

Attachment:

1. Responses to RAIs B2.1.31-7, B2.1.31-8, B2.1.31-9, and B2.1.29-2

References:

1. Letter from D. A. Christian (DEK) to NRC, "Kewaunee Power Station Application for Renewed Operating License," dated August 12, 2008. [ADAMS Accession No. ML082341020]

Commitments made in this letter:

1. License Renewal Commitment 54 will be added to LRA Table A6.0-1, consistent with the response to RAI B2.1.31-9. The commitment is proposed to support approval of the renewed operating license, and may change during the NRC review period.

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ATTACHMENT 1

Responses to RAIs B2.1.31-7, B2.1.31-8, B2.1.31-9, and B2.1.29-2

**KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE, INC.**

RAI B2.1.31-7, XI.S5-2: Masonry Walls Inspection Interval

Background:

NRC staff review has determined that masonry walls in the scope of license renewal should be visually examined at least every five years, with provisions for more frequent inspections in areas where significant loss of material or cracking is observed.

Issue:

The LRA did not discuss the inspection interval for in scope masonry walls.

Request:

Provide the inspection interval for in scope masonry walls. If the interval exceeds five years clearly explain why, and how the interval will ensure there is no loss of intended function between inspections.

DEK Response

Masonry walls within the scope of license renewal are inspected on a five year interval.

RAI B2.1.31-8, XI.S6-4: Structures Monitoring Program Inspection Interval

Background:

NRC staff review has determined that structures in the scope of the Structures Monitoring Program should be monitored at an interval not to exceed five years. Some structures of lower safety significance, and subjected to benign environmental conditions, may be monitored at an interval exceeding five years; however, these structures should be listed along with the environment they are exposed to and a summary of past degradation.

Issue:

The LRA did not clearly identify an inspection interval for structures in the scope of the Structures Monitoring Program.

Request:

Identify the inspection interval for the Structures Monitoring Program. If the interval is greater than five years, provide justification for the longer interval. Adequate justification for a longer interval should include, at a minimum, a list of structures subject to the extended interval, their environments, and a summary of past degradation.

DEK Response

Accessible portions of structures within the scope of license renewal are inspected on a five year interval in accordance with the Structures Monitoring Program. Inaccessible portions of the structures will only be inspected if excavated or otherwise exposed for other reasons as described in LRA Section B2.1.31, *Structures Monitoring Program*.

RAI B2.1.31-9, XI.S6-6: Structures Monitoring Program Acceptance Criteria

Background:

NRC staff review has determined that adequate acceptance criteria for the Structures Monitoring Program should include quantitative limits for characterizing degradation. Chapter 5 of ACI 349.3R provides acceptable criteria for concrete structures. If the acceptance criteria in ACI 349.3R are not used, the plant-specific criteria should be described and a technical basis for deviation from ACI 349.3R should be provided.

Issue:

In response to RAI B2.1.31-2, the applicant included ACI 349.3R in the Structures Monitoring Program as a reference for program elements 3 and 6. However, the applicant has not committed to the ACI 349.3R acceptance criteria, or identified equivalent quantitative acceptance criteria for Structures Monitoring Program inspections.

Request:

- a) Confirm that quantitative acceptance criteria of ACI 349.3R are used for the Structures Monitoring Program. If the criteria deviate from those discussed in ACI 349.3R, provide technical justification for the differences.*
- b) If quantitative acceptance criteria will be added to the program as an enhancement, provide plans and a schedule to conduct a baseline inspection with the quantitative acceptance criteria prior to the period of extended operation.*

DEK Response

- a) The Structures Monitoring Program will be revised to include the evaluation criteria of ACI 349.3R-96, Chapter 5, as the criteria to be used when evaluating conditions or findings identified during concrete structure inspections.
- b) The inspection interval for the Structures Monitoring Program is as stated in the response to RAI B2.1.31-8. The next inspection is scheduled to be performed prior to the period of extended operation. The Structures Monitoring Program will be revised to include the evaluation criteria of ACI 349.3R-96, Chapter 5 as described in the answer to part 'a' of this RAI prior to the performance of the next inspection.

Commitment 54 will be added to LRA Appendix A, USAR Supplement, Table A6.0-1 as follows:

Item	Commitment	Source	Schedule
54	The Structures Monitoring Program will be revised to include the evaluation criteria of ACI 349.3R-96, Chapter 5, as the criteria to be used when evaluating conditions or findings identified during concrete structure inspections. This will be done prior to the performance of the next scheduled inspection which will occur prior to the period of extended operation.	Letter 10-707; Response to RAI B2.1.31-9	Prior to the period of extended operation.

RAI B2.1.31-9, XI.M33: Selective Leaching of Materials

Background

GALL AMP XI.M33, "Selective Leaching of Materials" states in element 1, "scope of program" that the program includes a one-time visual inspection and hardness measurement of a selected set of sample components to determine whether loss of material due to selective leaching is not occurring for the period of extended operation.

LRA Section B2.1.29, Selective Leaching of Materials, states that the program will inspect a representative sample of selected components that may be susceptible to selective leaching.

Issue

Due to the uncertainty in determining the most susceptible locations and the potential for aging to occur in other locations, the staff noted that large sample sizes (at least 20%) may be required in order to adequately confirm an aging effect is not occurring. The applicant's Selective Leaching Program did not include specific information regarding how the selected set of components are to be sampled or how the sample size will be determined.

Request

Provide specific information regarding how the selected set of components to be sampled will be determined and the size of the sample of components that will be inspected.

DEK Response

The sample size and inspection locations for the inspections associated with the *Selective Leaching Program* will be developed to ensure that a representative sample of material/environment combinations is selected with a focus on inspecting leading indicator components. This approach provides assurance that the aging of the components is being adequately managed.

The representative sample size and inspection locations will be determined based on the materials of fabrication; that is, gray cast iron and copper alloys (containing greater than 15% zinc or greater than 8% aluminum). A sample size of 20% of the population (up to a maximum of 25 inspections) will be established for each of the two material groups consistent with the methodology discussed in Section 4, "Sampling Program Description" of EPRI TR-107514, *Age-Related Degradation Inspection Method and Demonstration In Behalf of Calvert Cliffs Nuclear Power Plant License Renewal Application*.

Inspections will include each material/environment combination of in-scope equipment for each material-based sample set. The specific inspection locations will be identified considering the bounding or leading components most susceptible to selective leaching based on time in service, severity of operating conditions/environment (e.g., stagnant or low flow areas), and lowest design margins.