



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
SAM NUNN ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8931

April 27, 2005

Mr. Dale E. Young, Vice President
Crystal River Nuclear Plant (NA1B)
ATTN: Supervisor, Licensing &
Regulatory Programs
15760 West Power Line Street
Crystal River, FL 34428-6708

SUBJECT: CRYSTAL RIVER UNIT 3 - NRC INTEGRATED INSPECTION REPORT
05000302/2005002

Dear Mr. Young:

On March 31, 2005, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Crystal River Unit 3. The enclosed integrated inspection report documents the inspection findings, which were discussed on April 11, 2005, with you and members of your staff.

The inspection examined 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 license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified. However, two licensee-identified violations which were determined to be of very low safety significance are listed in Section 4OA7 of this report. If you contest any non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, NRC Region II; The Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at the Crystal River Unit 3 site.

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Sincerely,

/RA/

Joel T. Munday, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket No.: 50-302

License No.: DPR-72

Enclosure: Inspection Report 05000302/2005002

w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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SISP REVIEW COMPLETE: Initials: _____ SISP REVIEW PENDING*: Initials: _____ *Non-Public until the review is complete
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ADAMS: Yes ACCESSION NUMBER: _____

OFFICE	DRP:RII	DRP:RII	DRP:RII				
SIGNATURE	JSS1	RJR1	SON				
NAME	SStewart	RReyes	SNinh				
DATE	04/14/2005	04/27/2005	04/14/2005				
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-302

License No.: DPR-72

Report No: 05000302/2005002

Licensee: Progress Energy Florida (Florida Power Corporation)

Facility: Crystal River Unit 3

Location: 15760 West Power Line Street
Crystal River, FL 34428-6708

Dates: January 1, 2005 - March 31, 2005

Inspectors: S. Stewart, Senior Resident Inspector
R. Reyes, Resident Inspector

Approved by: Joel T. Munday, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000302/2005-002; 01/01/05 - 03/31/2005; Crystal River Unit 3; routine integrated report.

The report covered a three month period of inspection by the resident inspectors. No findings of significance were identified by the NRC. However, two Green licensee-identified violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after management review. 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. NRC-Identified and Self-Revealing Findings

None

B. Licensee-identified Violations

Two violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective actions are listed in Section 4OA7 of this report.

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REPORT DETAILS

Summary of Plant Status:

Unit 3 operated at full power throughout the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed the licensee's plans for mitigating cold weather to assure that vital systems and components were protected from freezing in accordance with the licensee's Administrative Instruction AI-513, Seasonal Weather Preparations, Section 4.1, Cold Weather. The inspectors walked down portions of the following systems to check for any unidentified susceptibilities. Operability of heat trace circuits for boric acid storage tank piping was verified. Nuclear condition reports were reviewed to check that the licensee was identifying and correcting cold weather protection issues. During periods when outdoor temperature fell below 40 degrees Fahrenheit (F), such as January 24, 2005, the inspectors verified that the licensee implemented their cold weather mitigation instructions. The inspectors conducted specific walkdowns of the fire pump house and emergency feedwater pump EFP-3 building to check that no specific vulnerabilities existed. There were no sustained periods of freezing weather during the inspection period.

- Emergency Feedwater Pump EFP-3
- Borated Water Storage Tank
- A and B Emergency Diesel Generators

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors verified the critical portions of equipment alignments for selected trains that remained operable while the redundant trains were inoperable. The inspectors reviewed plant documents to determine the correct system and power alignments, and the required positions of select valves and breakers. The inspectors verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact mitigating system availability. The inspectors verified the following three partial system alignments in system walkdowns using the listed documents:

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- C January 10, control complex chiller CHHE-1A, using Operating Procedure OP-409, Plant Ventilation System, when chiller CHHE-1B was out of service for preventive maintenance per work order 534586
- C January 26, emergency diesel generator (EGDG)-1B, using Operating Procedure OP-707, Operation Of The Engineered Safeguards Diesel Generators, while the EGDG-1A was out of service for corrective maintenance per work order 568033
- C February 7, instrument air compressors IAP-3A and IAP-3C and associated piping using Operating Procedure OP-411, Instrument and Station Air Systems, when IAP-3B would not carry station loads (NCR 150340) and IAP-4 was secured due to abnormal noise (NCR 150238).

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors conducted one detailed walkdown/review of the alignment and condition of the Emergency Feedwater System, which included Emergency Feed Pumps EFP-2, and EFP-3. The inspectors utilized licensee procedures, as well as licensing and design documents to verify that the system (i.e., pump, valve, and electrical) alignment was correct. During the walkdown, the inspectors also verified that: valves and pumps did not exhibit leakage that would impact their function; major portions of the system and components were correctly labeled; hangers and supports were installed and functional; and essential support systems were operational. In addition, pending design and equipment issues were reviewed to determine if the identified deficiencies impacted the systems functions. A review of open corrective action reports was also performed to verify that the licensee had appropriately characterized and prioritized equipment problems for resolution in the corrective action program.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

Fire Protection Walkdowns

a. Inspection Scope

The inspectors walked down accessible portions of the plant to assess the licensee's implementation of their fire protection program. The inspectors checked that safety equipment was free of transient combustible material and other ignition sources. Also,

fire detection and suppression capabilities, fire barriers, and any compensatory measures for fire protection problems were verified. The inspectors checked fire suppression and detection equipment to determine whether any conditions or deficiencies existed which could impair the function of that equipment. The inspectors selected the areas based on a review of the licensee's probabilistic risk assessment. The inspectors toured the following nine areas important to reactor safety:

- Emergency Feed Pump EFP-1, EFP-2, areas
- Emergency Feed Pump EFP-3 Building
- A and B Control Complex Chiller room
- Main Control Room
- A and B 4160-Volt Switch Gear Rooms and Station Batteries
- A Decay Heat and Building Spray Pump Vault
- B Decay Heat and Building Spray Pump Vault
- A Emergency Diesel Generator Rooms
- B Emergency Diesel Generator Rooms

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill

a. Inspection Scope

On January 13, 2005, the inspectors observed the licensee fire brigade respond to an unannounced simulated fire in the 480-Volt Unit Switchgear Room (95' Elev TB). The inspectors checked the brigade's communications, ability to set-up and execute fire operations, and their use of fire fighting equipment. The inspectors attended the post-drill critique to check that the licensee's drill acceptance criteria were met and that any discrepancies were discussed and resolved. In addition to the drill observation, Administrative Instruction AI-2205, Administration Of CR-3 Fire Brigade Organization And Duties Of The Fire Brigade, and the fire drill evaluation report were reviewed to assure that acceptance criteria were evaluated and deficiencies were documented and corrected.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator RequalificationObserved Simulator Sessiona. Inspection Scope

The inspectors observed a simulator session conducted on January 21, 2005, to assess the performance of licensed operators during the simulator portion of the annual licensed operator examination. The session was done using Operator Training Examination SES-18, which included a total loss of feedwater and loss of offsite power, which resulted in the simulated use of once-through core cooling in accordance with emergency operating procedure, EOP-4, Inadequate Heat Transfer. The inspection focused on high-risk operator actions performed during implementation of the emergency operating procedures; emergency plan implementation using emergency management procedure EM-202, Duties of the Emergency Coordinator; and the incorporation of lessons learned from previous plant events and simulator sessions. Through observations of the critique conducted by training instructors following the exam session, the inspectors assessed whether appropriate feedback was provided to the licensed operators regarding identified weaknesses. Corrective actions from NCR 119195 were checked in reviewing corrective actions from past problems with the licensed operator annual examination.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectivenessa. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing routine maintenance activities. This review included an assessment of the licensee's practices pertaining to the identification, scope, and handling of degraded equipment conditions, as well as common cause failure evaluations and the resolution of historical equipment problems. For those systems, structures, and components within the scope of the maintenance rule per 10 CFR 50.65, the inspectors verified that reliability and unavailability were properly monitored, and that 10 CFR 50.65 (a)(1) and (a)(2) classifications were justified in light of the reviewed degraded equipment condition. The inspectors conducted this inspection for the degraded equipment condition associated with the items listed below.

- C NCR 133065, B Battery Cell Failed Acceptance Criterion, included review of NCRs 130397 and 130399 for maintenance rule implementation issues
- C NCR 142882, Inconsistent Application of Equipment Unavailability of Control Complex Chillers, CHHE-1A and CHHE-1B During Surveillance Testing

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluationa. Inspection Scope

The inspectors reviewed the risk impact of removing from service those components listed below and verified the licensee's associated risk management activities. This review primarily focused on equipment determined to be risk significant within the maintenance rule. The inspectors also assessed the adequacy of the licensee's identification and resolution of problems associated with risk management including emergent work activities. The licensee's implementation of their compliance procedure CP-253, Power Operation Risk Assessment, was verified in each of the following work week assessments.

- C Work Week 05W01, Risk assessment for cleaning and inspection of the D service water heat exchanger, revised when nuclear instrument high auctioneer circuit failed, requiring module replacement
- Work Week 05W03, Risk Assessment for Emergent Work, trouble shooting and corrective maintenance on the Control Complex CHHE-1B chiller when it tripped various times and became inoperable
- Work Week 05W08, Risk assessment for periodic cleaning and inspection of D service water heat exchanger (SWHE) revised when B-SWHE was removed from service for a suspected tube leak
- Work Week 05W09 Risk assessment for preventive maintenance on A train battery chargers revised when emergency feedwater valve EFV-55 failed its stroke test per surveillance procedure SP-146A (NCR 152401)
- Work Week 05W11 Risk assessment for preventive maintenance on the B train of raw water with reactor coolant valve RCV-11 shut (Elevated Risk Condition-Orange), revised on March 16 when a tornado watch was identified.
- Work Week 05W12 Risk assessment for a fast start surveillance testing of the 'B' Emergency Diesel Generator (Risk Condition Yellow), revised on March 24 to comply with technical specifications to address potential common cause EDG failure.

b. Findings

No findings of significance were identified. A licensee identified violation of NRC requirements is listed in Section 4OA7.

1R15 Operability Evaluationsa. Inspection Scope

The inspectors reviewed the following five nuclear condition reports to verify that the operability of systems important to safety was properly established, that the affected components or systems remained capable of performing their intended safety function, and that no unrecognized increase in plant or public risk occurred. The inspectors determined if operability of systems or components important to safety was consistent with technical specifications, the Final Safety Analysis Report, 10 CFR Part 50 requirements, and when applicable, NRC Generic Letter 91-18, Revision 1, Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions. The inspectors monitored licensee NCRs, work schedules, and engineering documents to check if operability issues were being identified at an appropriate threshold and documented in the corrective action program, consistent with 10 CFR 50, Appendix B requirements, and licensee procedure NGGC-CAP-200, Corrective Action Program.

- NCR 146313 Unplanned Entry Into Technical Specification LCO 3.6.3 For Service Water Valve SWV-41
- NCR 149823 Service Water Heat Exchanger SWHE-1A found 71% Blocked When Opened for Shoot and Clean (Used licensee compliance procedure, CP-103B, Operating Curves, Curve 15, Service Water System Heat Transfer Capability)
- NCR 145881 Raw Water Pump RWP-3B Bearing Flush Flow is Degraded (raw water pump operability included review of Sulzer Pumps letter to Progress Energy, Raw Water Pump Bearing Lubrication, dated December 16, 2004)
- NCR 152099 Condensate Valve CDV-257 Failed acceptance criterion in Surveillance Procedure SP-370, Quarterly Cycling of Valves, (Verified operability of emergency feedwater pump EFP-3)
- NCR 154522 Emergency Diesel Generator EGDG-1A Start Time Was Excessive Per Technical Specification 3.8.1

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testinga. Inspection Scope

The inspectors witnessed and/or reviewed post-maintenance testing procedures and/or test activities, as appropriate, for selected risk significant systems to verify whether: (1) testing was adequate for the maintenance performed; (2) acceptance criteria were

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clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (3) test instrumentation had current calibrations, range, and accuracy consistent with the application; (4) tests were performed as written with applicable prerequisites satisfied; and (5) equipment was returned to the status required to perform its safety function. The six tests reviewed are listed below:

- Surveillance Procedure (SP)-344C, Containment Cooling System Fan and Valve Surveillance (SWV-43 only), performed on January 14, after performing maintenance per work order number 661854
- SP-348A, Auxiliary Feedwater Pump (FWP-7) Testing And MTDG-1 Surveillance Testing, performed on January 19, after performing maintenance per work order number 632083
- SP-370, Quarterly Cycling Of Valves, and SP-179C, Containment Leakage Test, performed on March 9 on CIV-41 after corrective maintenance per work order number 567060-06
- SP-349B, stroke test of Emergency Feedwater Valve EFV-55, after controller circuit repairs done under work order number 681345-02 (PM-182 circuit checks were also reviewed)
- SP-340F, MUP-1C And Valve Surveillance, performed on March 8, after performing maintenance on MUV-26 per work order number 656412
- SP-340D, Raw Water Pump RWP-3B, Decay Heat Closed Cycle Cooling Pump DCP-1B, and Valve Surveillance for Valve RWV-34 performed on March 17, after performing maintenance on RWV-34 per work order number 686938

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed and/or reviewed the surveillance tests listed below to verify that technical specification surveillance requirements were followed and that test acceptance criteria were properly specified. The inspectors verified that proper test conditions were established as specified in the procedures, that no equipment preconditioning activities occurred, and that acceptance criteria had been met. Additionally, the inspectors also verified that equipment was properly returned to service and that proper testing was specified and conducted to ensure that the equipment could perform its intended safety function following maintenance or as part of surveillance testing. The following six activities were observed/reviewed:

In-Service Test:

- SP-340D, Raw Water Pump RWP-3B, Decay Heat Closed Cycle Cooling Pump DCP-1B and Valve Surveillance

Other Surveillance Tests:

- SP-521, Quarterly Battery Check (A Train Battery)
- SP 344C, Containment Cooling System Fan And Valve Surveillance
- SP-311, Diesel Fuel Transfer Pump Surveillance (DFP-1A)
- SP-317 Reactor Coolant System Leak Rate Determination
- SP-321, Power Distribution Breaker Alignment And Power Availability Verification

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution.1 Daily Screening of Items Entered Into the Corrective Action Program

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This review was accomplished by attending daily plant status meetings and accessing the licensee's computerized database.

.2 Annual Sample Reviewa. Inspection Scope

The inspectors selected the listed NCRs for detailed review. The NCRs were written after 1) a maintenance technician inadvertently operated the wrong breaker during maintenance and 2) after reactor coolant system leakage spiked following a pressurizer PORV block valve stroke test. There was no consequence to the plant from either occurrence. The inspector reviewed the root cause investigation activities to ensure that the full extent of the issues were being identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized, as identified. The inspectors evaluated the NCR documents against the requirements of the licensee's corrective action program, CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50 Appendix B.

- C NCR 150767 Wrong Breaker Operated During Maintenance
- C NCR 152691 Increase in RCS Leakage Following Stroke of RCV-11

b. Findings

No findings of significance were identified.

4OA3 Event Followup

(Closed) Licensee Event Report (LER) 05000302/2004-002-00: Emergency Diesel Generator Inoperable Due to Fuel Header Outlet Check Valve Leaking Past Seat

The event report summarized an event that occurred on April 23, 2004, when a small piece of foreign material lodged into the seat of the 1A emergency diesel generator fuel oil header check valve, which allowed fuel header pressure to drop, causing an 11.4 second start time for the engine when technical specifications require engine start within 10 seconds. Nominal start time is 7- 8 seconds. In a root cause investigation, the licensee analyzed the foreign material and determined it to be small fragments of teflon, PVC, and red iron oxide, all likely associated with prior diesel maintenance activities. The problematic check valve was replaced. The licensee found that the slower start time was bounded by accident analysis calculations.

The inspectors reviewed the licensee event report, the NCR , and the accident analysis assumptions from the Crystal River 3 Updated Final Safety Analysis Report, Chapter 14. The inspectors also discussed aspects of the event with plant personnel. The inspectors checked the accuracy and completeness of the LER and the appropriateness of the licensee's review, safety assessment, and corrective actions. The inspectors determined that this issue was a performance deficiency for failure to control the foreign material exclusion, which resulted in the 1A EGDG being inoperable for a period exceeding the 72 hour TS allowed outage time.

The finding is greater than minor because it involved the degraded EGDG equipment performance attributes of mitigating system cornerstone and affected the objective of ensuring that EGDG equipment is reliable and capable to respond to an event. The SDP Phase 1 for the IA EGDG being inoperable per Technical Specifications was evaluated per NRC Manual Chapter 0609, Appendix A. and screened out as Green because the finding did not represent an actual loss of safety function. The EDG would have performed its safety function. The finding was documented in the licensee's corrective action program as NCR 125149 and had been identified by licensee personnel during the surveillance test. This licensee identified finding involved a violation of TS 3.8.1 requirements. The enforcement aspects of the violation are discussed in Section 4OA7. This LER is closed.

40A6 Meetings

Exit Meeting Summary

On April 11, 2005, the resident inspectors presented the inspection results to Mr. D. Young, Site Vice President, and other members of licensee management, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

Other Meetings

On January 25, 2005, Loren Plisco, the NRC Region II Deputy Regional Administrator, toured the site and met with plant management.

40A7 Licensee Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

1. 10 CFR 50.65(a)(4) requires that before performing maintenance, the licensee shall assess and manage the increase in risk from proposed maintenance activities. Contrary to the above on March 14 to 17, 2005, during an elevated risk condition (Orange) due to having multiple equipment out of service, risk was not fully managed for maintenance activities. Specifically, Emergency Management Procedure EM-220, Violent Weather, Section 4.2.1, Tornado Watch, requires that safety related equipment be returned to service, if possible, during a tornado watch. On March 16, a tornado watch was issued, and work was subsequently begun to disassemble and inspect a safety related raw water check valve, RWV-34. The condition was identified during a management review of the status of maintenance activities during the tornado watch. The licensee immediately suspended the valve disassembly, initiated restoration, and documented the issue in their corrective action program (NCR 154024). The finding was of very low safety significance because the overall risk increase due to the problem was small (less than $1E-6$), and additional risk management actions associated with the elevated level of risk, such as fire protection walkdowns, protection of redundant equipment, and switchyard controls, were effectively implemented. The issue screened as Green in the Phase 1 screening using Manual Chapter 0609.
2. Technical Specification 3.8.1 requires that two emergency diesel generators be operable. Further, with one emergency diesel generator inoperable, restore the diesel to operable status within 72 hours or be in Mode 3 within 12 hours. Technical Specification Surveillance Requirement 3.8.1.6 requires that an emergency diesel generator start from standby and achieve in 10 seconds or less, steady state voltage and frequency. Contrary to the above, as of April 23, 2004, emergency diesel generator EGDG-1A was not operable for a period

longer than 72 hours (because the engine was not able to start and achieve steady state voltage and frequency within 10 seconds) and the plant was not placed in Mode 3 as required. When identified during a surveillance test on April 23, 2004, the licensee immediately declared the engine inoperable and initiated repairs. The issue was documented in the licensee's corrective action program (NCR 125149) and a root cause investigation was done. The licensee found that foreign material that had entered the fuel system during maintenance activities on February 24, 2004, had stuck in a fuel check valve, resulting in a depleted fuel header prime and a start time of greater than 10 seconds. The affected valve was replaced and the engine was retested satisfactorily. There was no loss of safety function for the diesel generator. The issue was determined to be of very low safety significance (Green) using the Manual Chapter 0609, Appendix A, Attachment 1, screening worksheet for mitigating systems.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

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R. Davis, Manager, Training
J. Franke, Plant General Manager
D. Hanna, Supervisor, Self Evaluation and Emergency Preparedness
J. Hays, Manager, Outage and Scheduling
J. Holt, Manager, Operations
S. Powell, Supervisor, Licensing
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D. Roderick, Director Site Operations
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R. Warden, Manager, Nuclear Assessment
D. Young, Vice President, Crystal River Nuclear Plant

NRC personnel:

J. Munday, Chief, Reactor Projects Branch 3, NRC Region II
L. Plisco, Deputy Regional Administrator, NRC Region II

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000302/2004-002-00	LER	Emergency Diesel Generator Inoperable Due to Fuel Header Outlet Check Valve Leaking Past Seat (Section 4OA3)
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