



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
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ATLANTA, GEORGIA 30303-8931

April 25, 2002

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  
50-302/01-05

Dear Mr. Young:

On March 30, 2002, the NRC completed an inspection at your Crystal River Unit 3. The enclosed report documents the inspection findings which were discussed on April 10, 2002, 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.

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 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,

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Randall A. Musser, Acting Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 50-302/01-05  
w/Attachment

cc w/encl: (See page 2)

cc w/encl:

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No: 50-302

License No: DPR-72

Report No: 50-302/01-05

Licensee: Florida Power Corporation (FPC)

Facility: Crystal River Unit 3

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

Dates: December 30, 2001 - March 30, 2002

Inspectors: S. Stewart, Senior Resident Inspector  
S. Sanchez, Resident Inspector

Approved by: Randall A. Musser, Acting Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000302-01-05, on 12/30/2001 - 03/30/2002, Florida Power Company, Crystal River Unit 3.  
Resident Inspector Integrated Inspection Report.

The inspection was conducted by the resident inspectors. No findings of significance were identified by NRC inspectors during this inspection. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html>.

A. Inspector Identified Findings

None

B. Licensee Identified Violations

None

## Report Details

### Summary of Plant Status

Crystal River Unit 3 operated at full power throughout the period.

#### 1. REACTOR SAFETY

##### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, [Reactor-R]**

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

During cold weather periods, the inspectors checked for implementation of Operating Instruction OI-13, Adverse Weather Conditions, to assure vital systems and components were protected and monitored. As applicable, the emergency feedwater pump and tank rooms were included in walkdowns to check if the cold weather mitigation strategies were implemented.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment

##### .1 Paternal System Walkdowns

##### a. Inspection Scope

The inspectors reviewed licensee procedures and drawings to determine correct system lineups for operation at power and checked that systems were correctly aligned while one train or system was inoperable or out of service. The inspectors reviewed licensee activities to check that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact mitigating system availability. The inspectors reviewed the following system alignments and reviewed the associated documents:

- Emergency Diesel Generator EGDG-1A when EGDG-1B was removed from service for maintenance and testing. The inspectors used Surveillance Procedure SP-354A, Monthly Functional Testing of EGDG-1A and Operating Procedure OP-707, Operation of the Emergency Safeguards Emergency Diesel Generators.
- Emergency Feedwater Pump EFP-2 while EFP-3 was removed from service for surveillance testing. The inspectors used Operating Procedure OP-450, Emergency Feedwater System, Surveillance Procedure SP-349B, EFP-2 and Valve Surveillance, and drawing FD-302-082, Emergency Feedwater, Sheet 3.

- Building Spray Train A while Train B was removed from service for valve testing per Work Request 371465. The inspectors used licensee drawing FD-302-711, Reactor Building Spray and Operating Procedure OP-403, Reactor Building Spray
- Control Complex Chiller Train A when Train B was out of service for maintenance. The inspectors used licensee Operating Procedure OP-409, Plant Ventilation System and drawing FD-302-756, Chilled Water
- Emergency Feedwater Pump EFP-3 while EFP-2 was removed from service for governor replacement per Work Request 221857. The inspectors used licensee Operating Procedure OP-450, Emergency Feedwater System

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors performed a detailed inspection of the core flood tank system to verify accident mitigation readiness. The verification included checks of tank levels, fluid boron concentrations, and verification that critical valves and power supplies were aligned in accordance with technical specification and licensee procedural requirements. A review of outstanding design issues and maintenance work requests was performed to determine if any deficiencies existed which could affect the ability of the system to perform its design functions. The following documents were reviewed: Final Safety Analysis Report Chapter 6.1.2.1.3, Core Flood System Description, Improved Technical Specification 3.5.1, Core Flood Tanks, and Surveillance Procedure SP-300, Operator Logs, and Chemistry records for boron concentrations.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Area Walkdown

a. Inspection Scope

The inspectors conducted tours of risk significant plant areas to ensure controls for transient combustibles and ignition sources were consistent with the licensee's Fire Protection Plan and 10 CFR Part 50, Appendix R. The inspectors also evaluated the material condition, operational lineup, and operational effectiveness of fire protection systems and assessed operational status and material condition of fire barriers used to contain fire damage using the standards of the Fire Protection Plan, 10 CFR Part 50,

Appendix R, the Florida Power Corporation Analysis of Safe Shutdown Equipment, and the Final Safety Analysis Report. The inspectors reviewed sections of Administrative Instruction AI-2200, Guidelines for Handling, Use, and Control of Transient Combustibles and checked for performance of SP-800, Monthly Fire Extinguisher Inspection to verify the operational readiness of fire protection equipment. Additional documents reviewed during the inspections were: SP-366, Fire System Annual Valve Surveillance; SP-607, Fire Damper Inspection; and, SP-190D, Functional Testing of Fire Detection System - Control Complex. The components and areas receiving specific fire protection walkdowns were:

- A and B Emergency Diesel Generator Rooms
- Control Complex Ventilation Room
- Main Control Room
- Fire Pump House and Berm Area
- A and B 4160 Volt Emergency Safeguards Switchgear Rooms
- Emergency Feedwater Initiation and Control (EFIC) Rooms

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill

a. Inspection Scope

The inspectors observed a plant fire drill in the B Battery Room to evaluate the licensee fire brigade response including items such as communications, the fire team leader's ability to set-up and lead fire operations, the fire brigade members use of fire fighting equipment, and to check that the licensee's drill acceptance criteria were met. The inspectors also assessed the licensee critique of the drill and checked that any deficiencies were documented and resolved. In addition to drill observations, licensee Fire Drill Reports dated February 14, 2001, and March 8, 2002, were reviewed in detail.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed licensed operator performance during simulator requalification training on March 5 for one operating crew. The observed scenario tested the operators ability to respond to a steam generator tube failure along with other equipment problems. This observation included emergency procedure and abnormal operating procedure scenarios. The inspectors reviewed the licensee evaluators assessment of crew performance, to ensure that the prescribed critical tasks were met, and that the crews actions met the evaluators expectations. The inspectors also checked operator

performance in using formal communication, conservative decision-making, appropriate use of procedures, and proper alarm response. The inspectors checked that the operator performance was consistent with 10 CFR 55 requirements and industry guidelines and that licensee evaluators properly implemented 10 CFR 55.59 requirements. During this session, the inspectors assessed the crew's abilities in making emergency classifications and notifications as part of the conduct of emergency operations. Group dynamics and supervisory oversight, including the ability to properly identify and implement appropriate technical specification actions and regulatory reports and notifications, were assessed.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

For the equipment issues described in the Nuclear Condition Reports (NCRs) listed below, the inspectors reviewed the licensee's implementation of the Maintenance Rule (10 CFR 50.65) with respect to the characterization of failures, the appropriateness of the associated a(1) or a(2) classification, and the appropriateness of either the associated a(2) performance criteria or the associated a(1) goals and corrective actions:

- NCR 54108 for Reactor Building Channel B Pressure Indication BS-17-PI drifted out of the tolerance. The following documents were reviewed: Technical Specification 3.3.17.A; Work Week Risk Assessment WW206; Operating Logs; Maintenance backlog report for potential functional failures and system unavailabilities.
- NCR 55388 for higher than expected wear of Emergency Feedwater Pump 3 bearings. The following documents were reviewed: System engineer notebook concerning a negative trend in iron and copper content in EFP-3 outboard sleeve bearing lubrication oil; LLC Laboratories Analytical Report 718899 dated 12-17-01; Maintenance Rule System Scoping Report; Corrective Action Program Document CAP-NGGC-0200, and Maintenance Rule performance criteria for the Emergency Feedwater system in the Crystal River 3 System Health Report for Fourth Quarter 2001.
- NCR 55602 for Makeup Valve MUV-49 Engineered Safeguards status light problems. The following documents were reviewed: Maintenance Rule System Scoping Report; Operating Logs; Corrective Action Program Document CAP-NGGC-0200, and Maintenance Rule performance criteria for the Makeup system in the Crystal River 3 System Health Report for Fourth Quarter 2001.
- NCR 55893 for oscillations in the low level channel B indicator on the B steam generator. The following documents were reviewed: Operating Logs; diagram B-205-074, Instrument Loop Diagram for OTSG B Startup Level Channels A and B,



and Maintenance Rule performance criteria for the Secondary Plant in the Crystal River 3 System Health Report for Fourth Quarter 2001.

- NCR 56957 for Decay Heat Closed Cycle Cooling (DC) heat exchanger outlet temperature main control board indicator failing midscale. The following documents were reviewed: Maintenance Rule System Scoping Report; Operating Logs, and Maintenance Rule performance criteria for the DC system in the Crystal River 3 System Health Reports for the First and Fourth Quarters 2001.
- NCR 53507 for an unexpected entry into a 72 hour LCO due to a blown fuse in the A train of emergency feedwater control valves indication. The following documents were reviewed: Maintenance Rule System Scoping Report; Operating Logs, and Maintenance Rule performance criteria for the emergency feedwater and remote shutdown systems in the Crystal River 3 System Health Report for Fourth Quarter 2001.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

For the following activities, the inspectors reviewed the effectiveness of risk assessments performed prior to changes in plant configuration for maintenance activities (planned and emergent), and checked that upon unforeseen situations the licensee had taken the necessary steps to plan and control the resultant emergent work activities. The inspectors reviewed daily maintenance schedules and observed work controls to evaluate risk as maintenance was conducted. The inspectors employed standards for operability of equipment such as those found in Technical Specifications, the Final Safety Analysis Report, licensee procedures, and regulatory information such as NRC Generic Letter 91-18, Revision 1, Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded And Nonconforming Conditions. The following maintenance conditions were specifically checked:

- Nuclear Condition Report 54174, 1B Emergency Diesel Generator keep warm heaters failed to energize when temperature fell, when a reactor building pressure instrument was out of service for testing per Improved Technical Specification 3.3.17.A. Work Order WO 372770 was used to troubleshoot and repair the heater contacts.

The following document was reviewed:

- Equipment Out-of-Service (EOOS) evaluation for Work Week 209 (January 28)

- Nuclear Condition Report 57497, Reactor Coolant System Pressure Switch, RC-3B-PS9, was found out-of-tolerance during SP-132C when Control Complex Chiller 1B was out of Service for a rebuild/overhaul.

The following documents were reviewed:

- EOOS evaluation for Work Week 02W11 (March 16)
- Final Safety Analysis Report Chapter 9.4.2.7
- Improved Technical Specification 3.4.13 Condition C

- Nuclear Condition Report 57896 for failure of the Service Water Heat Exchanger SWHE-1A corrosion inhibitor with Control Complex Chiller 1B out of service for overhaul.

The following documents were reviewed:

- EOOS evaluation for Work Week 02W12 (March 24)

- Nuclear Condition Report 58162 for failure of Emergency Feedwater Pump EFP-3, AC lube oil pump DLP-13 with Control Complex Chiller 1B out of service for overhaul.

The following documents were reviewed:

- Revised EOOS evaluation for Work Week 02W12 (March 24)

- Nuclear Condition Report 54447 for failure of the B side reactor building isolation, channel 2, group 6 actuation alarm to come in during surveillance testing.

The following documents were reviewed:

- Revised EOOS evaluation for Work Week 02W08 (January 20)
- Surveillance SP-130, Engineered Safeguards Monthly Functional Test

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the technical adequacy of the following nuclear condition reports (NCRs) to verify that operability was consistent with Technical Specifications, the Final Safety Analysis Report, 10CFR Part 50 requirements, and 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 activities to verify that operability issues were being identified at an appropriate threshold, consistent with 10 CFR 50, Appendix B requirements, and the licensee procedure NGGC-200, Corrective Action Program, and that risk was assessed when plant problems were identified.

- NCR 54335 on the incore monitoring system
- NCR 55714 for a raw water system leak
- NCR 57488 for makeup valve MUV-257 failing to open
- NCR 57896 on the A service water heat exchanger cathodic protection failed

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed the operator work-around database to determine the cumulative effects of operator work-arounds on January 29, 2002. The inspectors reviewed the affect of the work-arounds on reliability, availability, emergency operations, and potential mis-operations of the systems involved. The inspectors reviewed whether the operator work-arounds could increase an initiating event frequency or could affect multiple mitigating systems. The inspectors also reviewed the cumulative effects of operator work-arounds on operator correct and timely response to plant transients and accidents.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors evaluated the following post-maintenance testing activities for risk significant systems to assess the following (as applicable): (1) the effect of testing on the plant had been adequately addressed; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and demonstrated operational readiness; (4) test instrumentation was appropriate; (5) tests were performed as written, and (6) equipment was returned to its operational status following testing. The inspectors evaluated the licensee activities against the Technical Specifications, the Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications.

The specific post-maintenance activities evaluated included:

- SP-349C, Emergency Feedwater Pump EFP-3, and Valve Surveillance, after replacing the pump outboard bearing per Work Order NU 371038.

- SP-340D, Raw Water Pump RWP-3B, Decay Heat Closed Cycle Cooling Pump DCP-1B, and Valve Surveillance, after repair of piping leak (NCR 55642) near Raw Water Valve RWV-131 per Work Order NU 373029.
- SP-130, Engineered Safeguards (ES) Monthly Functional Test, after replacement of ES relay ESCC-5B-CG per Work Order NU 372807.
- SP-354A, Monthly Functional Test of emergency diesel generator EGDG-1A, after replacement of thermal overloads per Work Orders NU 371080 and 371748.
- SP-349B, EFP-2 and Valve Surveillance, after replacement of the turbine governor per Work Order NU 221857.
- SP-375B, CHP-1B and Valve Surveillance, after replacement of the control complex chiller tubes per Work Order NU 216340.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed surveillance testing (SPs) or reviewed test data for risk-significant systems or components, to assess compliance with Technical Specifications, 10 CFR Part 50, Appendix B, and licensee procedure requirements. The testing was also evaluated for consistency with the Final Safety Analysis Report, NRC Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing Programs, and NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants. The inspectors checked if the testing demonstrated that the systems were ready to perform their intended safety functions. During the inspections, consistent with 10 CFR Part 50, Appendix B, Criterion XVI, and licensee procedure CAP-NGGC-200, Corrective Action Program, the inspectors verified that licensee personnel were documenting surveillance problems in the corrective action program.

Inservice test (IST) activities were reviewed to ensure testing methods, acceptance criteria, and required corrective actions were in accordance with the ASME Code, Section XI, and Florida Power Corporation ASME Section XI, Ten Year Inservice Testing Program, dated May 4, 1998. The specific surveillance activities assessed included:

- SP-340E, Decay Heat Pump DHP-1B, Building Spray Pump BSP-1B, and Valve Surveillance (IST)
- SP-354B, Monthly Functional Test of Emergency Diesel Generator EGDG-1B
- SP-130, Engineered Safeguards (ES) Monthly Functional Test

- SP-354A, Monthly Functional Test of Emergency Diesel Generator EGDG-1A
- SP-340B, DHP-1A, BSP-1A, and Valve Surveillance
- SP-375B, CHP-1B and Valve Surveillance

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed Temporary Modification T-02-00-00-03 for a clamp device on main steam safety valves MSV-38 and MSV-43, to evaluate the modification and the associated 10 CFR 50.59 screening against the system design basis documentation. The inspectors verified that the modification did not affect system operability or availability, the installation was consistent with the modification documents, and was conducted with adequate configuration control.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES (OA)**

4OA1 Performance Indicator Verification

.1 Mitigating System Cornerstone

a. Inspection Scope

The inspectors checked the accuracy of the performance indicators for heat removal system unavailability and residual heat removal system unavailability against the guidance of NEI 99-02 Rev.1, Regulatory Assessment Performance Indicator Guideline. Performance indicator data submitted in January 2002, were compared for consistency with data obtained through the inspector's review of control room logs, monthly operating reports, and equipment out-of-service records from April 2001 through December 2001. The inspectors verified that relevant issues related to the collection of performance indicator data had been entered into the licensee corrective action program.

b. Findings

No findings of significance were identified.

## 4OA6 Meetings

### .1 Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. D. Young and other members of licensee management at the conclusion of the inspection on April 10, 2002. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. The licensee did not identify any proprietary information.

### .2 Annual Assessment Meeting

Subsequent to the end of the inspection period, on April 11, 2002, the NRC Region II Division of Reactor Projects Branch Chief and Senior Resident Inspector assigned to Crystal River, met with Florida Power Corporation to discuss the NRC's Reactor Oversight Process (ROP) and the Crystal River annual assessment of safety performance for the period of April 1, 2001 - December 31, 2001. The major topics addressed were: the NRC's assessment program, the results of the Crystal River assessment, and the NRC's Agency Action Matrix. Attendees included Crystal River site management, members of site staff, and one local official from the Citrus County Sheriff's office. The licensee made a brief presentation and the applicable presentation materials are attached to this report.

This meeting was open to the public. Information used for the discussions of the ROP is available from the NRC's document system (ADAMS) as accession number ML020600179. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm.adams.html> (the Public Electronic Reading Room).

### .3 Other Meetings

On January 17, 2002, NRC Commissioner Nils Diaz met with the resident inspectors and licensee personnel regarding on-going activities at Crystal River 3. The Commissioner was accompanied by NRC Region II Acting Administrator, B. Mallett.

## **PARTIAL LIST OF PERSONS CONTACTED**

### Florida Power Company

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J. Terry, Manager, Engineering  
R. Warden, Manager, Nuclear Assessment  
D. Young, Vice President, Crystal River Nuclear Plant

NRC

B. Mallett, NRC Region II Acting Administrator  
NRC Commissioner Nils Diaz

**ITEMS OPENED AND CLOSED**

None