



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

June 9, 2015

LICENSEE: DTE Electric Company

FACILITY: Fermi 2

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON DECEMBER 17, 2014, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND DTE ELECTRIC COMPANY, CONCERNING REQUESTS FOR ADDITIONAL INFORMATION, SET 17 PERTAINING TO THE FERMI 2 LICENSE RENEWAL APPLICATION (TAC NO. MF4222)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of DTE Electric Company (DTE or the applicant) held a telephone conference call on December 17, 2014, to discuss and clarify the staff's draft requests for additional information (DRAIs) 4.3.1-1, 4.3.2-2, 4.3.3-1, 4.6.1-1, 4.6.1-2, 4.6.5-1, 4.7.3-1, and 4.7.3-2 concerning the Fermi 2 license renewal application. The telephone conference call was useful in clarifying the intent of the staff's DRAIs.

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a listing of the DRAIs discussed with the applicant, including a brief description on the status of the items.

The applicant had an opportunity to comment on this summary.

/RA/

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

Docket No. 50-341

Enclosures:

1. List of Participants
2. Summary of Telephone Conference Call

cc: Listserv

June 9, 2015

LICENSEE: DTE Electric Company

FACILITY: Fermi 2

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON DECEMBER 17, 2014, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND DTE ELECTRIC COMPANY, CONCERNING REQUESTS FOR ADDITIONAL INFORMATION, SET 17 PERTAINING TO THE FERMI 2 LICENSE RENEWAL APPLICATION (TAC NO. MF4222)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of DTE Electric Company (DTE or the applicant) held a telephone conference call on December 17, 2014, to discuss and clarify the staff's draft requests for additional information (DRAIs) 4.3.1-1, 4.3.2-2, 4.3.3-1, 4.6.1-1, 4.6.1-2, 4.6.5-1, 4.7.3-1, and 4.7.3-2 concerning the Fermi 2 license renewal application. The telephone conference call was useful in clarifying the intent of the staff's DRAIs.

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a listing of the DRAIs discussed with the applicant, including a brief description on the status of the items.

The applicant had an opportunity to comment on this summary.

/RA/

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

Docket No. 50-341

Enclosures:

1. List of Participants
2. Summary of Telephone Conference Call

cc: Listserv

DISTRIBUTION: See next page

ADAMS Accession No.: **ML15134A122**

*Concurred via e-mail

OFFICE	LA:RPB1:DLR	PM:RPB1:DLR	BC:RPB1:DLR	PM:RPB1:DLR
NAME	*YEdmonds	DMeléndez-Colón	YDiaz-Sanabria	DMeléndez-Colón
DATE	6 / 4 /15	6 / /15	6/ /15	6/ /15

OFFICIAL RECORD COPY

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON DECEMBER 17, 2014, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND DTE ELECTRIC COMPANY, CONCERNING REQUESTS FOR ADDITIONAL INFORMATION, SET 17 PERTAINING TO THE FERMI 2 LICENSE RENEWAL APPLICATION (TAC NO. MF4222)

DISTRIBUTION:

E-MAIL:

PUBLIC

RidsNrrDlr Resource

RidsNrrDlrRpb1 Resource

RidsNrrDlrRpb2 Resource

RidsNrrDlrRerb Resource

RidsNrrDlrRarb Resource

RidsNrrDlrRasb Resource

RidsNrrDlrRsg Resource

RidsNrrPMFermi2 Resource

D. Melendez-Colon

E. Keegan

B. Wittick

B. Harris, OGC

D. Roth, OGC

M. Kunowski, RIII

B. Kemker, RIII

V. Mitlyng, RIII

P. Chandrathil, RIII

TELEPHONE CONFERENCE CALL
FERMI 2
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS
DECEMBER 17, 2014

PARTICIPANTS

AFFILIATIONS

Daneira Meléndez-Colón

U. S. Nuclear Regulatory Commission (NRC)

Christopher Hovanec

NRC

George Thomas

NRC

Giovanni Facco

NRC

Lynne Goodman

DTE Electric Company (DTE)

Kevin Lynn

DTE

Tom Dong

DTE

Mike Williams

DTE

SUMMARY OF TELEPHONE CONFERENCE CALL
FERMI 2
LICENSE RENEWAL APPLICATION
DECEMBER 17, 2014

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of DTE Electric Company (DTE or the applicant) held a telephone conference call on December 17, 2014, to discuss and clarify the following draft requests for additional information (DRAIs) concerning the Fermi 2 license renewal application (LRA).

DRAI 4.3.1-1

Background:

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 54.21(c)(1)(iii), an applicant must demonstrate that the effects of aging on the intended function(s) of a component will be adequately managed for the period of extended operation. LRA Sections 4.3.1.1, 4.3.1.4, 4.3.1.5, and 4.3.1.6 state that the effects of fatigue will be managed by the Fatigue Monitoring Program (LRA Section B.1.17) in accordance with 10 CFR 54.21(c)(1)(iii). LRA Table 4.3-1, "Analyzed Transients with Projections," contains the transient cycles that require tracking for the time-limited aging analyses (TLAAs) in LRA Section 4.3.1.

Issue:

- (1) It is unclear to the staff which transients in LRA Table 4.3-1 are being used to calculate the cumulative usage factors (CUFs) for the TLAAs in LRA Sections 4.3.1.1, 4.3.1.4, 4.3.1.5, and 4.3.1.6.
- (2) LRA Section 4.3.1.2 does not identify the program being used to manage the effects of fatigue on the feedwater nozzle for the period of extended operation. It is unclear to the staff what transients (or cycles) are being used to calculate the total CUF in LRA Table 4.3-2 for this TLAA.

Request:

- (1) State the transients being used to calculate the CUFs for the TLAAs in LRA Sections 4.3.1.1, 4.3.1.4, 4.3.1.5, and 4.3.1.6.
- (2) State what program is being used to manage the effects of fatigue on the feedwater nozzle for the period of extended operation in LRA Section 4.3.1.2. State the transients (or cycles) being used to calculate the total CUF in LRA Table 4.3-2 for this TLAA.

Discussion:

The staff provided clarification related to Request (1) in draft RAI 4.3.1-1. The staff stated that it will revise Request (1) to provide additional clarification on the information requested.

The applicant understands the staff's concerns and will provide a response to the RAI.

This request will be sent as a formal RAI.

DRAI 4.3.2-2

Background:

Pursuant to 10 CFR 54.21(c)(1)(i), an applicant must demonstrate that the analyses for a component remain valid for the period of extended operation. LRA Section 4.3.2.2, "Components Other than Piping," states that non-Class 1 expansion joint fatigue analysis calculations are valid for the period of extended operation in accordance with 10 CFR 54.21(c)(1)(i). The LRA also states that the expansion joint fatigue analysis is a TLAA that assumed a bounding number of cycles. The LRA further states that it has been determined that the number of analyzed cycles is adequate for the period of extended operation.

Issue:

The staff lacks sufficient information to evaluate the expansion joint fatigue analysis TLAA (LRA Section 4.3.2.2) for the period of extended operation. The LRA does not include the following information that the staff needs for its evaluation: (a) methodology used to analyze the expansion joints, (b) transients (or cycles) being counted for the fatigue analysis, (c) current number of cycles experienced by the expansion joints, and (d) number of additional cycles projected to the end of the period of extended operation.

Request:

Provide a summary of the fatigue analysis used to evaluate the non-Class 1 expansion joints for the period of extended operation. The summary should include:

- methodology or Code used in the analysis
- transients (or cycles) being counted for the fatigue analysis
- current number of cycles experiences by the expansion joints
- number of cycles projected to the end of the period of extended operation
- assumed number of bounding cycles
- basis used to establish the assumed number of bounding cycles
- basis used to disposition this TLAA as remaining valid for the period of extended operation, 10 CFR 54.21(c)(1)(i)

Discussion:

The staff provided clarification related to its concern in draft RAI 4.3.2-2.

The applicant understands the staff's concerns and will provide a response to the RAI.

This request will be sent as a formal RAI.

DRAI 4.3.3-1

Background:

LRA Section 4.3.3, "Effects of Reactor Water Environment on Fatigue Life," states that a screening evaluation has been conducted on the six locations identified in NURGE/CR-6260 to assess the impact of environmentally assisted fatigue for the period of extended operation. The results of the screening evaluation are provided in LRA Table 4.3-8, "EAF Screening of Fermi 2 Locations," with multiple locations having projected CUF values exceeding the limit of 1.0 when accounting for environmental effects. The LRA also states that the fatigue usage calculations will be updated using refined fatigue analysis to determine valid CUFs of less than 1.0 for the locations in Table 4.3-8. The LRA further states that "DTE will review design basis ASME Class 1 component fatigue evaluations to ensure the Fermi 2 locations evaluated for the effects of the reactor coolant environment on fatigue include the most limiting components within the reactor coolant pressure boundary."

Issue:

The staff lacks sufficient information to evaluate the effects of the reactor coolant environment on component fatigue life during the period of extended operation. It is unclear what methodologies are being used to (a) refine the fatigue analysis performed for the screening evaluation and (b) identify the plant-specific limiting locations.

Request:

- (1) Provide the methodology being used to refined fatigue analysis performed for the screening evaluation of the six components identified in NURGE/CR-6260.
- (2) Provide the methodology being used to identify plant-specific component locations in the reactor coolant pressure boundary that are more limiting than the components identified in NURGE/CR-6260.
- (3) Provide the technical basis used to determine that the methodology used to identify the plant-specific component locations are bounding and representative of the plant.

Discussion:

The staff provided clarification related to Request (1) and Request (3) in draft RAI 4.3.3-1. The staff stated that it will revise Request (1) and Request (3) to better describe the information requested.

The applicant understands the staff's concerns and will provide a response to the RAI.

This request will be sent as a formal RAI.

DRAI 4.6.1-1

Background:

LRA Table 3.5.2-1 includes, on LRA page 3.5-64, a line item for component type "Steel elements (accessible areas): drywell shell; drywell head; drywell shell in sand pocket region" which credits "TLAA - metal fatigue" as the aging management program (AMP). LRA Table 3.5.2-1 also includes, on LRA page 3.5-65, a line item for component type "Steel elements: torus; vent line; vent header; vent line bellows; downcomers." These LRA Table 3.5.2-1 line items correspond to item 3.5.1-9 in LRA Table 3.5.1, which refers to the further evaluation in LRA Section 3.5.2.2.1.5. LRA Section 3.5.2.2.1.5, "Cumulative Fatigue Damage," states that the evaluation of fatigue as a TLAA for the Fermi 2 primary containment, including its drywell shell, torus, vent line bellows, downcomers, etc., is addressed in [LRA] Section 4.6. Further, the discussion for item 3.5.1-27 in LRA Table 3.5.1 states: "Fermi 2 does have a CLB fatigue analysis associated with penetration sleeves and *downcomers*, and therefore this aging effect and mechanism is addressed under Item 3.5.1-9." Also, the discussion for Item 3.5.1-40 in LRA Table 3.5.1 states: "Fermi 2 does have a CLB fatigue analysis associated with vent header and *downcomers*, and therefore this aging effect and mechanism is addressed under Item 3.5.1-9."

Fermi 2 Updated Final Safety Analysis Report (UFSAR) Sections 3.8.2.1.2.1 and 3.8.2.1.2.2 state that the design, fabrication, inspection, and testing of the drywell and the suppression chamber comply with the requirements of Section III, Subsection B, of the ASME Boiler and Pressure Vessel (B&PV) Code, 1968 edition (ASME Code). Further, UFSAR Section 3.8.2.5.b states that the primary containment design details conform to the rules specified in Subarticle N-414 - *Basic Stress Intensity Limits* of the ASME Code. With regard to analysis for cyclic operation, N-1314(e) of Subsection B, "Requirements for Class B Vessels," of Fermi 2 code of record (i.e., the ASME Code) requires that any portion of the containment structure which does not satisfy the provisions of N-415.1 - *Vessels Not Requiring Analysis for Cyclic Operation* (i.e., fatigue waiver analysis) shall be evaluated by and satisfy the provisions of N-415.2 - *Design for Cyclic Loading* and N-416. If the plant's code of record requires a fatigue analysis or a fatigue waiver analysis, then this analysis may be a TLAA to be evaluated in accordance with 10 CFR 54.21(c)(1).

Issue:

LRA Section 4.6 and LRA Section 4.6.1, "Primary Containment," do not include the fatigue analyses or fatigue waiver analyses of the Fermi 2 primary containment drywell and the downcomers required by Section N-415 of the ASME Code (code of record) as a TLAA that is credited to manage fatigue cracking for the corresponding line items in LRA Table 3.5.2-1 and LRA Table 3.5.1 mentioned under the "Background" section above.

Request:

1. State whether or not the fatigue analysis or fatigue waiver analysis of (a) the drywell, and (b) the downcomers required by the ASME Code (code of record) is a TLAA under the CLB.
2. If it is a TLAA, provide an evaluation of the analysis for (a) the drywell components, and (b) the downcomers in the LRA in accordance with 10 CFR 54.21(c)(1).
3. If it is not a TLAA, provide information of how aging effects of cumulative fatigue damage on (a) the drywell components, and (b) the downcomers will be managed for the corresponding line items in LRA Table 3.5.2-1, included on LRA pages 3.5-64 and 3.5-65, which credit "TLAA – metal fatigue" in the AMP column.
4. Update the applicable tables and UFSAR supplement, as appropriate, to be consistent with the responses to the above requests.

Discussion:

The staff provided clarification related to Request 1 in draft RAI 4.6.1-1.

The applicant understands the staff's concerns and will provide a response to the RAI.

This request will be sent as a formal RAI.

DRAI 4.6.1-2

Background:

The TLAA evaluations for primary containment components in LRA Section 4.6.1 and containment penetrations in LRA Section 4.6.5 appear to include load cycles from seismic operating basis earthquake (OBE) and/or safe shutdown earthquake (SSE) events. The disposition of these TLAA evaluations is that Fermi 2 will manage the aging effects due to fatigue using the Fatigue Monitoring Program, described in LRA Sections B.1.17 and A.1.17, in accordance with 10 CFR 54.21(c)(1)(iii). LRA Section B.1.17 states that the Fatigue Monitoring Program, with enhancements, is consistent with program X.M1 "Fatigue Monitoring" in the GALL Report.

Issue:

The program descriptions in LRA Section B.1.17, "Fatigue Monitoring," LRA Section A.1.17, "Fatigue Monitoring," and GALL Report Section X.M1, "Fatigue Monitoring," appear focused on monitoring and tracking critical thermal and pressure transients for selected components. It is not clear to the staff whether the LRA Section B.1.17 "Fatigue Monitoring" program, credited in the disposition of the TLAA in LRA Sections 4.6.1 and 4.6.5 in accordance with 10 CFR 54.21(c)(1)(iii), include under its scope load cycles from OBE and SSE events as parameters monitored and tracked.

Further, it is not clear as to the number of specific load cycles considered in the fatigue evaluation for each OBE event and/or SSE event that defines the total bounding limit of seismic load cycles monitored against by the credited Fatigue Monitoring Program in LRA Sections B.1.17 and A.1.17.

Request:

1. Clarify whether the LRA Section B.1.17 "Fatigue Monitoring" program, credited in the disposition of the TLAA in LRA Sections 4.6.1 and 4.6.5 in accordance with 10 CFR 54.21(c)(1)(iii), includes under its scope load cycles from OBE and SSE events as parameters monitored and tracked.
2. State the number of specific load cycles considered in the fatigue evaluations in LRA Sections 4.6.1 and 4.6.5 for each OBE event and/or SSE event, as applicable. Also, clarify why seismic SSE is not listed as an analyzed transient in LRA Table 4.3-1.

Discussion:

The staff provided clarification related to its concern in draft RAI 4.6.1-2.

The applicant understands the staff's concerns and will provide a response to the RAI.

This request will be sent as a formal RAI.

DRAI 4.6.5-1

Background:

LRA Section 4.6.5 states, in part, that: "The usage factors are shown in Table 4.6-2 for these flued head penetrations based on the number of cycles shown in the analysis input value column in Table 4.3-1." Further, LRA Section 4.6.5 also states that: "Fermi 2 will manage the aging effects due to fatigue of these penetrations using the Fatigue Monitoring Program (Section B.1.17) in accordance with 10 CFR 54.21(c)(1)(iii). The Fatigue Monitoring Program monitors the plant transients that contribute to fatigue usage."

LRA Table 4.3-1, "Analyzed Transients with Projections," included 2 operating basis earthquake (OBE) events.

Issue:

It is not clear to the NRC staff which specific transient events in LRA Table 4.3-1 and corresponding analysis (cycle) input values that were used in calculating the CUFs documented in LRA Table 4.6-2 for flued head penetrations and will be monitored against by the Fatigue Monitoring Program in LRA Section B.1.17.

Request:

State, with the basis, the specific applicable transients in LRA Table 4.3-1 or other and corresponding analysis (cycle) input values that were used in the design fatigue analysis for calculating the CUF values documented in LRA Table 4.6-2 for flued head penetrations and will be monitored using the Fatigue Monitoring Program.

Discussion:

The staff provided clarification related to its concern in draft RAI 4.6.5-1.

The applicant understands the staff's concerns and will provide a response to the RAI.

This request will be sent as a formal RAI.

DRAI 4.7.3-1

Background:

LRA Section 4.7.3 describes a TLAA for auxiliary spring wedge assemblies installed on certain jet pumps. The LRA states that the auxiliary spring wedge assemblies are subject to loss of preload and were designed for a 40-year life based on a fluence of 1.2×10^{20} n/cm². The LRA also states that a fluence analysis was performed through the end of the period of extended operation and it was determined for the most limiting case that the projected fluence exceeds the design fluence by 4 percent. The LRA states that this increase in fluence results in a slight increase in the loss of spring preload. The LRA further states that this increased loss of preload has no impact on the most limiting stresses and no adverse impact on the structural integrity and functional performance of the components. As a result, the LRA concludes that the analysis has been projected to the end of the period of extended operation in accordance with 10 CFR 54.21(c)(1)(ii).

Issue:

For demonstrations made pursuant to 10 CFR 54.21(c)(1)(ii), Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants (SRP-LR) Section 4.7.3.1.2 states that the applicant should provide a sufficient description of the analysis and document the results of the re-analysis to show that it is satisfactory for a 60-year period. However, LRA Section 4.7.3 does not sufficiently describe the analysis or the results of the re-analysis. Therefore, it is not clear as to how the increased loss of preload will have no adverse impact on the intended function of the auxiliary spring wedge assemblies.

Request:

Address the following items to support the conclusion that an increased loss of preload will have no adverse impact on the intended function of the auxiliary spring wedge assemblies.

- (a) Describe how preload ensures the functional performance of the auxiliary spring wedge assemblies and indicate how much preload is needed to ensure this functional performance.
- (b) Describe the methodology that was used to calculate neutron fluence through the end of the period of extended operation and provide justification for using this methodology to determine the neutron fluence received by the auxiliary spring wedge assemblies.
- (c) Describe the methodology that was used to calculate loss of preload in the re-analysis. Indicate whether this methodology is different from the methodology used in the original analysis. Provide justification if the methodology is different.
- (d) Quantify the amount of preload loss that was calculated through the end of the period of extended operation and compare that value to the amount of preload loss that is needed to ensure the functional performance of the auxiliary spring wedge assemblies.

Discussion:

The staff provided clarification related to its concern in draft RAI 4.7.3-1.

The applicant stated that the response to RAI 4.7.3-1 might include proprietary information.

The applicant understands the staff's concerns and will provide a response to the RAI.

This request will be sent as a formal RAI.

DRAI 4.7.3-2

Background:

LRA Section A.2.5.3 provides the UFSAR supplement summary description of the TLAA for auxiliary spring wedge assemblies installed on certain jet pumps. It states that an evaluation of the increased fluence on the jet pump auxiliary spring wedge assemblies was evaluated and has no impact on the most limiting stresses.

Issue:

LRA Section A.2.5.3 does not provide a sufficient summary description of this TLAA. This section does not properly identify the auxiliary spring wedge assemblies addressed in the analysis, or which of these assemblies represents the most limiting case. Also, this UFSAR supplement does not provide the acceptance criteria used to determine how functionality of the spring wedge is ensured, or quantify the results of the analysis in terms of the amount of preload loss and compare those results against the acceptance criteria.

Request:

Justify why the information above is not included in the UFSAR supplement. Otherwise, revise LRA Section A.2.5.3, as appropriate, to address each of the issues identified.

Discussion:

The staff provided clarification related to its concern in draft RAI 4.7.3-2.

The applicant understands the staff's concerns and will provide a response to the RAI.

This request will be sent as a formal RAI.