UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
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ATLANTA, GEORGIA 30303-8931

January 3, 2003

Florida Power & Light Company
ATTN: Mr. J. A. Stall
Senior Vice President
Nuclear, and Chief Nuclear Officer
P. O. Box 14000
Juno Beach, FL 33408-0420

SUBJECT: TURKEY POINT NUCLEAR PLANT- NRC INSPECTION REPORT 50-250/02-06 AND 50-251/02-06

Dear Mr. Stall:

On November 22, 2002, the Nuclear Regulatory Commission (NRC) completed a safety system design and performance capability inspection at your Turkey Point Nuclear Plant. The enclosed report documents the inspection findings which were discussed with Mr. J. McElwain and other members of your staff on November 21, 2002 and January 3, 2003.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA: JAMES H. MOORMAN FOR:/

Charles R. Ogle, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos.: 50-250, 50-251
License Nos.: DPR-31, DPR-41

Enclosure: (See page 2)

Enclosure: NRC Inspection Report 50-250/02-06,
50-251/02-06 w/Attachment

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-250, 50-251
License Nos.:	DPR-31, DPR-41
Report Nos.:	50-250/02-06, 50-251/02-06
Licensee:	Florida Power & Light Company (FPL)
Facility:	Turkey Point Nuclear Plant, Units 3 & 4
Location:	9760 S. W. 344th Street Florida City, FL 33035
Dates:	October 28 - November 1, 2002 November 18 - 22, 2002
Inspectors:	J. Lenahan, Senior Reactor Inspector (Lead Inspector) N. Merriweather, Senior Reactor Inspector C. Smith, Senior Reactor Inspector R. Telson, Resident Inspector, Sequoyah M. Thomas, Senior Reactor Inspector
Approved By:	Charles R. Ogle, Chief Engineering Branch 1 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000250-02-06, IR 05000251-02-06; Florida Power and Light; on 10/28 - 11/1/02 and 11/18 - 22/02; Turkey Point Units 3 and 4; biennial safety system design and performance capability baseline inspection.

This safety system design and performance capability inspection was conducted by regional and resident inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Findings

No findings of significance were identified.

Report Details

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems

1R21 Safety System Design and Performance Capability (71111.21)

.1 System Needs

.11 Energy Source

a. Inspection Scope

Emergency Diesel Generator (EDG) Fuel Oil

The team reviewed design documentation, drawings, and test documentation to verify that the capacity of the fuel oil storage tanks and the design of the fuel oil transfer pumps were adequate to provide the fuel required to operate the EDGs for the seven day design basis period assumed in the Updated Final Safety Analysis Report (UFSAR). The team also reviewed test records for fuel oil transfer pump surveillances which tested the transfer function, discharge check valve operability, and the transfer pump control switch operation. In addition, the team reviewed the test results for fuel oil quality to verify that fuel oil quality was consistent with the EDG vendor recommendations and applicable industry standards.

EDG Starting Air

The team reviewed design documentation and drawings to verify that the EDG air start system capabilities were consistent with design basis requirements. This included test documentation to verify the air quality. Additionally, design and test documentation for the air receiver supply check valves was reviewed to verify the valves were periodically leak tested in accordance with the inservice testing program.

Diesel-driven Standby Steam Generator Feedwater Pump

The team reviewed design documentation, drawings, vendor manuals, calculations, and surveillance test results to verify the availability, reliability, and capability of the diesel engine for the standby steam generator feedwater pump (SSGFP). This pump was used as a backup to supply water to the steam generators when the auxiliary feedwater (AFW) system does not function properly during a station blackout (SBO). This review included calculations that determined diesel engine fuel tank capacity and fuel consumption.

Electrical Power

The team reviewed appropriate test and design documents to verify that the voltage to the emergency bus load sequencer would be adequate to support system operation in accordance with equipment specifications. The team also reviewed maintenance work

records on the 24 volt direct current (DC) system for the SSGFP to verify that the battery and charger were being maintained in a condition consistent with the acceptance criteria described in the preventive maintenance procedures.

b. Findings

No findings of significance were identified.

.12 Controls

a. Inspection Scope

Electrical Control Logic

The team reviewed electrical control schematics depicting control logic for the following equipment: auxiliary transformer circuit breaker 3AA02; startup transformer circuit breaker 3AA05; load center 3A main and feeder circuit breakers; diesel generator breaker 3AA20; 4160 volt alternating current (VAC) Bus 3A loss of voltage relays; diesel generator sequencer 3C23A and sequencer relay development; and 4160 VAC Bus 3A loss of voltage and bus stripping relays. The permissives and interlocks associated with the circuit breaker control circuits were evaluated in order to verify that the equipment operation was consistent with the UFSAR description and that equipment operation met the design criteria specified in the design basis documents.

The team reviewed the operations surveillance test procedure which provided prerequisites/limitations and instructions for testing Unit 3 EDG operability in order to satisfy Technical Specification (TS) surveillance requirements. This review was performed to verify that the procedure was adequate to demonstrate compliance with TS requirements concerning loss of offsite power (LOOP), and that licensing and design bases requirements were being met. Control logic and quantitative data related to the EDG steady state voltage and frequency were evaluated during this review.

The team also reviewed electrical control schematics of the AFW system turbine control circuitry. This review was performed in order to verify that operation of this equipment during station blackout was consistent with the UFSAR description. Control circuit interlocks and permissives were also evaluated to verify that design criteria specified in design basis documents were being met.

The team reviewed Section 6.0, “Auxiliary Feed Water Auto Start Test,” of the most recently completed surveillance tests 3-OSP-075.1 (and 3-OSP-075.2) “Auxiliary Feedwater Train 1 (and 2) Operability.” This review was conducted to determine if equipment operation was consistent with design and licensing bases requirements for LOOP and SBO.

LOOP Initiation Logic

The team reviewed the design drawings depicting the logic for the emergency bus load sequencer to verify that the logic was consistent with the UFSAR for a LOOP event. The team also reviewed design basis calculations and instrument loop uncertainty

calculations for 480 VAC load centers 3A, 3B, 3C and 3D loss of voltage relays 327T/3A1 and 3 27T/3A2 (IAV 55) and 327I/3A1 and 327I/3A2 (ITE 27N). The purpose of this review was to verify that the undervoltage relays for the load centers were sufficiently accurate to comply with the TS. An additional objective was to verify that the 480 VAC load centers electrical distribution system had two levels of undervoltage protection in accordance with the recommendations of Branch Technical Position PSB-1, and the licensee's commitments in the UFSAR. The team reviewed plant work orders that were completed for calibrating the loss of voltage relays. This review was performed in order to verify that the plant calibration procedures were adequate for ensuring that the loss of voltage relays were calibrated in compliance with the set point values delineated in the TS. The team reviewed emergency bus load sequencer surveillance test procedures and completed test results to verify that all logic paths associated with a LOOP were being tested in accordance with the TS. The 480 VAC switchgear undervoltage test procedure and test results on Unit 3 were reviewed to verify that the 480 VAC load centers 3A, 3B, 3C, and 3D undervoltage protective functions (i.e., loss of voltage and degraded voltage) were being tested in accordance with the requirements of TS Table 4.3-2, Items 7b and 7c.

SBO Control Logic

The team reviewed the design of the SBO electrical crosstie between Units 3 and 4 4160 VAC D switchgear buses. The permissives, interlocks, and indicators for the 4160 VAC D bus SBO tie breaker controls were reviewed to verify that the design was consistent with electrical elementary design drawings and the SBO licensing basis described in the UFSAR. The preoperational and surveillance test results on the SBO intertie breakers and controls and indicating lights associated with 4160 VAC switchgear 3D and 4D, were reviewed to verify that the intertie system would function in accordance with design. The team also reviewed the results of testing performed to demonstrate that each EDG could be connected to its associated 4160 VAC bus and cross-tied to the opposite unit's 4160 VAC bus within 10 minutes. This testing was performed to meet the licensee's commitments for the SBO rule.

b. Findings

No findings of significance were identified.

.13 Operator Actions

a. Inspection Scope

The team reviewed available engineering strategy and analyses that support the LOOP and SBO emergency operating procedure (EOP) and abnormal operating procedure (AOP) paths. The bases for actions and times and the consistency of the procedures with times assumed in LOOP/SBO recovery were also evaluated. Specific areas examined included whether procedures that directed LOOP recovery and breaker sequencing contained proper precautions and limitations, whether there were enough personnel to recover offsite power with the necessary expertise, and whether EOPs directed operators to remove electrical loads if not done automatically. The team also evaluated whether secondary side atmospheric dump valves (ADV) 1606, 1607, and

1608, could be operated manually, whether procedures existed to control their operation, and whether operators were trained on procedures.

b. Findings

An unresolved item (URI) was identified when the team was unable to verify that changes made to the EOPs in 1998 did not adversely impact the licensee's ability to cope with an SBO of the required duration. A URI was also identified to address the team's question on the adequacy of the evaluations performed pursuant to 10 CFR 50.59 which implemented the revisions to the SBO mitigation procedures.

The licensee's SBO mitigating strategy was approved by the NRC, in safety evaluations dated June 15, 1990 and July 31, 1991. This strategy included alignment of an alternate AC (AAC) power source and restoring reactor coolant pump (RCP) seal cooling within approximately 10 minutes to prevent seal damage. A normal RCP seal leak rate (approximately 3 g.p.m./RCP) was assumed in the licensee's analysis for the 8-hour duration of the SBO event without cooldown or depressurization of the reactor coolant system (RCS). The licensee's EOPs for loss of AC power were based on this strategy.

In 1998, the licensee revised the EOPs in response to a Westinghouse owners group (WOG) determination that reestablishing RCP seal cooling after an extended loss of seal cooling could have adverse consequences. The WOG recommended that RCP seals be cooled and RCS inventory loss be reduced by rapidly cooling down and depressurizing the RCS. The restoration of RCP seal cooling was deleted and RCS cooldown/depressurization was specified in the licensee's revised EOPs for loss of AC power. However, the team noted that this revised strategy could result in additional RCS inventory makeup requirements due to additional leakage expected from the seals and shrinkage in the RCS which occurs during cooldown. The team was unable to verify that the licensee had properly evaluated these potential additional makeup requirements and impacts on the AAC. Pending additional NRC review of the licensee's procedures and supporting analyses for SBO mitigation, this issue is identified as the first part of URI 50-250,251/02-06-01, Adequacy of SBO Strategy/Analysis and Loss of AC Power EOPs.

In addition, although the revised EOPs directed rapid cooldown/depressurization, the team noted that the strategy of rapid cooldown and depressurization may not be accomplished in all SBO scenarios. The team was concerned that delays in RCS cooldown and depressurization could increase the required makeup requirements to the RCS and thereby impact loading of the AAC. Pending additional review of the licensee's procedures and supporting analyses for SBO mitigation, this issue is identified as the second part of URI 50-250,251/02-06-01. The licensee issued Condition Report (CR) 02-2224 to address this issue.

The team also examined several reviews accomplished by the licensee pursuant to 10 CFR 50.59 to evaluate changes to the licensee's EOPs to incorporate this revision to their mitigation strategy. The team noted that these reviews did not acknowledge the revisions as changes to the facility or procedures as described in the UFSAR. The team noted that maintaining both units in hot standby during an SBO, is addressed in the

licensee's UFSAR. Pending additional NRC review of the licensee's UFSAR and licensing basis statements regarding SBO, this is identified as URI 50-250,251/02-06-02, Adequacy of 10 CFR 50.59 Reviews Associated With EOP Changes Concerning SBO.

.14 Heat Removal

a. Inspection Scope

Emergency Diesel Generators

The team reviewed design documentation, drawings, calculations and test records to verify that EDG cooling systems (i.e., EDG radiators, EDG room ventilation systems) were capable of removing the heat load and maintaining the EDGs within design requirements at maximum ambient temperatures during EDG standby conditions and during design basis operating conditions.

Secondary Side Cooling - SBO Backup Water Supply

The team reviewed design documentation, drawings, and calculations that supported use of the demineralized water storage tank (DWST) as the water source for the diesel-driven SSGFP during an SBO. This included reviewing the TS and calculations to verify the adequacy of DWST volume requirements for the SSGFP, and to verify that vortexing and net positive suction head requirements for the SSGFP were addressed. With regard to secondary side cooling operation of the SSGFP, the team examined the main feedwater regulating bypass valve FCV 479 for the ability to be operated manually and reviewed the procedures for manual operation of FCV 479.

b. Findings

No findings of significance were identified.

.2 System Condition and Capability

.21 Installed Configuration

a. Inspection Scope

The team performed field walkdowns of equipment related to the operation of the EDGs, SSGFPs, and their support systems during a LOOP and SBO conditions. Equipment examined included the EDG radiators, starting air system compressors and air receiver tanks, SSGFP diesel, DWST, and system piping and valves. Walkdowns were also completed for the following components/systems required to mitigate an SBO event: AFW, ADVs, diesel-driven instrument air compressors, and AFW & ADV nitrogen backup. The accessability of equipment required to be manually operated during an SBO were also evaluated by the team during the walkdowns. The team also conducted a walkdown of the 125 volt DC Class 1E batteries, the 4160 VAC auxiliary switchgear, 480 VAC load centers, and 480 VAC motor control centers. The field inspections were

performed in order to assess the adequacy of the equipment material condition and to verify the installed configurations were consistent with design drawings.

In addition, the team walked down the associated sequencer power supply panels and visually inspected the breakers and fuses in the circuits to verify that they were the correct type and size as shown on design drawings. The sequencer panels were inspected to verify that they were in good material condition, power was available, and no annunciators were in an alarm state. The team walked down and visually inspected the SBO key operated control switches in the main control room to verify that the controls and indicators for the SBO 4160 VAC crosstie breakers were installed in accordance with design.

b. Findings

No findings of significance were identified.

.22 Operations

a. Inspection Scope

The team evaluated the engineering strategy/analysis supporting LOOP/SBO EOP/AOP paths and evaluated the basis for actions/times. The team evaluated whether procedures were consistent with the times assumed for LOOP recovery and whether restoration of power could be performed without exceeding equipment operational limits. The team also evaluated operator training on the procedures. EOP/AOPs were evaluated to determine whether the procedures designated the use of crosstying, whether proper controls were incorporated for their use, whether equipment required for crosstying was being maintained in working order, and whether the required actions could be accomplished within the required time.

b. Findings

A URI was identified when the team was unable to verify the adequacy of the licensee's procedures and training for managing loads on the AAC EDG during an SBO.

Based on a table-top SBO walk-through with a licensed shift manager and independent reviews of the licensee's SBO procedures, the team was not able to confirm that the operators would be able to adequately manage the limited capacity of the AAC EDG in all SBO scenarios. Further, it was not clear to the team that the procedures provided necessary guidance to operators as to how operators should resolve which equipment to operate should the shedding of non-essential loads fail to ensure adequate EDG capacity to run the required equipment. However, the team observed that ratings of individual loads, as well as cautions to prevent overloading the EDG, were provided in some procedures. The team was concerned that the need for operators to make these decisions regarding load management during an SBO could complicate their response. Further, the team noted that the NRC's safety evaluation, dated June 22, 1990, stated, in part, that for EDGs used as AAC sources, the NRC's basic position was that excess capacity should not be attained by load shedding in the non-blackout (NBO) unit which could result in a degradation of its normally available safe shutdown capability for the

LOOP condition. The safety evaluation also stated that actions that would add to the burden of operators that are already in a high stress environment, such as load switching or disablement of information readouts or alarms in the control room, are considered to be a degradation of normal safe shutdown capability for LOOP in the NBO unit. Pending additional NRC review of the adequacy of the licensee's procedures and training in this area, this is identified as URI 50-250,251/02-06-03, Adequacy of Procedure Guidance and Training for SBO Mitigation.

.23 Design

a. Inspection Scope

Essential Alternating Current Power System

Engineering package PC/M No. 91-128, modified the non-safety injection degraded voltage protection scheme by installing two additional ITE-27N definite time delay relays to the previously existing two IAV-55C undervoltage relays. This plant modification was installed as part of license amendment number 152. The team reviewed calculation number EC-145 which analyzed the auxiliary electrical distribution system degraded voltage performance. This review was performed in order to verify that a basis had been established for the loss of voltage set points. Additionally, the team reviewed the plant modification package and calculation 21701-523-E-01 which established the set point values for the loss of voltage protection scheme for the 480 VAC load centers. The review was performed in order to verify that applicable design inputs had been incorporated from calculation EC-145 and provided the analytical limits upon which the loss of voltage relays set points were based. The calculations were also evaluated in order to verify that the under voltage relays setpoints were consistent with values delineated in the TS.

SBO DC (10 CFR 50.63)

The design criteria related to SBO requires that the vital AC/DC system shall provide power as required to support one AFW system pump train for two hours during a loss of all on-site and off-site AC power. This design criteria ensures operation of one AFW system pump train during SBO. The team reviewed battery sizing calculation number PTN-BFJE-94-002 prepared for sizing station batteries 3A, 3B, 4A, and 4B. The review was performed to verify compliance with the guidance of IEEE Standard 485 in order to ensure that proper considerations were taken in sizing the battery. Additionally, the team evaluated the calculation in order to verify that the design criteria for the AFW pumps was being satisfied.

The team also reviewed the plant procedure used by the operations staff for reducing DC bus loading during a loss of all AC power. This review was performed in order to verify that the loads identified for load shedding were accurately shown in the design basis calculation, and that the AFW pump DC loads were continuously energized for a duration of two hours.

Reactor Coolant Pump Seals

The team reviewed design documentation and vendor information to verify that the licensee had installed Westinghouse (W) reactor coolant pump (RCP) seal packages which included the new high temperature O-rings. The licensee's probabilistic risk assessment credited the W RCP high temperature O-rings as being designed and qualified to survive the 4-8 hour loss of all seal cooling postulated during an SBO event. The team's review included procurement specifications, engineering evaluations, purchase orders, vendor test data, and RCP seal installation records.

b. Findings

A URI was identified for further NRC review of the qualification report that documented the adequacy and acceptability of replacement O-rings in reactor coolant pump seal packages.

The team reviewed licensee design documentation and vendor information related to installation of the W high temperature RCP seal O-rings at Turkey Point. The RCP high temperature O-rings were procured as an equivalent replacement item for the RCP original non-high temperature O-rings. The licensee accepted the high temperature O-rings with an item equivalency evaluation (IEE) conducted in accordance with the design control process. The O-rings were installed under maintenance work orders. The material for the W RCP high temperature O-rings was different from the original non-high temperature O-rings. The upgraded material was a harder material designed to be able to withstand higher temperatures and to be capable of surviving a loss of all seal cooling during an SBO event.

During review of the RCP high temperature O-ring documentation, the team noted that the licensee had approved a second vendor, Framatome Technologies Incorporated (FTI), as a supplier of RCP seal kits. These seal kits included the high temperature O-rings. The licensee performed IEE 058891, dated March 16, 2000, which approved the FTI RCP seal kit and high temperature O-rings for use. This IEE stated that the FTI high temperature RCP O-rings were identical in every aspect to the original RCP O-rings supplied by W, but did not contain vendor technical documentation to support the conclusion. Instead, the IEE documented that an FTI representative verbally stated that the FTI high temperature RCP O-rings conformed to the W specification for the W RCP O-rings (e.g., material, configuration, dimension, etc.) as originally supplied.

While responding to the team's request for information related to the RCP high temperature O-rings, the licensee determined that the W supplied RCP high temperature O-rings were made of a harder material than the FTI supplied RCP high temperature O-rings. The team noted that high temperature O-rings supplied by FTI had been installed in one of the Unit 3 RCPs (3B) in October 2001, and in one of the Unit 4 RCPs (4A) in April 2002. The licensee addressed this issue by initiating condition report CR 02-2151, dated November 7, 2002, and performing IEE 072667, dated November 19, 2002. This IEE approved the FTI supplied seals and high temperature O-rings installed in RCPs 3B and 4A and other O-rings on hand as spares.

The team reviewed IEEs 058891 and 072667 and noted that these IEEs stated that the high temperature O-rings were considered a non-critical item because subsequent failure of an O-ring would not prevent any associated component from performing its intended function. The licensee's characterization of the O-rings as non-critical was not consistent with the W characterization of the high temperature O-rings described in Supplement 1 to WCAP-10541, Revision 2, and the W product update S-012-1 dated November 1991.

At the end of the inspection, the licensee provided the team with a test report from FTI dated April 3, 1994. This report formed the basis for qualification of the FTI high temperature O-rings. Pending further NRC review of the FTI qualification report to assess the adequacy and acceptability of the FTI high temperature RCP seal O-rings, this issue is unresolved. This issue is identified as URI 50-250,251/02-06-04, Acceptability of Reactor Coolant Pump High Temperature O-rings Having a Different Material Hardness.

.24 Testing

a. Inspection Scope

The team reviewed surveillance testing and inspection documentation for the EDGs to verify performance monitoring was adequate to assure that design capability was maintained and equipment degradation would be identified. The team also reviewed the surveillance test procedures which control testing of the SSGFP to verify testing requirements specified in the procedures were consistent with the TS. Additionally, completed test and inspection results were reviewed to assess the licensee's actions to verify and maintain the safety function, reliability, and availability of the SSGFP. Test and inspection results were reviewed to verify that the results were consistent with design specifications, that test acceptance criteria and test results appropriately considered differences between testing conditions and design requirements during design basis conditions, and that test and inspection results met established acceptance criteria.

The team reviewed the engineered safeguards integrated test procedures and test results to verify that: 1) the sequencer loss of offsite power logic schemes were being tested in accordance with procedures and TS, and, 2) test deficiencies were satisfactorily resolved. The manual test results of the emergency bus load sequencer logic testing were also reviewed to verify that they were performed satisfactorily in accordance with the approved test procedures.

b. Findings

No findings of significance were identified.

.3 Inspect Selected Components

.31 Component Inspection/Maintenance Activities

a. Inspection Scope

The team reviewed maintenance and testing documentation, performance trending information, corrective maintenance histories, and work orders to assess the licensee's actions to verify and maintain the safety function, reliability, and availability of the SSGFP and the SSGFP diesel. The team also reviewed maintenance work records of the last completed 18-month maintenance performed on the emergency bus load sequencer. The records were reviewed to verify that the maintenance performed on the sequencer was consistent with the recommendations described in the vendor manual. Specifically, the team reviewed the work orders that replaced the lithium batteries in the programmable logic controller and elapsed time indicators in the sequencer to verify that they had been replaced in accordance with the vendor manual.

In addition, the team reviewed preventive and corrective maintenance activities completed for General Electric (GE) 4160 VAC Magna-Blast circuit breakers and Asea Brown Boveri 5KH metal clad 4160 VAC switchgear. The team reviewed maintenance procedures and standard work descriptions in order to verify the adequacy of the instructions to inspect, clean, lubricate, and align the 4160 VAC circuit breakers.

b. Findings

No findings of significance were identified.

.32 Component Degradation

a. Inspection Scope

The team reviewed the licensee's actions to inspect the steam supply piping to the AFW turbine driven pump to identify piping degraded by external corrosion resulting from rainfall penetrating the piping insulation. The licensee's inspection program included removal of the piping insulation, performance of visual inspections to identify corroded sections of piping, and determination of the pipe wall thickness where corrosion was identified using either ultrasonic testing or radiographs. The team walked down the piping and observed in-process piping inspections to identify degraded piping, sections where the piping with degraded wall thickness had been replaced, and ongoing piping replacement activities. The team also reviewed the calculations which established the minimum wall thickness for the piping, and the operability evaluations for sections of piping identified with less than minimum wall thickness. In addition, the team examined the turbine driven AFW steam supply piping for inclusion of steam traps that would prohibit water accumulation in the piping system and prevent occurrences of water hammer events.

b. Findings

No findings of significance were identified.

.33 Environmental Qualification (EQ)

a. Inspection Scope

Due to the external corrosion of the AFW turbine steam supply piping, the team reviewed the design and licensing basis for the analysis of postulated pipe breaks outside containment (e.g., main steam, feedwater, and AFW turbine steam supply lines) to determine if appropriate AFW system components had been included in the plant's environmental qualification program. The team reviewed the licensee's criteria for selecting pipe break locations which were discussed in a letter from Mr. J. Coughlin, FPL, to Mr. A. Giambusso, NRC, dated June 21, 1973. The team also reviewed design drawings which showed the routing of the AFW system steam supply lines and the postulated pipe break locations outside containment. The team conducted walkdowns of the postulated break locations to determine if a pipe break in the area could cause a harsh environment where safe shutdown AFW system components are located. The team then reviewed the EQ master list to determine if appropriate AFW components were included in the EQ Program.

b. Findings

No findings of significance were identified.

.34 Modifications/Design Changes

a. Inspection Scope

The team reviewed plant change and modification packages PC/M 95-033 and 95-147 which were examples of recent design changes made to the emergency bus load sequencer. The plant design change packages were reviewed to verify that the changes did not degrade the emergency bus load sequencer design or functional capability as described in the UFSAR. The team reviewed design calculations IC-TP.0003, EDG Bus Load Sequencer Load Calculation, Rev. 1 and IC-TP-0012, Vital DC Bus Load Calculation, Rev. 0, to evaluate the acceptability of those fuses, breakers, and other current limiting/overcorrect protection equipment used in the power feeds to the emergency bus load sequencer.

The team also reviewed plant modification packages PC/M No. 01-009, Replacement of Unit 3 Startup Transformer, and PC/M No. 01-012, AFW Bus Stripping. The review was performed to verify that procedural guidance had been established for implementing the requirements of 10 CFR 50.59 for design changes and updating the UFSAR as required by Section 50.71(e) to describe the effects of the changes made in the facility or procedures described in the UFSAR. The team also performed independent design reviews of selected portions of the plant modification packages in order to verify that: (1) design inputs were correctly selected and incorporated in the design; (2) assumptions

had been identified for subsequent re-verification when the detailed design had been completed; (3) appropriate technical and quality requirements had been specified; (4) applicable codes and standards were specified and their requirements for design had been met; (5) an appropriate design method had been used and the output was reasonable compared to the input; (6) adequate maintenance features and requirements had been specified; and (7) the post-modification test acceptance criteria specified was sufficient to allow verification that the design requirements had been satisfactorily completed.

b. Findings

No findings of significance were identified.

.35 Operating Experience

a. Inspection Scope

The team evaluated the licensee's review of NRC Information Notice (IN) 99-13, Insights from NRC Inspection of Low and Medium Voltage Breakers, and Institute of Nuclear Power Operations SOER No. 98-02, Circuit Breaker Reliability, for applicability to their facility. Actions taken by the licensee in response to their review of the IN and the SOER were evaluated by the team in order to verify their responsiveness to industry experience. Additionally, corrective actions developed and implemented by the licensee in response to circuit breaker problems identified from industry experience was reviewed in order to verify that they were adequate for identifying and preventing similar problems at the site.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed the licensee's corrective actions in response to several condition reports identifying problems with the emergency diesel generator. The team also reviewed selected condition reports in order to evaluate the quality and scope of engineering support in the identification and resolution of 4160 VAC circuit breaker problems. The criteria used in this evaluation was the extent of engineering support in determining the immediate cause of circuit breaker problems and the extent of condition review they performed for determination of the root causes of the problems.

Recent plant operating experience with the GE Magna-Blast 4160 VAC circuit breakers was reviewed by the team in order to verify the apparent increase in circuit breaker failure per demand and its effect on core damage frequency.

The team verified that engineering personnel were considering the risk associated with the 4160 VAC circuit breaker problems. The team reviewed the corrective actions developed and implemented for resolving the 4160 VAC circuit breaker problems. The corrective actions were reviewed in order to verify the technical adequacy of the root cause analysis and to evaluate the recurrence controls established to prevent similar problems in the future.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA6 Management Meetings

The inspectors presented interim results of the inspection to Mr. J. McElwain, and other members of the licensee's staff at an exit meeting on November 21, 2002. A final exit meeting was held via telephone with Mr. J. McElwain and other members of the licensee's staff on January 3, 2003, to present the final results of the inspection. The licensee acknowledged the findings presented. Proprietary information is not included in this inspection report.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

P. Banaszak, Electrical Engineer
R. Bleeker, Electrical Engineering Supervisor
A. Dunstan, Mechanical Engineer
R. Earl, Corrective Action Group Supervisor
T. Jones, Plant Manager
M. Lacal, Operations Manager
J. McElwain, Site Vice President
G. Murphy, Operations Shift Manager
W. Parker, Licensing Manager
B. Stamp, Operations Supervisor
B. Thaker, Electrical Engineer
G. Warner, Site Quality Manager
A. Zielonka, Engineering Manager

Other licensee employees contacted included Operations, Engineering, Maintenance, and Administrative personnel.

NRC
C. Patterson, Senior Resident Inspector, Turkey Point Nuclear Plant
R. Reyes, Resident inspector, Turkey Point Nuclear Plant

ITEMS OPENED

URI 50-250,251/02-06-01	Adequacy of SBO Strategy/Analysis and Loss of AC Power EOPs (Section 1R21.13)
URI 50-250,251/02-06-02	Adequacy of 10 CFR 50.59 Reviews Associated With EOP Changes Concerning SBO (Section 1R21.13)
URI 50-250,251/02-06-03	Adequacy of Procedure Guidance and Training for SBO Mitigation (Section 1R21.22)
URI 50-250,251/02-06-04	Acceptability of Reactor Coolant Pump High Temperature O-rings Having a Different Material Hardness (Section 1R21.23)

APPENDIX

LIST OF DOCUMENTS REVIEWED

Procedures

3-EOP-ECA-0.0, Unit 3 Loss of ALL AC Power, dated 4/30/02

3-EOP-ECA-0.1, Loss of All AC Power Recovery Without SI Required, dated 4/30/02

3-EOP-ECA-0.2, Unit 3 Loss of All AC Power Recovery With SI Required, dated 2/22/02

3-EOP-E-1, Unit 3 Loss of Reactor or Secondary Coolant, dated 4/30/02

3-EOP-ES-0.2, Unit 3 Natural Circulation Cooldown, dated 8/3/01

ECA-0.1, Westinghouse Owners Group Emergency Response Guidelines for Loss of All AC Power Recovery Without SI Required, LP Rev. 1A, dated 7/1/87

3-ONOP-004, Loss of Offsite Power, dated 10/16/01

3-ONOP-004.2, Loss of 3A 4KV Bus, dated 10/16/01

3-ON0P-004.3, Loss of 3B 4KV Bus, dated 10/16/01

3-ONOP-041.1, Reactor Coolant Pump Off-Normal, dated 11/8/02

3-ONOP-075, Auxiliary Feedwater System Malfunction, dated 1/5/01

3-OP-041.1, Reactor Coolant Pump, dated 3/4/02

3-OSP-005.1, SBO Breaker Operability Test, dated 5/13/01

3-OSP-006.2, 480 Volt Switchgear-Undervoltage Test, dated 5/24/02

3-OSP-023.1, Diesel Generator Operability Test, dated 8/29/02

3-OSP-075.1, Auxiliary Feed Water Train 1 Operability verification, dated 6/26/02

3-OSP-075.2, Auxiliary Feed Water Train 2 Operability verification, dated 6/26/02

3-OSP-075.4, Auxiliary Feed Water Auto-Start Test, dated 1/10/02

0-PME-005.3, 4160 V " General Electric" Breaker Inspection and Cleaning, dated 5/11/01
0-PME-005.13, 4160 V D Bus Cubicle Inspection and Cleaning, dated 5/11/01.

0-PME-074.7, Standby Steam Generator Diesel Feed Pump 24V DC System Electrical Maintenance, dated 5/9/02

0-PME-074.8, Standby Steam Generator Diesel Driven Feed Pump, dated 10/27/00

0-ADM-211, Emergency and Off-Normal Operating Procedure Usage, dated 10/17/02

ENG-QI-1.7, Design Input/Verification, Rev. 7, dated 6/26/02

ENG-QI-1.8, Design/Operability Reference Guide, Rev. 5, dated 6/26/02

ENG-QI-1.10, Design Control, Rev. 17, dated 7/9/02

ENG-QI-2.1, 10 CFR50.59 Applicability/Screening/Evaluation, Rev. 5, dated 1/25/02

ENG-QI-4.2, Procurement Engineering Control, Rev. 12, dated 6/26/02

ENG-QI-4.9, Special QA Documents (SQADs), Rev. 5, dated 10/8/01

ENG-QI-4.10, Supplier Deviation Notices (SDNs), Rev. 3, dated 8/31/97

Nuclear Engineering Department Discipline Standard CN-3.01, Piping and Support Analysis Requirements, Rev. 3

Drawings

5610-T-E-1591, Operating Electrical Distribution, Revision 54

5610-E-1592, 125 V DC & 120 V Instrument AC Electrical Distribution, Rev. 39

5610-M-3074, Sheet 1, Feedwater System, SSGFPs, Rev. 5

5610-M-3074, Sheet 2, Feedwater System, Demineralized Storage and Deaeration, Rev. 22

5610-M-3075, Auxiliary Feedwater Pumps, Rev. 11

5613-E-11, Sheet 1, Electrical 125V DC & 120V Instrument AC, Rev. 14

5613-E-12, Emergency Diesel Generator 3A Station Blackout, Rev. 7

5613-E-18, Aux. & Startup Transformer Metering & Relay Schematic Bus 3A, Rev. 10

5613-E-26, Feed Water & Condensate Aux. Feed water Pumps Steam Supply MOV-3-1404 Breaker 30833, Rev. 7

5613-E-27B-7, Sheet 1A, Emergency Diesel Generator 3A Bus Load Sequencer 3C23A1, Rev. 0

5613-E-27B-7, Sheet 1B, Emergency Diesel Generator 3B Bus Load Sequencer 3C23B1, Rev. 0

5613-E-28, Elec. Auxiliaries, Auxiliary Transformer Breaker 3AA02, Sheet 1A, Rev. 4, and Sheet 1A1, Rev. 7

5613-E-28 , Electrical Auxiliaries, Startup Transformer Breaker 3AA05, Sheet 2A, Rev. 5 and Sheet 2A1, Rev. 5

5613-E-28 , Electrical Auxiliaries, Load Center 3A Feeder Breaker 3AA08, Sheet 5A, Rev. 4, and Sheet 5A1, Rev. 1

5613-E-28 , Electrical Auxiliaries, Diesel Generator Breaker 3AA20, Sheet 8A, Rev. 5, and Sheet 8A1, Rev. 4

5613-E-28 , Electrical Auxiliaries, Loss of Voltage Bus 3A, Sheet 9A, Rev. 2; Sheet 9A1, Rev. 1; Sheet 9A2, Rev. 5; Sheet 9A3, Rev. 3; Sheet 9A4, Rev. 0; Sheet 9A5, Rev. 1; and Sheet 9A6, Rev. 2.

5613-E-28 , Electrical Auxiliaries, Load Center 3A Main Breaker Sheet 13E, Rev. 1

5613-E-28, Electrical Auxiliaries 4160 Volt Bus 3A Bus Clearing, Sheet 20A, Rev. 4, and Sheet 20A1, Rev. 2

5613-E-28 , Electrical Auxiliaries , Diesel Generator Sequencer 3C23A, Sheet 24A, Rev. 5, and Sheet 24A1, Rev. 2.

5613-E-28 , Electrical Auxiliaries, Diesel Generator Sequencer Relay Development 3C23A, Sheet 24A3, Rev. 4.

5613-E-28, Electrical Auxiliaries Blackout Bus Tie Breaker 3AD07, Sheet 86A, Rev. 2; Sheet 86A1, Rev. 0; and Sheet 86A2, Rev. 0

5613-E-1605, Battery 3A & 3B Load Profiles, Rev. 5

5613-E-1712, Emergency Diesel Generator 3A Station Blackout, Rev. 7

5613-E-1713, Emergency Diesel Generator 3B Station Blackout, Rev. 3

5613-M-3022, Sheet 1, Emergency Diesel Generator 3A Air Starting System, Rev. 12

5613-M-3022, Sheet 2, Emergency Diesel Generator 3B Air Starting System, Rev. 11

5613-M-3022, Sheet 3, Emergency Diesel Generator 3A Fuel Oil, Rev. 18

5613-M-3022, Sheet 4, Emergency Diesel Generator 3B Fuel Oil, Rev. 14

5613-M-3022, Sheet 5, Emergency Diesel Generator 3A Lube Oil & Cooling Water, Rev. 8

5613-M-3022, Sheet 6, Emergency Diesel Generator 3B Lube Oil & Cooling Water, Rev. 8

5613-M-3041, Reactor Coolant System Reactor Coolant Pumps, Rev. 21

5613-M-3047, Chemical and Volume Control System Seal Water Injection to RCP, Rev. 20

5613-M-3075, Sheet 2, Auxiliary Feedwater to Steam Generators, Unit 3, Rev. 12

5613-T-L1, Logic Diagram, EDG Start Signals, Sheet 9A1, Rev. 2 and Sheet 9A2, Rev. 3

5613-T-L1, Logic Diagram, Bus 3A Loss of Voltage and Bus Stripping, Sheet 13, Rev. 5

5613-T-L1, Unit 3 EDG Engine Start, Sheet 9A2, Rev. 3

5613-T-L1, Unit 3 EDG Stop/Engine Shutdown, Sheet 9A4, Rev. 2

5613-T-L1, Unit 3 EDG Lockout and Engine Auxiliaries Logic Diagram, Sheet 9A5, Rev. 0

5613-T-L1, Unit 3 Sequencer Logic Diagram, Sheet 12, Rev. 2

5613-T-L1, Unit 3 Emergency Bus Load Sequencer Loading Logic Diagram, Sheet 12A, Rev. 1

5613-T-L1, Unit 3 Bus 3A Loss of Voltage and Bus Stripping, Sheet 13, Rev. 5

5614-E-28, Electrical Auxiliaries Bus Tie Breaker 4AB19, Sheet 85A1, Rev. 1

5614-E-28, Electrical Auxiliaries Blackout Bus Tie Breaker 4AD07, Sheet 86A, Rev. 2 and Sheet 86A2, Rev. 0

5614-M-3022, Sheet 1, Emergency Diesel Generator 4A Air Starting System, Rev. 7

5614-M-3022, Sheet 2, Emergency Diesel Generator 4B Air Starting System, Rev. 7

5614-M-3022, Sheet 3, Emergency Diesel Generator 4A Fuel Oil, Rev. 5

5614-M-3022, Sheet 4, Emergency Diesel Generator 4B Fuel Oil, Rev. 5

5614-M-3022, Sheet 5, Emergency Diesel Generator 4A Lube Oil & Cooling Water, Rev.6

5614-M-3022, Sheet 6, Emergency Diesel Generator 4B Lube Oil & Cooling Water, Rev. 6

5614-M-3075, Sheet 2, Auxiliary Feedwater to Steam Generators, Unit 4, Rev. 12

5614-T-L1, Unit 4 EDG Start Logic Diagram, Sheet 9A1, Rev. 1, and Sheet 9A2, Rev. 2

5614-T-L1, Unit 3 Diesel Generator Governor & Voltage Regulator Control Logic Diagram, Sheet 9A3, Rev. 3

Pipe Break General Arrangement Main Steam, Main Feedwater and CVCS Systems - Unit 3, Rev. A

Pipe Break General Arrangement Main Steam, Main Feedwater and CVCS Systems - Unit 4, Rev. A

Calculations

Calculation No. 1708-642-01, Turkey Point Units 3 and 4 Blowdown System Pipe Break Analyses, Rev. 0

Calculation No. 21701-523-E-01, Unit 3 Load Centers Under Voltage Relay Set Points, Rev. 1

Calculation No. 21701-523-E-02, Verification of Degraded Voltage Relay Protection for Safety Related Equipment (Coordination between U/V and Over Current Protection) Rev. 0.

Calculation No. C-TP-0012, Vital DC Bus Load Calculation, Rev. 0

Calculation No. EC-145,PSB1 Voltage Analysis for Electrical Auxiliary System, Rev. 5.

Calculation No. IC-TP.0003, EDG Bus Load Sequencer Load Calculation, Rev. 1

Calculation No. M08-592-01, Calculation of Impact of Steam Jet from Feedwater Line Break Locations 4 & 5, on AFW System Flow Transmitters Located Below Feedwater Platform, Rev. 0

Calculation No. PTN-BFJR-00-004, Off-Site Power Non-Recovery Events, Turkey Points Units 3 and 4, Rev. 1 (Draft)

Calculation No. 87-261.6008, Emergency Diesel Generator Building Diesel Generator Room ventilation, Rev. 4

Calculation No. 87-263.6003, EDG Radiator Heat Load, Rev. 1

Calculation No. PTN-3FJM-91-048, EDG 3A and 3B Room Ventilation Requirements and Temperature Rise Calculation, Rev. 1

Calculation No. PTN-BFJM-94-017, Standby Steam Generator Feedwater Pump Fuel Tank Capacity, Rev. 0

Calculation No. PTN-BFJM-95-009, DWST Volume/Setpoints, Rev. 1

Calculation No. M08-266-02, Standby Steam Generator Feed Pump NPSH, Rev. 0

Condition Reports

CR 99-0715, NRC IN 99-13, Insights from NRC inspections of low and medium voltage circuit breaker maintenance programs, dated 5/7/99

CR-00-1351 and Supplements S1, S2, EDG 4A start failure

CR-00-1387 and Supplements S1, S2, S3, S4, and S5, EDG 3B speed controller malfunction

CR-00-1472 and Supplements S1, S2, and S3, EDG 3A start failure

CR 01-0935, 3B EDG on line per 3-OSP-023.1 for surveillance testing. At end of test while EDG was on line a lockout occurred, dated 5/29/01; CR 01-0935, Supplement 1, dated 9/5/01; CR 01-0935, Supplement 2, dated 11/9/01; and CR 01-0935, Supplement 3, dated 11/30/01

CR 01-1045, 4A EDG failed to start when normal start executed from control room, dated 5/16/01; and CR 01-1045, Supplement 1, dated 11/13/01

CR-01-1171, EDG 3A loss of speed control, dated 7/19/01

CR 01-1432, This CR generated to roll up, capture and assess the material deficiencies and failures of 4KV breakers, dated 7/23/01

CR-01-1528, EDG 4A rendered inoperable due to incorrectly positioned fan switch

CR 01-1999, 3B EDG was manually emergency stopped by the control room operator when large fluctuations was observed in current and kilovolt load, dated 11/14/01; CR 01-1999, Supplement 1, dated 3/21/02; and CR 01-1999, Supplement 2, dated 6/27/02

CR 02-0115, 4A EDG voltage regulator failed to respond from control room during normal surveillance run, dated 2/21/02

CR 02-1081, 4B EDG lockout occured during monthly surveillance run, dated 6/20/02

CR 02-1095, A control failure of the 4CD diesel driven instrument air compressor, dated 7/1/02

CR 02-1114, 3A EDG cylinder exhaust pyrometer readings did not meet acceptance criteria stated in surveillance procedure 3-OSP-023.1, dated 6/3/02

CR 02-1173, INPO OE13527 turbine driven AFW pump spurious overspeed trips at Point Beach Unit 1, dated 6/11/02

CR 02-1544, 3A CCW pump failed to start when breaker failed to close, dated 8/6/02

CR 02-1639, External Corrosion of AFW Turbine Steam Supply Piping, dated 8/21/02

CR 02-1708, Failure to Perform NDE (RT) on Section of AFW Steam Supply Piping Replaced in 1999, dated 8/30/02

CR 02-1730, Degraded Pipe Support on AFW Piping, dated 9/6/02

CR 02-1787, Incorrect Slope on AFW Steam Supply Piping, dated 9/6/02

CR 02-1794, Missing Two-directional Support of AFW Piping, dated 9/18/02

CR 02-1891, External Corrosion of AFW Turbine Steam Supply Piping, dated 10/2/02

CR 02-1901, External Corrosion of AFW Turbine Steam Supply Piping, dated 10/5/02

CR 02-1948, One inch diameter drain line off AFW piping below minimum wall, dated 10/20/02

CR 02-1984, External Corrosion of AFW Turbine Steam Supply Piping Resulted in Piping with Thickness Less Than Minimum Required, dated 10/16/02

CR 02-1989, External Corrosion of AFW Turbine Steam Supply Piping Resulted in Piping with Thickness Less Than Minimum Required, dated 10/17/02

CR 02-1991, AFW Steam Supply Pipe Wall Thinning Due to External Corrosion, dated 10/18/02

CR 02-1995, External Corrosion of AFW Turbine Steam Supply Piping Resulted in Piping with Thickness Less Than Minimum Required, dated 10/20/02

CR 02-2045, External Corrosion of AFW Turbine Steam Supply Piping Resulted in Piping with Thickness Less Than Minimum Required, dated 10/26/02

CR 02-2046, Localized AFW Pipe Thinning due to External Corrosion Under Pipe Support Attachment, dated 10/26/02

CR 02-1924, Recent overhaul reports indicate lack of lubrication of the third toggle assemble for circuit breakers s/n 860264B001-021289 and s/n 860264B001-071289, dated 10/08/02

CRs Written During This Inspection

CR 02-2318, Discrepancy in Station Blackout emergency diesel generator load limits.

CR 02-2072, Corrective action document addressing errors in drawing from PTN PRA page 3.0-123 of 340. Drawing shows valves 601, 602, and 603 which no longer exist in system 75. Drawing also depicts the “C” AFW pump aligned to Train 1 which is incorrect.

CR 02 - 2082, Deficiencies in procedures used for calibration testing 480 volt degraded voltage functions.

CR 02 - 2087, Missing records for maintenance activities performed on diesel driven standby steam generator feedwater pump (SSGFP).

CR 02-2105, Westinghouse RCP high temperature O-rings accepted by engineering without performing an item equivalency evaluation

CR 02-2130, Some vendor recommended preventative maintenance activities for the SSGFP were not specified in maintenance procedures

CR 02-2151, Framatome high temperature RCP O-rings are not an identical replacement for the Westinghouse high temperature RCP O-rings

CR 02-2224, Discrepancy between current mitigation strategies and original regulatory responses for SBO

CR 02 - 2211, Evaluations for battery replacement not specified in maintenance procedures.

CR 02-1551S1, Provide additional guidance on EDG lube oil sampling for silver concentration and update the vendor manual to include a reference to 10 CFR21-0083, and enhance the Predictive Maintenance Procedure (PDM-I-002) to reference guidance in the Part 21 if silver limits are exceeded.

Completed Functional Tests and Calibrations

0-NCSP-003, Secondary Chemistry Documentation (Attachment 10, Diesel Fuel Oil Analysis), Completed 10/28/02

0-NCSP-022.3, Receiving Fuel Oil Shipments, Completed 7/2/02

0-OSP-022.6, Diesel Fuel Oil Storage Tank Accumulated Water Removal, Completed 10/27/02

0-OSP-074.3, Standby Steam Generator Feedwater Pumps Availability Test, Completed 1/23/02, 2/27/02, 3/27/02, 4/24/02, 5/31/02, 6/28/02, 7/12/02, 8/9/02, 9/20/02, 10/22/02

0-PME-074.8, Standby Steam Generator Diesel Driven Feed Pump, Completed 1/1/17/02

0-PMM-074.24, SSGF Pump Diesel Engine Maintenance, Completed 1/17/01, 1/10/02, 2/23/00

3-OSP-005.1, SBO Breaker Operability Test, Completed 4/28/02

3-OSP-006.2, 480 Volt Switchgear-Undervoltage Test, Completed 2/25/02

3-OSP-006.2, 480 Volt Switchgear-Undervoltage Test, Completed 5/10/02

3-OSP-006.2, 480 Volt Switchgear-Undervoltage Test, Completed 6/21/02

3-OSP-022.4, EDG Fuel Oil Transfer Pump and Valve Inservice Test, Completed 10/7/02

3-OSP-023.1, Diesel Generator Operability Test, Completed 8/26/02 and 10/24/02

3-OSP-024.2, 3A Emergency Bus Load Sequencer Manual Test, Completed 6/5/02

3-OSP-024.2, 3B Emergency Bus Load Sequencer Manual Test, Completed 6/19/02

4-OSP-005.1, SBO Breaker Operability Test, Completed 8/8/02

4-OSP-022.4, EDG Fuel Oil Transfer Pump Inservice Test, Completed 10/3/02

4-OSP-023.1, Diesel Generator Operability Test, Completed 8/8/02 and 10/29/02

4-OSP-201.3, NPO Daily Logs (DWST Level), Completed Daily 9/30/02 - 10/30/02

4-OSP-203.1, Train A Engineered Safeguards Integrated Test, Completed 4/2/02

4-OSP-203.2, Train B Engineered Safeguards Integrated Test, Completed 4/4/02

0804.115, Integrated Safeguards/Load Group Separation Preop Test, Completed 8/5/91

0804.127, Swing Bus 3D and Transfer Switch 3S75 Preoperational Test, dated 7/17/91

0804.128, Swing Bus 4D and Transfer Switch 4S75 Preoperational Test, dated 7/15/91

Completed Work Orders

Plant Work Order (PWO) 27020780, 3-PLC-A Emergency Bus Load Sequencer Maintenance, Completed 10

PWO 29012121, 4-PLC-A Sequencer ETI Battery Replacement, Completed 10/3/00

PWO 29016427, 3-PLC-B Emergency Bus Load Sequencer Maintenance, Completed 3/11/00

PWO 30021087, 3-PLC-A Emergency Bus Load Sequencer Maintenance, Completed 10/7/01

PWO 31014553, 4-PLC-B Emergency Bus Load Sequencer Maintenance, Completed 3/29/02

PWO 31019290, SSGF PMP Diesel Battery Inspection, Completed 1/17/02

PWO 32002137, B SSGF PMP Monthly: Battery, Completed 6/21/02

PWO 32002980, B SSGF PMP Monthly: Battery, Completed 7/23/02

PWO 99012120, 4-PLC-B Sequencer ETI Battery Replacement, Completed 3/29/02

PWO 31010099, Reactor Coolant Pump 3B Seal Replacement, Completed 10/14/01

PWO 31018956, Reactor Coolant Pump 4A Seal Replacement, Completed 4/4/02

PWO 31019294, B SSGFP Engine Annual PM, Completed 1/11/02

PWO 31020666, B SSGFP Engine Exhaust Connection Leak, Completed 5/14/02

PWO 31023350, B SSGFP Coolant Leak on Hose, Repair Hose, Completed 1/10/02

PWO 31023753, B SSGFP Inboard Bearing Leaking Oil/Repair, Completed 1/11/02

PWO 32015176, B SSGFP Tighten Loose Bolting, Completed 9/27/02

Relay Nuclear Work Orders (RWO) 01-052, Perform relay calibration on 3A/3C degraded grid relays, Completed 9/22/01

RWO # 01-053, Perform relay calibration on 3B/3D degraded grid relays, Completed 9/22/01

Modifications:

PC/M No. 01-009, Replacement of Unit 3 Startup Transformer, Rev. 0

PC/M No. 01-012, AFW Bus Stripping Reset, Rev. 0.

Item Equivalency Evaluation (IEE) 058891, Add Framatome Technologies Incorporated Part No. for RCP Seal Service Kit as an approved item, dated 3/31/00

IEE 072494, Use of the Westinghouse RCP High Temperature O-rings that were accepted in SDN 92-190, dated 11/7/02

IEE 072667, Use of RCP High Temperature O-rings supplied by Framatome that have a different hardness from the O-rings supplied by Westinghouse, dated 11/19/02

System Descriptions

No. 117, Units 3 and 4 Auxiliary Feedwater System (Sys. 018, 075), dated 8/16/02

No. 167, Unit 4 Emergency Diesel Generator and Auxiliaries (Sys. 022, 023), dated 5/8/02

No. 170, Units 3 and 4 Emergency Load Sequencers (Sys. 024), dated 7/27/00

Design Basis Documents (DBD)

DBD 5610-000-DB-001 Section IV, Pipe Break Criteria, Rev. 10

DBD 5610-000-DB-001, Section V, Safe Shutdown Criteria, Rev. 8

DBD 5610-000-DB-001 Section XIV, Environmental Qualification of Equipment, Rev. 8

DBD 5610-000-DB-001, Section XVI, Station Blackout Criteria, Rev. 8

DBD 5610-003-DB-001, Vital AC/DC System, Rev. 5

DBD 5610-023-DB-001, Emergency Power System, System, Rev. 9

DBD 5610-023-DB-002, Emergency Power System Component Design Requirements Document, Rev. 9

DBD 5610-075-DB-001, Auxiliary Feedwater System Design Basis Document, Rev. 10

DBD 5610-075-DB-002, Auxiliary Feedwater System Component Design Requirements Document, Rev. 10

Updated Final Safety Analysis Report (UFSAR)

Section 8.0, Electrical Power Systems

Section 8.2.2.1, Onsite AC Power System.

Section 8.2.2.1.1.1, Standby Power Supplies .

Section 8.2.2.2, Station Blackout

Section 8.2.2.3, DC Power Systems

Section 8.2.2.3, DC Power Systems

Section 9.11, Auxiliary Feedwater System

Section 9.15, Emergency Diesel Generator Auxiliaries

Section 10, Steam and Power Conversion System

Technical Specifications

Section 3/4.8.1, A.C. Sources

Section 3/4.8.2, D.C .Sources

Table 3.3-3, Engineered Safety Features Actuation System Instrumentation Trip Set points

Section 3.7.1.2 Auxiliary Feedwater System

Section 3/4.7.1.6, Standby Steam Generator Feedwater System

Simulator Exercise Guides & Practice Scenarios

SPS-065.3 - Loss of All AC (IOA Drill), Revised ½/97

Material No. 760210201, Loss of All AC / 4kV Bus Recovery, Revised 4/16/02

Material No. 760210202, Security Event / Loss of Ultimate Heat Sink / Loss of All AC

Requests for Procedure Review

98-618P, Loss of All AC Power Recovery With SI Required, Procedure No. 3-EOP-ECA-0.2, dated 6/23/97

98-619P, Loss of All AC Power Recovery Without SI Required, Procedure No. 3-EOP-ECA-0.1, dated 6/23/97

Miscellaneous Documents

FP&L Letter L-89-144, dated April 17, 1989, Subject: Information to Resolve Station Blackout

FP&L Letter L-90-56, dated March 29, 1990, Subject: Information to Resolve Station Blackout

FP&L Letter L-90-338, dated September 21, 1990, Subject: Comments on NRC's Safety Evaluation for Station Blackout

FP&L Letter L-91-136, dated May 14, 1991, Subject: Additional Information for Station Blackout

NRC Safety Evaluation Report dated June 15, 1990, Safety Evaluation for Proposed Implementation of the Station Blackout Rule (10 CFR 50.63)

NRC Safety Evaluation Report dated July 31, 1991, Supplemental Safety Evaluation for the Proposed Implementation of the Station Blackout Rule (10 CFR 50.63)

10 CFR 50.59 Safety Review for Procedure 3-EOP-ECA-0.1, Loss of All AC Power Recovery Without SI Required, dated 6/3/98

10 CFR 50.59 Safety Review for Procedure 3-EOP-ECA-0.2, Loss of All AC Power Recovery With SI Required, dated 6/3/98

NEI 99-01, Methodology for Development of Emergency Action Levels, Draft Final Rev. 4

EDG Load Table for SBO - As directed by SBO Recovery Procedures Without and With SI

WCAP-10541, Westinghouse Owners Group Report - Reactor Cooland Pump Seal Performance Following A Loss of All AC, Revision 2, November 1986 (Proprietary)

WCAP-10541, Westinghouse Owners Group Report on Reactor Coolant Pump Seal Performance Supplement - High Temperature Extrusion Qualification Testing of Seals Eastern 7228A O-Ring Compound, Revision 2, Undated (Proprietary)

Westinghouse Product Update No. S-012-1, High Temperature O-rings to Survive Loss of All Seal Cooling, dated 11/91

Westinghouse Supplier Deviation Notice (SDN) 92-181, RCP O-ring Material, dated 4/28/92

Westinghouse SDN 92-190, RCP High Temperature O-ring Material, dated 5/8/92

Jeumont Industrie Report 6 GA 3242, Pressurized Water Reactor Reactor Coolant Pump High Temperature O-Ring For Shaft Seals Qualification Report, Revision A, dated April 3, 1994 (Proprietary)

Purchase Order 00044679, RCP High Temperature Seal Service Kit, dated 4/4/00

Purchase Order 00054250, RCP High Temperature Seal Service Kit, dated 11/21/01 (Proprietary)

Unit 4 EDG Manual Z503, M.I. 1760, GM Electro-Motive Maintenance Instruction; Lubricating Oil for EMD Engines - Marine, Power, and Drilling Rig

Unit 3 EDG Manual, E1012, M.I. 1752, GM Electro-Motive Maintenance Instruction; Lubricating Oil for Domestic Locomotive Engines

Vendor Manual V00019A, Standby Steam Generator Feedwater Pump Engine Skid, Rev. 3

Letter from Mr. J. Coughlin, FPL to Mr. A. Giambusso, NRC, dated June 21, 1973, transmitting the revised report “Analysis of Postulated Pipe Failures Outside of Containment Structures”

Computer printout of the Unit 3 safety related fuse list, pages 35, 36, and 37, dated May 23, 2002

Structural Integrity Associates Report dated 10/21/02, Operability Evaluation of Corroded AFW Pipe