Davis-BesseNPEm Resource

From: CuadradoDeJesus, Samuel
Sent: Wednesday, February 15, 2012 6:38 PM
To: Davis-BesseNPEm Resource
Subject: meetings 3
Attachments: 12 12 2011.pdf; DB DRAI 3 1 2 2 16-3 Tube to tubesheet welds v3 12-7-2011 to PM.DOCX; 6 16 2011.pdf; 6 16 2011 .pdf; 6 16 2011 .pdf; 6 15 2011.pdf; 6 15 2011 .pdf; Davis Besse Open Items (2).pdf; 12 8 2011.pdf; 7 12 2011.pdf; 7 12 2011 .pdf; 7 12 2011 .pdf; 7 12 2011 .pdf; Letdown cooler replacement RAI -1.docx; DB RAI AMR TRP 101 SCC - Mintz_Min SG RAI 7-8-2011 v65 Tube-to-tubesheet Welds.docx; 7 13 2011.pdf; New DRAI from Yogen Garud on Non-Class 1 Valves 07-08-11 - oyee.docx; July 15 2011.pdf

Hearing Identifier: Davis_BesseLicenseRenewal_Saf_NonPublic
Email Number: 3526

Mail Envelope Properties (0046140293E11F408991442DB4FE25CA68D46402CF)

Subject: meetings 3
Sent Date: 2/15/2012 6:37:38 PM
Received Date: 2/15/2012 6:37:44 PM
From: CuadradoDeJesus, Samuel

Created By: Samuel.CuadradoDeJesus@nrc.gov

Recipients:
"Davis-BesseNPEm Resource" <Davis-BesseNPEm.Resource@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	Size	Date & Time
MESSAGE	3	2/15/2012 6:37:44 PM
12 12 2011.pdf	84203	
DB DRAI 3 1 2 2 16-3 Tube to tubesheet welds v3 12-7-2011 to PM.DOCX	35860	
6 16 2011.pdf	81761	
6 16 2011 .pdf	56341	
6 16 2011 .pdf	56409	
6 15 2011.pdf	58437	
6 15 2011 .pdf	58530	
Davis Besse Open Items (2).pdf	104746	
12 8 2011.pdf	62171	
7 12 2011.pdf	84786	
7 12 2011 .pdf	59786	
7 12 2011 .pdf	104428	
7 12 2011 .pdf	105044	
Letdown cooler replacement RAI -1.docx	20809	
DB RAI AMR TRP 101 SCC - Mintz_Min SG RAI 7-8-2011 v65 Tube-to-tubesheet Welds.docx	22491	
7 13 2011.pdf	76787	
New DRAI from Yogen Garud on Non-Class 1 Valves 07-08-11 - oyee.docx	26142	
July 15 2011.pdf	66553	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Davis-BesseHearingFile Resource

Subject: Davis-Besse Telephone Conference Phone: 888-324-6919 Participant passcode: 20499
Location: HQ-OWFN-12B06-12p

Start: Mon 12/12/2011 11:00 AM
End: Mon 12/12/2011 12:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: CuadradoDeJesus, Samuel
Required Attendees: Karwoski, Kenneth; Hunt, Christopher; Min, Seung; dorts@firstenergycorp.com; custerc@firstenergycorp.com; lhinkle@firstenergycorp.com; Davis-BesseHearingFile Resource

Objective:

To discuss the applicant's November 23, 2011, response to RAI 3.1.2.2.16-2 and new followup Draft RAI 3.1.2.2.16-3.

DB DRAI 3 1
16-3 Tube tc

DB DRAI 3.1.2.2.16-3

Background

By letter dated November 23, 2011, the applicant responded to RAI 3.1.2.2.16-2, which addresses the extent and method of the inspections to manage cracking due to primary water stress corrosion cracking (PWSCC) of the steam generator (SG) tube-to-tubesheet welds. In its response, the applicant indicated that a gross visual inspection coupled with eddy-current inspections will be performed on the steam generator tube-to-tubesheet welds. The applicant also indicated that the inspection schedule will be concurrent with the eddy-current inspections of the SG tubes in accordance with Davis-Besse Technical Specification 5.5.8, "Steam Generator (SG) Program." The applicant further indicated that at a minimum, 100% of the tubes are inspected at sequential periods of 60 effective full power months.

Issue

In its review, the staff noted that it is not clear if the visual inspection of the tube-to-tubesheet welds will include the welds on the hot leg, cold leg, or both legs. The staff also needs more clarifications on the extent and methods of the inspections addressed in the applicant's response.

Request

1. Clarify if the gross visual inspection will be conducted on the welds on the hot leg, cold leg, or both legs. In addition, describe the extent of the visual inspection, and clarify if the gross visual inspection will be conducted on each tube-to-tubesheet weld.

2. Clarify whether the gross visual inspection is equivalent to EVT-1, VT-1, or VT-3 inspection. In addition, describe how the visual inspections will be coupled to the eddy-current inspections in order to detect and manage the aging effect.

Davis-BesseHearingFile Resource

Subject:	Davis-Besse Conference call on TLAA
Location:	HQ-OWFN-11B06-12p
Start:	Thu 6/16/2011 1:00 PM
End:	Thu 6/16/2011 2:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	CuadradoDeJesus, Samuel
Required Attendees:	Medoff, James; Min, Seung; dorts@firstenergycorp.com; Ng, Ching; Sydnor, Christopher
Optional Attendees:	yogen garud; Chopra, Omesh K.
Resources:	HQ-OWFN-09B02-12p; HQ-OWFN-09B06-12p; HQ-OWFN-11B02-12p

Phone Number: 877-917-9488
Participant passcode: 60937

We will be having a conference call with Davis Besse to discuss TLAA issues and RV internal issues.

Davis-BesseHearingFile Resource

Subject:	Davis-Besse Conference call on TLAA
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Start:	Thu 6/16/2011 1:00 PM
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Resources:	HQ-OWFN-09B02-12p; HQ-OWFN-09B06-12p; HQ-OWFN-11B02-12p

Phone Number and passcode coming soon

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Davis-BesseHearingFile Resource

Subject:	Davis Besse teleconference call
Location:	HQ-OWFN-09B02-12p
Start:	Wed 6/15/2011 9:00 AM
End:	Wed 6/15/2011 10:30 AM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	CuadradoDeJesus, Samuel
Required Attendees:	Davidson, Evan; Min, Seung; Todd Mintz; 'custerc@firstenergycorp.com'
Resources:	HQ-OWFN-11B02-12p; HQ-OWFN-11B06-12p; HQ-OWFN-10B06-12p; HQ-OWFN-09B06-12p; HQ-OWFN-08B06-12p; HQ-OWFN-08B02-12p; HQ-OWFN-07B06-12p; HQ-OWFN-07B04-25p; HQ-OWFN-07B02-12p; HQ-OWFN-06B06-10p

Phone number: 888-603-7027

Participant passcode: 28093

Davis-BesseHearingFile Resource

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Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	CuadradoDeJesus, Samuel
Required Attendees:	Davidson, Evan; Min, Seung; Todd Mintz; custerc@firstenergycorp.com
Resources:	HQ-OWFN-11B02-12p; HQ-OWFN-11B06-12p; HQ-OWFN-10B06-12p; HQ-OWFN-09B06-12p; HQ-OWFN-08B06-12p; HQ-OWFN-08B02-12p; HQ-OWFN-07B06-12p; HQ-OWFN-07B04-25p; HQ-OWFN-07B02-12p; HQ-OWFN-06B06-10p

I'll send the passcode and phone # soon.

Davis Besse Open Items (7)

OI	Description	Next Step/Status	Possible Status of the OI by February 2012
1	**Containment Shield Building Crack**: (BLehman) The NRC is currently looking closely at this issue. There is currently limited data; therefore an NRC position has not been established pending the review of the evaluation when completed by the licensee and further internal discussions. The staff is waiting for the applicant to gather more information on the impact and magnitude of the crack before issuing an RAI. The applicant is still submitting information to the NRC. DLR staff will draft an RAI based on the information provided by the applicant.	BLehman will draft an RAI on December	Open Item
2	**Class 1 valves**: (OYee) In response to a staff RAI the applicant identified 12 large bore Class 1 valves (i.e., valves with nominal pipe sizes in excess of 4-inches NPS) that should have received CUF or fatigue analyses(I_t) in accordance with the design codes. The applicant couldn't find the required Class 1 valves analyses. The staff can't close this issue until the fatigue evaluation is done and submitted for review. N	The applicant to provide analyses for the staff's review by May 31, 2012	Open Item

3	**Intake Canal Degradation:** (BLehman) During Preventive Maintenance inspections in 2007 it was discovered that the north embankment of the safety-related portion of the intake canal had settled. It is unclear to the staff that the degradation of the embankment has been adequately addressed and that the possible aging effects will be properly managed during the PEO.	RAI response received Oct 31, 2011. A teleconference with RIII was held on Nov 7 2011. Staff is waiting for additional information to be provided by Nov 11 2011.	Open Item
4	**Containment Annulus Degradation**: (BLehman/ASheikh) The applicant has stated in their RAI responses that the containment annulus area condition is ok. The staff disagrees because there's a condition report (CR-10-22660) with pictures showing the condition of the grout and the moisture barrier in the annulus area as degraded.	A Teconference between RIII inspector and DLR staff held on Nov 1, 2011. Teleconference held with the applicant on 11/14/2011, Applicant to supplement RAI response by 11/22/2011	Open Item

5	**Operating Experience**: (MHomiack) To close this issue the applicant needs to state how FENOC plans to address the review and incorporation of operating experience into the license renewal aging management programs. Currently the staff finds the applicant's response unacceptable. The staff held a meeting with NEI in October 12 in which this issue was discussed and RASB will draft a follow-up RAI before the end of November.	Followup RAI to be sent on Dec 12 week.	Open Item
6	**SG Tube to Tubesheet Welds PWSCC:** (SMin/CHunt and KKarwoski-DCI) The applicant stated that the tube to tube sheet welds for its SGs do not have a license renewal intended function and therefore, are not subject to an aging management review. In response to the staff's RAI (received 10/21/2011) the applicant stated that the SG tube-to-tubesheet welds do perform a LR intended function (provide RCPB integrity) and also described how cracking do to PWSCC will be managed.	Follow-up RAI issued Nov 8, 2011. Applicant's response reveived November 23. The staff is reviewing the applicant's response.	If RAI response is acceptable the issue should be closed and SER revised input provided by the end of December

7	**Letdown Cooler Replacement Frequency:** (JGavula) The applicant stated that the letdown coolers are not subject to aging management review because these components are periodically replaced and evaluated as short-lived components. Since these are normally long-lived passive components subject to aging management review, the staff asked for the basis for the replacement frequency.	Teleconference held with the applicant on 11/9/2011. Applicant's supp. response received 11/23/2011. The staff is reviewing the applicant's response	Open Item
8	**Fire Water Storage Tank:** (JKlos/NIqbal-DRA) Staff concern is that not all applicable aging effects are identified for the fire water storage tank heat exchanger tubes. The applicant originally stated that the consequences of tube failure do not directly challenge the function of the tank. in the applicant's latest response (10/21/2011) the fire water storage tank heat exchanger was removed from scope.	Follow-up RAI issued Nov 8, 2011. Applicant's response received 11/23/2011. The staff is reviewing the applicant's response.	If RAI response is acceptable the issue should be closed and SER revised input provided by the end of December

9	**SG shell flaw evaluations:** (CSydnor-DCI) The staff requests that the applicant provide the following information concerning the subject steam generator flaws and the analytical evaluations performed for these flaws: (1) state whether any of the surface-breaking indications were believed to have been caused by stress corrosion cracking, or any other service-induced aging effect (2) state for any in-service examinations performed on the flawed regions of the steam generator shell after 1991 whether these examinations detected any increase in the flaw dimensions, relative to the 1988 flaw dimensions and (3) state whether the subject flaws were analyzed for emergency and faulted conditions, as required by the ASME Code and provide the analyses.	Delayed response received on November 23 2011. CSydnor is reviewing response	Open Item
10	**Thermal Sleeves:** (CSydnor-DCI) The staff determined that aging of the subject thermal sleeves should be identified as a TLAA because the aging mechanism is time dependent. The staff requests that the applicant amend LRA Sections 4.1, 4.7.4, and A.2.7.4 to identify HPI/makeup thermal sleeve aging as a TLAA.	RAI response received Oct 31, 2011. Sydnor is reviewing the response	Open Item
~~11~~	~~**RV integrity CLB:** (CSydnor-DCI)The staff reviewed USAR Section 5.2 and could not locate the CLB analysis for evaluating RV integrity under the subject PTS conditions. Furthermore, the staff found no references in LRA Section 4.8 for reports documenting the analysis of RV integrity under these PTS conditions for the period of extended operation, based on the 52 EFPY RTPTS values. The staff will request the applicant to (1) please state the USAR section the summary of the CLB analysis of the subject PTS event is located, (2) if a summary of the CLB analysis is not located in the USAR, please state where it can be found, and (3) Please provide the reports documenting the projected 52 EFPY analysis of RV integrity under the subject PTS conditions.~~	~~RAI response received Oct 31, 2011. Sydnor is reviewing the response~~	~~If RAI response is acceptable the issue should be closed and SER revised input provided by early December~~

12	**Containment Vessel Fatigue Analyses:** (ABuford) The staff requested more information to confirm that fatigue evaluations for the containment vessel will remain valid for the period of extended operation. After reviewing the latest RAI response a teleconference was held on 10/26/2011 to discuss concerns related to the applicant's documentation and origin of their fatigue waiver values.	Applicant supplement response received 11/8/2011. NRC staff is reviewing the response.	If their RAI response is acceptable the issue should be closed and the input should be revised in early December
13	**ASME Code Case N-481 evaluation:** (CNg) The applicant stated that the fracture toughness of the cast austenitic stainless steel is not time-dependent as the analysis used a lower bound fracture toughness of 139 ksi√in that bounds the saturated fracture toughness of the Davis-Besse material. The NRC staff's concern is that the applicant's basis may be predicated on charpy or thermal aging data that are not up-to-date or conservative when compared to the most recent data for the state of the industry.	Ching Ng and Hiser find the RAI response. acceptable	issue is resolved

~~14~~	~~**Refueling Canal Leakage**: (BLehamn/ASheikh)Boric acid deposits had been observed over a large surface area of the Containment Incore Instrumentation Tunnel walls and the under-vessel area that are indicative of refueling canal leakage. It is unclear to the staff that the effects of refueling cavity leakage on the containment internal concrete structures have been adequately addressed and that the possible aging effects will be properly managed during the PEO.~~	~~BLehman and A Sheikh are reviewing the applicant's response~~	~~If the RAI response is acceptable the issue should be closed and the input should be revised by the end of November~~
15	**Abandoned Equipment:** (BRogers) The staff requested the applicant to provide details on the activities performed to confirm that all abandoned equipment that at any time contained fluids, and is in the proximity of safety-related SSCs, has been verified to be drained.The NRC staff was unclear from the FENOC response (Commitment 26) to RAI 2.1-3 if FENOC is aware of all the abandoned equipment. The applicant revised Commitment 26, to ensure that abandoned equipment is identified, and either isolated and drained or included within the scope of license renewal and subject to aging management review by February 15, 2012.	implementation of Commitment 26 by February 15, 2011	Open Item

Davis-BesseHearingFile Resource

Subject:	Davis Besse Teleconference Phone: 888-390-0924 Participant passcode: 69867
Location:	HQ-OWFN-12B06-12p
Start:	Thu 12/8/2011 11:00 AM
End:	Thu 12/8/2011 12:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	CuadradoDeJesus, Samuel
Required Attendees:	custerc@firstenergycorp.com; dorts@firstenergycorp.com; Hiser, Allen; Sydnor, Christopher; Yee, On; lhinkle@firstenergycorp.com; Davis-BesseHearingFile Resource

We'll like to have a Telephone conference to discuss FENOC's response to RAI 4.7.4-1. Specifically we'll like to discuss the following:

- Revision of commitment 23: What's the reason to remove from the commitment the replacement of the HPI/makeup nozzle thermal sleeve?
- ISI Program: what would be the type and frequency of the inspection for the HPI/makeup nozzle thermal sleeve under the augmented ISI Program?

Davis-BesseHearingFile Resource

Subject:	Davis-Besse Teleconference
Location:	HQ-OWFN-11B02-12p
Start:	Tue 7/12/2011 12:30 PM
End:	Tue 7/12/2011 2:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	CuadradoDeJesus, Samuel
Required Attendees:	Pham, Bo; Homiack, Matthew; Klos, John; Bozga, John; Hunt, Christopher; Yee, On; Ng, Ching; Prinaris, Andrew; Istar, Ata; Lehman, Bryce; Sheikh, Abdul; custerc@firstenergycorp.com; 'dorts@firstenergycorp.com'
Resources:	HQ-OWFN-09B02-12p

Below is the order in which the topics will be discussed. We'll start with those who have less issues first. Let me know if you have any suggestions-Sam C.

Topic #1- Mathew Homiack and Bo

- To discuss FENOC response to RAI B1.4-1 on operating experience.

Topic #2 - Christopher Hunt

- During a public meeting on February 18, 2011, industry Steam Generator Task Force representatives indicated that primary side fouling of steam generator tubes is not an issue in the United States (refer to the meeting summary in ADAMS under accession number ML110670317). In the applicant's license renewal application, reduction of heat transfer of the steam generator tubes in a borated reactor coolant environment is addressed as an aging mechanism. Has there been any information gained by the industry since the February 18, 2011 meeting that would suggest that primary side loss of heat transfer has become an issue? If there is additional information, please provide it. If not, discuss your plans to withdraw the aging management review line item that deals with reduction in heat transfer of nickel alloy tubing and sleeves in a borated reactor coolant environment.

Topic #3 - FENOC

- The applicant would like to discuss RAI B.2.9-3 (John Klos and John Bozga)

Topic #4 – On Yee and Ching Ng

RAI B2.16-1
Applicant promised to update USAR table. What is the time frame?

RAI B2.16-2
Commitment No. 42 said "…This evaluation will be submitted to the NRC one year prior to the period of extended operation". What is the intent for the submittal?

RAI B2.16-3
Commitment No. 9, 1st bullet said " When the number of accrued cycles is within 75% of the allowable cycle limit for any transient…" What is "allowable cycle"?

RAI 4.3-2

Part 3 states Transient 22 (now Transient 22 A1), HPI System Test, includes HPI flow through all 4 HPI nozzles for 10 seconds with RCS pressure of 2200 psig and RCS temperature of 550ºF.

Are the 4 HPI nozzles being referenced in the RAI response the ones on LR Boundary Drawing LR-M033A - FE HP3A, FE HP3B, FE HP3C and FE HP3D?

These flow elements are highlights green in the LR Boundary Drawing (Non-Class 1 Mechanical Component) – Are these the same HPI nozzles that are being referencing in LRA Section 4.3 and have a CUF value associated with them? Or are the HPI nozzles being referenced in LRA Section 4.3 (with the CUF values) the nozzle connection to the reactor coolant inlet piping?

RAI 4.3-10

Transient 25: The transient "pressurizer heaters" is applicable to "pressurizer electric heaters" but not the pressurizer or pressurizer heater elements. Clarify if and how the transient "pressurizer heaters" does or does not affect the fatigue of ""pressurizer electric heaters".

RAI 4.3-17

RAI response for the Surge Line Piping said "Global Fen is calculated by dividing the Uen by the in-air CUF", which is the same as MRP-47

LRA pg 4.3-28 and footnote 2 in table 4.3-2 said "adjusted CUF is obtained by dividing the Uen by the global Fen"

Did one calculate the "adjusted CUF" first or the "global Fen" first? Did LRA and table 4.3-2 need to be revised?

Topic #5 – Andrew Prinaris. Ata Istar, Bryce Lehman and Abdul Sheikh

RAIs B.2.25-2, 3, 4, and 6

- Verify that leak trenches on the floor are unlined concrete
- Verify that leakage for PH and Iron will be monitored via the SMP
- Where does the 5" band comes from?
- Boroscope requirements
- UFSAR supplement for the Periodic Inspection Program

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Resources:	HQ-OWFN-09B02-12p

I'll send the phone # and passcode soon. Also I'll send a list of the topics and the order in which they'll be discussed. Bo I noticed you'll be available only for the first half hour so you and Homiack will go first.

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Resources:	HQ-OWFN-09B02-12p

Toll Free Number: 888-469-0883
Participant passcode: 44351

Below is the order in which the topics will be discussed. We'll start with those who have less issues first. Let me know if you have any suggestions-Sam C.

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- Verify that leakage for PH and Iron will be monitored via the SMP
- Where does the 5" band comes from?
- Boroscope requirements
- UFSAR supplement for the Plant Specific Leak Chase Monitoring Program

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Optional Attendees:	Karwoski, Kenneth
Resources:	HQ-OWFN-09B02-12p; HQ-OWFN-11B02-12p

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Topic #3 - FENOC

- The applicant would like to discuss RAI B.2.9-3 (John Klos and John Bozga)

Topic #4 – On Yee and Ching Ng

RAI B2.16-1
Applicant promised to update USAR table. What is the time frame?

RAI B2.16-2
Commitment No. 42 said "…This evaluation will be submitted to the NRC one year prior to the period of extended operation". What is the intent for the submittal?

RAI B2.16-3

Commitment No. 9, 1st bullet said " When the number of accrued cycles is within 75% of the allowable cycle limit for any transient…" What is "allowable cycle"?

RAI 4.3-2

Part 3 states Transient 22 (now Transient 22 A1), HPI System Test, includes HPI flow through all 4 HPI nozzles for 10 seconds with RCS pressure of 2200 psig and RCS temperature of 550ºF.

Are the 4 HPI nozzles being referenced in the RAI response the ones on LR Boundary Drawing LR-M033A - FE HP3A, FE HP3B, FE HP3C and FE HP3D?

These flow elements are highlights green in the LR Boundary Drawing (Non-Class 1 Mechanical Component) – Are these the same HPI nozzles that are being referencing in LRA Section 4.3 and have a CUF value associated with them? Or are the HPI nozzles being referenced in LRA Section 4.3 (with the CUF values) the nozzle connection to the reactor coolant inlet piping?

RAI 4.3-10

Transient 25: The transient "pressurizer heaters" is applicable to "pressurizer electric heaters" but not the pressurizer or pressurizer heater elements. Clarify if and how the transient "pressurizer heaters" does or does not affect the fatigue of ""pressurizer electric heaters".

RAI 4.3-17

RAI response for the Surge Line Piping said "Global Fen is calculated by dividing the Uen by the in-air CUF", which is the same as MRP-47

LRA pg 4.3-28 and footnote 2 in table 4.3-2 said "adjusted CUF is obtained by dividing the Uen by the global Fen"

Did one calculate the "adjusted CUF" first or the "global Fen" first? Did LRA and table 4.3-2 need to be revised?

Topic #5 – Andrew Prinaris. Ata Istar, Bryce Lehman and Abdul Sheikh

RAIs B.2.25-2, 3, 4, and 6

- Verify that leak trenches on the floor are unlined concrete
- Verify that leakage for PH and Iron will be monitored via the SMP
- Where does the 5" band comes from?
- Boroscope requirements
- UFSAR supplement for the Plant Specific Leak Chase Monitoring Program

RAI 2.3.3.18-3

Background

LRA Section 2.3.3.18, "Makeup and Purification System," states that the letdown coolers, designated as DB-E25-1 and -2, are not subject to aging management review because these components are periodically replaced and evaluated as short-lived components. Since these are normally long-lived passive components subject to aging management review, the staff issued RAI 2.3.3.18-2 requesting the basis for the replacement frequency and the circumstances surrounding the need to replace these heat exchangers.

In its response dated June 3, 2011, Davis-Besse stated that the cooler replacement frequency is based on a qualified life from plant-specific operating experience, and is scheduled approximately every 14 years. The response also stated that the cooler design "has a tendency to develop leaks" after 14 to 16 years. The response further stated that the need to replace the coolers was attributed to fatigue cracking due to flow-induced vibration, and that an extent of condition review determined that the design of these coolers is unique and no other similar heat exchangers are installed at Davis-Besse.

Issue

As previously noted in RAI 2.3.3.18-2, if the frequency is based on qualified life, then information should be provided to demonstrate that the cooler's intended function is being maintained consistent with the current licensing basis, at the point in time immediately prior to replacement. The staff notes that in accordance with SRP-LR Section A.1.2.3.4, an aging management approach based solely on detecting component failures is not considered an effective program. The staff also notes that in accordance with USAR Section 3.9.2, and Table 3.9-2, the letdown coolers are safety-related components constructed to the ASME Code, Section III, Class 3.

In addition, the staff notes that, if the design of the cooler results in "a tendency to develop leaks after…14 to 16 years," then each heat exchanger would have only been replaced twice, so far, at Davis-Besse. With the relatively limited operating experience and the limited number of data points, the ability to reasonably predict the life of the coolers appears to have a large degree of uncertainty. In addition, as noted in RAI 2.3.3.18-2, previous LRAs for other sites have attributed the fatigue cracking problem in these letdown coolers to be associated with specific operational transients, and, if a similar phenomenon is occurring at Davis-Besse, then a predicted life may need to consider transients in addition to operational time.

Request

1) Provide a summary of Davis-Besse's operating experience associated with the letdown coolers, including occurrences of tube leakage and past replacements for each cooler. Consider including the circumstances how the associated leakage from the reactor coolant system into the component cooling water system was detected, and the approximate magnitude(s) of the leakage.

2) Provide a summary of any past evaluations of the cause(s) for previous tube leakage, including how leakage was determined to be from fatigue cracks due to flow-induced vibration, and the degree and extent of the cracking identified. Include information regarding the role any

operational transients may have played in causing previous tube leakage or how it was concluded that operational transients need not be considered.

3) Provide the information that determined the cooler's intended function is being maintained consistent with current licensing basis, at the point in time immediately prior to replacement.

RAI 3.1.2.2.16-1

Background

GALL Report, Rev. 2, item IV.D2.RP-185 recommends using GALL AMP XI.M2, "Water Chemistry" and a plant-specific program to manage cracking due to primary water stress corrosion cracking (PWSCC) of steam generator tube-to-tubesheet welds made of nickel alloy. GALL Report, Rev. 2, item IV.D2.RP-185 also recommends that a plant-specific program should be evaluated to confirm the effectiveness of the water chemistry program and to ensure cracking is not occurring. Consistently, SRP-LR, Rev. 2, Section 3.1.2.2.11, item 2 states that cracking due to PWSCC could occur in steam generator nickel alloy tube-to-tubesheet welds exposed to reactor coolant. The SRP-LR, Rev. 2 also states that unless the NRC has approved a redefinition of the pressure boundary in which the tube-to-tubesheet weld is no longer included, the effectiveness of the primary water chemistry program should be verified to ensure cracking is not occurring.

By contrast, the applicant's AMR items for the steam generator components, which are described in LRA Table 3.1.2-4, do not clearly address how the applicant manages the cracking due to PWSCC of steam generator tube-to-tubesheet welds exposed to reactor coolant.

Issue

The staff found a need to clarify how the applicant manages cracking due to PWSCC of steam generator tube-to-tubesheet welds in comparison with the GALL Report and SRP-LR.

Request

1. If the applicant plans to replace the steam generators prior to the period of extended operation, provide the following information.

   (a) Describe the materials to be used for the fabrication of the new steam generator tubes, tubesheet cladding and tube-to-tubesheet welds. If any of the tubes, tubesheet cladding, and weld filler metal (if applicable) is Alloy 600 or one of its associated weld metals such the material is susceptible to PWSCC, discuss how cracking due to PWSCC of the tube-to-tubesheet welds will be managed for the period of extended operation.

   If the materials are determined not to be susceptible to PWSCC, confirm whether or not the applicant will continue to evaluate the plant-specific and industry operating experience related to PWSCC of the tube-to-tubesheet welds so that necessary corrective actions will be identified and performed to adequately manage the aging effect of the components.

   (b) In addition, if the operating experience indicates that the tube-to-tubesheet welds of the steam generators have experienced PWSCC and the applicant proposes a one-time inspection to manage the aging effect of the replacement tube-to-tubesheet welds, justify why the one-time inspection is adequate to manage the aging effect of the replacement components in view that

the existing components to be replaced have experienced cracking due to PWSCC under the given water chemistry conditions.

2. Provide the following information regarding the aging management method that the applicant will use if the steam generators are not replaced prior to the period of extended operation.

   (a) Describe the aging management method that the applicant will use to manage cracking due to PWSCC of the tube-to-tubesheet welds if the steam generators are not replaced prior to the period of extended operation. As part of the applicant's response, describe the materials of the current steam generator tubes, tubesheet cladding and tube-to-tubesheet welds, and determine whether or not any of the tubes, tubesheet cladding, and weld filler metals (if applicable) is susceptible to PWSCC.

   If the materials are determined not to be susceptible to PWSCC, confirm whether or not the applicant will continue to evaluate the plant-specific and industry operating experience related to PWSCC of the tube-to-tubesheet welds so that necessary corrective actions will be identified and performed to adequately manage the aging effect of the components.

   (b) In addition, if the operating experience indicates that the tube-to-tubesheet welds have experienced PWSCC and the applicant proposes a one-time inspection to manage the aging effect of the tube-to-tubesheet welds, justify why the one-time inspection is adequate to manage the aging effect of the components that have already experienced cracking due to PWSCC under the given water chemistry conditions.

Davis-BesseHearingFile Resource

Subject: DB Teleconference
Location: HQ-OWFN-11B02-12p

Start: Wed 7/13/2011 10:30 AM
End: Wed 7/13/2011 11:30 AM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: CuadradoDeJesus, Samuel
Required Attendees: 'custerc@firstenergycorp.com'; Min, Seung; Todd Mintz; Gavula, James; 'dorts@firstenergycorp.com'
Resources: HQ-OWFN-11B06-12p


Letdown replacement


DB RAI AMR 101 SCC - Mir

DRAI 4.3.2.3.2-X or 4.3.3.2-X (Ching to decide on the SER section and number for issuing this RAI)

Background: LRA Section 4.3.2.3.2 discusses fatigue of Class 1 (Class A) valves of the reactor coolant pressure boundary (RCPB). It states that a review of Davis-Besse quality assurance records was performed, which resulted in identifying stress reports of record for twelve Class 1 valves with four inch or greater diameter, however no associated fatigue analyses were identified. LRA Section 4.3.2.3.2 also states that "valve bodies were considered robust compared to the piping system in which they were located and fatigue of the attached piping was understood to bound the fatigue of the valve bodies." Therefore, LRA Table 4.1-1 states that fatigue of Class 1 valves is not a TLAA. The staff reviewed the applicant's USAR to identify the applicable design Code of record for these valves, but could not ascertain the applicable design code(s).

However, the staff noted that the Davis-Besse USAR Table 5.2-1 states that relief valves and pressurizer safety valves were designed to ASME draft pump and valve Code, Nov. 1968 Edition, loop isolation valves and other valves were designed to ASME Section III, 1971 Edition or later, pressurizer pilot-operated relief isolation valve designed to ASME Section III 1974 Edition with Addenda through Summer 1976, and pressurizer spray line isolation valve designed to ASME Section III, 1986 Edition. The staff noted that valves designed to these Codes, and having larger than 4 in. nominal pipe size, are to meet the requirements of NB-3530 through NB-3550 (or Article 4 of 1968 Edition of Draft Pump and Valve Code), and that adequacy of the valves for cyclic conditions is verified in accordance with Subsection NB-3553 (or Sub-article 454 of 1968 edition of draft pump and valve Code), which requires fatigue usage I_t to be less than 1.0. It was unclear to the staff why the fatigue analyses of Class 1 valves were not performed as required by the design Code of record and, as such, why the Class 1 valves are identified in the LRA as not requiring fatigue TLAA for the extended period of operation.

By letter dated May 2, 2011, the staff issued RAI 4.1-1 (ML111170204) requesting the applicant to identify the applicable design codes for Class 1 valves, justify why the fatigue analyses were not required or why these analyses were not included in the LRA as TLAAs.

By teleconference dated June 16, 2011 the staff discussed the absence of TLAA for Class 1 fatigue valves in relation to the above issued RAI 4.1-1 and noted that the USAR refers to a few Class 2/3 valves as being analyzed for Class 1. The applicant stated that the handling of the Class 2 and 3 valves that were analyzed to Class 1 design criteria was addressed in LRA Section 4.3.2.3.2 but stated that it will address both these valve sets, as part of its RAI 4.1-1 response,. The staff agreed to time extension for this response from the applicant.

Issue: In light of the issues discussed in RAI 4.1-1 and similar issues with Class 2/3 valves treated as Class 1 for design analysis, the staff requires additional information.

Request: Justify the bases for concluding that the LRA does not need to identify any TLAAs for the Davis Besse Class 2 and 3 valves that were analyzed to Class 1 design requirements.

Comment [OYee1]: USAR or UFSAR?

Comment [OYee2]: Specific documents? CLB is very broad and general.

Do you mean USAR?

Comment [OYee3]: Is all of this needed? Was all of this asked in RAI 4.1-1?

If it was I would suggest deleting it because it does not add any value. You can just reference the previous RAI.

Comment [OYee4]: Can we say this?

Comment [OYee5]: This is just repeating the request.

Comment [OYee6]: This is repeating the issue.

Davis-BesseHearingFile Resource

Subject:	Davis-Besse Teleconference on DRAI-Class 2/3 valves treated as Class 1 for design analysis
Location:	HQ-OWFN-11B02-12p
Start:	Fri 7/15/2011 1:00 PM
End:	Fri 7/15/2011 2:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	CuadradoDeJesus, Samuel
Required Attendees:	'custerc@firstenergycorp.com'; 'dorts@firstenergycorp.com'; Medoff, James; yogen garud
Resources:	HQ-OWFN-11B06-12p; HQ-OWFN-09B02-12p; HQ-OWFN-09B06-12p

New DRAI
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