



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

January 27, 2011

Mr. Jon A. Franke
Vice President, Crystal River Nuclear Plant
Crystal River Nuclear Plant (NA2C)
15760 W. Power Line Street
Crystal River, FL 34428-6708

**SUBJECT: CRYSTAL RIVER UNIT 3 – NRC INTEGRATED INSPECTION REPORT
05000302/2010005**

Dear Mr. Franke:

On December 31, 2010, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Crystal River Unit 3. The enclosed inspection report documents the inspection findings, which were discussed on January 10, 2011, with you and other members of your staff.

The inspection examined activities conducted under your license as they related 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 one licensee identified violation, which was of very low safety significance, is listed in Section 4OA7 of the report. If you contest the non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Crystal River Unit 3 site.

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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 Projects Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report 05000302/2010005
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to Jon Franke from Daniel Rich dated January 27, 2011

SUBJECT: CRYSTAL RIVER UNIT 3 – NRC INTEGRATED INSPECTION REPORT
05000302/2010005

Distribution w/encl:

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L. Douglas, RII

OE Mail

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RidsNrrPM Crystal River Resource

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-302

License No.: DPR-72

Report No.: 05000302/2010005

Licensee: Progress Energy (Florida Power Corporation)

Facility: Crystal River Unit 3

Location: Crystal River, FL

Dates: October 1, 2010 – December 31, 2010

Inspectors: T. Morrissey, Senior Resident Inspector
R. Reyes, Resident Inspector
R. Chou, Reactor Inspector (Section 4OA5.2)
R. Hamilton, Senior Health Physicist (Sections 2RS6, 40A1.2)
W. Loo, Senior Health Physicist (Sections 2RS1, 40A1.2, 40A5.4)
C. Dykes, Health Physicist (Sections 2RS8)
S. Sandal, Senior Reactor Inspector (Section 4OA5.2 and 4OA5.3)
P. Higgins, Senior Reactor Inspector (Section 4OA5.3)
W. Deschaine, Reactor Inspector (Section 4OA5.3)
R. Baldwin, Senior Operations Engineer (Section 4OA5.5)
M. Meeks, Operations Engineer (Section 4OA5.5)
L. Lake, Senior Reactor Inspector (Section 4OA5.2)
G. Thomas, Structural Engineer (Section 4OA5.2)
F. Farhad, Senior Structural Engineer (Section 4OA5.2)
R. Williams, Reactor Inspector (Section 4OA5.6)
R. Aiello, Senior Operations Engineer (Section 1R11)

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

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SUMMARY OF FINDINGS

IR 05000302/2010005; 10/01/2010 -12/31/2010; Crystal River Unit 3; Routine Integrated Report.

The report covered a three month period of inspection by resident inspectors, regional operations engineers, regional reactor inspectors, headquarters inspectors, and regional health physicists. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC Identified & Self-Revealing Findings

No findings were identified

B. Licensee Identified Violations

One violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violation and corrective action tracking number is listed in Section 4OA7 of this report.

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REPORT DETAILS

Summary of Plant Status:

Crystal River 3 began the inspection period with the full core off-loaded to the spent fuel pool. On November 19, 2010, the licensee commenced transfer of reactor fuel assemblies to the reactor vessel. On November 27, 2010, after fuel reload was complete and the reactor head fully tensioned, the unit entered Mode 5. Unit 3 remained in Mode 5 for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

.1 Seasonal Susceptibility: Cold Weather Preparation

a. Inspection Scope

The inspectors evaluated the licensee's readiness for mitigating cold weather to assure that vital systems and components were protected from freezing in accordance with the licensee's administrative instruction AI-513, Seasonal Weather Preparations, Section 4.1, Cold Weather Preparations. The inspectors walked down portions of the systems/areas listed below to check for any unidentified susceptibilities. Operability of heat trace circuits and set points of temperature controls was verified. Nuclear condition reports (NCRs) were reviewed to verify that the licensee was identifying and correcting cold weather protection issues.

- Alternate AC emergency diesel generator EGDG-1C building
- EGDG-1A and 1B rooms
- Emergency feed water pump EFP-3 building including EFP-3 heat tracing
- Intermediate building 95' elevation EFP-1 and EFP-2 areas

b. Findings

No findings were identified.

.2 Site Specific Weather Condition

a. Inspection Scope

During the period listed below, the inspectors verified that the licensee implemented Administrative Instruction AI-513, Seasonal Weather Preparations, Sections 4.2 (Freezing Weather) and/or 4.3 (Freezing Weather Monitoring). The inspectors walked down portions of the A and B emergency diesel generator (EGDG) systems; the alternate AC diesel generator system; and the EFP-3 building to check for any unidentified susceptibilities to cold weather. Nuclear condition reports were reviewed to

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verify that the licensee was identifying and correcting cold weather protection issues. This completed one sample for a site specific weather related condition.

- December 1-2 with nightly outside temperatures below freezing

b. Findings

No findings were identified.

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. The inspectors verified the following three partial system alignments during system walkdowns using the listed documents:

- Emergency diesel generator EGDG-1B, raw water pump RWP-2B, and service water pump SWP-1B trains using operating procedure OP-707, Operation of the ES Emergency Diesel Generators, and OP-408, Nuclear Services Cooling System, while the A train systems (EGDG, RW and SW) were out of service to support planned maintenance
- Emergency diesel generator EGDG-1A and the alternate AC emergency diesel generator EGDG-1C, using OP-707 and OP-707C, Operation of The Alternate AC Diesel Generator, while EGDG-1B was out of service for testing
- B train decay heat (DH) and the decay heat closed cycle cooling (DC) systems using OP- 404, Decay Heat Removal System; and the 4160/480 Volt switch gear rooms, using OP-703, Plant Distribution System, while the A train DH, DC, and emergency diesel generator were out of service for maintenance

b. Findings

No findings were identified.

.2 Complete Equipment Walkdown

a. Inspection Scope

The inspectors conducted a detailed review of the condition of the emergency feed water system (turbine driven emergency feed water pump EFP-2 and the diesel driven EFP-3) and of the makeup system (makeup pumps 1A, 1B and 1C). A review of outstanding

maintenance work orders was performed to verify that any deficiencies did not significantly affect system function. In addition, the inspectors reviewed NCRs to verify that system problems were being identified and appropriately resolved. The system health reports (emergency feed water dated October 29, 2010, and makeup system dated July 16, 2010) and system equipment walkdown summary reports (makeup and purification dated July 07, 2010, and emergency feed water dated July 7, 2010), were reviewed to ensure equipment issues identified were properly addressed in the corrective action program (CAP). The walkdowns to verify system lineup were not completed due to delays in returning the systems to service. The completion of this inspection that will verify proper system lineup will be completed prior to unit restart in 2011. 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 Final Safety Analysis Report (FSAR) Section 9.8, Plant Fire Protection Program, were met. Documents reviewed are listed in the Attachment. The inspectors toured the following five areas important to reactor safety:

- Emergency Feed Water Initiation and Control (EFIC) Rooms
- Emergency feed water pump EFP-3 building
- Make up pump (MUP-1A, 1B and 1C) cubicles
- Fire pump building
- Cable spreading room

b. Findings

No findings were identified.

1R06 Flood Protection Measures

Internal Flood Protection

a. Inspection Scope

The Inspectors inspected the manholes listed below that are subject to flooding to verify cables were not submerged in water, cables were intact, and cable support structures were adequate to perform its function. The inspectors observed four manholes that are subject to flooding that contain equipment important for the safe operation of the plant. Documents reviewed are listed in the Attachment.

- Manhole E-1 (Location: hot machine shop; Circuits: circulating water pump (CWP) power cables (480 VAC) and intake systems control/alarm circuits)
- Manhole E-2 (Location: Southeast berm; Circuits: CWP power cables and intake systems control/alarm circuits)
- Manhole E-3 (Location: Southwest berm; Circuits: CWP power cables and intake systems control/alarm circuits)
- Manhole E-7 (Location: Intake; Circuits: CWP power cables and intake systems control/alarm circuits)

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification

Annual Review of Licensee Requalification Examination Results

a. Inspection Scope

In February 2010, the licensee completed administering the annual requalification operating tests which were required to be given to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating tests, as well as the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

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. Documents reviewed are listed in the Attachment. The inspectors conducted this inspection for the following two equipment issues:

- NCR 269400, Emergency Diesel Generators returned to MR (a)(2)
- NCR 425961, SWP-1A vibration in alert range

In addition, the inspectors reviewed the licensee's MR (a)(3) Periodic Evaluation indicated below to verify that the PE had been completed once per refueling cycle. The licensee has reviewed MR (a)(1) goals, MR (a)(3) performance criteria, preventative maintenance and effectiveness of corrective action and industry operating experience. The licensee has made appropriate adjustments as a result of the PE. This constitutes an addition sample under this inspection procedure.

- AR 396407, Maintenance Rule (a)(3) Periodic Assessment dated May 2010

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors witnessed and/or reviewed post-maintenance test procedures and/or test activities, as appropriate, for selected risk significant systems to verify: (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 five post-maintenance tests reviewed are listed below:

- Surveillance procedure SP-344A, RWP-2A, SWP-1A and Valve Surveillance, (SWP-1A portion only), after performing unplanned maintenance on SWP-1A per work order (WO) 1833988

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- SP-354A-EC-71897-TP2, EC Functional Test Procedure for Protective Relay to Increase EGDG-A Availability While Paralleled for Testing Generator Run, after installing modification EC-71897. WO 1846129, which implemented changes to EC-71897 Revision 11 and tested breakers 3205, 3211, 3207, and 3209
- Nuclear assurance procedure NAP-02, Preparation and Control of CR3 Site Specific Special Processes and Guidelines, Appendix 5, Ultrasonic Shear-Wave Examination of Socket Welds, after installation of decay heat valve DHV-215, per WO 1849124
- Performance test PT-399, DCV-17, DCV-177, DCV-18, and DCV-178 Stroke Test (A train only); and preventative maintenance procedure PM-260, Calibration of Decay Heat Exchanger Closed Cycle Cooling Control Loop after performing maintenance on DCV-17 per WO 1838581
- SP-344A, RWP-2A, SWP-1A and Valve Surveillance; and SP-344C, Containment Cooling System Fan and valve Surveillance, after maintenance affecting service water valves SWV-43, SWV-151, SWV-152 and SWV-355 per WOs 1136741 and 1567589

b. Findings

No findings were identified.

1R20 Refueling and Outage Activities

Steam Generator Replacement Refueling Outage (RFO16)

a. Inspection Scope

On September 26, 2009, the unit was shut down for a steam generator replacement refueling outage. NRC integrated inspection reports 05000302/2009005, 05000302/2010002, 05000302/2010003 and 05000302/2010004 documented NRC outage inspection activities prior to this inspection period. To verify the licensee was managing fatigue, the inspectors verified that the outage shift schedule allowed for the minimum days off in accordance with 10 CFR Part 26. In addition, the inspectors determined that there were no fatigue waiver requests, fatigue self-declarations and fatigue assessments since this aspect was last reviewed during the 2010 second quarter inspection period. The inspectors observed and monitored licensee controls over the refueling outage activities listed below. Additional inspection results for RFO16 will be documented in next quarter's NRC integrated inspection report 05000302/2011002. Documents reviewed are listed in the Attachment.

- Outage related risk assessment monitoring
- Controls associated with shutdown cooling, reactivity management, electrical power alignments, containment closure, and spent fuel pool cooling
- Implementation of equipment clearance activities
- Reduced inventory activities

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- Refueling activities including verification that fuel assemblies were loaded in the correct reactor core locations
- Reactor mode changes

b. Findings

No findings were identified. During the creation of a temporary opening in the reactor containment building to support steam generator replacement, the licensee discovered an internal crack in the concrete containment. The circumstances associated with the crack in the concrete containment wall were assessed by an NRC special inspection team. The results of that inspection are documented in NRC special inspection report 05000302/2009007.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed and/or reviewed five surveillance tests listed below to verify that Improved Technical Specification (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 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- 340E, DHP-1B, BSP-1B And Valve Surveillance

Surveillance Test:

- SP- 417, Refueling Interval Integrated Plant Response To An Engineered Safeguards Actuation
- SP-110E, RPS Shutdown Bypass Functional Test
- SP-630, MUP/HPI Check Valves Full Flow Test
- SP-901, 4160V ES Bus "B" Undervoltage Trip Test and Auxiliary Relay Calibration

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

Cornerstones: Occupational Radiation Safety (OS) and Public Radiation Safety (PS)

2RS1 Radiological Hazard Assessment and Exposure Controls

a. Inspection Scope

Hazard Assessment and Instructions to workers During facility tours, the inspectors directly observed labeling of radioactive material and postings for radiation areas, high radiation areas (HRAs), and airborne radioactivity areas established within the radiologically controlled area (RCA). The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA areas. The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, hot particles, airborne radioactivity, gamma surveys with a range of dose rate gradients, and pre-job surveys for selected Unit 3 (U3) refueling outage (RFO) work activities. The inspectors also discussed with licensee cognizant representatives changes to plant operations that could contribute to changing radiological conditions since the last inspection. For selected U3 RFO jobs, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers. Selected work activities included decontamination of the deep end of the cavity, transfer tube cover work, letdown cooler room work, and insulation work under the reactor vessel.

Hazard Control and Work Practices The inspectors evaluated access barrier effectiveness for selected U3 Locked HRA and Very HRA locations. Changes to procedural guidance for Locked HRA and Very HRA controls were discussed with selected radiation protection (RP) supervisors. Controls and their implementation for storage of irradiated material within the spent fuel pool (SFP) were reviewed and discussed in detail with licensee representatives. Established radiological controls (including airborne controls) were evaluated for selected tasks including work in auxiliary building HRAs, and radwaste processing and storage areas. In addition, licensee controls for areas where dose rates could change significantly as a result of plant shutdown and U3 refueling operations were reviewed and discussed.

Occupational workers' adherence to selected RWPs and RP technician (RPT) proficiency in providing job coverage were evaluated through direct observations and interviews with licensee staff. Electronic dosimeter (ED) alarm set points and worker stay times were evaluated against area radiation survey results for selected U3 RFO activities. ED alarm logs were reviewed and worker response to dose and dose rate alarms during selected work activities was evaluated. For HRA tasks involving significant dose rate gradients, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure.

Control of Radioactive Material The inspectors observed surveys of material and personnel being released from the RCA using small article monitor, personnel contamination monitor, and portal monitor instruments. The inspectors reviewed records

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for selected release point survey instruments and discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. The inspectors compared recent 10 CFR Part 61 results for the dry active waste (DAW) radioactive waste (radwaste) stream with radionuclides used in calibration sources to evaluate the appropriateness and accuracy of release survey instrumentation. The inspectors also reviewed records of leak tests on selected sealed sources and discussed nationally tracked source transactions with licensee staff.

Problem Identification and Resolution Nuclear Condition Reports (NCRs) associated with radiological hazard assessment and control were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure CAP-NGGC-0200, Condition Identification and Screening Process. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results.

RP activities were evaluated against the requirements of Final Safety Analysis Report (FSAR) Chapters 11 and 12; Improved Technical Specifications (ITS) Sections 5.4 and 5.8; 10 CFR Parts 19 and 20; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents reviewed are listed in the Attachment.

The inspectors completed all specified line-items detailed in Inspection Procedure (IP) 71124.01 (sample size of 1)

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

Effluent Monitoring and Radwaste Equipment During inspector walkdowns, accessible sections of the liquid and gaseous radwaste and effluent systems were assessed for material condition and conformance with system design diagrams. The inspection included floor drain tanks, liquid waste system piping, waste gas decay tanks, monitor tanks, liquid radwaste monitors, plant stack effluent monitors, and associated airborne effluent sample lines. The inspectors interviewed licensee staff regarding radwaste equipment configuration and effluent monitor operation.

The inspectors reviewed performance records and calibration results for selected radiation monitors, flowmeters, and air filtration systems. For effluent radiation monitors RMA-3 (main plant stack), RMA-4 (reactor building purge exhaust), RMA-6 (fuel handling building exhaust), RML-2 Plant Liquid Discharge Line (prior to dilution) and RML-5 (liquid waste), the inspectors walked down the monitors for material condition and alignment. The last two surveillances on the control room HEPA/Charcoal air

treatment systems also were reviewed. The inspectors evaluated out-of-service effluent radiation monitors and compensatory action data for the period January 2009 - August 2010.

Installed configuration, material condition, operability, and reliability of selected effluent sampling and monitoring equipment were reviewed against details documented in the following: 10 CFR Part 20; Regulatory Guide (RG) 1.21, Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials In Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants; American Nuclear Standards Institute (ANSI)-N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities; ITS Section 5; the Offsite Dose Calculation Manual (ODCM); and FSAR, Chapter 12. Documents reviewed are listed in the Attachment.

Groundwater The inspectors reviewed the sites groundwater sampling and analysis results and discussed the current trends with Chemistry Department personnel.

Effluent Release Processing and Quality Control Activities The inspectors reviewed recent liquid and gaseous release permits including pre-release sampling results, effluent monitor set-points, and resultant doses to the public. The inspectors also reviewed the 2008 and 2009 annual effluent reports to evaluate reported doses to the public and to review ODCM changes. The inspectors reviewed daily Quality Control (QC) data logs and calibration records for instruments used to quantify effluent sample activity including High Purity Germanium (HPGe) detectors and liquid scintillation counters. In addition, results of the 2009, and 2010 inter-laboratory cross-check program were reviewed.

Observed task evolutions, count room activities, and offsite dose results were evaluated against details and guidance documented in the following: 10 CFR Part 20 and Appendix I to 10 CFR Part 50; ODCM; RG 1.21; RG 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I; and ITS Section 6. Documents reviewed are listed in the Attachment.

Problem Identification and Resolution: Selected NCRs associated with effluent release activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve selected issues in accordance with procedure CAP-NGGC-0200, Condition Identification and Screening process, Rev. 33. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in the Attachment.

The inspectors completed one specified line-item sample as detailed in IP 71124.06.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

a. Inspection Scope

Radioactive Material Storage. Inspectors reviewed the FSAR, the Process Control Program (PCP) and recent effluent release report for information on the types, amounts and processing of radioactive waste disposed. Quality assurance documents in this area were reviewed.

During facility walkdowns inspectors observed containers of radioactive waste for proper labeling in accordance with 10 CFR 20.1904 and 10 CFR 20.1905. Inspectors noted the satisfactory material condition of containers throughout the facilities inside and out. Postings around stored radioactive materials were in accordance with 10 CFR 20.

Radioactive Waste System Inspectors evaluated the waste disposal systems during plant walkdowns, escorted and unescorted, and through discussion with cognizant employees. Accessible components of the liquid and solid waste systems were observed some of the many areas that were evaluated such as the Yellow room; laundry/shower sump tank rooms; miscellaneous waste storage tank pump room; and the RC evaporator valve alley. Processes for transferring radioactive waste into disposal containers were reviewed by inspectors.

Radioactive waste characterization and shipping The Annual Effluence report for 2009 were reviewed by inspectors. Major waste streams were reviewed for the primary and secondary resins, reactor coolant filters and DAW. Inspectors evaluated the analysis for hard-to-detect nuclides, looked at scaling factors, and reviewed the quality assurance (QA) comparison results between the licensee's contracted laboratory results and outside laboratory results.

Radwaste processing activities and equipment configuration were reviewed for compliance with the licensee's PCP and FSAR, Chapter 11. Waste stream characterization analyses were reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 61, and guidance provided in the Branch Technical Position on Waste Classification (1983). Documents reviewed are listed in the Attachment.

Transportation program implementation was reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 71, 49 CFR Parts 172-178, as well as the guidance provided in NUREG-1608. Training activities were assessed against 49 CFR Part 172 Subpart H. Documents reviewed are listed in the Attachment.

Problem Identification and Resolution The inspectors reviewed selected NCRs and audits associated with radioactive solid waste processing and radioactive material handling, storage and transportation. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure CAP-NGGC-0200, Corrective Action Program, Rev. 33.

The inspectors completed one sample as detailed by inspection procedure 71124.08.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Reactor Safety

a. Inspection Scope

The inspectors checked the mitigating system performance indicators (MSPI) listed below to verify the accuracy of the PI data reported. Performance indicator data submitted from October 2009 through September 2010 was compared for consistency to data obtained through review of monthly operating reports, nuclear condition reports, and control room logs. The inspections were conducted in accordance with NRC Inspection Procedure 71151, Performance Indicator Verification. The applicable planning standard, Nuclear Energy Institute (NEI) 99-02, Revision 6, Regulatory Assessment Performance Indicator Guidelines, and the licensee's calculation P06-0002, CR3 MSPI Basis Document for the CR3 Nuclear Plant, were used to check the reporting for each data element. The inspectors discussed the PI data with the licensee personnel associated with performance indicator data collection and evaluation.

- Emergency AC power
- Residual heat removal/decay heat system
- Heat removal system
- High pressure injection system
- Cooling water system

b. Findings

No findings were identified.

.2 Radiation Safety

a. Inspection Scope

The inspectors sampled licensee data for the PIs listed below. To verify the accuracy of the PI data reported during the period reviewed, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Rev. 6, were used to verify the basis for each data element.

Occupational Radiation Safety (ORS) Cornerstone

The inspectors reviewed Performance Indicator (PI) data collected from October 1, 2009 through September 30, 2010, for the Occupational Exposure Control Effectiveness PI. For the reviewed period, the inspectors assessed CAP records to determine whether HRA, VHRA, or unplanned exposures, resulting in ITS or 10 CFR 20 non-conformances, had occurred during the review period. In addition, the inspectors reviewed selected personnel contamination event data, internal dose assessment results, and ED alarms for cumulative doses and/or dose rates exceeding established set-points. The reviewed data were assessed against guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Rev. 6. Documents reviewed are listed in the Attachment.

Public Radiation Safety (PS) Cornerstone

The inspectors reviewed the Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences PI results from October 1, 2009 through September 30, 2010. The inspectors reviewed CRs, effluent dose data, and licensee procedural guidance for classifying and reporting PI events. The inspectors also interviewed licensee personnel responsible for collecting and reporting the PI data. Documents reviewed are listed in the Attachment.

The inspectors completed 2 of the required 2 samples for IP 71151.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Review

a. 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.

b. Findings

No findings were identified.

.2 Annual Trend Review

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, the inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 40A2.1, plant status reviews, plant tours, and licensee trending efforts. The inspectors' review nominally considered the six month period of July 2010 through December 2010. The review also included issues documented in the licensee's Plant Health Committee Site Focus List dated November 2010, and various 3rd quarter 2010 departmental CAP Rollup & Trend Analysis reports, nuclear oversight reports and maintenance rule (MR) reports. Corrective actions associated with a sample of the issues identified in the licensee's corrective action program were reviewed for adequacy.

b. Findings and Observations

No findings were identified. The inspectors evaluated the licensee's trend methodology and determined that the licensee had performed a detailed review.

.3 Annual Sample Review

a. Inspection Scope

The inspectors selected NCR 431407 for a detailed review and discussion with the licensee. This NCR was classified as significance level one requiring an apparent cause evaluation. The NCR investigated an issue where a recently implemented engineering change (EC) had been installed on the A emergency diesel generator (EGDG). As installed, the EGDG would not have been able to load onto the A train emergency service bus (bus) under three separate conditions. The inspectors checked that the issues had been completely and accurately identified in the licensee's corrective action program; safety concerns were properly classified and prioritized for resolution; apparent cause determination was sufficiently thorough; and appropriate corrective actions were initiated. The inspectors also evaluated the NCR using the requirements of the licensee's CAP as delineated in corrective action procedure CAP-NGGC-0200, Condition Identification And Screening Process.

b. Findings and Observations

On November 3, 2010, the licensee was performing surveillance test procedure SP-902, 4160 ES Bus "A" Under Voltage Trip Test And Auxiliary Relay Calibration, and found that breaker 3211 could not be opened when using the control room switch. The Unit was in a no-mode condition. The reactor vessel contained no fuel and all fuel was stored in the spent fuel pool. The unit had been in this mode since October 9, 2009, as a result of the extended refueling outage. The surveillance procedure isolates the bus from the off-site power transformer (OPT) by opening breaker 3211 using a manual

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control switch from the control room. During this step, breaker 3211 would not open and remained in the closed position. The bus could not be isolated from the OPT using the control room switch. The licensee backed out of the surveillance and entered the issue into the CAP. The licensee's investigation found that the design of a recently installed EC had incorrectly removed a control wire for breaker 3211. The licensee's apparent cause evaluation identified that the engineering analysis for the EC lacked appropriate depth and detail. Neither the responsible engineer nor the independent verifier had adequately analyzed the proposed design change, which resulted in the failure to complete an electrical connection required for proper operation of breaker 3211. Corrective actions to address this issue were comprehensive and included training and an engineering stand down to review this issue. Additionally, the licensee reviewed other recently designed and installed ECs to verify adequate design and analyses of correct depth and detail. No additional deficiencies were identified. A licensee identified violation of design control was assessed by the inspectors and is documented in Section 4OA7.

4 Annual Sample Review – Operator Work Around

a. Inspection Scope

The inspectors reviewed the operator workaround program to verify the licensee was identifying workarounds at an appropriate threshold and entering them into the corrective action program. One operator workaround associated with the control complex chiller system reliability (NCR 379560) was identified that will be resolved during the next refueling outage. The inspectors determined that compensatory actions in place are adequate to address the issue.

b. Findings

No findings were identified.

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 (SGRP) and Containment Wall Repair (IP 50001)

a. Inspection Scope

The inspectors conducted a review of the licensee's Phase 4 concrete placement and Phase 5 retensioning activities for the repair of the containment wall delamination and reinstallation of the containment wall opening that was created during the SGRP in the last quarter of 2009.

Rebar and Formwork Installation

The inspectors examined the rebar installation on Elevation 206' + 5' that was prepared for concrete pour to ensure that the licensee had measured the reinforcing steel size, spacing, lap splice length, and concrete minimum protection coverage. The inspectors determined whether the licensee performed inspections on installation, testing, and testing frequencies of swaged mechanical splices in accordance with the requirements of the design drawings, the American Concrete Institute (ACI) Codes, and the American Society of Mechanical Engineers (ASME) Code Section III Division 2, Concrete Containment. The inspectors also examined the formwork installation and tendon sleeve condition.

Concrete Pour

The inspectors reviewed the concrete pre-placement inspection checklist, including cleaning and debris removal prior to the concrete pour. The inspectors observed concrete placement activities on Elevation 206' + 5' to verify that activities pertaining to concrete delivery time, flow distance, layer thickness and concrete consolidation or vibration conformed to industry standards established by the ACI Codes. Concrete batch tickets were examined to verify the material and quantity of each component for concrete mix, truck revolution limit, concrete placement time limit, and water amount added to the mix. The inspectors observed that concrete placement activities were continuously monitored by the licensee and contractor's quality control personnel and engineers. The inspectors witnessed in-process testing and reviewed the results for slump, air content, temperature, unit weight, and molding of the concrete cylinders for compressive strength testing, and witnessed sample points and truck loads to verify that concrete samples for the field testing and cylinders for the laboratory testing were obtained at the point of placement (end of chute line) and the middle portion of the truck loads. The inspectors reviewed concrete being poured into cylinders to determine whether it was molded in accordance with applicable American Society for Testing and Materials (ASTM) requirements of ASTM C 172, Standard Method of Sampling Freshly Mixed Concrete, and to determine whether appropriate concrete field testing was performed by Quality Control (QC) inspectors.

The inspectors reviewed or examined the licensee activities to verify that the activities met the ACI code requirements, licensee procedures, and the industry standards. The inspectors examined the batch plant for its certification and the preparation of the concrete pour.

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Containment Retensioning and Testing

The inspectors reviewed the containment retensioning plan, testing plan, and schedule. The inspectors interviewed licensee personnel and reviewed documents related to the retensioning and testing plans. The licensee was conducting a detailed analysis to develop a tendon retensioning sequence that would minimize the possibility of causing new cracks or delaminations in the containment during the retensioning process. The licensee is scheduled to perform a Structural Integrity Test (SIT) after final retensioning in order to test the structural integrity of the containment. Following the SIT, the licensee is scheduled to perform an Integrated Leak Rate Test (ILRT) on the containment. The inspectors review included the licensee's plans for post-maintenance testing after restart.

Document Review

The inspectors reviewed the engineering changes (ECs), specifications, drawings, work packages, nuclear condition reports (NCRs), concrete compressive testing results, and documents related to the concrete construction activities. The inspectors reviewed EC 75220, Reactor Building Delamination Repair Phase 4 - Concrete Placement, Revision 21 and EC 75221, Reactor Building Delamination Repair Phase 5 – Retensioning, Revision 0. The inspectors reviewed SGT Work Packages (WP) 3-3732A, B, C, and D Restoration of Containment Concrete Wall. The reviews or observations were conducted in order to verify that the licensee performed activities in accordance with the approved documents.

The inspectors reviewed records to verify that they met the licensee administrative control procedures, Quality Control standard, Quality Assurance Program requirements, and applicable industrial design and construction standards.

b. Findings

No findings were identified.

.3 Annual Sample Review

a. Inspection Scope

The inspectors selected NCR 431407 for a detailed review and discussion with the licensee. This NCR was classified as significance level one requiring an apparent cause evaluation. The NCR investigated an issue where a recently implemented engineering change (EC) had been installed on the A emergency diesel generator (EGDG). As installed, the EGDG would not have been able to load onto the A train emergency service bus (bus) under three separate conditions. The inspectors verified that the issues had been completely and accurately identified in the licensee's corrective action program, safety concerns were properly classified and prioritized for resolution, apparent cause determination was sufficiently thorough, and appropriate corrective actions were initiated. The inspectors also evaluated the NCR using the requirements of the

licensee's CAP as delineated in corrective action procedure CAP-NGGC-0200, Condition Identification And Screening Process.

b. Findings and Observations

On November 3, 2010, the licensee was performing surveillance test procedure SP-902, 4160 ES Bus "A" Under Voltage Trip Test And Auxiliary Relay Calibration, and found that breaker 3211 could not be opened when using the control room switch. The Unit was in a no-mode condition. The reactor vessel contained no fuel and all fuel was stored in the spent fuel pool. The unit had been in this mode since October 9, 2009, as a result of the extended refueling outage. The surveillance procedure isolates the bus from the off-site power transformer (OPT) by opening breaker 3211 using a manual control switch from the control room. During this step, breaker 3211 would not open and remained in the closed position. The bus could not be isolated from the OPT using the control room switch. The licensee backed out of the surveillance and entered the issue into the CAP. The licensee's investigation found that the design of a recently installed EC had incorrectly removed a control wire for breaker 3211. The licensee's apparent cause evaluation identified that the engineering analysis for the EC lacked appropriate depth and detail. Neither the responsible engineer nor the independent verifier had adequately analyzed the proposed design change, which resulted in the failure to complete an electrical connection required for proper operation of breaker 3211. Corrective actions to address this issue were comprehensive and included training and an engineering stand down to review this issue. Additionally, the licensee reviewed other recently designed and installed ECs to verify adequate design and analyses of correct depth and detail. No additional deficiencies were identified. A licensee identified violation of design control was assessed by the inspectors and is documented in Section 4OA7.

.4 (Closed) NRC Temporary Instruction (TI) 2515/179, Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)

a. Inspection Scope

The inspectors performed the TI concurrent with IP 71124.01 Radiation Hazard Analysis. The inspectors reviewed the licensee's source inventory records and identified the sources that met the criteria for reporting to the NSTS. The inspectors visually identified the sources contained in various calibration systems and verified the presence of the source by direct radiation measurement using a calibrated portable radiation detection survey instrument. The inspectors reviewed the physical condition of the irradiation device. The inspectors reviewed the licensee's procedures for source receipt, maintenance, transfer, reporting and disposal. The inspectors reviewed documentation that was used to report the sources to the NSTS. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings were identified. The inspectors performed the TI concurrent with IP 71124.01 Radiation Hazard Analysis. The inspectors reviewed the licensee's source inventory records and identified the sources that met the criteria for reporting to the NSTS. The inspectors visually identified the sources contained in various calibration systems and verified the presence of the source by direct radiation measurement using a calibrated portable radiation detection survey instrument. The inspectors reviewed the physical condition of the irradiation device. The inspectors reviewed the licensee's procedures for source receipt, maintenance, transfer, reporting and disposal. The inspectors reviewed documentation that was used to report the sources to the NSTS Documents reviewed are listed in the Attachment.

.5 Operator Licensing Training and Qualification Effectiveness Inspection

a. Inspection Scope

The inspectors reviewed associated documents in preparation for this inspection. During the week of October 25 – 27, 2010, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of training associated with the licensee's operator requalification program and the "Just In Time" training associated with the licensee's startup preparations following an extended refueling outage. The inspectors conducted the inspection under the guidance of IP 41500, "Training and Qualification Effectiveness Inspection." The inspectors evaluated that the licensee had performed, or had scheduled to be performed, training as specified in a letter from M. Widmann to J. Franke dated March 8, 2010. The inspectors directly observed three unevaluated simulator scenarios for training, including the operating crew's self-critique; and reviewed the evaluated simulator scenario that was to be administered to all licensed operators for this training cycle. The inspectors directly observed classroom training that was given on the integrated plant start-up procedure, including a presentation from chemistry personnel on some of the off-normal chemistry concerns that were anticipated during the plant startup. The inspectors reviewed documentation to include licensee self-assessment reports, watchstanding records for proficiency, training attendance records, overall training plans and schedules, individual training lesson plans, and documentation associated with evaluated simulator scenarios. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.6 (Closed) NRC Temporary Instruction 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds

a. Inspection Scope

The inspectors conducted a review of the licensee's activities regarding licensee dissimilar metal butt weld (DMBW) mitigation and inspection implemented in accordance

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with the industry self imposed mandatory requirements of Materials Reliability Program (MRP) 139, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines." Temporary Instruction (TI) 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds," Revision 1 was issued May 27, 2010, to support the evaluation of the licensees' implementation of MRP-139.

On December 8, 2010, the inspectors performed a review in accordance with TI 2515/172, Revision 1 as described in the Observation Section below:

b. Observations

The licensee has met the MRP-139 deadlines for baseline examinations of all welds scoped into the MRP-139 program. TI 2515/172, Revision 1 is considered closed. In accordance with requirements of TI 2515/172, Revision 1, the inspectors evaluated the following areas:

(1) Implementation of the MRP-139 Baseline Inspections

This portion of the TI was not inspected during the period of this inspection report, but was previously covered in NRC Inspection Report 05000302/2008002.

(2) Volumetric Examinations

This portion of the TI was not inspected during the period of this inspection report, but was previously covered in NRC Inspection Report 05000302/2009005.

(3) Weld Overlays

This portion of the TI was not inspected during the period of this inspection report, but was previously covered in NRC Inspection Report 05000302/2008002.

(4) Mechanical Stress Improvement (SI)

There were no stress improvement activities performed or planned by this licensee to comply with their MRP-139 commitments.

(5) Application of Weld Cladding and Inlays

There were no weld cladding nor inlay activities performed or planned by this licensee to comply with their MRP-139 commitments.

(6) Inservice Inspection Program

This portion of the TI was not inspected during the period of this inspection report, but was previously covered in NRC Inspection Report 05000302/2008005.

c. Findings

No findings were identified.

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4OA6 Meetings, Including Exit

Exit Meeting Summary

On January 10, 2011, the resident inspectors presented the inspection results to Mr. J. Franke, Site Vice President, and other members of licensee management. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee Identified Violations

The following issue of very low safety significance (Green) was identified by the licensee and was a violation of NRC requirements. This issue met the criteria of Section 2.3.2 of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-Cited Violation.

10 CFR 50 Appendix B, Criterion III, Design Control, requires, in part, that measures shall be established to assure that applicable regulatory requirements and design basis for those structures, systems, and components are correctly translated into specifications, drawings, procedures and instructions. Engineering corporate procedures EGR-NGGC-0011, Engineering Rigor; and EGR-NGGC-0155, Specifying Electrical / I&C Modification Related Tests, implement those requirements. Contrary to the above, the licensee failed to translate the design basis into drawings and procedures when performing design modification EC 71897. This resulted in an electrical circuit error in the A EDG breaker logic circuitry. The inadequate EC removed a switchgear internal control wire that supplied DC control power to the following: 1) OPT differential lockout relay to trip breaker 3211, 2) MCB control switch open contacts to trip breaker 3211, and 3) emergency safety A-bus under-voltage trip circuit to trip breaker 3211. As a result of breaker 3211 not being able to trip under any of these three signals, the A EDG would not have been able to meet the logic required to load onto the safety bus when required. The licensee determined that engineering personnel did not have an adequate understanding of assessing the correct engineering depth and detail involved in designing and implementing the EC. The process deficiency of failing to provide adequate depth and detail on the EC is more than minor because, if left uncorrected, would have the potential to lead to a more significant safety concern. The finding was determined to be of very low safety significance (Green) because there were no diesel operability requirements during the time the inadequate EC had been installed. Additionally, the inadequate EC was identified and corrected by the licensee prior to the emergency generator being required by plant technical specifications to be available to support a change in mode. This issue was documented in the licensee's corrective action program as NCR 431407. Additional information regarding this issue can be found in Section 4OA2.3.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

KEY POINTS OF CONTACT

Licensee personnel:

B. Akins, Superintendent, Radiation Protection
M. Bishara, SGR Design Engineering Manager
S. Cahill, Manager, Engineering
J. Cravens, SGR Welding Engineer
F. Dola, Nuclear Oversight Superintendent
P. Dixon, Manager Training
D. Douglas Manager, Maintenance
P. Fagan, Repair Design and Construction Engineering Supervisor
J. Franke, Vice President, Crystal River Nuclear Plant
R. Griffith, SGR Task Manager
K. Henshaw, SGR Rigging Supervisor
D. Herrin, Licensing Engineer
J. Holt, Plant General Manager
J. Huegel, Manager, Nuclear Oversight
D. Jopling, SGR Civil Structural Supervisor
B. Kelley, RT Level III
D. Mayes, SGR Welding Engineer
W. Nielsen, SGR QC Supervisor
C. Poliseno, Supervisor, Emergency Preparedness
S. Powell, SGR Licensing engineer
J. Terry, SGR Project Manager
R. Vessley, SGR QC Supervisor
D. Westcott, Supervisor, Licensing
I. Wilson, Manager Outage and Scheduling
B. Wunderly, Manager, Operations

NRC personnel:

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

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Closed

05000302/2515/179	TI	Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207), Revision 1 (Section 40A5.4)
05000302/2515/172	TI	Reactor Coolant System Dissimilar Metal Butt Welds Revision 1 (Section 40A5.6)

Discussed

05000302/2515/177 TI Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter (GL) 2008-01) Revision 1 (Section 4OA5.3)

LIST OF DOCUMENTS REVIEWED**Section 1R04: Equipment Alignment****Nuclear Condition Reports (NCRs)**

NCR 266531, EFGV-1 Governor oil out of sight high
 NCR 286943, EFV-11 Closed without operator action
 NCR 287855, EFP-3 Time delay relay setting different from DBD
 NCR 301727, Temporary change from not completed within 14 days
 NCR 304139, Untimely update of EF maintenance rule event log by system Engineer
 NCR 304742, SP-146 Temp Change
 NCR 305239, EFP-1 Breaker 52/H deficiency following maintenance
 NCR 310438, Emergency feed water control valve stroke time repeatability
 NCR 326879, EFV-148, Actuator stripped internally
 NCR 331000, Blank flange found removed from EFT-2 building penetration
 NCR 354537, SP-146 EFIC "D" channel would not go to maintenance bypass
 NCR 363244, EFIC CH B blown fuse
 NCR 371967, EFT-2 oxygen values not expected due to hydrazine levels
 NCR 378992, EFP-2 found rotating during standby (on 1&2 aux steam)
 NCR 266361, RECL-256 does not agree with RECL-267 within 14.1#
 NCR 276666, Failed optical isolator during performance of SP-146
 NCR 319008, DFT-4 particulate increasing trend near alert limit
 NCR 325123, DFP-2 vibration data per SP-349B has low margin to IST alert
 NCR 328103, Surface corrosion noted on EF piping in EFP-3 building
 NCR 387621, EF buried piping G-scan inspection results
 NCR 296860, PM-152 soil to pipe potentials found out of specification
 NCR 295834, EF piping under west berm requires evaluation
 NCR 294773, EF piping cathodic protection not performed annually
 NCR 427428, MUV-244 significant packing leak
 NCR 424905, MUP-1B motor phase resistance imbalance
 NCR 400263, Piping not fully qualified
 NCR 369532, NRC GL 2008-01 implementation challenges
 NCR 358946, MUV-36 check valve disc separation

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 -2205F, Pre Fire Plan – Miscellaneous buildings and Components
 SP-804, Surveillance of Plant Fire Brigade Equipment

Section 1R06: Flooding

Model Work Order 614384, Site Manholes and Handhole Inspections
 Implementation Work Order 1646872, Site Manholes and Handhole Inspections

Section 1R12: Maintenance Effectiveness

System engineering report SE10-0040, EG to be re-classified as (a)(2)
 NCR 265002, Jacket coolant leaks identified during SP-354B
 NCR 269400, EGDG Jacket adapter minor leak
 WO 01600340, EGDG-1A/B/C EC-73336 for Dresser coupling restraint devices
 WO 01357712, Replace Dresser coupling gaskets on EGDG-1A And EGDG-1B
 NCR 400460, Minor errors found during periodic assessment
 NCR 400462, Maintenance Rule evaluations corrections
 AR 262703, Maintenance Rule Program (a)(3) Periodic Assessment dated May 2008
 Licensee administrative procedure ADM-NGGC-0101, Maintenance Rule Program
 WO 1848531, BSP-1B Coupling inspection and lubrication

Section 1R20: Refueling and Outage Activities

Procedures

AI-504, Guidelines for Cold Shutdown and Refueling
 CP-341, Containment Penetration Control
 FP-410, Reactor Vessel Closure Head Installation
 FP-203, Offloading And Refueling Operations
 OP-301A, Refueling Outage RCS Drain and Fill Operations
 OP-421A, Operation Of The Reactor Building Polar Crane RCCR-1
 SP-440, Unit Startup Surveillance Plan
 WCP-102, Outage Risk Assessment

Nuclear Condition Reports

NCR 247148, Industry initiatives on heavy loads
 NCR 314049, Crystal River 3 Outage Risk Assessment for R16

Calculations

Nureg – 0612 Nine-Month Report Control of Heavy Loads at Nuclear Plants, Crystal River Unit 3, Appendix F, Analysis of the Effect of Reactor Vessel Head Drop on the Reactor Vessel, October 1983

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures, Guidance Documents, and Manuals

CAP-NGGC-0200, Condition Identification and Screening Process, Rev. 33
 CAP-NGGC-0201, Self-Assessment/Benchmark Programs, Rev. 14
 CAP-NGGC-0205, Condition Evaluation and Corrective Action Process, Rev. 12

CP-123, Restrained Components and Key Control, Rev, 61
 DOS-NGGC-0002, Dosimetry Issuance, Rev. 27
 FP-605, Spent Fuel Pools Controls and Accountability, Rev. 4
 HPP-112, Hard to Detect Radionuclides Analyses, Rev. 2
 HPP-202A, Supplemental Instructions to HPS-NGGC-0003: Radiological Surveys and Inspections, Rev. 35
 HPP-215, Health Physics Source Receipt and Control, Rev. 14
 HPP-216, Diving Operations in Radiological Environments, Rev. 9
 HPP-221, High Radiation Area, Locked High Radiation Area, and Very High Radiation Area Controls, Rev. 12
 HPS-NGGC-0001, Radioactive Material Receipt and Shipping Procedure, Rev. 30
 HPS-NGGC-0003, Radiological Posting, Labeling and Surveys, Rev. 15
 HPS-NGGC-0013, Personnel Contamination Monitoring, Decontamination, and Reporting, Rev. 12
 HPS-NGGC-0014, Radiation Work Permits, Rev. 8
 HPS-NGGC-0016, Access Control, Rev. 6
 HPS-NGGC-0023, Remote Radiological Monitoring, Rev. 4
 HPS-NGGC-0024, Alpha Monitoring Guidelines, Rev. 2
 SEC-NGGC-2162, Keys, Locks, and Combinations, Rev. 3
 SS-201, Security Force Personnel General Orders, Duties, and Responsibilities, Rev. 60

Records and Data

2010 DAW Smears, Dated 09/08/10
 CP-123, Restrained Components and Key Control, Rev, 61, Enclosure 5, Key Control Log, Selected Logbook Entries
 HPP-221, High Radiation Area, Locked High Radiation Area, and Very High Radiation Area Controls, Rev. 12, Enclosures 1, HP Key Control Log; and 2, LHRA/SRC Authorization Key Control Log, Selected Logbook Entries
 Health Physics Survey Record (HPSR), Survey No. 10-01-0023, Routine HPP-202Z02, HP Sources, Dated 01/07/10
 HPSR, Survey No. 10-01-0210, Routine HPP-202W14, Survey of Source Storage Area, Dated 10/15/10
 HPSR Survey No. 10-10-0414, 95' Reactor Building Inside and Outside of Letdown Cooler Room, Dated 10/28/10
 HPSR Survey No. 10-11-0444, Under Vessel, Dated 11/30/10
 HPSR Survey No. 10-12-0062, Old Letdown Cooler Room, Dated 12/06/10
 HPSR Survey No. 10-12-0071, Reactor Building Lower Cavity, Dated 12/06/10
 HPSR Survey No. 10-12-0082, Lower Reactor Cavity, Dated 12/07/10
 NRC Form 748, National Source Tracking Transaction Report, Crystal River 3 Nuclear Power Plant, License. No. DPR-72, Docket No. 50-302, Dated 01/05/2010
 Personnel Contamination Log, RFO 16
 Radiation Work Permit (RWP) Number (No.) 4704, Non-SGR Rad Waste Activities (High Risk)
 RWP No. 4711, Non-SGR Reactor Head/Cavity Activities (High Risk)
 RWP No. 4732, Non-SGR Maintenance Activities (High Risk)
 RWP No. 4744, Non-SGR Insulation Activities (High Risk)
 SEC-NGGC-2162, Keys, Locks, and Combinations, Rev. 11/30/10, Attachment 1,

Security Shift Key Control and Inventory, Selected Logbook Entries
Spent Fuel Pool Storage SFP, Dated 10/20/10

Corrective Action Program (CAP) Documents

Action Request 00436795, Red plastic bags used in the RCA, Dated 12/07/10
Assessment No. 310235, Radiation Protection Refuel 16 Readiness, Undated
Assessment No. 382005, Quick Hit Self-Assessment Report, Electronic Dosimetry Set
Points, Undated

Section: 2RS6 Radioactive Gases and Liquid Effluent Treatment and Monitoring Systems

Procedures, Guidance Documents, and Manuals

CP-161, Radiological Environmental Monitoring Program, Rev. 6
SP-187, AHFL-2A/2B/2C/2D (Auxiliary Building) In-Place Filter Testing, Rev. 29
SP-731A, Auxiliary Building Ventilation Continuous Release, Rev.11
SP-731B, Reactor Building Purge Batch Release and Batch to Continuous Release, Rev. 21
SP-731C, Reactor Building Ventilation Continuous Release, Rev. 14
SP-731F, WDT-1A/WDT-1B/WDT-1C Release, Rev.10
SP-731E, Reactor Building Atmospheric Release after Integrated Leak Rate Testing, Rev. 9
SP-736A, WDT-10A Release to the Discharge Canal, Rev. 11
SP-736B, WDT-10B Release to the Discharge Canal, Rev. 12
SP-736C, WDT-11A Release to the Discharge Canal, Rev. 8
SP-736D, WDT-11B Release to the Discharge Canal, Rev. 8
SP-736E, WDT-11A and WDT-11B Combined Release to the Discharge Canal, Rev. 11
SP-736F, SDT-1 / Turbine Building Sump / Condensate Release To The Settling Ponds, Rev.13
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 263132, Implementation Plan for GL 2008-01
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