UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

October 13, 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 05000302/2005004

Dear Mr. Young:

On September 30, 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 October 3, 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, the inspectors identified one finding of very low safety significance (Green). The finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance of the issue, and because it was entered into your corrective action program, the NRC is treating the issue as a Non-Cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest any NCV in this report, 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.

In accordance with 10 CFR 2.390 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 Publicly 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/

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

Docket No.: 50-302
License No.: DPR-72

Enclosure: Inspection Report 05000302/2005004
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-302
License No.:	DPR-72
Report No:	05000302/2005004
Licensee:	Progress Energy Florida (Florida Power Corporation)
Facility:	Crystal River Unit 3
Location:	15760 West Power Line Street Crystal River, FL 34428-6708
Dates:	July 1, 2005 - September 30, 2005
Inspectors:	T. Morrissey, Senior Resident Inspector R. Reyes, Resident Inspector J. Brand, Acting Senior Resident Inspector S. Vias, Senior Reactor Inspector (Section 1R12.2)
Approved by:	Joel T. Munday, Chief Reactor Projects Branch 3 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000302/2005-004; 07/01/2005 - 09/30/2005; Crystal River Unit 3; Flood Protection Measures.

The report covered a three month period of inspection by the resident inspectors and a regional senior reactor inspector. One Green NCV was identified. The significance of most findings is indicated by their color (Green, White, Yellow, 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 NRC 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

Cornerstone: Mitigating Systems

- Green: An NRC identified, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI was identified for failure to properly assess and correct a long standing issue associated with minor amounts of water intrusion into the 1A Emergency Diesel Generator (EGDG) diesel fuel tank (DFT). As a result, the DFT remained susceptible to water intrusion during a postulated peak high tide associated with a probable maximum hurricane which could have affected the operability of the 1A EGDG. The licensee entered the issue into the corrective action program and is performing a root cause evaluation to determine short and long term corrective actions.

  This finding is more than minor because it affected the protection against external factors attribute of the mitigating system cornerstone and affected the cornerstone objective of ensuring availability of a mitigating system. During a design basis flood event, enough water could have entered the DFT through a loose cap adapter connection to render the 1A EGDG inoperable. Using NRC Manual Chapter 0609, "Significance Determination Process," Appendix A, Phase 1, this finding was determined to require a Phase 3 analysis since the finding screened as potentially risk significant due to a flooding initiating event. A Regional Senior Reactor Analyst performed the Phase 3 evaluation and determined that the finding was of very low safety significance. This finding also involved a cross cutting aspect of Problem Identification and Resolution, because station personnel missed several opportunities to properly assess and correct this degraded condition.(Section 1R06)

B. Licensee-identified Violations

None

REPORT DETAILS

Summary of Plant Status:

Crystal River Unit 3 operated at essentially full power during the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity [RO]

1R01 Adverse Weather Protection

Impending Adverse Weather: Hurricane Katrina

b. Inspection Scope

On August 25 and 26, 2005, the inspectors reviewed the licensee's hurricane preparations for Hurricane Katrina which had entered the Gulf of Mexico. The licensee used the checklists in Emergency Management Procedure EM-220, Violent Weather, to plan actions should the storm approach. The inspectors verified that the licensee's violent weather committee had been established and that preparations were made for tropical storm and possible coastal flood conditions. The nuclear condition report (NCR) database was reviewed to verify that the licensee was identifying and correcting adverse weather protection issues.

b. Findings

No findings of significance were identified. The storm did not approach the site and violent weather or coastal flooding conditions did not occur.

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 four partial system alignments in system walkdowns using the listed documents:

- July 13, Emergency Diesel Generator (EGDG)-1B system, using operating procedure OP-707, Operation of the Engineered Safeguards Diesel Generators, and Surveillance Procedure SP-321, Power Distribution Breaker Alignment and

Power Availability Verification, while the EGDG-1A was out of service for maintenance

- July 15, Emergency Feed Pump (EFP)-3, Auxiliary Feed Water Pump (FWP)-7, and the Emergency Feed Tank (EFT)-2 systems, using operating procedures OP-450, Emergency Feed Water system, and OP-605, Feed Water System, while EFP-2 was out of service for maintenance

- September 19, Control Complex Chiller (CHHE)-1A system, using operating procedure OP-409, Plant Ventilation System, when chiller CHHE-1B was out of service for preventative maintenance

- On September 26, 27, and 28, the inspectors walked down the Emergency Core Cooling System Train 'A' (Raw Water, DC Closed Loop, Decay Heat, and Building Spray) using operating procedures OP-408, Nuclear Services Cooling System, OP-404 Decay Heat Removal System, and OP-405, Reactor Building Spray, while Raw Water Pump (RWP)-3B was out of service for pump replacement. Additionally, during that same period the inspectors independently verified selected items in compliance procedure CP-140, Operations Evolution Orders For RWP-3B Replacement Implementation and Control Of Committed Compensatory Actions As Listed in Licensee Amendment 221

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 EGDG-1A and its associated 4160V ES Bus 3A. 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: the pumps, valves and piping associated with the diesel did not exhibit leakage that would impact its function; major portions of the systems 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 NCRs was performed to verify that the licensee had appropriately characterized and prioritized equipment problems for resolution in the corrective action program. Documents reviewed are listed in the attachment.

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 compensatory measures for fire protection problems were verified. The inspectors checked fire suppression and detection equipment to determine whether 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. Documents reviewed are listed in the attachment. The inspectors toured the following nine areas important to reactor safety:

- EFT-2 building
- Control complex 124' level
- Train A and B ES 4160 kV, 480 V and inverter rooms
- Sea water pump room
- Make-up pumps and valve gallery rooms
- Spent fuel pumps and heat exchangers area
- ES Train A and B cable trays and motor control cubicles (auxiliary building north, east and central corridors)
- FWP-7 and Diesel Generator Engine MTDG-1 areas
- Decay Heat / Building Spray Pump 'A' vault

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed the Crystal River Unit 3, Final Safety Analysis Report (FSAR), Chapter 2.4.2.4, Facilities Required for Flood Protection, that depicted protection for areas containing safety-related equipment to identify areas that may be affected by internal flooding. A walkdown of the auxiliary building vault for the B-train Decay Heat and Building Spray Pumps was conducted to ensure that flood protection measures were in accordance with design specifications. Specific plant attributes that were checked included structural integrity, sealing of penetrations, and operability of sump systems.

b. Findings

No findings of significance were identified.

.2 External Flood Protection

a. Inspection Scope

The inspectors performed an inspection of the external flood protection features for Crystal River, Unit 3. The inspectors reviewed the FSAR, Chapter 2.4.2.4, Facilities Required for Flood Protection, that depicted the design flood levels and protection for areas containing safety-related equipment to identify areas that may be affected by external flooding. The inspectors conducted a general site walkdown of all external areas of the plant including the turbine building, auxiliary building, and berm to ensure that flood protection measures were erected in accordance with design specifications. Emergency procedure EM-220, Violent Weather, was checked to verify that adequate measures were planned or established to protect against external flooding due to hurricanes. Specific plant attributes that were checked included structural integrity, sealing of penetrations below the design flood line, and adequacy of watertight doors between flood areas.

b. Findings

Introduction: The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI for the failure to properly assess and correct a long standing issue associated with minor amounts of water intrusion into the 1A EGDG diesel fuel tank (DFT). As a result, the DFT remained susceptible to water intrusion during flood conditions associated with a probable maximum hurricane which, in turn, could have affected the operability of the 1A EGDG.

Description: On September 7, the inspectors checked the tightness of a cap on the 1A EGDG 7-day DFT to ensure it was properly sealed and would not be a source of water inleakage during a design basis external flood event. The cap was securely fastened to the adapter, however the adapter's connection to the DFT piping was found loose. A licensee investigation revealed that the adapter was installed without a gasket. A new gasket was subsequently installed and the connection restored to its designed configuration. Similar connections on both DFTs were inspected and found to have the necessary gasket installed.

The inspectors reviewed the corrective actions associated with two NCRs documenting finding water in the 1A DFT. Per SP-345A, Monthly Functional Test of the Emergency Diesel Generator EGDG-1A, an NCR is written if greater than or equal to 3/4 inch of water is found in the DFT. NCR 129800, (June 16, 2004), documented finding 3/4 inches of water in the 1A DFT. 1A EGDG was determined to be operable and a work order was initiated to pump out the water. No further corrective actions were specified. NCR 139106 (October 4, 2004) documented finding approximately 1 inch of water in the 1A DFT. On October 7, the water was removed in accordance with the work order assigned under the first NCR. In addition, a corrective action item was assigned to

inspect the 1A DFT manway to determine whether water was leaking past its seal. The manway was inspected in August 2005 and determined to not be the source of leakage. No additional corrective actions were specified to find the origin of the water. Through discussions with the licensee, the inspector determined that the licensee's assessment of minor amounts of water in the DFT had only considered the minimal impact of rainwater intrusion and had not considered a design basis flood event where the flood level would be approximately three feet above the DFT connections. Indications of water in the 1A DFT existed since February 2004, however, the amount of water did not meet the procedure threshold for initiating an NCR or a work request to pump out the water. The licensee has placed this issue in the corrective action program to investigate other possible sources for the water found in the 1A DFT. A licensee root cause evaluation will be performed to determine the extent of short and long term corrective actions.

Analysis: The inspectors determined that the failure to properly assess and correct a long standing issue associated with minor amounts of water in the 1A DFT is a performance deficiency that could have affected the reliability and operability of the 1A EGDG during a design basis flood event. Although it is not certain that the improperly assembled connection was the source of the 1A DFT water, had the licensee taken appropriate corrective actions, this loose, improperly assembled connection would most likely have been found. This finding is more than minor because it affected the protection against external factors attribute of the mitigating system cornerstone and affected the cornerstone objective of ensuring availability of a mitigating system. During a design basis flood event with water level above the DFT connections, enough water could have entered the DFT through the loose cap adapter connection to render the 1A EGDG inoperable. Using NRC Manual Chapter 0609, "Significance Determination Process," Appendix A, Phase 1, this finding was determined to require a Phase 3 analysis since the finding screened as potentially risk significant due to a flooding initiating event, and was completed by a Regional Senior Reactor Analyst. The analysis was dominated by wind driven flooding from an intense hurricane and the flood initiating frequency was very low because of the low likelihood of intense hurricanes for Citrus County, Florida. The analysis assumed the intense hurricane would cause a loss of offsite power that was not easily recoverable and only impacted one diesel for the first 24 hours. Therefore, another division of equipment would be available to mitigate the flood and the loss of offsite power. The finding's risk was screened using conservative assumptions, and found to be less than 1E-6, and was therefore Green. The primary cause of the finding was related to the cross cutting area of Problem Identification and Resolution, specifically, inadequate assessment, in that station personnel failed to adequately assess and promptly correct water intrusion into
1 A DFT since February 2004.

Enforcement: Appendix B, Criterion XVI of 10 CFR Part 50 states, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected." Contrary to this requirement, on September 7, 2005, station personnel failed to properly assess and correct an issue of minor water intrusion into the 1A DFT that had existed since February 2004. As a result, a design basis flood event could have affected the availability of the 1A EGDG.

Because this issue was of very low safety significance and because it has been entered into the licensee's corrective action program (NCR-169029), the issue is being treated as a Non-Cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy, NCV 05000302/2005-004-01, Failure to Properly Assess and Correct Condition of Water in the 1A Diesel Fuel Tank. A new gasket was subsequently installed on 1A DFT and the connection restored to its designed configuration. A root cause evaluation is being performed to determine short and long term corrective actions.

1R07 Heat Sink Performance

a. Inspection Scope

On August 08, 2005, the inspectors observed maintenance personnel perform a heat exchanger inspection and operability assessment as part of Work Order 716124, Service Water Heat Exchanger SWHE-1D, Shoot and Clean. The inspectors verified that the assessment was performed in accordance with operating procedure OP-103B, Plant Operating Curves, which contains heat exchanger acceptance criteria to verify that the heat exchanger heat transfer capability was within the acceptable region. The inspectors reviewed licensee calculation, M97-0133, Service Water Loads During Large Break Loss of Coolant Accident and Service Water Temperature Decay Times to assess operational readiness of the system should it be needed for accident mitigation.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

.1 Observed Simulator Evaluated Session

a. Inspection Scope

On July 25, 2005, the inspectors observed licensed operators response and actions for the Crystal River Unit 3 Simulator Evaluated Session, SES-11A. In addition to responding to multiple equipment failures, the session required the crew to use plant abnormal and emergency operating procedures (EOPs) to respond to a reactor trip, a main feedwater malfunction that caused an overfeeding event, and a steam line break which eventually escalated into an Emergency Alert Declaration. The EOPs entered included EOP-1, Vital System Status Verification and EOP-05, Excessive 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 and plant management following the session, the inspectors assessed whether appropriate feedback was provided to the licensed operators regarding any identified weaknesses.

The inspectors specifically evaluated the following attributes related to operating crew performance:

- Clarity and formality of communication including crew briefings
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Implementation of EOPs
- Control Board operation and manipulation, including operator actions
- Oversight and direction provided by supervision, including ability to identify and notification of state authorities within the 15 minute requirement
- Effectiveness of the training oversight, evaluation, and critique

b. Findings

No findings of significance were identified.

.2 Observed Simulator Training Session

a. Inspection Scope

On September 8, 2005, the inspectors observed licensed operators response and actions for the Crystal River Unit 3 Training Session, LOR-1-01. The session required the crew to use plant abnormal and EOPs to respond to a primary to secondary leak leading to a steam generator tube rupture, a loss of a makeup pump, and a degraded reactor coolant pump seal. The EOPs entered included EOP-6, Steam Generator Tube Rupture. 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, the inspectors assessed whether appropriate feedback was provided to the licensed operators regarding any identified weaknesses.

The inspectors specifically evaluated the following attributes related to operating crew performance:

- Clarity and formality of communication including crew briefings
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Implementation of EOPs
- Control Board operation and manipulation, including operator actions
- Oversight and direction provided by supervision
- Effectiveness of the training oversight, evaluation, and critique

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

.1 Routine Inspection

a. 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. Documents reviewed are listed in the attachment. The inspectors conducted this inspection for the two degraded equipment conditions associated with the items listed below.

- NCR 167043, Degraded 230 kV Grid Condition Could Exist
- NCR 167430, SWV-41 Stroke Times Unsatisfactory Per SP-344C

b. Findings

No findings of significance were identified.

.2 Biennial Inspection

a. Inspection Scope

The inspectors reviewed the licensee's Maintenance Rule (MR) periodic assessment, "Crystal River 3 MR (a)(3) Periodic Assessment" dated May 17-27, 2004, while on-site the week of August 15, 2005. The report was issued to satisfy paragraph (a)(3) of 10 CFR 50.65, and covered the period April 1, 2002 through March 31, 2004, for the single unit. The inspection was to determine the effectiveness of the assessment and that it was issued in accordance with the time requirement of the MR and included evaluation of: balancing reliability and unavailability, (a)(1) activities, (a)(2) activities, and use of industry operating experience. To verify compliance with 10 CFR 50.65, the inspectors reviewed selected MR activities covered by the assessment period for the following maintenance rule systems: Decay Heat Removal (DH), Emergency Feedwater (EF & FWP-7), Nuclear Service & Decay Heat Sea Water (RW), Chilled Water (CH), Reactor Building Spray (BS), and Make Up & Purification (MU) . Additionally, the inspectors reviewed the most recent structural inspection report and inspected select plant structures. Specific procedures and documents reviewed are listed in the attachment to this report.

During the inspection, the inspectors reviewed selected plant work order data, the site guidance implementing procedure, discussed and reviewed relevant corrective action issues, and reviewed generic operations event data. Operational event information was evaluated by the inspectors in its use in MR functions. The inspectors attended an

Equipment Reliability Program Committee meeting during the week. The inspectors selected work orders, MR assessments, and other corrective action documents of systems recently removed from 10 CFR 50.65 a(1) status and those in a(2) status for some period to assess the justification for their status. The documents were compared to the site's MR program criteria, and the MR a(1) evaluations and rule related data bases.

b. Findings

No findings of significance were identified

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. 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 six work week assessments.

- Work Week 05W29, Risk assessment for operations with the pressurizer block valve RCV-11 shut and emergency feedwater pump EFP-3 out of service for preventive maintenance

- Work Week 05W31, Risk assessment for operations with the pressurizer block valve (RCV-11) shut and emergency feedwater pump EFP-2 out of service for corrective maintenance on MSV-187

- Work Week 05W32, Risk assessment for operations with the pressurizer block valve (RCV-11) shut and emergency diesel generator EGDG-1A out of service for installation of a fuel header modification and other preventative maintenance activities

- Work Week 05W34, Risk assessment for operations with the pressurizer block valve (RCV-11) shut and emergency diesel generator EGDG-1B out of service for installation of a fuel header modification and other preventative maintenance activities

- Work Week 05W38, Risk assessment for operations with the pressurizer block valve (RCV-11) shut and FWP-7 unavailable due to maintenance, and it's associated power supply Reactor Auxiliary Bus #3 unavailable

C Work Week 05W39, Condition Yellow Risk assessment for operations with the pressurizer block valve (RCV-11) shut and RWP-3B unavailable for pump refurbishment, per Technical Specification Amendment 221, One time only Raw Water Pump 3B allowed 10 days completion time

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following five NCRs 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 163076, MSV-187 steam leak (steam supply to EFP-2)
- NCR 165025, Small coolant leak on number 10 cylinder for EGDG-1A
- NCR 167646, Debris Found in Reactor Building (potential impact on sump)
- NCR 166709, Emergency Feed Valve EFV-33 Failed to stay open during SP-146A
- NCR 170139, RWP-2B Degraded Flush Water Flow

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the one design change package listed below to verify it met the requirements of procedures EGR-NGGC-0003, Design Review Requirements and EGR-NGGC-0005, Engineering Change. The design change was evaluated for potential adverse effects on the 'A' emergency diesel generator. This modification increased the fuel return piping to an elevation slightly above the engine fuel header prior to entering the fuel day tank. A fuel oil holding tank with level indication was installed in this piping to provide a means to monitor for any leakage from the fuel header. The inspectors observed the as-built configuration of the modification and observed installation, and reviewed testing activities associated with the modification. Documents reviewed included surveillance procedures, design and implementation packages, work orders, system drawings, corrective action documents, applicable sections of the updated final

safety analysis report, Technical Specifications, and design basis information. Post maintenance testing data and acceptance criteria were reviewed. The inspectors verified that issues found during the course of the installation and testing associated with the modification were entered and properly dispositioned in the corrective action program.

- Engineering Change 61030; EGDG-1A Fuel Header Modification

b. Findings

No findings of significance were identified

1R19 Post-Maintenance Testing

a. 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 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 post-maintenance tests reviewed are listed below:

- Surveillance Procedure SP-354A, Monthly Functional Test of the Emergency Diesel Generator EGDG-1A, performed on July 13, after replacement of the slow speed governor micro switch for EGDG-1A, WO 724640

- Surveillance Procedure SP-349C , EFP-3 And Valve Surveillance, performed on July 20, after replacing the engine right side air start motor, WO 705133

- Surveillance Procedure SP-344A, RWP-2A, SWP-1A And Valve Surveillance, performed on July 21, after performing maintenance on the shaft couplers, WO 506688

- Surveillance Procedure SP-344C, Containment Cooling System Fan and Valve Surveillance, performed on September 8, after replacing service water valve SWV-41 per WO 749312

- Surveillance Procedure SP-348A, Auxiliary Feedwater Pump (FWP-7) Testing and MTDG-1 Surveillance Testing, performed on September 23, after performing maintenance per WO 731192

- Performance Test PT-360, Power & Flow Measurements For EGDG-1A And EGDG-1B KW Loading Verifications; and Surveillance Procedure SP-340D, RWP-3B, DCP-1B And Valve Surveillance; performed on September 29, after completing RWP-3B replacement per WO 651965

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- 340E, DHP-1B, BSP-1B And Valve Surveillance
- SP- 340D, RWP-3B, DCP-1B And Valve Surveillance

Other Surveillance Tests:

- SP-904A, Calibration of 4160 Volt ES “A” Bus Undervoltage and Bus Degraded Grid Relays
- SP-332, Monthly Steam Line and Feedwater Isolation Functional Test
- SP-130, Engineered Safeguards Monthly Functional Test
- SP-354A, Monthly Functional Test of the Emergency Diesel Generator EGDG-1A (Fast Start)

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the two temporary modifications listed below to ensure that they did not adversely affect the operation of the system. The inspectors screened temporary plant modifications for systems that were ranked high in risk for departures from design basis and for inadvertent changes that could challenge the systems to fulfill

their safety function. The inspectors conducted plant tours and discussed system status with engineering and operations personnel to check for the existence of temporary modifications that had not been appropriately identified and evaluated.

- EC 61475RO Installation of Temporary Power Supplies For Non-nuclear Instrumentation (NNI)-5-JX and NNI-6-JX
- EC 61752RO Installation of Temporary and Spare Power Supplies For NNI-2-VDC

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed and reviewed one emergency response activity to verify the licensee was properly classifying emergency events, making the required notifications, and appropriate protective action recommendations. The inspectors assessed the licensee's ability to classify emergent situations and make timely notification to State and Federal officials in accordance with 10 CFR Part 50.72. Emergency activities were verified to be in accordance with the Crystal River Radiological Emergency Response Plan, Section 8.0, Emergency Classification System, and 10 CFR Part 50, Appendix E. Additionally, the inspectors verified that an adequate licensee critique was conducted in order to identify performance weaknesses and necessary improvements.

- On July 25, 2005, licensed operator Simulator Evaluated Session, SES-11A, involving a reactor trip, a main feedwater malfunction that caused an overfeeding event, and a steam line break

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

a. Inspection Scope

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, interviewing plant operators and applicable system engineers, and accessing the licensee's computerized database.

b. Findings

No findings of significance were identified.

.2 Annual Sample Review

a. Inspection Scope

The inspectors selected NCR 155884, Emergency Diesel Generator Reliability Performance Evaluation, and its associated documents for a detailed review to evaluate the effectiveness of the licensees' corrective actions. The NCR directed an evaluation be performed to determine the underlying reasons for performance problems and to develop actions to improve overall reliability. The inspector reviewed the evaluation to ensure that the full extent of the issue was being identified and appropriate actions were specified and prioritized. In addition, as part of this review, the inspectors walked down both EGDG trains to observe system condition, observed a routine monthly functional test of the EGDG-1A, and held discussions regarding system performance, condition and planned design changes with the system engineer. The inspectors reviewed the NCR database (January 2004 through August 2005) to determine whether emergency diesel generator performance issues were being properly identified and dispositioned. The NCR documents were reviewed for compliance with procedure, CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50 Appendix B.

b. Findings and Observations

A corrective action finding associated with a long standing issue of water intrusion into the 1A DFT is documented in Section 1R06 of this report. In addition, the initial extent-of-condition determination associated with the finding was incomplete. After discussions with the inspector, the licensee inspected all similar connections on both DFTs and determined that the loose connection found by the inspector was assembled without a gasket.

.3 Cross-Cutting Aspects Of Findings

Section 1R06 describes a finding in which minor water intrusion into the 1A diesel fuel tank was not properly assessed and corrected. This finding is a cross-cutting issue in the area of problem identification and resolution, specifically, assessment. The initial assessment only considered the impact of minor rainwater intrusion and not a design basis flood event that could result in a greater amount of water in the DFT and a possible inoperable EGDG. As a result, appropriate corrective actions were not considered.

4OA5 Other

(Discussion)Temporary Instruction (TI) 2515/163: Operational Readiness of Offsite Power

This TI was completed in inspection report 05000302/2005003. However, after NRC headquarters review of the information provided, additional information related to the TI was requested. The inspectors collected this information from licensee discussions, site procedures and other licensee documentation. Appropriate documentation of the inspection results was provided to the headquarters staff for further analysis. The inspectors collected data pursuant to TI 2515/163, "Operational Readiness.

4OA6 Meetings

Exit Meeting Summary

On October 3, 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
M. Annacone, Manager, Engineering
W. Brewer, Manager, Maintenance
R. Davis, Manager, Training
J. Franke, Plant General Manager
J. Hays, Manager, Outage and Scheduling
J. Holt, Manager, Operations
S. Powell, Supervisor, Licensing
M. Rigsby, Radiation Protection Manager
D. Roderick, Director Site Operations
J. Stephenson, Principal Nuclear Emergency Preparedness Specialist
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

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000302/2005004-01	NCV	Failure to properly assess and correct condition of water in the 1A diesel fuel tank (Section 1R06)

Discussion

2515/163	TI	Operational Readiness of Offsite Power (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment
Procedures

OP-700A, 6900, 4160, and 480 Volt AC Buses
OP-707, Operation of the ES Emergency Diesel Generators

Section 1R05: Fire Protection
Procedures

AI-2205A, Pre Fire Plan - Control Complex
I-2205B, Pre Fire Plan - Turbine Building

AI-2205C, Pre Fire Plan - Auxiliary Building
AI-2205F, Pre Fire Plan - Miscellaneous Buildings and Components

Section 1R12: Maintenance Effectiveness

Procedures

SP-321, Power Distribution Breaker Alignment and Power Availability Verification

Other

NCR 167058, CR Switchyard Voltages During high Load Conditions
Operations Short-Term Instruction 05-018, Actions required for POD temperature and Grid Voltage Control

Section 1R12: (Biennial) Documents Reviewed

MR - Corrective Action Program Documents

- Maintenance Rule Functional Failures, 2004 & 2005
- Expert Panel Minutes , 01/27/03, 6/14/05, 7/26/05, 4/29/05, 2/5/2003
- CR3 Maintenance Rule (a)(3) Periodic Assessments: 114590, 51588
- System Health Reports: January - June 2005, July - December 2004, January - June 2004
- Maintenance Rule Scoping Log
- Maintenance Rule Event Log Report
- CR3 PRA System Ranking, June 2005, December 2004
- PMGs Approaching Unavailability Criteria
- Equipment Performance Priority List
- Equipment Performance Action Plan
- Work Around Overview and Status
- AR: 63348,
- NCR: 166946

Administrative Procedures

- ADM-NGGC-0101, Maintenance Rule Program, Rev. 18
- CP-153B, Monitoring the Performance of Systems Structures and Components under the Maintenance Rule, Rev. 9

Miscellaneous

- Attended the Reliability Program Committee meeting