DiabloCanyonNPEm Resource

From: Ferrer, Nathaniel
Sent: Friday, October 22, 2010 9:01 AM
To: Grebel, Terence
Cc: DiabloCanyonNPEm Resource
Subject: Draft RAI Set 30 TLAA follow-ups
Attachments: Draft RAI Set 30 TLAA follow-ups.doc

Terry and Philippe,

Attached is Draft RAI Set 30 containing draft RAIs, specifically on follow-ups to time limited aging analyses. Please review the attached draft RAIs and let me know if and when you would like to have a teleconference call. The purpose of the call will be to obtain clarification on the staff's request.

Please let me know if you have any questions.

Nathaniel Ferrer
Project Manager
Division of License Renewal
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
(301)415-1045

Hearing Identifier: DiabloCanyon_LicenseRenewal_NonPublic
Email Number: 2013

Mail Envelope Properties (26E42474DB238C408C94990815A02F091362B7C336)

Subject: Draft RAI Set 30 TLAA follow-ups
Sent Date: 10/22/2010 9:00:47 AM
Received Date: 10/22/2010 9:00:49 AM
From: Ferrer, Nathaniel

Created By: Nathaniel.Ferrer@nrc.gov

Recipients:
"DiabloCanyonNPEm Resource" <DiabloCanyonNPEm.Resource@nrc.gov>
Tracking Status: None
"Grebel, Terence" <TLG1@PGE.COM>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	576	10/22/2010 9:00:49 AM
Draft RAI Set 30 TLAA follow-ups.doc	65018	

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

Diablo Canyon Nuclear Power Plant, Units 1 and 2 (DCPP)
License Renewal Application (LRA)
Draft Request for Additional Information Set 30
Time Limited Aging Analysis

D-RAI 4.7.5-2 (follow up)

By letter dated September 24, 2010, in response to RAI 4.7.5-2(4), the applicant stated that the indication in RHR piping WIC-95 is connected to inside surface and that the flaw was characterized as construction-related flaw and was not service induced.

Questions:

1. The staff noted that the original flaw may be a fabrication defect embedded in the wall thickness. However, the flaw appears to have grown to the pipe surface. Therefore, the flaw should be considered service induced. Without loading from the operation the flaw would not have grown to the surface. Explain why an inside surface-connected flaw is not considered to be a service-induced flaw.

2. Explain the degradation mechanism that appears to have caused the flaw to open to the pipe surface.

3. The flaw evaluation in the applicant's submittal dated May 7, 1997 as shown in the Plant Aging Management Document Retrieval and Research System does not provide detailed discussion on the flaw growth calculation.

4. It appears that the flaw evaluation dated May 7, 1997 was based on only the fatigue degradation mechanism. However, as the flaw has reached to the inside surface of the pipe, the flaw growth appears to be caused by degradation mechanisms other than fatigue.

    (a) Justify why the fatigue degradation mechanism is adequate for the surface-connected flaw without considering the stress corrosion cracking degradation mechanism which has a higher growth rate than the fatigue.
    (b) Justify the flaw growth rate used in light of the actual flaw growth based on the operating experience.
    (c) Discuss the flaw growth calculations in detail. (d) Provide the flaw growth rate used in the calculation and its reference.

5. Provide the flaw evaluation of the subject pipe as shown in Pacific Gas and Electric Company (PG&E) Letter DCL-97-086 dated May 7, 1997.

6. Provide the nominal pipe size (NPS), the pipe wall thickness, outside diameter of the pipe, pipe material specification, material specification of weld WIC-95.

D-RAI 4.7.5-3 (follow up)

By letter dated September 24, 2010, in response to RAI 4.7.5-3(2), the applicant stated that the indication in the Unit 2 auxiliary feedwater piping line 567 was surface-connected, not embedded. Discuss whether the indication is connected to the inside surface or outside surface of the auxiliary feedwater pipe.

D-RAI 4.7.5-3 (follow up)

By letter dated September 24, 2010, in response to RAI 4.7.5-3(4), the applicant stated that it has no plans to conduct any further inspections on the Unit 2 auxiliary feedwater line 567 because (1) it [the additional inspection] is not required, (2) the flaw is a fabrication defect and is not service-related, and (3) a follow-up examination showed there was no change in the flaw.

Questions:

1. A fabrication defect usually is embedded in the pipe or weld wall thickness. If the flaw reaches the surface, it is driven by service induced loading. Explain why the flaw is not service related.

2. The staff does not agree with the applicant's reasons for not inspecting the Unit 2 auxiliary feedwater line 567. The applicant stated that the flaw is a fabrication defect and is not service-related. The staff does not agree with this assessment because the applicant indicated that the flaw is connected to the pipe surface. If a flaw is connected to the surface, the flaw propagation is most likely to be service-related. A fabrication flaw would not be connected to the pipe surface because a surface-connected fabrication defect would have been removed during the construction to satisfy the requirements of the ASME Code, Section III. The applicant stated that a follow-up examination showed there was no change in the flaw. Even though there was no growth in the follow-up examination, this result does not imply that the flaw would not grow in the future. In the future, the flaw may extend to an unfavorable stress region of the pipe wall and the flaw growth may initiate at a later date. The subject flaw is connected to the pipe surface which means that environmental impact on the flaw may exacerbate its growth in long term. The staff does not believe the original flaw evaluation included the environmental impact on the flaw growth

   In light of the above concerns, the applicant's response to RAI 4.7.5-3(4) does not provide a reasonable assurance that the flaw the Unit 2 auxiliary feedwater piping line 567 would not grow and that the structural integrity of the subject piping will be maintained in the future. Provide additional technical basis for not examining the surface-connected flaw.

3. It appears that the flaw evaluation of the Unit 2 auxiliary feedwater line 567 dated October 22, 1999 was based on only the fatigue degradation mechanism. However, as the flaw has reached to the surface of the pipe, the flaw growth appears to be caused by degradation mechanisms other than fatigue. (a) Justify why the fatigue degradation mechanism is adequate for the surface-connected flaw without considering the stress corrosion cracking degradation mechanism which has a higher growth rate than the fatigue. (b) Justify the flaw growth rate used in light of the actual flaw growth based on the operating experience. (c) Provide the flaw growth rate used in the analysis and associated reference.