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

December 17, 2014

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 10 (TAC NO. MF4222)

Dear Mr. Kaminskas:

By letter dated April 24, 2014, DTE Electric Company (or the appliant) 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 37 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

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SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE FERMI 2, LICENSE RENEWAL APPLICATION – SET 10 (TAC NO. MF4222)

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FERMI 2
LICENSE RENEWAL APPLICATION
REQUESTS FOR ADDITIONAL INFORMATION SET 10
(TAC NO. MF4222)

RAI B.1.1-1

Background:

Generic Aging Lessons Learned (GALL) Report aging management program (AMP) XI.M29, "Aboveground Metallic Tanks," recommends that sealant or caulking be applied to outdoor tanks at the external interface between the tank and concrete foundation. The function of the sealant or caulk is to minimize the amount of water and moisture penetrating the interface between the tank and concrete foundation. The GALL Report, as revised by LR-ISG-2012-02, "Aging Management of Internal Surfaces, Fire Water Systems, Atmospheric Storage Tanks, and Corrosion Under Insulation," further states that sealant or caulking is not necessary if the configuration of both the tank bottom and foundation is sloped in such a way that water cannot accumulate. License Renewal Application (LRA) Section B.1.1 states that, "[i]n accordance with installation and design specifications, the tanks do not employ caulking or sealant at the concrete/tank interface."

The LRA further states that the design of the condensate storage tank (CST) foundation is a concrete ring with the aluminum tank bottom in contact with graded sand. During the AMP audit the staff noted that the design also incorporates drains to facilitate the removal of water from the interior of the concrete ring foundation. However, the top surface of the concrete ring is not sloped to prevent water and moisture intrusion at the outside interface of the ring foundation.

Issue:

It is not clear to the staff if the applicant's Aboveground Metallic Tanks Program contains the appropriate preventive actions to manage this aging effect associated with the CST. The accumulation of water or moisture at the outside interface of the ring foundation could result in the loss of material or cracking of the aluminum.

Request:

In the absence of caulking or sealant, state how the aging effects of loss of material and cracking of the aluminum in the proximity of the interface between the tank and concrete foundation will be managed during the period of extended operation for the CST.

RAI B.1.1-2

Background:

The staff's review of plant-specific operating experience revealed that there have been multiple instances of degradation of the insulation and jacketing on the roof of the CST. The degradation included separations in the sheet metal seams, loss of flashing, and loss of

insulation due to weather. In 2013 the CST roof insulation was completely removed and pre-fabricated insulation was installed. The as-found condition of the CST aluminum roof was not documented in the work order. LRA Section B.1.1 states that the external surfaces of the CST will be inspected in accordance with LR-ISG-2012-02, Table 4a. Note 9 of Table 4a recommends that a minimum of 25 1-square-foot sections or 20 percent of the surface area of insulation, a portion of which will be on the tank roof, be removed to permit inspection of the exterior surface of the tanks during each 10-year period of extended operation.

Issue:

The aluminum roof of the CST has been exposed to weather on multiple occasions and it is unclear if there is any degradation under the pre-fabricated insulation. As a result, it is unclear to the staff whether the proposed extent of inspections for corrosion under insulation for the CST will be adequate to provide reasonable assurance that the CST will meet its current licensing basis (CLB) intended function during the period of extended operation.

Request:

Provide an assessment of the condition of the aluminum roof under the pre-fabricated insulation of the CST tank. If the condition of the roof under the pre-fabricated insulation is unknown or it is degraded, state the basis for why the proposed bare metal inspections of the CST roof will be sufficient to provide reasonable assurance that the CST will meet its CLB intended functions during the period of extended operation.

RAI B.1.1-3

Background:

The updated final safety analysis report (UFSAR) supplement (LRA Section A.4) contains a commitment (Commitment No. 3) to implement the Aboveground Metallic Tanks Program, "[p]rior to September 20, 2024, or the end of the last refueling outage prior to March 20, 2025." LR-ISG-2012-02, Table 3.0-1, recommends that the program be implemented 10 years prior to the period of extended operation. The recommendation to implement the program 10 years prior to the period of extended operation is to support the inspections recommended in LR-ISG-2012-02, Table 4a. The guidance provided in Table 4a includes inspections of all tank interior and exterior surfaces, including tank tops and bottoms, in timeframes ranging from within 5 to 10 years prior to the period of extended operation. LRA Section B.1.1 states that the CST will be inspected in accordance with LR-ISG-2012-02, Table 4a.

Issue:

The implementation schedule for the Aboveground Metallic Tanks Program is not consistent with LR-ISG-2012-02, Table 4a, which recommends that inspections commence in the 10-year period prior to the period of extended operation.

Request:

State the basis for why the implementation schedule for the Aboveground Metallic Tanks Program does not state that inspections will commence in the 10-year period prior to the period of extended operation.

RAI B.1.9-1

Background:

The operating experience discussion in LRA Section B.1.9 summarizes plant-specific inspection results from 2001, 2005, and 2012. It specifically states that, "In 2005, shroud support weld examinations as well as other inspections of reactor vessel internal welds and components were performed as scheduled by the Reactor Vessel Internals Management (RVIM) program."

Issue:

The LRA provides the results of the inspections in 2001 and 2012; however, it does not provide the results for the 2005 inspection. In addition, during its onsite audit of the program, the staff discovered that no such inspection was performed in 2005.

Request:

Provide clarification as to whether there have been any inspections of the BWR vessel inside diameter attachment welds in addition to the ones performed in 2001 and 2012. If there have been any inspections, provide the results and state whether any flaws were detected. Update the LRA as appropriate.

RAI B.1.10-1

Background:

The recommendations in GALL Report AMP XI.M9, "BWR Vessel Internals," states that the control rod drive (CRD) housing and lower plenum components are subject to the guidelines in BWRVIP-47-A for inspection and evaluation. GALL AMP XI.M9 also states that BWRVIP-58-A provides guidelines for the repair design criteria of the CRD housing and that BWRVIP-57-A provides guidelines for the repair design criteria of the lower plenum components.

LRA AMP B.1.10, "BWR Vessel Internals," states that the BWR Vessel Internals AMP, with enhancements, is consistent with the recommendations in GALL AMP XI.M9.

Issue:

During its onsite audit of the program, the staff noted that the program documents reference BWRVIP-58-A and BWRVIP-57-A as guidelines for the repair design criteria of the CRD housing and the lower plenum components. The program documents also reference BWRVIP-55-A as repair design criteria guidelines for these components. However, the plant procedures only reference

BWRVIP-55-A. The staff is unclear about the inconsistency in the plant documents regarding these guidelines.

Request:

1. Identify the specific BWR Vessel Internals Programs (VIP) guidelines that are being used for repairs of the CRD housings and the lower plenum components in the plant design. Clarify whether these guidelines are within the scope of the BWR Vessel Internals Program for the LRA and whether the guidelines have been incorporated into the specific plant procedure that will be used to implement the BWRVIP during the period of extended operation.

2. Identify any additional BWRVIP guidelines being relied upon for the BWRVIP beyond those in GALL Report AMP XI.M9. For these additional BWRVIP guidelines, provide the responses to any applicable license renewal applicant action items.

RAI B.1.17-2

Background:

GALL Report AMP X.M1, "Fatigue Monitoring," prevents fatigue time-limited aging analyses (TLAAs) from becoming invalid by assuring that the fatigue usage resulting from actual operational transients does not exceed the American Society of Mechanical Engineers (ASME) Code Section III design limit of 1.0. Crack initiation is assumed to have started when the fatigue usage factor reaches a value of 1.0 (the Code design limit). The applicant's Fatigue Monitoring Program monitors the number of occurrences of plant transients in order to ensure that cumulative fatigue usage remains below component design limits based on fatigue crack initiation. However, LRA Table 4.1-1, "List of Fermi 2 TLAAs and Resolution," includes a flaw evaluation TLAA to be managed during the period of extended operation using the Fatigue Monitoring Program. The flaw evaluation TLAA is the main steam bypass lines discussed in LRA Section 4.7.6. Flaw evaluation involves flaw growth analyses; therefore the fatigue usage factor of 1.0 based on crack initiation has been exceeded or is not applicable.

GALL Report AMP X.M1, "Fatigue Monitoring," recommends tracking the number of each plant design transient that significantly contributes to the fatigue usage factor. The events being counted by the applicant's Fatigue Monitoring Program are included in LRA Table 4.3-1, "Analyzed Transients with Projects." The staff noted that Table 4.3-1 includes events that are being counted for the main steam bypass lines that are based on operating time as opposed to plant transients.

Issue:

(1) LRA Table 4.1-1 contains a flaw evaluation TLAA that will be managed by the Fatigue Monitoring Program during the period of extended operation. The applicant's Fatigue Monitoring Program tracks plant transients to ensure that cumulative fatigue usage remains below component design limits based on fatigue crack initiation. The applicant's Fatigue Monitoring Program does not have an enhancement to ensure that analyses other than cumulative fatigue usage remain valid and within acceptable limits

during the period of extended operation. It is unclear to the staff if flaw evaluations and flaw growth analyses are within the scope of the applicant's Fatigue Monitoring Program.

Request:

(1a) Identify all TLAAs that will use the Fatigue Monitoring Program to ensure that any analyses or design limit other than a fatigue usage factor for crack initiation is not exceeded during the period of extended operation.

(1b) Justify using the Fatigue Monitoring Program to ensure that any analysis or design limit is not exceeded, other than a fatigue usage factor for crack initiation.

(1c) If the Fatigue Monitoring Program is being used to ensure that any analysis or design limit other than a fatigue usage factor for crack initiation is not exceeded, update the AMP as appropriate.

Issue:

(2) LRA Table 4.3-1 contains events other than plant transients that will be tracked by the Fatigue Monitoring Program during the period of extended operation. The applicant's Fatigue Monitoring Program does not have an enhancement to track cycles other than plant transients. It is unclear to the staff if tracking events other than plant design transients are within the scope of the applicant's Fatigue Monitoring Program.

Request:

(2a) Identify all events and cycles that will be tracked by the Fatigue Monitoring Program during the period of extended operation that are not plant design transients.

(2b) Justify using the Fatigue Monitoring Program for tracking events and cycles that are not plant transients. State the basis for the adequacy of the Fatigue Monitoring Program's capability to track events and cycles that are not plant transients.

(2c) If events and cycles other than plant transients are being tracked during the period of extended operation, update the program elements of the Fatigue Monitoring Program to reflect the applicable events and cycles.