



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

September 16, 2011

MEMORANDRUM TO: Frederick D. Brown, Director
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

FROM: Richard P. Croteau, Director */RA/*
Division of Reactor Projects

SUBJECT: NRC OVERSIGHT OF CRYSTAL RIVER UNIT 3 DURING
EXTENDED SHUTDOWN

Crystal River Unit 3 has been in an extended outage since September 2009 when the Unit was shutdown for steam generator replacement. Completion of outage activities and restart of the plant have been delayed due to the occurrence of internal cracking within the containment walls. Initial repairs were completed in 2010 but additional cracking occurred during retensioning of the containment building tendons. In June 2011 the licensee announced plans to repair the containment building and estimated the Unit would return to service by 2014.

To implement the Reactor Oversight Process (ROP) at Crystal River Unit 3, Region II intends to implement Manual Chapter (MC) 0351, "Implementation of the Reactor Oversight Process at Reactor Facilities in an Extended Shutdown Condition for Reasons Other Than Significant Performance Problems." Region II has prepared the enclosed inspection plan in accordance with MC 0351 which describes the planned inspections during the extended shutdown. MC 0351, Section 04.03 states the Director, Division of Inspection and Regional Support, is required to concur with the regional decision to implement this MC and any associated inspection plan. Region II hereby requests this concurrence. The inspection plan addresses accomplishment of the Reactor Oversight Process Baseline inspection procedures and includes observations of the planned structural repairs to the containment building. Inspections will verify acceptable performance of major testing activities including tests associated with steam generator replacement, the containment building structural integrity test, and the containment integrated leak rate test. The inspection plan describes the current status of performance indicators and inspections planned to address invalid performance indicators. As plant repairs and testing near completion, the inspection plan will be amended, with NRR concurrence, to focus on readiness for restart, including an Operational Readiness Assessment Inspection.

Enclosure: As stated

CONTACT: Daniel W. Rich, DRP/RII
404-997-4721

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Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

FROM: Richard P. Croteau, Director */RA/*
Division of Reactor Projects

SUBJECT: NRC OVERSIGHT OF CRYSTAL RIVER UNIT 2 DURING
EXTENDED SHUTDOWN

Crystal River Unit 3 has been in an extended outage since September 2009 when the Unit was shutdown for steam generator replacement. Completion of outage activities and restart of the plant have been delayed due to the occurrence of internal cracking within the containment walls. Initial repairs were completed in 2010 but additional cracking occurred during retensioning of the containment building tendons. In June 2011 the licensee announced plans to repair the containment building and estimated the Unit would return to service by 2014.

To implement the Reactor Oversight Process (ROP) at Crystal River Unit 3, Region II intends to implement Manual Chapter (MC) 0351, "Implementation of the Reactor Oversight Process at Reactor Facilities in an Extended Shutdown Condition for Reasons Other Than Significant Performance Problems." Region II has prepared the enclosed inspection plan in accordance with MC 0351 which describes the planned inspections during the extended shutdown. MC 0351, Section 04.03 states the Director, Division of Inspection and Regional Support, is required to concur with the regional decision to implement this MC and any associated inspection plan. Region II hereby requests this concurrence. The inspection plan addresses accomplishment of the Reactor Oversight Process Baseline inspection procedures and includes observations of the planned structural repairs to the containment building. Inspections will verify acceptable performance of major testing activities including tests associated with steam generator replacement, the containment building structural integrity test, and the containment integrated leak rate test. The inspection plan describes the current status of performance indicators and inspections planned to address invalid performance indicators. As plant repairs and testing near completion, the inspection plan will be amended, with NRR concurrence, to focus on readiness for restart, including an Operational Readiness Assessment Inspection.

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ADAMS: XYes ACCESSION NUMBER: ML112590546 X SUNSI REVIEW COMPLETE X FORM 665 ATTACHED

OFFICE	RII:DRP	RII:DRP	RII:DRS	RII:DRS			
SIGNATURE	GJW /RA/	DWR /RA/	JER /RA/	HOC /RA/			
NAME	GWilson	DRich	JOrtiz-Rivera	HChristensen			
DATE	09/08/2011	09/08/2011	09/12/2011	09/13/2011			
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

Crystal River Unit 3 Inspection Plan

Background Information:

Crystal River Unit 3 was shutdown on September 26, 2009, for a steam generator replacement refueling outage. During the creation of a temporary opening in the reactor containment building to support steam generator replacement, the licensee discovered an internal crack (also called a delamination) in the wall of Bay 3-4 of the concrete containment. Bay 3-4 was subsequently repaired and retensioning of the containment building tendons began in January 2011. In March 2011 delamination of Bay 5-6 occurred during retensioning. In June 2011 Progress Energy announced the decision to repair the reactor building, including an estimate that repairs should be completed and the Unit returned to service in 2014. The unit is currently in a No-Mode condition with the core fully offloaded to the spent fuel pool.

MC 0351, "Implementation of the Reactor Oversight Process at Reactor Facilities in an Extended Shutdown Condition for Reasons other than Significant Performance Problems," will be implemented for Crystal River. This inspection plan is prepared in accordance with MC 0351 and documents how the objectives of the ROP will be met.

This inspection plan is valid for the entire shutdown period, but will be updated as necessary based on the licensee's progress in returning the Unit to operation. Within six months of Unit restart, the plan will be updated, with NRR concurrence, to reflect those inspections necessary to ensure operational readiness of the licensee for reactor restart, including an Operational Readiness Assessment inspection.

INSPECTION PLAN

1. BASELINE INSPECTIONS

- a. The following Resident Inspector Baseline inspection procedures (IP) are expected to be completed with at least the minimum number of samples as specified in the respective IP. One additional inspection sample will be performed in the area of operator training. In order to maintain an adequate level of oversight of licensed operator proficiency, the licensed operator requalification quarterly observation by the resident inspectors shall be performed twice per quarter, which is twice the level of effort required by the ROP baseline.

IP Number	Title/Section	Comments
71111.01	Adverse Weather Protection	
71111.04Q	Equipment Alignment/Partial	
71111.04S	Equipment Alignment/Complete	
71111.05Q	Fire Protection/walkdowns	
71111.05S	Fire Protection/Fire Drill	
71111.06	Flood Protection Measures	
71111.07A	Heat Sink Performance	

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71111.11Q	Licensed Operator Requalification *	Twice per quarter
71111.12	Maintenance Effectiveness	
71111.19	Post Maintenance Testing	
71111.20	Refueling and Outage Activities	
71111.22	Surveillance Testing	
71114.06	Drill Evaluation	
71153	Event Follow-up & Notices of Enforcement Disc.	
71130.11	Material Control & Accountability/Due 2013	

- b. The available inspection samples for the following Resident Inspector Baseline IPs will be performed, however the number of available samples may be below the minimum specified for the baseline:

IP Number	Title/section	Comments
71111.13	Maintenance Risk Assessment & Emergent Work Control	IP is not applicable with the unit shutdown. Maintenance Risk assessment is performed under IP 71111.20
71111.15	Operability Determination and Functionality Assessments	Due to the extended shutdown period, availability of samples is limited
71111.18	Plant Modifications	Due to the extended shutdown period, availability of samples may be limited.
71151	Performance Indicator (PI) Verification	Reference PI section
71152	Problem Identification and Resolution (PI&R)	The required annual sample for Operator Work Arounds (OWAs) will not be completed during the extended shutdown period since OWAs are not applicable with the core offloaded to the spent fuel pool (SFP).

c. DRS BASELINE and OTHER TEAM INSPECTIONS

IP Number	Title/section	Comments
71114.01,-.04	Exercise Eval/Emergency Action Level (EAL) and Emergency Preparedness (EP) changes	Complete as specified by IP
71130.0X	Security Baseline Inspection	Complete as specified by IP
71124.0X	Radiation Protection (RP) Inspections	Adjust level of effort based on plant conditions
71152B	Problem Identification and Resolution, Biennial Inspection	Complete as specified by IP
71111.17T	Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications	Periodicity and scope left to Regional Discretion.
71111.21	Component Design Basis Inspection	Complete as specified by IP
71111.08	In-Service Inspection	Adjust level of effort based on plant conditions

d. ADDITIONAL TARGETED INSPECTIONS TO BE COMPLETED UNDER THE ABOVE ROP PROCEDURES:

SYSTEM/AREA	INSPECTION PROCEDURE	COMMENTS
Foreign Material Exclusion (FME) controls of the Spent Fuel Pool (SFP) area during containment repair activities	71111.20	Verify controls are in place to ensure containment repair activities are not impacting the SFP.
SFP Safety	71111.20 (also using applicable guidance contained in IP 60801, Spent Fuel Pool Safety at Permanently Shutdown Reactors)	Ensure that containment repair activities have no impact on the SFP and SFP cooling support systems.
Operations Training	71111.11	Residents: Additional quarterly inspection during extended shutdown period. DRS: Inspection to verify operator readiness for restart (within ~3 months of unit startup)

e. REACTOR BUILDING REPAIR INSPECTION

IP Number	Title/section	Comments
50001	Steam Generator Replacement Inspection	This IP will continue to be used to support inspections associated with the repair of the containment. The lead for this inspection will be the Division of Reactor Safety with assistance from the CR3 Resident Inspectors. DRS should provide an inspection plan that covers containment repair and testing activities (Integrated Leak Rate Test (ILRT) and Structural Integrity (SIT))
46051, 46053, 46055, 46061, 46071	Structural Concrete Procedure/ Work Observation/Record Review/Masonry Construction/Expansion Anchors	These IPs will be implemented as necessary; structural concrete work is not anticipated to occur in 2011.

f. LAYUP INSPECTIONS

IP Number	Title/section	Comments
Building Spray, Emergency Feedwater (EFW), Makeup (MU), Reactor Coolant Systems (RCS) and Once Through Steam Generators (OTSG)	71152	These systems are in a layup condition. Perform an Annual Sample to verify satisfactory implementation of layup requirements

2. PERFORMANCE INDICATORS (PIs)

Due to the extended shutdown, several PIs are no longer valid. The table below lists invalid PIs and describes those ROP inspections necessary to compensate for PIs which are no longer valid.

Performance Indicator	ROP inspections planned during Extended Shutdown	Comments
Unplanned Scrams, Unplanned Power Changes, and Unplanned Scrams with Complications	None	PIs are not valid. Unplanned Scrams and Unplanned Power Changes PIs will be valid after the unit is critical for 2400 hrs.

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Performance Indicator	ROP inspections planned during Extended Shutdown	Comments
		Unplanned Scrams with Complications PI will become valid after unit startup
RCS leakage and Activity	None	PIs are not valid. RCS Leakage will become valid in Mode 4, RCS activity PI will become valid in Mode 3 (>500F)
Mitigating Systems Performance Indicator (MSPI) Emergency Alternating Current (Emergency Diesel Generator)	NONE See Notes 1, 2	Note 3
MSPI HP Safety Injection (MU System)	NONE See Notes 1, 2	Note 3
MSPI Heat Removal (EFW)	NONE See Notes 1, 2	Note 3
MSPI Residual Heat Removal (Decay Heat Removal)	NONE See Notes 1, 2	Note 3
MSPI Cooling Water (Service Water (SW), Decay Heat Closed Cycle (DC), Raw Water (RW) systems)	NONE See Notes 1, 2	Note 3
PIs associated with EP, RP and Safeguards,	Routine DRS inspections.	PIs remain valid

Note 1: MSPIs consist of the sum of the unavailability of the applicable systems plus the unreliability for the system during the previous twelve quarters. Unavailability is only counted if the reactor is critical. Based on the lack of critical hours since Sept 2009 and the projection that the unit will remain shutdown until CY 2014, the MSPIs are invalid. MSPI inspections specified in IP 71151 will not be performed until after unit startup.

Note 2: The emergency AC system (EDG), DHR system, and the cooling water systems (RW/SW/DC) will continue to be routinely surveillance tested (in-service testing) by the licensee. For these systems there continues to be an opportunity to identify Mitigating Systems (MS) functional failures and other system problems. To provide confidence the licensee is properly maintaining these systems, the resident inspectors will continue to perform baseline ROP inspections (PMT, Surveillance, Mods, operability etc) for these systems. The MU and EFW systems have NOT been routinely operated or surveillance tested during the extended outage. If opportunities arise, the residents will perform baseline inspections for the MU and EFW systems. Annually, the resident inspectors will inspect the MU and EFW systems using the

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guidance of IP 71111.04, Equipment Alignment, Section 02.02, Complete Walkdown. The two complete alignment samples for the MU and EFW systems are in addition to the level of effort specified in IP 71111.04 for complete alignments.

Note 3: After unit restart, data submitted by the licensee will be reviewed utilizing IP 71151 on at least an annual basis. Additional inspections will be performed to compensate for invalid PIs until sufficient data has accumulated to provide for each valid PI.