DiabloCanyonNPEm Resource

From: Ferrer, Nathaniel
Sent: Friday, June 11, 2010 1:26 PM
To: Grebel, Terence; Soenen, Philippe R
Cc: Green, Kimberly; DiabloHearingFile Resource
Subject: Draft RAI Sets 9 and 10
Attachments: Draft RAI Set 9 AMP Audit RAIs.doc; Draft RAI Set 10 AMP S&S and AMR.doc

Terry and Philippe,

Attached is Draft RAI Sets 9 and 10 containing draft RAIs, specifically on some of the aging management programs (AMPs) reviewed during the AMP audit and portions of the scoping and screening and aging management reviews. 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.

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"Green, Kimberly" <Kimberly.Green@nrc.gov>
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"DiabloHearingFile Resource" <DiabloHearingFile.Resource@nrc.gov>
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MESSAGE	677	6/11/2010 1:26:00 PM
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Diablo Canyon Nuclear Power Plant, Units 1 and 2 (DCPP)
License Renewal Application (LRA)
Draft Request for Additional Information Set 9
Aging Management Programs

D-RAI B2.1.11-1

The "detection of aging effects" program element of GALL AMP XI.M23, "Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems" states that crane rails and structural components are visually inspected on a routine basis for degradation. In LRA Section B2.1.11, the applicant stated that its Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems program is consistent with GALL AMP XI.M23.

During the audit, the staff reviewed the implementing procedures for the applicant's Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems program. The staff found that the implementing procedures specify periodic visual inspections for the containment dome service crane and special service hoists, jib cranes, and monorails, but these procedures do not include specific provisions to detect corrosion of structural members.

Indicate whether these procedures will be enhanced to specify visual inspections for corrosion of structural members of the containment dome service crane and special service hoists, jib cranes, and monorails, or justify how the effects of aging on these components will be adequately managed during the period of extended operation.

D-RAI B2.1.18-1

The "detection of aging effects" program element of the Buried Piping and Tanks Inspection Aging Management Program in the GALL Report states that "Any credited inspection should be performed in areas with the highest likelihood of corrosion problems, and in areas with a history of corrosion problems."

The Diablo Canyon technical basis documentation "preventative actions" program element states that stainless steel and asbestos cement buried piping is not wrapped or coated. In addition, during the audit it was determined that a carbon steel valve managed by the Buried Piping and Tanks Inspection Aging Management Program is not coated. Because of the close proximity of the site to the Pacific Ocean, there may be a higher likelihood of buried piping coming into contact with chlorides, which are known to cause localized corrosion in stainless steel and steel material.

Provide additional information about how the uncoated/wrapped stainless steel and asbestos cement buried piping will be considered in the development of plans to conduct planned inspections prior to and within the period of extended operation.

D-RAI B2.1.20-1

LRA Table 3.4.2-1 and 3.4.2-3 included carbon steel valves exposed to atmosphere/weather (external) and managed by the AMP B2.1.20 “External Surfaces Monitoring.” The GALL AMP XI.M36, “External Surfaces Monitoring” recommends visual inspection of external surfaces for evidence of material loss and leakage.

During an examination of DCPP plant documentation for External Surfaces Monitoring Program, There were instances of in-scope carbon steel valves within LRA Table 3.4.2-1 and 3.4.2-3 (identification numbers MU-0237, MU-0238, MU-0273, MU-0883 and MU-0884) that were buried and therefore not accessible for the visual inspection methods recommended in GALL AMP XI.M36, “External Surfaces Monitoring”. The DCPP LRA states that the External Surfaces Monitoring Program relies on visual inspection to detect degradation by aging. It is unclear to staff that the in-scope buried valves can be monitored by visual inspection. In addition, it is not clear to the staff that buried valves are properly managed by AMP B2.1.20 “External Surfaces Monitoring” because they are exposed to soil environments and not external air.

Provide clarification regarding the correct categorization of the environments to which the in-scope valves are subjected to (external air or soil environments). Provide information confirming that the AMP B2.1.20 “External Surfaces Monitoring” Program, with the requirement for visual inspection, is appropriate to manage aging of these inaccessible buried in-scope components.

RAI B.3.1-1

The GALL Report X.M1, Metal Fatigue of Reactor Coolant Pressure Boundary Program element 4 recommends that the program provides for periodic update of the fatigue usage calculations.

LRA Section B3.1 states that prior to the period of extended operation Enhancement 4 will be implemented in the “detection of aging” program element. Enhancement 4 states:

> The procedures governing the DCPP Metal Fatigue of Reactor Coolant Pressure Boundary program will be enhanced to specify the frequency of periodic reviews of the results of the monitored cycle count and cumulative usage factor data at least once per fuel cycle. This review will compare the results against the corrective action limits to determine any approach to action limits and any necessary revisions to the fatigue analyses will be included in the corrective actions.

It is not clear to the staff the how the frequencies will be established for the periodic reviews of the monitored cycle count and cumulative usage factor data.

Clarify how the frequency of the periodic reviews for the monitored cycle count and cumulative usage factor data are established and will adequately manage fatigue during the period of extended operation.

Diablo Canyon Nuclear Power Plant, Units 1 and 2 (DCPP)
License Renewal Application (LRA)
Draft Request for Additional Information Set 10
Scoping and Screening/Aging Management Review

D-RAI 2.4.4-1

Based on the staff's review of Section 2.4.4, "Turbine Building," and Table 2.4-4 of the License Renewal Application, it is not clear if the roof and roofing membranes have been included within the scope of license renewal and subject to an aging management review (AMR). If the components are not included due to oversight, please discuss whether these components are within the scope of license renewal and subject to an AMR. If they are excluded from the scope of license renewal, please provide the basis for their exclusion.

D-RAI 2.5-1

NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule," Appendix B indicates that elements, resistance temperature detectors (RTDs), sensors, thermocouples and transducers should be included in the list of component or commodity groups subject to aging management review if a pressure boundary is applicable. License renewal application (LRA) Section 2.1.3.1 states that instrument and control (I&C) components with mechanical functions such as flow elements, flow indicators, flow orifices, and sight gauges were evaluated in their respective mechanical systems. However, it is not clear if I&C components such as RTDs, thermocouples and transducers that may have a pressure boundary function or other "mechanical function" have been included within the scope of license renewal. Please explain how such components were evaluated. Provide examples or references to such components and where within the LRA these components have been listed as component types subject to an aging management review, if required in accordance with 10 CFR 54.4(a).

DCPP RAI 3.1.2.1-1

The GALL Report, under item IV.B2-21, recommends the Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program to manage loss of fracture toughness due to thermal aging and neutron irradiation embrittlement for CASS lower internal assembly (lower support casting and lower support plate columns) exposed to reactor coolant (>250 °C) and neutron flux. In addition, the GALL Report, under item IV.B2-37 recommends the Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program to manage loss of fracture toughness due to thermal aging and neutron irradiation embrittlement for CASS upper internals assembly upper support columns exposed to reactor coolant (>250 °C) and neutron flux.

Diablo Canyon Power Plant (DCPP) LRA Table 3.1.2-1, citing GALL Report items IV.B2-21 and IV.B2-37, indicates that the loss of fracture toughness of CASS Reactor Vessel Internal (RVI) lower core support structure (core support casing (U1)) and RVI upper core support structure (upper support columns) exposed to reactor coolant is managed by the Water Chemistry Program and the FSAR supplement commitment to (1) participate in industry RVI aging programs, (2) implement applicable results, and (3) submit for NRC approval >24 months before

the extended period an RVI inspection plan, based on industry recommendation. The LRA uses note E, along with a plant-specific note that states “Consistent with the GALL Report for material, environment and aging effect, but a different aging management program is credited or the GALL Report identifies a plant specific aging management program.”

Clarify why the Water Chemistry Program with the commitment, which is different from the recommendation of the GALL Report, is adequate to manage the aging effect of the CASS components.

RAI 3.5.2.2.1.7-1

Diablo Canyon Power Plant (DCPP) LRA Section 3.5.2.2.1.7 addresses the further evaluation of cracking due to stress corrosion cracking of stainless steel penetration sleeves, penetration bellows, and dissimilar metal welds, as not applicable to DCPP.

LRA Section 3.5.2.2.1.7 indicates that this further evaluation is not applicable because DCPP has no in-scope stainless steel penetration sleeves, penetration bellows, or dissimilar metal welds subject to stress corrosion cracking. The FSAR, on page 3.8-33, indicates that penetration sleeves for containment structure are made of carbon steel and that the flued heads, which appear to be welded to the penetrations sleeves, are made of stainless steel as shown in FSAR Figure 3.8-6. The staff noted that this information of the FSAR potentially contradicts the basis of the applicant’s claim that the further evaluation described in LRA Section 3.5.2.2.1.7 is not applicable to DCPP.

Clarify why there are no in-scope stainless steel penetration sleeves, penetration bellows, or dissimilar metal welds subject to stress corrosion cracking, taking into consideration the stainless steel flued heads which are apparently welded to the penetration sleeves.