

Hamman, Jeffrey

From: Ninh, Son
Sent: Friday, October 09, 2009 7:53 AM
To: Sykes, Marvin
Cc: Hamman, Jeffrey
Subject: MD 8.3 Evaluation for CR 3 Containment Building Separation Issue
Attachments: MD 8.3 -Crystal River 3 Containment Concrete Cracks.doc

Marvin,

Attached is MD 8.3 evaluation for the CR 3 containment building separation issue. Please review and edit it as needed. Please also remember to forward it to Joel's approval and Pat for placing it in ADAMs. The file is located in G:\crystal\SGRP..

Son Ninh

A-59

Decision Documentation for Reactive Inspection

(Deterministic and Risk Criteria Analyzed)

MD8.3 XXXX

PLANT:
Crystal River 3

EVENT DATE: October 5,
2009

EVALUATION DATE: October 6, 2009

Brief Description of the Significant Operational Event or Degraded Condition:

October 5, 2009, Crystal River Unit 3 was shutdown for a planned refueling and steam generator replacement outage. During containment building concrete removal activities to create a construction opening to support steam generator replacement, a separation in the concrete was discovered in the vicinity of the construction opening near the periphery of the containment. The separation is approximately 1/2 inch wide and located approximately 10 inches from outer surface. The separation is generally in the plane of the horizontal tendons. Inside the separation is 30 inches of concrete and the steel liner plate. The Crystal River Unit 3 containment is a steel lined, post tensioned concrete structure nominally 42 inches thick. Post tensioning is achieved utilizing an outer array of horizontal tendons immediately adjacent to an inner array of vertical tendons. The licensee is assessing and evaluating implications (polar crane support, S/G lift device support, as well as operability of containment). Specialist DRS inspectors were already on schedule to travel to CR3 for planned steam generator replacement inspections. NRC staff is evaluating OpE and sharing information with TMI since similar activities are scheduled within the month. Hydro-demolition of the RB opening was restarted on Friday morning. Hydro-demolition in progress for containment opening continues. Licensee will perform a modification to support outside lift system as a result crack identified in concrete. A root cause investigation is in progress. Sargent and Lundy involved with the investigation and corrective actions.

This separation condition has been evaluated relative to current plant conditions and found to represent no degradation in safety. The unit is currently in Mode 6, defueled. This degraded condition did not result in any Emergency preparedness action levels, radiation protection overexposure/release issues, and security issues.

Y/N

DETERMINISTIC CRITERIA

N

a. Involved operations that exceeded, or were not included in, the design bases of

Remarks:

N

b. Involved a major deficiency in design, construction, or operation having potential generic safety implications

Remarks:

N

c. Led to a significant loss of integrity of the fuel, primary coolant pressure boundary, or primary containment boundary of a nuclear reactor

Remarks:

N

d. Led to the loss of a safety function or multiple failures in systems used to mitigate an actual event

Remarks:.

Yes	e. Involved possible adverse generic implications
	Remarks: This degraded containment building condition involved possible adverse generic implications.
N	f. Involved significant unexpected system interactions
	Remarks:
N	g. Involved repetitive failures or events involving safety-related equipment or deficiencies in operations
	Remarks:
N	h. Involved questions or concerns pertaining to licensee operational performance
	Remarks:

CONDITIONAL RISK ASSESSMENT	
RISK ANALYSIS BY:	DATE: -
Brief Description of the Basis for the Assessment (may include assumptions, calculations, references, peer review, or comparison with licensee's results):	
The estimated conditional core damage probability (CCDP) is _____ and places the risk in the range of a _____ and _____	
RESPONSE DECISION	
USING THE ABOVE INFORMATION AND OTHER KEY ELEMENTS OF CONSIDERATION AS APPROPRIATE, DOCUMENT THE RESPONSE DECISION TO THE EVENT OR CONDITION, AND THE BASIS FOR THAT DECISION	
DECISION AND DETAILS OF THE BASIS FOR THE DECISION: Due to lack of information on the structural integrity of the concrete containment and how it would interact with the free-standing steel liner during a seismic event in its current condition, a risk analysis was not able to be performed at this time. However, if the concrete containment reacted adversely with the free-standing steel liner during a seismic event, LERF would be adversely affected and a Special Inspection would be warranted. Therefore, Region II determined that the appropriate level of NRC response was to conduct a Special Inspection.	
BRANCH CHIEF REVIEW: M. Sykes	DATE: 10/06/09
DIVISION DIRECTOR REVIEW: L. Wert	DATE:

Decision Documentation for Reactive Inspection
(Deterministic-only Criteria Analyzed)

PLANT: Crystal River 3

EVENT DATE: 10/05/09

EVALUATION DATE: 10/06/09

October 5, 2009, Crystal River Unit 3 was shutdown for a planned refueling and steam generator replacement outage. During containment building concrete removal activities to create a construction opening to support steam generator replacement, a separation in the concrete was discovered in the vicinity of the construction opening near the periphery of the containment. The separation is approximately 1/2 inch wide and located approximately 10 inches from outer surface. The separation is generally in the plane of the horizontal tendons. Inside the separation is 30 inches of concrete and the steel liner plate. The Crystal River Unit 3 containment is a steel lined, post tensioned concrete structure nominally 42 inches thick. Post tensioning is achieved utilizing an outer array of horizontal tendons immediately adjacent to an inner array of vertical tendons. The licensee is assessing and evaluating implications (polar crane support, S/G lift device support, as well as operability of containment). Specialist DRS inspectors were already on schedule to travel to CR3 for planned steam generator replacement inspections. NRC staff is evaluating OpE and sharing information with TMI since similar activities are scheduled within the month. Hydro-demolition of the RB opening was restarted on Friday morning. Hydro-demolition in progress for containment opening continues. Licensee will perform a modification to support outside lift system as a result crack identified in concrete. A root cause investigation is in progress. Sargent and Lundy involved with the investigation and corrective actions.

This separation condition has been evaluated relative to current plant conditions and found to represent no degradation in safety. The unit is currently in Mode 6, defueled. This degraded condition did not result in any Emergency preparedness action levels, radiation protection overexposure/release issues, and security issues.

REACTOR SAFETY

Y/N	IIT Deterministic Criteria
N	Led to a Site Area Emergency Remarks:
N	Exceeded a safety limit of the licensee's technical specifications Remarks:
N	Involved circumstances sufficiently complex, unique, or not well enough understood, or involved safeguards concerns, or involved characteristics the investigation of which would best serve the needs and interests of the Commission Remarks:

Y/N	SI Deterministic Criteria
N	Significant failure to implement the emergency preparedness program during an actual event, including the failure to classify, notify, or augment onsite personnel
	Remarks:
RADIATION SAFETY	
Y/N	IIT Deterministic Criteria
N	Led to a significant radiological release (levels of radiation or concentrations of radioactive material in excess of 10 times any applicable limit in the license or 10 times the concentrations specified in 10 CFR Part 20, Appendix B, Table 2, when averaged over a year) of byproduct, source, or special nuclear material to unrestricted areas
	Remarks:
N	Led to a significant occupational exposure or significant exposure to a member of the public. In both cases, "significant" is defined as five times the applicable regulatory limit (except for shallow-dose equivalent to the skin or extremities from discrete radioactive particles)
	Remarks:
N	Involved the deliberate misuse of byproduct, source, or special nuclear material from its intended or authorized use, which resulted in the exposure of a significant number of individuals
	Remarks:
N	Involved byproduct, source, or special nuclear material, which may have resulted in a fatality
	Remarks:
N	Involved circumstances sufficiently complex, unique, or not well enough understood, or involved safeguards concerns, or involved characteristics the investigation of which would best serve the needs and interests of the Commission
	Remarks:
Y/N	AIT Deterministic Criteria

N	Led to a radiological release of byproduct, source, or special nuclear material to unrestricted areas that resulted in occupational exposure or exposure to a member of the public in excess of the applicable regulatory limit (except for shallow-dose equivalent to the skin or extremities from discrete radioactive particles)
	Remarks:
N	Involved the deliberate misuse of byproduct, source, or special nuclear material from its intended or authorized use and had the potential to cause an exposure of greater than 5 rem to an individual or 500 mrem to an embryo or fetus
	Remarks:
N	Involved the failure of radioactive material packaging that resulted in external radiation levels exceeding 10 rads/hr or contamination of the packaging exceeding 1000 times the applicable limits specified in 10 CFR 71.87
	Remarks:
N	Involved the failure of the dam for mill tailings with substantial release of tailings material and solution off site
	Remarks:
Y/N	SI Deterministic Criteria
N	<p>May have led to an exposure in excess of the applicable regulatory limits, other than via the radiological release of byproduct, source, or special nuclear material to the unrestricted area; specifically</p> <ul style="list-style-type: none"> • occupational exposure in excess of the regulatory limits in 10 CFR 20.1201 • exposure to an embryo/fetus in excess of the regulatory limits in 10 CFR 20.1208 • exposure to a member of the public in excess of the regulatory limits in 10 CFR 20.1301
	Remarks:
N	May have led to an unplanned occupational exposure in excess of 40 percent of the applicable regulatory limit (excluding shallow-dose equivalent to the skin or extremities from discrete radioactive particles)
	Remarks:
N	Led to unplanned changes in restricted area dose rates in excess of 20 rem per hour in an area where personnel were present or which is accessible to personnel
	Remarks:

N	Led to unplanned changes in restricted area airborne radioactivity levels in excess of 500 DAC in an area where personnel were present or which is accessible to personnel and where the airborne radioactivity level was not promptly recognized and/or appropriate actions were not taken in a timely manner
	Remarks:
N	<p>Led to an uncontrolled, unplanned, or abnormal release of radioactive material to the unrestricted area</p> <ul style="list-style-type: none"> • for which the extent of the offsite contamination is unknown; or, • that may have resulted in a dose to a member of the public from loss of radioactive material control in excess of 25 mrem (10 CFR 20.1301(e)); or, • that may have resulted in an exposure to a member of the public from effluents in excess of the ALARA guidelines contained in Appendix I to 10 CFR Part 50
	Remarks:
N	Led to a large (typically greater than 100,000 gallons), unplanned release of radioactive liquid inside the restricted area that has the potential for ground-water, or offsite, contamination
	Remarks:
N	Involved the failure of radioactive material packaging that resulted in external radiation levels exceeding 5 times the accessible area dose rate limits specified in 10 CFR Part 71, or 50 times the contamination limits specified in 49 CFR Part 173
	Remarks:
N	Involved an emergency or non-emergency event or situation, related to the health and safety of the public or on-site personnel or protection of the environment, for which a 10 CFR 50.72 report has been submitted that is expected to cause significant, heightened public or government concern
	Remarks:

SAFEGUARDS/SECURITY	
Y/N	IIT Deterministic Criteria
N	Involved circumstances sufficiently complex, unique, or not well enough understood, or involved safeguards concerns, or involved characteristics the investigation of which would best serve the needs and interests of the Commission
	Remarks:
N	Failure of licensee safety-related equipment or adverse impact on licensee operations as a result of a safeguards initiated event (e.g., tampering).
	Remarks:
N	Actual intrusion into the protected area.
	Remarks:
Y/N	AIT Deterministic Criteria
N	Involved a significant infraction or repeated instances of safeguards infractions that demonstrate the ineffectiveness of facility security provisions
	Remarks:
N	Involved repeated instances of inadequate nuclear material control and accounting provisions to protect against theft or diversions of nuclear material
	Remarks:
N	Confirmed tampering event involving safety-related or security-related equipment
	Remarks:
N	Substantial failure in the licensee's intrusion detection or package/personnel search procedures which results in a significant vulnerability or compromise of plant safety or security
	Remarks:
Y/N	SI Deterministic Criteria
N	Involved inadequate nuclear material control and accounting provisions to protect against theft or diversion, as evidenced by inability to locate an item containing special nuclear material (such as an irradiated rod, rod piece, pellet, or instrument)
	Remarks:

N	Involved a significant safeguards infraction that demonstrates the ineffectiveness of facility security provisions
	Remarks:
N	Confirmation of lost or stolen weapon
	Remarks:
N	Unauthorized, actual non-accidental discharge of a weapon within the protected area
	Remarks:
N	Substantial failure of the intrusion detection system (not weather related)
	Remarks:
N	Failure to the licensee's package/personnel search procedures which results in contraband or an unauthorized individual being introduced into the protected area
	Remarks:

RESPONSE DECISION	
USING THE ABOVE INFORMATION AND OTHER KEY ELEMENTS OF CONSIDERATION AS APPROPRIATE, DOCUMENT THE RESPONSE DECISION TO THE EVENT OR CONDITION, AND THE BASIS FOR THAT DECISION	
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