

ACTION REQUEST 00358724

Type : NCR Orig Date: 10/02/09 17:05 Discovery Date:
Subject : CR3 SGR HYDRODEMOLITION EXPOSED CRACKS IN THE RB CONCRETE

Description

DURING HYDRODEMOLITION OF THE CONCRETE CONTAINMENT WALL, WITHIN THE BOUNDARIES OF THE TEMPORARY ACCESS OPENING, CRACKS WERE EXPOSED BETWEEN ADJACENT HOOP TENDONS. THE CRACKS ARE GENERALLY IN A VERTICAL PLANE BETWEEN THE TENDON SLEEVES AND EXTEND FOR AN INDETERMINATE LENGTH. IT IS POSSIBLE THE CRACKS WERE THE RESULT OF HYDRODEMOLITION OR JUST EXPOSED BY THE HYDRODEMOLITION. THE EXTENT OF THE CRACKS CANNOT BE ESTABLISHED AS THE CRACK IS EXPOSED BY THE REMOVAL OF THE CONCRETE WHICH IN TURN PREVENTS AN ASSESSMENT OF THE LENGTH OF THE CRACK. THERE IS HOWEVER, WATER LEAKAGE THROUGH CRACKS IN THE RB WALL THAT WOULD INDICATE THE CRACKING EXTENDS BEYOND THE AREA OF THE OPENING.

Priority : 1	Report To :	Status: APPROVED 10/03/09
Due Date : 12/31/10	Event Date :	
Originator : JOPLID	Originator Group:	
Facility : CR3	Department : LH8	Organization:
Owed To :	Owed To Group : ESSDUEVAL	
Owed To Fac: CR3	Department :	Discipline :

AR Status History

Updated Date	Updated By	AR Status	AR Due Date
10/02/09	JOPLID	INPROG	
10/02/09	JOPLID	H/APPR	
10/03/09	EIOLJ		12/31/10
10/03/09	EIOLJ	PRE-APRV	
10/03/09	EIOLJ	APPROVED	

A-8B

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Request Attribute	Value	Reqd	Date
2C RECOMMENDED OWNER	SGR HOLLIDAY	N	10/02/09
Name : DANIEL	JOPLING		

Request Attribute	Value	Reqd	Date
2D OPER/REPORT ISSUE	Y	Y	10/02/09
Name : DANIEL	JOPLING		

As the plant is in Mode 6, and containment is not subject to full design loading as a result the cracks do not represent a current operability concern. The reactor building is, however, required to maintain pressure retaining capabilities, while moving fuel. Calculation S06-0005 has evaluated the partially detensioned containment shell with all the concrete removed from the access opening and the liner plate fully exposed for a LODHR accident. This analysis conservatively applied Design Basis normal and accident load cases to the acceptance criteria of the current licensing basis. The results of this analysis demonstrated the containment, with the concrete beyond the opening in the as designed condition, could perform the pressure retaining function. With the identified cracking, the capability to perform under design basis condition is brought into question. Based on the judgment and a review of the S06-0005 calculation, by the engineer that developed the calculation, it is reasonable to assume the containment structure can perform the pressure retaining function under required loadings. (See E-Mail below)

As the indications appear to be localized in the plane of the horizontal tendons, continuing with the hydrodemolition beyond those tendons will not worsen the situation. The identification of these cracks does not significantly change the hydrodemolition process. The hydrodemolition activities are being conducted in a controlled manner with rigorous precautions in place to assure personnel safety. With the limited access to the hydrodemolition activities and the minor changes in the way the concrete responds to the hydrodemolition personnel safety is not compromised with continuing with the hydrodemolition.

From: JAVAD.MOSLEMIAN@sargentlundy.com
[mailto:JAVAD.MOSLEMIAN@sargentlundy.com]

Sent: Friday, October 02, 2009 5:16 PM

To: Holliday, John

Cc: Jopling, Daniel L.; Jones, David (CR3); Terry Jr, James H.; Bishara, Magdy M.; Powell, Sid; JOHN.REGAN@sargentlundy.com;

CONSTANTINE.N.PETROPOULOS@sargentlundy.com;

CHRIS.A.SWARD@sargentlundy.com; CN.KRISHNASWAMY@sargentlundy.com;

AMIR.M.MOID@sargentlundy.com; NEZAR.ABRAHAM@sargentlundy.com;

CHI-HOLT.KO@sargentlundy.com; Javad Moslemian

Subject: Containment Integrity for loads associated with Decay Heat

Importance: High

John,

Note: In general, we do not determine "Operability". Normally operability determination and declaration is by the appropriate individuals from the utility. What is stated below is our collective engineering judgment that may be used by qualified Progress Energy's staff in their determination and declaration of station operability.

As you know, we have evaluated the containment for the loading associated with decay heat when the liner is in-place, concrete within the opening is fully removed and the containment prestress is reduced due to removal and/or detensioning of the tendons within the opening.

Under the existing conditions that we have been informed of, the concrete within the opening is partially removed, the liner is in place, the tendons within the opening are detensioned, and significant concrete cracks are observed possibly indicating delamination of concrete due to through thickness tensile stress from hoop tendons. It is our collective

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judgment that even when considering the concrete outside the cylinder formed by the hoop tendons is ineffective, the containment shall will be capable of withstanding the loads associated with decay heat accident. As agreed upon, evaluations will be performed to verify the above noted engineering judgment.

Regards
Javad

Request Attribute	Value	Reqd	Date
2D1EQUIPMENT RELATED	N	Y	10/02/09
Name : DANIEL	JOPLING		

Request Attribute	Value	Reqd	Date
2E MAINT RULE APPLIC	N	N	10/02/09
Name : DANIEL	JOPLING		

Request Attribute	Value	Reqd	Date
2F SYSTEM	RC	Y	10/02/09
Name : DANIEL	JOPLING		

Request Attribute	Value	Reqd	Date
3 OPERATIONS REVIEW		N	
Name :			

Request Attribute	Value	Reqd	Date
3A IMMED REPT ISSUE	N	N	10/02/09
Name : CHRISTINE	MCKIM		

Request Attribute	Value	Reqd	Date
3B OCR	N	N	10/02/09
Name : CHRISTINE	MCKIM		

Request Attribute	Value	Reqd	Date
3B1 OPER ISSUE	Y	N	10/02/09
Name : CHRISTINE	MCKIM		

From Operations Shift Manager log entry 10/2/2009 @ 1905:
"With the existing condition it is Engineering's position (based on previous analyses contained in calculation S06-0005 and consultation with technical experts) that with the planned RB structural material removed the inner liner remains capable of retaining pressure from a Loss of Decay Removal event. Thus, there is no operability concern in the current shutdown mode. "
NCON and REW assignments have been made to evaluate Reportability and Operability for other modes.

Request Attribute	Value	Reqd	Date
3B2 REPORT ISSUE	Y	N	10/02/09
Name : CHRISTINE	MCKIM		

REW assignment generated. See attribute 3B3.

Request Attribute	Value	Reqd	Date
3B3 REW	Y	N	10/02/09
Name : CHRISTINE	MCKIM		

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Request Attribute	Value	Reqd Date
6I EQUIP PRI STATUS		N
Name :		

ACTION REQUEST APPROVAL REVIEW

Route List: 001			Route List Initiator: JOPLID		
	Alert		Send Date	Send Time	Action Taken
PASSPORT Fac	Group/Type	Last Name	Date	Time	Action Date/Time
JOPLID	NCP MJRPROSUPV A	JOPLING	10/02/09	17:05	APPROVED 10/02/09 17:54
	NCP CREGREV A		10/02/09	17:54	BYPASSED 10/02/09 18:39
POTTEP	NCP MAJPRUEVAL I	POTTER	10/02/09	17:05	10/03/09 06:19
TURKAM	BNP REGREV I	TURKAL	10/02/09	17:05	10/05/09 13:45
HERRID	CR3 REGREV I	HERRIN	10/02/09	17:05	10/02/09 19:07
STACYK	HNP REGREV I	STACY	10/02/09	17:05	10/03/09 17:41
	RNP REGREV I		10/02/09	17:05	
MCKIMC	CR3 CONTROOM A	MCKIM	10/02/09	18:39	APPROVED 10/02/09 21:06
HERRID	CR3 REGREV A	HERRIN	10/02/09	21:06	APPROVED 10/02/09 22:28
EILOLJ	CR3 UNITEVAL A	EILOLA	10/02/09	22:28	APPROVED 10/03/09 12:04

TREND-CAUSE

Facility: CR3	Trend 1: CCAUSE	Trend 2: \$	Trend 3: \$	Date:
Process: N/A	Org: \$	Rank:	Assign:	
Description: NO CODE				
Facility: CR3	Trend 1: EVENT	Trend 2: EC	Trend 3: EC59	Date:
Process: ES4	Org: N/A	Rank:	Assign:	
Description: OUT OF SPEC PARAMETER (SYS, TECH, MATERIAL SPEC, R				
Facility: CR3	Trend 1: RCAUSE	Trend 2: \$	Trend 3: \$	Date:
Process: N/A	Org: \$	Rank:	Assign:	
Description: NO CODE				

Keywords

Keyword	Keyword Description
CALC/STR	STRUCTURAL CALCULATIONS
CONST	CONSTRUCTION ACTIVITY
HISTORIC	HISTORICAL
OU/EMERG	OUTAGE EMERGENT WORK IMPACT
PBCNTRL	PRESSURE BOUNDARY CONTROL

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ASSIGNMENT NUMBER 22 SUB

Type : REW Due Date : 10/15/09
Status : ACC/ASG Reschedule : 1 Pri Resp Group: NPCLIC
Assigned To : S POWELL Sec Resp Group: CONTROOM
Subject : REW-SGR HYDRODEMOLITION EXPOSED CRACKS IN THE RB CONCRETE
Aff Facility: CR3 Unit : System :
UCR : Schedule Ref :
Organization: Department : JW2 Discipline :
Est Manhrs : Est Comp Date :

Assignment Status History

Updated Date	Updated By	Assgn Status	Assgn Due Date
10/03/09	EIOLJ	INPROG	
10/03/09	EIOLJ		10/05/09
10/03/09	EIOLJ	NTFY/PRI	
10/03/09	EIOLJ	ACC/PRI	
10/03/09	EIOLJ	NTFY/SEC	
10/03/09	EIOLJ	ACC/SEC	
10/03/09	EIOLJ	NTFY/ASG	
10/04/09	POWELS	ACC/ASG	
10/05/09	HERRID		10/15/09

Assignment Attribute Value	Reqd Date
CHANGE BASIS EXTEND TO 10/15@1900	10/04/09
Name : LARRY MOFFATT	

See in-progress note for extension basis.

Assignment Attribute Value	Reqd Date
REPORTABLE?	
Name :	

COMPLETION NOTES

CAUSE/ACTION

ASSIGNMENT COMPLETION APPROVAL

Route List: 001	Alert	Route List Initiator:	Send Date	Send Time	Action Taken	Action Date/Time
PASSPORT Fac	Group/Type	Last Name				
CR3 LICSUPV1	A					
CR3 CONTROOM	A					
CR3 ESSDUEVAL	A					

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ASSIGNMENT NUMBER 23 SUB

Type : NCON Due Date : 10/06/09
Status : ACC/ASG Reschedule : 1 Pri Resp Group: SGRSUPV1
Assigned To : D JOPLING Sec Resp Group:
Subject : NCON - SGR HYDRODEMOLITION EXPOSED CRACKS IN THE RB CONC.
Aff Facility: CR3 Unit : System :
UCR : Schedule Ref :
Organization: Department : LH8 Discipline :
Est Manhrs : Est Comp Date :

Assignment Status History

Updated Date	Updated By	Assgn Status	Assgn Due Date
10/03/09	EIOLJ	INPROG	
10/03/09	EIOLJ		10/05/09
10/03/09	EIOLJ	NTFY/PRI	
10/03/09	POTTEP	ACC/PRI	
10/03/09	POTTEP	NTFY/ASG	
10/05/09	JOPLID	ACC/ASG	
10/05/09	EIOLJ		10/06/09

Assignment Attribute Value	Reqd Date
CHANGE BASIS 10/6/09	10/05/09
Name : DANIEL JOPLING	

The vendor developing the calculation supporting this NCON has developed the calculation. Verifier comments are being resolved. This will require a one day extension in the completion of this NCON. Dan Jopling 10/5/09

Assignment Attribute Value	Reqd Date
DISPOSITION	
Name :	

Assignment Attribute Value	Reqd Date
NON CONFORMING COND.	
Name :	

Assignment Attribute Value	Reqd Date
REPORT REQUIRED?	
Name :	

COMPLETION NOTES

CAUSE/ACTION

ASSIGNMENT COMPLETION APPROVAL

Route List: 001	Alert	Route List Initiator:	Send	Send	Action	Action
PASSPORT Fac	Group/Type	Last Name	Date	Time	Taken	Date/Time
CR3	SGRSUPV1	A				
CR3	CONTROOM	A				

Reportability Evaluation for NCR 358724

Based on current information the most appropriate reporting criterion would be 50.72(b)(3)(ii)(A), 'The condition of the nuclear power plant, including its principal safety barriers being seriously degraded.' NUREG-1022, Revision 2, 'Event Reporting Guidelines: 10 CFR 50.72 and 50.73' was consulted for guidance. Example 5 in NUREG-1022 Section 3.2.4 is specific to containment. It states that integrated leak rate test failure would be reportable. CR-3 successfully passed an ILRT in R14 (2005).

Evidence suggests that the containment cracking discovered on 10/1/2009 existed prior to 2005. The tendon surveillance conducted in 1997 found 6 horizontal tendons in the area between buttresses 2 and 6 (encompassing the construction opening) to have lower than expected tension. Subsequent surveillances have found similar low tension readings for horizontal tendons in a band that extends from just below the elevation of the opening to just above the opening around the circumference of the containment. Prior to 1997 horizontal tendon tension was consistently acceptable. This is evidence that CR-3 has completed successful ILRTs with this damage existing. On that basis, example 5 would suggest this is not reportable.

Examples 2 and 3 are specific to the RCS, another principal safety barrier, but in both cases specific acceptance criteria are violated, leading to a reportable condition. At this time it is unknown if the condition of the containment, when analyzed to the load cases in FSAR Section 5.2.3.2.1 would exceed the stress limits of American Concrete Institute standard 318, which contains the acceptance criteria for containment concrete stress.

At this time the containment is not required to meet FSAR load cases, and has been evaluated to be suitable to meet loss of decay heat removal pressure to maintain containment closure. Therefore, no immediate safety concern exists.

Engineering evaluation is ongoing to determine the state of qualification of the containment. Therefore, an extension of 10 days is requested to complete the Reportability Evaluation.

ATTACHMENT 5
Sheet 1 of 1
OCR/NCON FORMAT AND CHECKLIST

NCR Number: _____	Assignment Number: _____
Description of SSC: _____	

1.0 Description of Identified Concern

- ☐ Concern fully explained
- ☐ Impact on the operation and component function described

2.0 Safety Significance

- ☐ Determine required function(s) performed by the SSC
- ☐ Include Safety, Importance to safety ,

3.0 Licensing Basis

- ☐ If applicable, use NOCS and available document search tools
- ☐ Applicable active OCRs/NCONs are considered
- ☐ Licensing basis is clearly understood

4.0 Impact Analysis and Reliability Considerations

- ☐ Impact on Safety Function and Licensing Basis
- ☐ Impact of identified concern (Section 1.0) compared against safety function (s) (Section 2.0) and licensing basis (Section 3.0)
- ☐ Reliability Considerations of Component
- ☐ Mission time explained and analyzed
- ☐ For SSCs requiring generation of a Condition Resolution (CR), consider whether the SSC will remain Operable while the Condition Resolution evaluation is being performed.

5.0 Operability Evaluation

- ☐ Mode of plant operation
- ☐ Can it still perform its safety function and how?
- ☐ What additional measures are required to enable this component to perform its function?
- ☐ What is the aggregate affect?

6.0 Conclusion/Extent of qualification described:

- ☐ Operable, fully qualified
- ☐ Operable, but degraded (non-conformance)
 - ☐ Use-as-is
 - ☐ Repair
 - ☐ Interim-use-as-is (Time commensurate with safety)
 - ☐ Compensatory measures. (AR assignments required for each owner)
 - ☐ 50.59 evaluation required. Addressing each comp action
 - ☐ What actions are in place to address and restore full qualification?
- ☐ Inoperable

7.0 References

- ☐ Source document(s) identified where licensing basis is extracted

8.0 Attachments and Figures

- ☐ Diagrams/figures attached if applicable

ATTACHMENT 6
 Sheet 1 of 1
OCR/NCON Approval Form

OCR/NCON APPROVAL FORM		
NCR Number	Assignment Number	
Description of SSC		
Personnel Involved in Preparation		
Print Name	Title	Signature
Shift Technical Advisor / Licensed Operator Review		
Signature		Date
Supervisor/ Additional Reviews (as required)		
Supervisor		
Signature	Title	Date
Supervisor		
Signature	Title	Date
Licensing		
Signature	Title	Date
SSO Closure/Approval		
Signature		Date

This document becomes a QA Record upon completion of final signature.