



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II**
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ATLANTA, GEORGIA 30303-1257

November 15, 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: ERRATA CRYSTAL RIVER UNIT 3 – NRC INTEGRATED INSPECTION
REPORT 05000302/2010005**

Dear Mr. Franke:

On January 27, 2011, the US Nuclear Regulatory Commission (NRC) issued the subject inspection report for Crystal River Unit 3, ADAMS accession ML110270190. In reviewing this report, it was noted that we inadvertently omitted the inspection for TI-177, "Managing Gas Accumulation in Emergency Core Cooling Decay Heat Removal, and Containment Spray Systems" in section 4OA5.3 and duplicated the annual sample write-up from section 4OA2.3. Accordingly, we have revised pages 19-24 of Inspection Report 05000302/201005 in order to document the necessary changes. Please replace pages 19-24 of the original report with the pages enclosed.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). An ADAMS package which contains both the original report and this errata is available at ML113130541. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/readingrm/adams.html> (The Public Electronic Reading Room).

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I apologize for any inconvenience this error may have caused. If you have any questions, please contact me at (404) 562-4721.

Sincerely,

/RA/

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

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

Enclosure: As stated

cc w/encls: (See page 3)

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Letter to Jon A. Franke from Dan Rich dated November 15, 2011

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

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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 (Discussed) 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 GL 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems. The subject systems included the emergency core cooling system (ECCS) (high pressure injection, decay heat removal system (DH), and core flood systems), and containment building spray system (BS).

The inspectors reviewed the licensing basis of the facility to verify that actions to address gas accumulation were consistent with the operability requirements of the subject systems.

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The inspectors reviewed 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 inspectors reviewed the design and operation of the DH system to determine if flashing in DH suction lines would challenge system operability. The inspectors reviewed selected analyses performed by the licensee to verify that methodologies for predicting gas void accumulation, movement, and impact were appropriate. The inspectors 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 which could result in gas accumulation susceptibility.

The inspectors reviewed 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 inspectors reviewed 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. The inspectors also reviewed the test programs and processes to verify that they were sensitive to pre-cursors to gas accumulation.

The inspectors reviewed 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 inspectors reviewed 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 inspectors noted that the licensee relied, in part, on test data documented in Westinghouse Commercial Atomic Power document WCAP-16631-NP, "Testing and evaluation of gas transport to the suction of ECCS pumps," to validate the use of GOTHIC computer code to acceptably predict quantitative void transport behavior. WCAP-16631-NP documented tests that were conducted to study the transport of a gas void through a piping system. The results of these tests were referenced in calculations used by the licensee to benchmark the performance of GOTHIC computer code against test data and to ultimately determine void size acceptance criteria. The inspectors discussed these observations with the NRC's Office of Nuclear Reactor Regulation (NRR) and concluded that the validation of computer codes used to predict void transport behavior would require further evaluation to: (1) better understand the acceptability of the application of the test results contained in WCAP-16631-NP to void assessment analysis; and (2) assess potential generic implications. TI-2515/177 will be left open pending resolution of these observations by NRR which may require subsequent inspection in this area consistent with the results of those evaluations.

.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,

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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 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.

4OA6 Meetings, Including ExitExit 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

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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