The inspectors attended the entrance and exit meetings and discussed the teams findings with the team members. In summary, the team concluded that no regulatory or safety issues existed on the Turkey Point AOV program. NRC headquarters will provide a separate audit writeup on the AOV team finding.

E8 Miscellaneous Engineering Issues

E8.1 (Closed) IFI 50-250,251/97-06-04, Follow up on QA Audit for Corrective Actions (40500, 37551 and 92902)

The inspectors attended an exit meeting for a QA audit involving the implementation of the corrective action program. Five findings were identified in the areas of processing NRC 10 CFR Part 21 Items, closing nonconformances with mode restrictions, root cause analyses not meeting guidelines, timely review of operating experience documents, and control of Plant Managers Action Items (PMAI).

Discussions with the QA organization indicated that the first three items had been properly dispositioned and results were acceptable. The fourth finding had not been completely corrected. A March 1998 QA review of the Operating Experience Feedback (OEF) program revealed that some of the OEF responses did not perform a through review of the issues and that the issues were being closed without being adequately addressed. Condition Report (CR) 98-0404 has been written for addressing this situation. The fifth finding regarding ineffective controls of PMAIs that resulted from CRs is still under evaluation. This IFI was closed based on the effective manner in which the Quality organization was addressing the corrective actions for the audit findings.

E8.2 (Closed) URI 50-250, 251/97-01-01, Possible Deficient Safety Evaluations (37551 and 92902)

Revision 13 to the Updated Final Safety Analysis Report (UFSAR) was submitted on October 7, 1996. During a trip to the site by the NRC Licensing Project Manager (LPM) in January 1997, a review was conducted of selected sections of the submittal to determine the appropriateness

of the changes and the adequacy of the associated safety evaluations. An unresolved item was opened as a result of this review. There were two parts to this unresolved item, one involved the clarity of a safety evaluation for use of manual action to open valves for fuel oil transfer to the Unit 3 emergency diesel and the second part involved the evaluation for a change to the facility as described in the UFSAR.

The inspectors reviewed revision 1 of the safety analysis and the amended Technical Specification (TS) bases which clarifies the position that use of manual actions in place of automatic actions to fulfill the Unit 3 fuel oil transfer function is an acceptable compensatory measure under loss of instrument air condition and is consistent with the original design intent. The licensee would have 15 hours to complete this manual action and the action is proceduralized. This information was acceptable to the LPM, the originator of the URI.

The second part of the item concerned a lack of information for calculating the combustible loading and whether a 10 CFR 50.59 safety evaluation had been performed for a change in the UFSAR. The licensee supplied the information for the combustible loading verbally at the time of the inspection and has changed the particular safety evaluation to include this information. In addition, during the 10 CFR 50.59 screening for minor modification PC/M 95-177, Pipe Insulation in the Auxiliary Building for Containment Air Conditioning, the licensee incorrectly answered one of the screening questions. The licensee marked a "no" for the question concerning whether the change represents a change to the facility as described in the UFSAR. The answer should have been "yes", because attachment 3 to this modification package updated the UFSAR Fire Hazard Analysis Section. This incorrect screening for performance of a safety analysis was an isolated incident and is identified as a weakness. The licensee took corrective actions as soon as the problem was identified. A safety evaluation was performed, a safety alert bulletin was issued to the Turkey Point engineers, and this item was included in the engineering training.

E8.3 (Closed) Inspection Follow-up Item 50-250,251/97-08-02, Weakness in the GL 89-10 Program justifications, evaluations, and extrapolation (37551 and 92902)

This item encompassed four licensee CTRAC action items: 970267 concerning updating calculations, 970268 review of high Coefficients of Friction (COF), 970269 review and application of extrapolation guidance to valves 878A/B, and 970270 incorporation of extrapolation guidance into a test procedure. The inspector reviewed PTN-BFJM-90-076, Revision 10, dated November 24, 1997, "NRC GL 89-10 MOV Design Basis DP Determination"; PTN-BFJM-90-077, Revision 12, dated December 22, 1997, "NRC GL 89-10 Thrust Calculation"; and PTN-BFJM-90-079, Revision 17, dated December 22, 1997, and Revision 18, dated March 27, 1998, "NRC GL 89-10 MOV Actuator Evaluation." These documents had been updated to address the items contained in items 970267 and 970268. The inspector reviewed EDI-ENG-005, dated December 19, 1997. This procedure is the guidance document for developing DP testing procedures and contains the

guidance concerning extrapolation of test results. This procedure addressed the comments contained in 970270. The inspector reviewed CR 97-1321 which justified the extrapolation that had been done on the test results for MOV 878 A/B as addressed in 970269. Additionally, the inspector reviewed the MOV report dated March 18, 1998. This report indicated that MOVs were causing less problems as indicated by a falling number of Plant Work Orders and their COF was stabilizing at about .12. Several high risk valves were selected by the inspector for review. Valves selected were MOV-3/4-535/536, MOV-3/4-856 A/B, MOV-3/4-864A/B, and MOV-3/4-1417 and 1418. The inspector reviewed the calculations of the design d/p, the thrust calculations, the actuator evaluations, testing data, and setup information. Findings were acceptable and based upon the above review this item was closed.

IV. Plant Support

R8.1 Miscellaneous Radiation Protection and Chemistry Issues

R1.1 (Closed) URI 50-250,251/98-02-01, Contaminated Boundary Controls During In-Service Testing.

a. Inspection Scope (71750 and 92904)

Inspection Report 50-250,251/98-02, described an unresolved item relating to Health Physics (HP) contamination boundary controls during Inservice Tests (IST). The inspector reviewed the licensee's findings and verified corrective actions.

b. Observations and Findings

The licensee determined that miscommunications between HP and Operations resulted in HP not being present during the IST on the Unit 3 charging pumps. The area was roped off and labeled with a HP contamination tag. The licensee noted that immediate corrective actions had included a thorough scan of the charging pump area and no contamination had been identified. Additionally, there was an immediate stand down on the IST job and appropriate HP controls were reviewed.

The inspector found that HP had previously identified an issue relating to inconsistencies with HP procedures and actual field practices. Feedback from operators relating to this issue had been obtained. Subsequently, an enhanced radiation worker training program had been completed which included a review of appropriate HP controls during IST. Additionally, HP procedures were in the process of being modified to clarify and eliminate any inconsistencies with field practices and requirements. The inspector obtained copies of marked-up procedures and verified that the procedure changes were in process.

The inspector reviewed the training literature as described in Student Lab Exercise 3408001, observed a training class in progress, and discussed the training with HP management and training instructors. The inspector noted that operators were being trained on mockups simulating

field conditions. Further, the operators demonstrated to the inspector the training that was received and the proper HP requirements when performing IST on pumps which were in a contaminated boundary.

The inspector reviewed the procedure changes with several operators. It was noted that the operators were well versed with the forthcoming procedure changes and with the required HP controls. The operators explained that these procedure changes were reviewed during the HP enhanced radiation worker training. Additionally, the inspector questioned the operators whether they believed any additional issues still existed relating to HP procedures and actual field practices. No additional issues were identified.

The inspector reviewed the advanced training and forthcoming HP procedure changes with several Watch Engineers. Part of a Watch Engineer's duties is to perform IST surveillance. Only one of the Watch Engineers was aware that there were forthcoming HP procedure changes and additional HP enhanced training. This particular Watch Engineer was aware of the issue because he was involved in the corrective action relating to the previously discussed contaminated boundary issue. The inspector discussed this observation with HP management and it was indicated that the Watch Engineers were next on the plan to receive the training.

c. Conclusions

A comprehensive HP procedures and operator field practices review, which included IST, had been completed. Operators had received training and were well versed with the HP controls, specifically with IST. Based on licensee actions and NRC review, Unresolved Item URI 50-250,251/98-02-01 was closed.

P1 Conduct of EP Activities

P1.1 Site Evacuation Drill

a. Inspection Scope (71750)

On March 25, 1998, the licensee held the first-quarter Emergency Preparedness Drill. The purpose of the drill was to assess the site evacuation capability and to demonstrate ability to account for the employees within the protected area within a thirty minute time window. The inspectors reviewed the drill scenario with the licensee and observed various portions of the drill.

b. Observations and Findings

The licensee determined that the drill was satisfactory. Full accountability had been achieved in 35 minutes. During the drill the inspector noted that the exit portal monitors at the Nuclear entrance/exit building had not been disconnected. Everyone leaving the plant used the normal procedures to exit, i.e., full health physics

controls were maintained and no deviations from radiological requirements were observed. For example, it takes a three second time delay to be counted at the portal monitor. There is an additional delay as there is a badge swipe required and one must go through the exit turn styles. All of this delay was included in the 35 minutes. Therefore, the licensee's position is that this was a worst case scenario on the time assessment and that 35 minutes was acceptable to conclude a satisfactory drill. Further, it was indicated that during an actual evacuation, the licensee would disconnect portions of the radiological controls. Additionally, the licensee noted that 416 employees exited the plant within a 25 minute period.

The inspector reviewed the licensee's drill critique and discussed the action items with the EP coordinators. No regulatory or safety significant action items had been identified. Additionally, the data base which is used to track EP action items was reviewed. It was noted that the action items from the drill critique had not yet been input into the database. Additionally, two items dating back to February 1997, were open. It was not evident what action, if any, was being taken to address these items, i.e., the data base did not appear to be a stand alone communications tool. The inspector found through discussions with the EP coordinator that the history relating to the open action items was available. Information was available through review of hard files or through his personal recollection of the activities. The licensee noted however, that any regulatory or safety issues would be addressed and tracked via the condition report process.

c. Conclusions

The inspector noted that the drill was well executed and concluded that the licensee demonstrated good site evacuation capability and employee accountability.

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 April 29, 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
J. R. Hartzog, Business Systems Manager
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 Administrative 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.

NRC Resident Inspectors

T. P. Johnson, Senior Resident Inspector
J. Rogerio Reyes, Resident Inspector
J. W. York, DRS/DRP Inspector

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 40500:	Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems
IP 61726:	Surveillance Observations

IP 62707: Maintenance Observations
IP 71707: Plant Operation
IP 92902: Followup - Engineering
IP 92904: Followup - Plant Support

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-250,251/98-04-01	URI	Emergency Diesel Fuel Oil Pipe Corrosion (Section E2.4).
50-250,251/98-04-02	IFI	Auxiliary Feedwater Trip & Throttle Valve Failures (Section E2.2).

Closed

50-250,251/97-08-02	IFI	Weaknesses in GL 89-10 Justifications, Evaluations, And Extrapolations (Section E8.3)
50-250,251/97-01-01	URI	Possible Deficient Safety Evaluations (Section E8.2)
50-250,251/98-02-01	URI	Contaminated Boundary Controls During In-Service Testing (Section R1.1)

LIST OF ACRONYMS USED

ADM	Administrative (Procedure)
AFW	Auxiliary Feedwater
a.m.	Ante Meridiem
ADV	Air Operated Valve
CFR	Code of Federal Regulations
COF	Coefficient of Friction
CR	Condition Report
CTRAC	Commitment Tracking
DP	Differential Pressure
DPR	Power Reactor License
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
FL	Florida
FPL	Florida Power and Light
GL	Generic Letter
GMI	General Maintenance - I&C
HP	Health Physics
I&C	Instrumentation and Control
i.e.	That Is
IFI	Inspector Followup Item
IP	Inspection Procedure

IST	Inservice Test
MOV	Motor-Operated Valve
NACE	National Association of Corrosion Engineers
No.	Number
NRC	Nuclear Regulatory Commission
OEF	Operating Experience Feedback
OP	Operating Procedure
OSP	Operations Surveillance Procedure
P&ID	Piping & Instrument Drawing
PC/M	Plant Change/Modification
PDR	Public Document Room
PM	Project Manager
PM	Preventive Maintenance
PMAI	Plant Manager Action Item
PMT	Post-Maintenance Test
PNSC	Plant Nuclear Safety Committee
PTN	Project Turkey Nuclear
PWO	Plant Work Order
QA	Quality Assurance
QAO	Quality Assurance Organization
QC	Quality Control
SMI	Surveillance Maintenance - I&C
T&T	Trip & Throttle
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Thickness
URI	Unresolved Item