UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 20, 2015

Mr. Vito Kaminskas
Site Vice President - Nuclear Generation
DTE Electric Company
Fermi 2 - 280 OBA
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE FERMI 2, LICENSE RENEWAL APPLICATION – SET 22 (TAC NO. MF4222)

Dear Mr. Kaminskas:

By letter dated April 24, 2014, DTE Electric Company (DTE or the applicant) submitted an application pursuant to Title10 of the *Code of Federal Regulations* Part 54, to renew the operating license NPF-43 for Fermi 2, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information were discussed with Ms. Lynne Goodman, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-3301 or e-mail Daneira.Melendez-Colon@nrc.gov.

Sincerely,

/RA/

Daneira Meléndez-Colón, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosure:
Requests for Additional Information

cc w/encl: ListServ

Mr. Vito Kaminskas
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FERMI 2
LICENSE RENEWAL APPLICATION
REQUESTS FOR ADDITIONAL INFORMATION SET 22
(TAC NO. MF4222)

RAI 3.3.2.3-1a

Background:

Request for Additional Information (RAI) 3.3.2.3-1 dated December 17, 2014, requested the basis for why loss of material due to pitting and crevice corrosion is not an applicable aging effect for stainless steel expansion joints exposed to diesel exhaust gas.

The response to RAI 3.3.2.3-1, dated January 15, 2015, states that "The stainless steel emergency diesel generator (EDG) exhaust expansion joints are oriented vertically, which precludes the potential for moisture collection necessary to concentrate contaminants." The response also states that because of this orientation, pitting and crevice corrosion are not applicable aging effects for these components. The response cites Electric Power Research Institute (EPRI) document TR-1010639, "Non-Class 1 Mechanical Implementation Guideline and Mechanical Tools," Revision 4, which states that susceptibility to pitting and crevice corrosion for stainless steel in an air/gas environment requires a wetted surface and potential for concentrating contaminants.

Issue:

While vertically oriented smooth piping would allow for drainage and prevent any moisture from accumulating, the design of stainless steel expansion joints generally includes many vertical and horizontal segments, as well as crevices, which could prevent proper drainage and allow for moisture accumulation in any orientation. Therefore, it is unclear to the staff how the orientation of the EDG exhaust expansion joints precludes the collection of moisture that would allow for the concentration of contaminants needed for pitting and crevice corrosion to occur.

Request:

State the basis for why the EDG exhaust expansion joint's vertical orientation reasonably precludes the collection of moisture that would allow for the concentration of contaminants. Alternatively, state how loss of material due to pitting and crevice corrosion will be managed in these components during the period of extended operation.

RAI B.1.42-2a

Background:

In its response to RAI B.1.42-2, dated December 26, 2014, the applicant stated: "the Structures Monitoring Program described in LRA Section B.1.42 is appropriate to serve as the plant-specific aging management program accounting for the extent of degradation experienced on concrete structural elements exposed to groundwater at Fermi 2. This is consistent with the recommendations for detection of aging effect in the GALL Report Sections XI.S6 and XI.S7."

The applicant also stated that enhancement to the program element "detection of aging effects" states (as modified in the applicant response to RAI 3.5.2.2.2.1-1 in letter NRC-14-0070 dated October 24, 2014):

> *"If normally inaccessible areas become accessible due to plant activities, an inspection of these areas shall be conducted. Additionally, inspections will be performed of inaccessible areas in environments where observed conditions in accessible areas indicate that significant degradation may be occurring in the inaccessible areas."*

The "detection of aging effects" program element in Sections XI.S6 and XI.S7 of the Generic Aging Lessons Learned (GALL) Report states that for plants with aggressive ground water/soil and/or where concrete structural elements have experienced degradation, a plant-specific aging management program (AMP) accounting for the extent of degradation experience should be implemented to manage the concrete aging. The GALL Report also states that for plants with non-aggressive ground water/soil the program recommends: (a) evaluating the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of, or result in, degradation to such inaccessible areas and (b) examining representative samples of the exposed portions of the below grade concrete, when excavated for any reason.

American Concrete Institute (ACI) 349.9.3R suggests, based on the groundwater water chemistry at the site, to evaluate the propensity to cause concrete degradation or steel reinforcement corrosion, and when aggressive groundwater environment exists it states that "further evaluation at an increased frequency may be warranted."

<u>Issue</u>:

The plant-specific AMP and its enhancement to the program element of "detection of aging effects," as modified in the applicant's response to RAI 3.5.2.2.2.1-1 in letter NRC-14-0070 dated October 24, 2014, describes an AMP which actions are consistent with the GALL Report recommendation for concrete structural elements exposed to <u>non-aggressive</u> groundwater environment where significant age-related degradation from chemical attacks is not expected to occur as opposed to those structural elements exposed to an aggressive groundwater environment. As the staff noted in the audit report, the LRA AMP basis document indicates that the Fermi 2 concrete structures are subjected to an aggressive ground water/soil environment. No technical justification has been provided to demonstrate that recommendations applicable to <u>non-aggressive</u> groundwater environment (i.e., when "*normally inaccessible areas become accessible due to plant activities*" and "*where observed conditions in accessible areas indicate that significant degradation may be occurring in the inaccessible areas")* will be adequate to manage age related degradation due to aggressive groundwater environment in inaccessible areas of Fermi 2 below grade concrete structures. The staff is not clear whether the applicant has evaluated or has plans to evaluate the effects of its aggressive groundwater on inaccessible concrete to determine that the program will be adequate to ensure that no loss of intended function occurs during the period of extended operation.

Request:

Provide the technical bases that justify the adequacy of the program element enhancement to the LRA Structures Monitoring Program, as modified in the applicant's response to RAI 3.5.2.2.2.1-1 in letter NRC-14-0070 dated October 24, 2014, in the RAI, to manage age related degradation due to aggressive groundwater environment in inaccessible areas of Fermi 2 below grade concrete structures during the period of extended operation.

B.1.42-3a

Background:

In its response to RAI B.1.42-3, dated December 26, 2014, the applicant stated: "*For clarification, the Fermi 2 Structures Monitoring Program enhancements referencing ACI 349.3R will be revised to specifically indicate use of the 2002 or later version*," and provided applicable revisions to LRA Sections A.1.42, A.4, and B.1.42 to indicate those changes.

The staff notes that the GALL Report provides guidance on page XI-3 to allow license renewal applicants to use later editions/revisions than specified in the GALL Report for these industry generated documents. The GALL Report guidance on page XI-3 states, in part, "If either of these methods is used as justification for adopting a later edition/revision than specified in the GALL Report, the applicant shall make available for the staff's review the information pertaining to the NRC endorsement/approval of the later edition/revision."

Issue:

The applicant response did not provide enough information to determine whether it plans to use a later version that has been approved by the NRC, and no information pertaining to a plant-specific NRC endorsement/approval of a later edition/revision of ACI 349.3R than the 2002 revision was identified.

Request:

1. Identify the later version of ACI 349.3R that has been endorsed/approved by the NRC that will be used in the Structures Monitoring Program.

2. If a plant-specific NRC endorsement/approval has been provided, as discussed in the guidance on page XI-3 of the GALL Report, identify the plant-specific licensing action that contained the endorsement/approval.