



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVE., NE, SUITE 1200
ATLANTA, GA 30303-1257

July 27, 2012

Mr. Jon A. Franke, Vice President
Crystal River Nuclear Plant (NA1B)
15760 West Power Line Street
Crystal River, FL 34428-6708

SUBJECT: CRYSTAL RIVER UNIT 3 – NRC INTEGRATED INSPECTION REPORT
05000302/2012003 AND ASSESSMENT FOLLOW-UP LETTER

Dear Mr. Franke:

On June 30, 2012, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Crystal River Unit 3. The enclosed inspection report documents the inspection results, which were discussed on July 9, 2012, with Mr. T. Hobbs and other 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 were identified.

After reviewing Crystal River Unit 3 performance in addressing the White finding subject to Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," documented in inspection report 05000302/2012503 (ML12166A522), the NRC concluded your actions met the objectives of Inspection Procedure 95001. Therefore, in accordance with the guidance in Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program," the White finding will only be considered in assessing plant performance for a total of four quarters (i.e., through the second quarter of 2012). As a result, the NRC determined the performance at Crystal River Unit 3 to be in the Licensee Response Column of the ROP Action Matrix as of July 1, 2012.

J. Franke

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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 the 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/

Daniel W. Rich, Chief
Reactor Project Branch 3
Division of Reactor Projects

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

cc w/encl.: (see page 2)

Enclosure: Inspection Report 05000302/2012003
w/Attachment: Supplemental Information

J. Franke

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Letter to Jon A. Franke from Daniel W. Rich dated July 27, 2012

SUBJECT: CRYSTAL RIVER UNIT 3 – NRC INTEGRATED INSPECTION REPORT
05000302/2012003 AND ASSESSMENT FOLLOW-UP LETTER

Distribution w/encl:

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L. Douglas, RII

OE Mail

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RidsNrrPMCystal River Resource

ROPassessment.Resource@nrc.gov

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-302

License No.: DPR-72

Report No.: 05000302/2012003

Licensee: Progress Energy (Florida Power Corporation)

Facility: Crystal River Unit 3

Location: Crystal River, FL

Dates: April 1, 2012 – June 30, 2012

Inspectors: T. Morrissey, Senior Resident Inspector
N. Childs, Resident Inspector
E. Crowe, Senior Resident Inspector, Farley
S. Sandal, Senior Reactor Inspector (Section 4OA5.3)

Approved by: D. Rich, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000302/2012003; 04/01/2012-06/30/2012; Crystal River Unit 3; Routine Integrated Report.

The report covered a three month period of inspection by resident inspectors and one regional senior reactor inspector. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process".

A. NRC Identified & Self-Revealing Findings

No findings were identified.

B. Licensee Identified Violations

None

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REPORT DETAILS

Summary of Plant Status:

Crystal River Unit 3 began the inspection period in “No Mode” with the full core off-loaded to the spent fuel pool. The unit remained in this condition for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

.1 Adverse Weather Protection: Hurricane Season Preparation

a. Inspection Scope

The inspectors reviewed the licensee’s hurricane season preparations using the licensee’s emergency management procedure EM-220, Violent Weather. The inspectors checked that the licensee maintained the ability to protect vital systems and components from high winds and flooding associated with hurricanes. Additionally, the inspectors toured the five plant areas listed below to check for any vulnerabilities, such as inadequate sealing of water tight penetrations, or degraded barriers that could affect the associated systems. The inspectors verified that the licensee’s violent weather committee had been established and that an initial preparatory walkdown had been completed. Condition reports (CRs) were reviewed to verify that the licensee was identifying and correcting adverse weather protection issues. Documents reviewed are listed in the Attachment.

- auxiliary building sea water room
- control complex, auxiliary, and turbine buildings’ flood walls and doors
- engineered safeguards (ES) emergency diesel generator rooms
- emergency feedwater rooms
- 230KV and 500KV high voltage switchyards

b. Findings

No findings were identified.

.2 Adverse Weather Protection: External Flooding

a. Inspection Scope

The inspectors performed an inspection of the external flood protection features for Crystal River, Unit 3. The inspectors reviewed the Final Safety Analysis Report (FSAR) Chapter 2.4.2.4, Facilities Required for Flood Protection, which depicts the design flood levels and protection areas containing safety-related equipment, to identify areas that may be affected by external flooding. Documents reviewed are listed in the Attachment.

Enclosure

b. Findings

No findings were identified.

.3 Adverse Weather Protection: Offsite and Alternate AC Power System Readiness

a. Inspection Scope

The inspectors evaluated the summer readiness of both the offsite and onsite alternate AC power systems. The inspectors walked down the safety-related emergency diesel generators (EGDG-1A, 1B) and non-safety-related emergency diesel generator (EGDG-1C) to assess their availability during a loss of offsite power event. The inspectors performed a walkdown of the switchyard with plant personnel to verify the material condition of the offsite power sources was adequate. Open work orders (WOs) for the offsite and onsite alternate AC power systems were reviewed to ensure degraded conditions were properly addressed. The inspectors verified that licensee and transmission system operator procedures contained communication protocols addressing the exchange of appropriate information when issues arise that could impact the offsite power system. The inspectors verified that no equipment or operating procedure changes have occurred since the last performance of this inspection that would potentially affect operation or reliability of the offsite or onsite AC power systems. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.4 Adverse Weather Protection: Tornado Warning

a. Inspection Scope

On May 29, 2012, the inspectors evaluated the licensee's actions when the site was informed of being under a tornado warning. The licensee implemented emergency management procedure EM-220, Violent Weather, for the tornado warning. The inspectors reviewed operator logs and EM-220 documentation to ensure required actions were implemented. Additional documents reviewed are listed in the Attachment. This constituted one sample representing observation of actual adverse weather protection activities.

b. Findings

No findings were identified. The tornado warning expired with no violent weather or tornado formation near the site.

.5 Adverse Weather Protection: Tropical Storm Debby

a. Inspection Scope

On June 24 through June 26, 2012, the inspectors evaluated the licensee's actions when the site was informed of being in a tropical storm watch and subsequent warning, a tornado watch, and a coastal flood warning. The licensee implemented emergency management procedure EM-220, Violent Weather, for the weather watches and warnings. The inspectors reviewed operator logs and EM-220 documentation to ensure required actions were implemented. The inspectors walked down the outside protected area to verify the site was in a condition to withstand tropical storm winds and precipitation. Documents reviewed are listed in the attachment. This constituted one sample representing observation of actual adverse weather protection activities.

b. Findings

No findings were identified. The weather related watches and warnings expired with no violent weather experienced near the site.

1R04 Equipment Alignment

.1 Partial Equipment Walkdowns

a. Inspection Scope

The inspectors performed walkdowns of the critical portions of the selected trains to verify correct system alignment. 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. Documents reviewed are listed in the Attachment. The inspectors verified the following three partial system alignments through walkdowns:

- EGDG-1A and ES 4160 volt Bus 3A while EGDG-1B was out of service for testing
- EGDG-1C and off-site power lineup while EGDG-1A was out of service for emergent work
- A trains of spent fuel (SF), nuclear service closed cycle cooling water (SW), and nuclear service seawater (RW) systems while EGDG-1B was out of service for a planned extended maintenance outage

b. Findings

No findings were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors conducted one detailed walkdown and review of the alignment and condition of the control complex habitability envelope (CCHE) and the control room emergency ventilation system (CREVS). The inspectors utilized licensee procedures, as well as licensing and design documents to verify that the ventilation system alignment was correct and that the habitability boundary was intact. During the walkdown, the inspectors also verified that: dampers, piping, and other components associated with the CREVS and CCHE did not exhibit degradation that would impact the system's 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 system functions. A review of open WOs and CRs was performed to verify that the licensee had appropriately characterized and prioritized equipment problems for resolution in corrective action program. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection

Fire Area Walkdowns

a. Inspection Scope

The inspectors walked down accessible portions of the plant to assess the licensee's implementation of the fire protection program. The inspectors checked that the areas were 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 the equipment. The inspectors selected the areas based on a review of the licensee's probabilistic risk assessment. The inspectors also reviewed the licensee's fire protection program to verify the requirements of FSAR Section 9.8, Plant Fire Protection Program, were met. Documents reviewed are listed in the Attachment. The inspectors toured the following five areas:

- main control room
- A and B train vital battery and battery charger rooms
- 124 ft elevation control complex
- ES motor control center (MCC) 3A1 and 3B1 areas
- 119 ft elevation intermediate building

b. Findings

No findings were identified.

1R07 Heat Sink Performance

Annual Review of Heat Sink Performance

a. Inspection Scope

The inspectors observed maintenance personnel performing heat exchanger inspections and cleaning for service water heat exchangers SWHE-1C and SWHE-1D. The inspectors reviewed the as-found conditions when the heat exchangers were opened for inspection and observed tube cleaning to verify the heat exchangers were in an acceptable condition to perform their design function. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program

Resident Inspector Quarterly Review

a. Inspection Scope

On May 22 and May 29, 2012, the inspectors observed and assessed two separate licensed operator crews' response and actions for licensed operator simulator evaluated session SES-40. SES-40 included a loss of power to one channel of emergency feedwater initiation and control (EFIC) system, main feedwater and emergency feedwater pump failures leading to inadequate heat transfer, a plant power reduction, and a reactor trip. The plant degraded to a point where the crew entered an alert emergency declaration. The inspectors observed the operators' use of the following procedures: emergency operating procedures EOP-02, Vital System Status Verification, EOP-04, Inadequate Heat Transfer, and EOP-13, EOP Rules; and abnormal procedures AP-510, Rapid Power Reduction, and AP-545, Plant Runback.

The operators' actions were verified to be in accordance with the procedures mentioned in the above paragraphs. Event classification and notifications were verified to be in accordance with emergency management procedure EM-202, Duties of the Emergency Coordinator. The simulator instrumentation and controls were verified to closely parallel those in the actual control room. The inspectors attended the crew critique and evaluation to verify the licensee had entered any adverse conditions into the corrective action program. The inspectors evaluated the following attributes related to crew performance:

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- clarity and formality of communication
- ability to take timely action to safely control the unit
- prioritization, interpretation, and verification of alarms
- correct use and implementation of abnormal, emergency operating, and emergency plan implementing procedures
- control board operation and manipulation, including high-risk operator actions
- oversight and direction provided by supervision, including ability to identify and implement appropriate technical specification actions, regulatory reporting requirements, and emergency plan classification and notification
- overall crew performance and interactions

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing routine maintenance activities. The review included an assessment of the licensee's practices associated with 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 (MR) 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 failure of service water relief valve, SWV-677, that resulted in a MR functional failure when it lifted and failed to close during surveillance testing as documented in CR 507160.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors reviewed one equipment issue documented in the CR listed below to verify that functionality of the system important to safety was properly established, that the affected component or systems remained capable of performing its intended design function, and that no unrecognized increase in plant or public risk occurred. The inspectors assessed whether the functionality assessment of the system and its components was consistent with improved technical specifications (ITS), FSAR, 10 CFR Part 50 requirements, and when applicable, NRC Inspection Manual Part 9900, Technical Guidance - Operability Determinations & Functionality Assessments for

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Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety. The inspectors reviewed licensee CRs and procedures to verify that operability and functionality issues were being identified at an appropriate threshold and documented in the corrective action program, consistent with 10 CFR 50, Appendix B requirements as well as licensee corrective action procedure CAP-NGGC-0200, Condition Identification and Screening Process.

- CR 532662, EGDG-1C failed to start (possible fuel header voiding due to a leaking check valve)

b. Findings

No findings were identified

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors witnessed or reviewed post-maintenance test procedures 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:

- MP-543, Air Operated Valve Diagnostic Testing of Service Water Valve SWV-277, during planned maintenance associated with WO 2031495
- SP-522, Station Batteries Inspection and Battery Charger Load Test, (battery charger DPBC-1C) after performing planned maintenance per WO 1845885
- SP-354C, Functional Test of the Alternate AC Diesel Generator EGDG-1C, after planned maintenance per WO 2079470
- PT-911, PPIP-1 (B.5.b Portable Power Independent Pump) Performance Test, after performing planned maintenance per WO 1764632
- OP-707, Operation of the ES Emergency Diesel Generators, and SP-354A, Monthly Test of the Emergency Diesel Generator EGDG-1A, after performing corrective maintenance on EGDG-1A per WOs 2092528 and 2093012
- SP-354B, Monthly Functional Test of the Emergency Diesel Generator EGDG-1B, after performing planned 2-year maintenance in accordance with MP-499, Emergency Diesel Generator Engine Maintenance/Inspection, and WOs 1960799, 1849612, and 1801607

b. Findings

No findings were identified.

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1R20 Refueling and Outage ActivitiesSteam Generator Replacement Refueling Outage (RFO16)a. Inspection Scope

On September 26, 2009, the unit was shut down for a steam generator replacement refueling outage and the unit remains shutdown while the licensee plans containment repairs. During this quarter, the inspectors observed and monitored licensee controls over the outage activities listed below. Documents reviewed are listed in the Attachment.

- outage related risk assessment monitoring
- controls associated with reactivity management of the spent fuel pool (SFP)
- controls associated with electrical and mechanical alignments for those systems used to support SFP cooling
- implementation of equipment clearances
- foreign material exclusion controls associated with the SFP
- work controls associated with the protection of SFP cooling and support systems from maintenance activities

b. Findings

No findings were identified

1R22 Surveillance Testinga. Inspection Scope

The inspectors observed surveillance tests and reviewed the test results for the six surveillance tests listed below to verify that ITS 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.

In-Service Test:

- SP-344B, RWP-2B, SWP-1B and Valve Surveillance (2 year)
- SP-334A, SFP-1A Quarterly Surveillance
- SP-340D, RWP-3B, DCP-1B and Valve Surveillance
- SP-340E, DHP-1B, BSP-1B and Valve Surveillance
- SP-340A, RWP-3A, DCP-1A and Valve Surveillance

Surveillance Tests:

- SP-354A, Monthly Functional Test of the Emergency Diesel Generator EGDG-1A (Slow Start)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill EvaluationEmergency Preparedness Drilla. Inspection Scope

The inspectors observed 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 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 adequate licensee critiques were conducted in order to identify performance weaknesses and necessary improvements.

- May 21, radiological emergency response training drill involving a turbine failure, a loss of coolant accident, and a release to the environment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems.1 Daily Reviewa. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify 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 (CAP). This review was accomplished by attending daily plant status meetings, interviewing plant operators and applicable system engineers, and accessing the licensee's computerized database.

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b. Findings

No findings were identified.

.2 Annual Sample Review

a. Inspection Scope

The inspectors selected CR 507411, Emergency Feedwater Tank (EFT-2) Water Level Dropping, for review due to the potential impact on the public radiation safety cornerstone. From January 2010 to January 2012, the licensee noted a slowly declining water level in EFT-2, which was determined to be an approximately 19 gallons per day unidentified loss of water. EFT-2 water contains concentrations of tritium that, if released into the groundwater, would exceed the Environmental Protection Agency's drinking water limit. The decline in water level was an unexpected condition during the extended outage with the emergency feedwater (EFW) system out of service. The licensee's immediate corrective action was to locally isolate EFT-2, which stopped the decline in tank water level.

The inspectors verified that the issue was completely and accurately identified in the licensee's corrective action program, safety concerns were properly classified and prioritized for resolution, cause determination was sufficiently thorough, and appropriate corrective actions were initiated. The inspectors also evaluated the CR using the requirements of the licensee's CAP as delineated in corrective action procedure CAP-NGGC-0200, Condition Identification and Screening Process. Additional documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings were identified. The inspectors verified that the issue was entered into the corrective action program (CR 507411), that the appropriate significance level and evaluation type were assigned, that the evaluation sufficiently supported the conclusion of no release of tritium to the groundwater as a result of the leakage, and that corrective actions had been taken or were planned for resolution.

The licensee's visual inspections of accessible EFW piping and components did not identify any visible leak sources other than the expected leakage of approximately 6 gallons per day at the EFW pump shaft seals. Hydrostatic testing of underground EFW piping sections began the week of March 5, 2012 and concluded on April 12, 2012. The inspectors witnessed portions of the hydrostatic testing and reviewed completed work documents. The inspectors noted that the licensee's investigation eliminated underground EFW piping segments as the leak source and concluded that leakage into groundwater was not a concern. The investigation also concluded that the most likely cause of the EFT-2 level decline was inter-system leakage (i.e., EFW leakage into the auxiliary feedwater or condensate systems) through a leaking valve(s).

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The source of inter-system leakage has not yet been identified; however, the licensee's testing demonstrated that the internal leak paths would not result in unmonitored releases into the environment. The inspectors confirmed that additional actions to evaluate the source(s) of internal system leakage are being tracked by CR 507411. The inspectors concluded that the licensee had implemented sufficient corrective actions to ensure that unmonitored leakage into the environment did not occur as a result of the EFT-2 tank water level decline.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings were identified.

.2 Steam Generator Replacement Project and Containment Wall Repair (IP 50001)

a. Inspection Scope

During this quarter, the licensee performed limited field work associated with containment wall repair. Major field work activities are not expected to start until later this year. Containment stability is continuously being monitored utilizing installed acoustic and displacement sensors. The licensee, as necessary, also performs impulse response scans of the containment walls to determine if there is any degradation of the walls. The data from the sensors and scans is periodically monitored by the inspectors to verify containment stability.

b. Findings

No findings were identified.

.3 (Closed) NRC Temporary Instruction (TI) 2515/177, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter (GL) 2008-01)

a. Inspection Scope

The inspectors reviewed the implementation of the licensee's actions in response to Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems. The inspectors had previously performed inspection activities at Crystal River using the guidance contained in TI 2515/177 during the fourth quarter of 2010. The inspection status was discussed in NRC integrated inspection report 05000302/2010005 (reference ML113130541). The TI was not closed in inspection report 05000302/2010005 pending the inspector's review of additional information related to the licensee's use of GOTHIC computer models to predict void transport behavior.

The following additional areas were reviewed during the course of all inspection activities:

- The licensing basis of the facility to verify that actions to address gas accumulation were consistent with the operability requirements of the subject systems.
- The design of the subject systems to verify that actions taken to address gas accumulation were appropriate given the specifics of the functions, configurations, and capabilities of these systems.
- The design and operation of the decay heat removal system to determine if flashing in decay heat removal suction lines would challenge system operability.
- Selected analyses performed by the licensee to verify that methodologies for predicting gas void accumulation, movement, and impact were appropriate.
- Performed walkdowns of selected subject systems to verify that the reviews and design verifications conducted by the licensee had drawn appropriate conclusions with respect to piping configurations and pipe slope that could result in gas accumulation susceptibility.
- Testing implemented by the licensee to address gas accumulation in subject systems. A selection of test procedures and completed test results were reviewed to verify that test procedures were appropriate to detect gas accumulations that could challenge subject systems.
- The specified testing frequencies to verify that the testing intervals had appropriately taken historical gas accumulation events as well as susceptibility to gas accumulation into account.

Enclosure

- The test programs and processes to verify that they were sensitive to pre-cursors to gas accumulation.
- The corrective actions associated with gas accumulation in subject systems to verify that identified issues were being appropriately identified and corrected. This review included modifications made to the plant including the installation of additional vent valves.
- The locations of selected vent valve installations to verify that the locations selected were appropriate based on piping configuration and pipe slopes.

b. Findings and Observations

No findings were identified.

The licensee relied, in part; on GOTHIC computer models to evaluate the potential for accumulated gas void transport in systems subject to Generic Letter 2008-01 evaluation. These computer models and associated engineering analyses were used to establish the bases for void size acceptance criteria. Use of computer modeling was supported, in part, by empirical test data referenced in WCAP-16631, Testing and Evaluation of Gas Transport to the Suction of ECCS Pumps. The inspectors noted that the subject of computer models used to predict void transport behavior had been addressed generically with the industry in NRC Information Notice 2011-17, Calculation Methodologies for Operability Determinations of Gas Voids in Nuclear Power Plant Piping, which was issued on July 26, 2011 (ML11161A111). The inspectors verified that the licensee had entered Information Notice 2011-17 into their corrective action program (CR 479399) for evaluation as gas management program operating experience.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On July 9, 2012, the resident inspectors presented the inspection results to Mr. T. Hobbs, Plant General Manager, and other members of licensee management. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

KEY POINTS OF CONTACT

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J. Franke, Vice President, Crystal River Nuclear Plant
T. Hobbs, Plant General Manager
J. Huegel, Manager, Maintenance
M. Kelly, Manager, Outage and Scheduling
R. Llewellyn, Superintendent, Operations Training
C. Polisen, Supervisor, Emergency Preparedness
D. Westcott, Supervisor, Licensing
R. Wiemann, Manager, Nuclear Oversight
B. Wunderly, Director, Engineering

NRC personnel:

D. Rich, Chief, Reactor Projects Branch 3, Division of Reactor Projects

LIST OF ITEMS CLOSED

Closed

05000302/2515/177	TI	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01) (Section 4OA5.3)
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LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

AI-513, Seasonal Weather Preparations
AI-1000, Housekeeping/Material Condition Program
AP-730, Grid Instability
AP-1040, Aux Building Flooding
AP-1050, Turbine Building Flooding
EM-220, Violent Weather
NGGM-IA-0003, Transmission Interface Agreement for Operation, Maintenance, and Engineering Activities at Nuclear Plants
PRO-NGC-0201, NGG Procedure Writer's Guide
SP-300, Operating Daily Surveillance Log

Condition Reports

CR 539837, EM-220 Actions Need to be Revised
CR 539726, Entry into EM-220 due to Tornado Warning

Work Orders

01908930; 02064337; 220304

Other

FSAR, Chapter 5, Containment System & Other Special Structures
NRC Operating Experience Smart Sample (OpESS) 2012/01, High Wind Generated Missile Hazards

Section 1R04: Equipment Alignment

Procedures

OP-406, Spent Fuel Cooling System
OP-408, Nuclear Services Cooling System
OP-700A, 6900, 4160, and 480 Volt AC Buses
OP-707, Operation of the ES Emergency Diesel Generators
OP-707C, Operation of the Alternate AC Diesel Generator
CP-147, Control Complex Habitability Envelope (CCHE) Breaches
CP-154, Control Complex Habitability Envelope Integrity Program
SP-321, Power Distribution Breaker Alignment and Power Availability Verification

Drawings

FD-302-753 Sh. 1 of 4, Rev. 46
FD-302-753 Sh. 2 of 4, Rev. 22

Other

FSAR Chapter 9, Section 9.7, Plant Ventilation Systems, Rev. 33
System Health Report for HVAC Control Building/Complex, 1st Quarter 2012
Enhanced Design Basis Document for the Control Complex Air Handling Systems, Section 8/10, Rev. 14
Topical Design Basis Document for Control Room Habitability, Tab 9/4, Rev. 9

Section 1R05: Fire Protection

Procedures

AI-2205A, Pre Fire Plan – Control Complex
AI-2205B, Pre Fire Plan – Turbine Building
AI-2205C, Pre Fire Plan – Auxiliary Building
AI-2205D, Pre Fire Plan – Intermediate Building
AI -2205F, Pre Fire Plan – Miscellaneous buildings and Components
SP-804, Surveillance of Plant Fire Brigade Equipment

Section 1R07: Heat Sink Performance

Procedures

PM-275, General Preventative Maintenance

Work Orders

WO 2061374, SWHE-1D Pick/Shoot and Clean

WO 2030626, SWHE-1C Pick/Shoot and Clean

Section 1R20: Refueling and Outage Activities

Procedures

AI-504, Guidelines for Cold Shutdown and Refueling

WCP-102, Outage Risk Assessment

Section: 4OA2 Problem Identification and Resolution

Procedures

CHE-NGGC-0057, Groundwater Protection Program, Rev. 2

Condition Reports

CR 521797, Delays in Executing EFT-2 Operational Focus Plan

Work Orders

WO 2035016, EFT Level is decreasing

Drawings

Flow Diagram FD-302-082 Sh. 3 of 3, Emergency Feedwater System Flow Diagram, Rev. 33

Other

Operational Focus Plan for EFT-2 Tank Level Trend Identification