DiabloCanyonNPEm Resource

From: Green, Kimberly
Sent: Monday, April 26, 2010 8:11 PM
To: Grebel, Terence; Soenen, Philippe R
Cc: Ferrer, Nathaniel; Medoff, James; Kichline, Michelle; DiabloCanyonNPE Resource
Subject: Draft RAI Set 1
Attachments: Draft RAI Set 1 04-26-10.doc

Terry and Philippe,

Attached is Set 1 containing draft RAIs, specifically on the Fire Protection and Fire Water System AMPs. Please review the attached RAIs and let me know if you would like to have a teleconference call. The purpose of the call would be to obtain clarification on the staff's request.

If you have any questions, please let me know.

Kim

Hearing Identifier: DiabloCanyon_LicenseRenewal_NonPublic
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Subject: Draft RAI Set 1
Sent Date: 4/26/2010 8:11:06 PM
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From: Green, Kimberly

Created By: Kimberly.Green@nrc.gov

Recipients:
"Ferrer, Nathaniel" <Nathaniel.Ferrer@nrc.gov>
Tracking Status: None
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Tracking Status: None
"Kichline, Michelle" <Michelle.Kichline@nrc.gov>
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"DiabloCanyonNPE Resource" <DiabloCanyonNPE.Resource@nrc.gov>
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Draft RAI Set 1

D-RAI B2.1.12-1

In LRA Section B2.1.12, the applicant stated an exception to GALL AMP XI.M26, "Fire Protection Program" to expand the scope of the AMP to include aging management of lightning rods, mounting structures, and ground connections. The applicant stated that the aging effects of these components are managed in accordance with commitments to 10 CFR 50, Appendix A, APCSB 9.5-1 and NFPA 780 "Standard for the Installation of Lightening Protection." Although Appendix D is not part of the NFPA-780 requirements and was included for informational purposes only, Appendix D is the only section of the standard that discusses inspection and maintenance practices.

The DCPP Fire Protection Program (FPP) includes visual inspection of lightning rods, mounting structures, and ground connections at least once every five years to verify that the lightning protection system is present without damage. However, the staff noted that NFPA-780, 2008 Edition, Appendix D, Section D.1.1.2 specifies that lighting protection systems be visually inspected at least once a year, and complete in-depth inspections of all systems be completed every 3 to 5 years. Furthermore, NFPA-780, Section D.1.3 states that in addition to visual inspections, complete testing and inspection includes (a) tests to verify continuity of those parts of the system that were concealed and not available for visual inspection, (b) ground resistance tests of the grounding electrode termination system and its individual grounding electrodes, and (c) continuity tests to determine if suitable equi-potential bonding has been established for any new services or connections that have been added since the last inspection. In the absence of plant specific operating experience, it is unclear to the staff what the basis is for the scope and frequency of inspections of lightning rods, mounting structures, and ground connections.

Provide justification for the frequency and scope of tests and inspections of lightning rods, mounting structures, and ground connections managed for aging by the FPP, including plant specific operating experience (e.g., inspection results, corrective actions taken to mitigate aging degradation), and describe whether these results were used for trending and adjustment of testing frequency and scope.

D-RAI B2.1.12-2

GALL AMP XI.M26, "Fire Protection Program," recommends visual inspection and functional testing of the halon and CO_2 fire suppression system every six months to examine for signs of degradation that may affect performance of the system.

In LRA Section B2.1.12, the applicant stated an exception to GALL AMP XI.M26, in that it does not have any halon fire suppression systems within the scope of license renewal. The applicant did not provide details supporting its conclusion that the halon fire suppression systems are not within the scope of the license renewal.

Provide justification for why the halon fire suppression systems are not included in the scope of the license renewal.

D-RAI B2.1.12-3

GALL AMP XI.M26, “Fire Protection Program” recommends visual inspection and functional testing of the halon and CO_2 fire suppression systems every 6 months to examine for signs of degradation that may affect performance of the system.

In LRA Section B2.1.12, the applicant stated an exception to GALL AMP XI.M26 in that functional testing of the CO_2 fire suppression systems are performed every 18 months, and the turbine generator bearing No. 10 and circulating water pump high pressure CO_2 system detectors are tested every 24 months. The applicant also stated that a review of the past 10 years of operating experience and corrective action documentation has shown no loss of intended function between test intervals. However, the staff noted that in the LRA Section B2.1.12, the applicant stated that leakage and degradation has been found in the CO_2 fire suppression system.

Provide additional information such as inspection results and trending data to justify the inspection interval of once every 18 or 24 months for the CO_2 fire suppression system components.

D-RAI B2.1.13-1

GALL AMP XI.M27, “Fire Water Program,” recommends annual hydrant hose hydrostatic tests and gasket inspections, however, in LRA Section B2.1.13, the applicant stated that it performs hydrostatic testing of its power block fire hoses every three years and gasket inspections at least once every 18 months in most areas and every 24 months in high radiation areas. The applicant further stated that it has been using a 3-year frequency for hydrostatic testing of fire hoses and 18 or 24 month frequency for gasket inspection for more than 10 years and no degradation leading to a loss of function has been observed.

In LRA Section B2.1.13, the applicant stated an exception to GALL AMP XI.M27 to perform hydrostatic test of power block fire hoses every three years and inspection of gaskets every 18 or 24 months because plant operating experience has demonstrated that the extended testing frequencies have been adequate to prevent system failures. However, the GALL Report program specifically states that fire hydrant hose hydrostatic tests, gasket inspections, and fire hydrant flow tests, should be performed annually to ensure that fire hydrants can perform their intended function and provide detection of degradation before a loss of intended function can occur.

Provide additional justification for performing the hydrant hose hydrostatic tests every 3 years and gasket inspections every 18 or 24 months, including inspection results, corrective actions taken to mitigate aging degradation, and describe whether these results were used for trending and adjustment of testing frequency.

D-RAI B2.1.13-2

GALL AMP XI.M27, “Fire Water Program,” recommends periodic flow testing of the fire water system or wall thickness evaluations (e.g., volumetric or visual inspections) be performed to ensure that the system maintains its intended function; and that these inspections be performed

before the end of the current operating term and at plant-specific intervals thereafter during the period of extended operation. GALL AMP XI.M27 also states that if an applicant chooses to perform visual inspections, these inspections must be capable of evaluating (1) wall thickness to ensure against catastrophic failure, and (2) the inner diameter of the piping as it applies to the design flow of the fire protection system. The applicant's current visual inspection frequency for firewater piping, valves, and fire hydrants is once every 18 months.

In LRA Section B2.1.13, the applicant discusses an enhancement to GALL AMP XI.M27 to revise procedures to include either periodic, non-intrusive volumetric examinations (e.g., ultrasonic or eddy current) or visual inspections of fire water system piping to ensure these inspections are suitable to identify evidence of loss of material due to corrosion and to ensure that wall thickness is within acceptable limits.

During its review of plant specific operating experience, the staff noted several examples of corrosion damage to above ground firewater piping, valves, and fire hydrants, including through wall leaks that have been identified at the applicant's current visual inspection frequency of 18 months. The staff also noted that the applicant's underground firewater piping does not have cathodic protection and is currently not periodically inspected.

It is not clear to the staff that the enhancement discussed in LRA Section B2.1.13 includes inspections of below ground firewater piping. Also, given the plant-specific operating history (discussed above), the staff questions the suitability of maintaining an 18-month inspection frequency.

Clarify whether the enhancement discussed in LRA Section B2.1.13 includes inspections of below ground firewater piping. Also, provide additional detail as to the basis for maintaining an18-month inspection frequency, given the above plant-specific operating history.