

NRR-PMDAPEm Resource

From: Goetz, Sujata
Sent: Thursday, July 14, 2016 3:53 PM
To: Jason R Haas
Subject: RAI for FERMI 2 - LAR to Revise Integrated Leak Rate Test - Type A and Type C Test Intervals (MF7534)
Attachments: MF7534 RAI.docx

Mr. Haas,

By letter dated March 22, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16082A309), DTE Electric Company (the licensee) submitted a license amendment request (LAR) to revise integrated leak rate test (Type A) and Type C test Intervals for Fermi 2 Plant Operating License Nos. NPF-43 for Fermi 2. The LAR would allow for permanent extension of the Type A primary containment integrated leak rate test (ILRT) interval to 15 year and extension of Type C test interval up to 75 months.

You may accept this as a formal request for additional information and respond to the questions by August 15, 2016. Alternatively, you may request to discuss the content of the RAIs with the NRC staff in a conference call, including any change to the proposed response date. Please let me know if you have any questions or concerns.

Sincerely,

Sujata Goetz
Project Manager
Nuclear Regulatory Commission
Office of the Nuclear Reactor Regulation
NRC/NRR/DORL/LP3-1
08C10
Washington, DC 20555-0001
(o) 301.415.8004 (fax) 301.415.3313 (fax)
Mail Stop 08D15

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"Jason R Haas" <haasj@dteenergy.com>
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REQUEST FOR ADDITIONAL INFORMATION

REGARDING LICENSE AMENDMENT REQUEST TO REVISE INTEGRATED

LEAK RATE TEST FOR TYPE A AND TYPE C TEST INTERVALS

DTE ELECTRIC COMPANY

FERMI 2

DOCKET NO. 50-341

By letter dated March 22, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16082A309), DTE Electric Company (the licensee) submitted a license amendment request to revise integrated leak rate test (Type A) and Type C test Intervals for Fermi 2 Plant Operating License Nos. NPF-43 for Fermi 2. The LAR would allow for permanent extension of the Type A primary containment integrated leak rate test (ILRT) interval to 15 year and extension of Type C test interval up to 75 months.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete its review.

SBPB RAI-1

The staff notes that the Fermi 2 containment has been in service for approximately 35 years. Please provide a history of repairs and modifications made to the containment structure, so that the NRC staff can verify that Fermi is in compliance with Final safety evaluation for nuclear energy institute (NEI) Topical report (TR) 94-01, revision 2, "industry guideline for Implementing performance-based option of 10 CFR part 50, Appendix j" and electric power research institute (EPRI) Report no. 1009325, revision 2, august 2007, "risk impact Assessment of extended integrated leak rate testing intervals", Section 3.1.4, "Major and Minor Containment Repairs and Modifications" (ADAMS Accession No. ML081140105).

SBPB-RAI-2

Your letter, dated March 22, 2016, provided the following table:

Table 3: DTE Electric Company Type A Test Historical Results Since 1989

Test Completion Date	Upper Confidence Limit Measured Leakage (%/day)	Correction for Type B and C Tests (%/day)	Total Leakage (%/day)	Acceptance Criteria (%/day)
11/29/1989	0.285	0.033	0.318	0.375
11/01/1992	0.212	0.032	0.244	0.375
11/10/2007	0.1168	0.0964	0.2132	0.375

Fermi, Unit 2 Technical Specification (TS), Section, 5.5.12, "Primary Containment Leakage Rate Testing Program" (ADAMS Accession ML053060228) states:

- b. *The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a , is 56.5 psig.*
- c. *The maximum allowable containment leakage rate, L_a at P_a , shall be 0.5% of containment air weight per day.*
- d. *Leakage Rate acceptance criteria are:*
 - 1. *Containment leakage rate acceptance criteria is $\leq 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60 L_a$ for the required Type B and Type C tests and $\leq 0.75 L_a$ for Type A tests.*

The staff requests the test pressures used during the two most recent Type A tests, so that it can confirm that at least one of the actual test pressures bound the TS 5.5.12b P_a value of 56.5 psig. Please provide the Type A test pressure values in terms of absolute pressure along with the atmospheric pressure, since BN-TOP-1, Revision 1, "Testing Criteria for Integrated Leakage Rate Testing of Primary Containment Structures for Nuclear Power Plants", Section 4.1, Parameters Monitored (ADAMS Accession No. ML083540173), states:

During the primary containment leakage rate tests, measurements are made of ... absolute pressure.

The licensee's response must supply sufficient information to demonstrate compliance with NEI 94-01 Revision 0, "Industry Guideline for Implementing Performance –Based Option of 10 CFR Part 50, Appendix J", (ADAMS Accession No. ML11327A025), Section 9.2.3 "Extended Test Intervals" and the test requirements of ANSI/ANS 56.8-1994, "American National Standard for Containment System Leakage Testing Requirements," (Adams Accession No. ML11327A024), Section 3.2.11, "Type A Test Pressure."

SBPB-RAI-3

In order for the staff to confirm that the Type A tests performed on November 10, 2007 and November 1, 1992 meet the criteria in NEI 94-01 Revision 3-A, "Industry Guideline for Implementing Performance – Based Option of 10 CFR Part 50, Appendix J" (ADAMS Accession No. ML12221A202), Section 9.2.3, "Extended Test Intervals," please provide the following information:

- (a) Provide the as-left minimum pathway leakage rate (MNPLR) for all Type B and Type C pathways that were in service, isolated, or not lined up in their test position (i.e., drained and vented to containment atmosphere) prior to performing the Type A test,
- (b) List all the pathways and the associated leakage rate that contribute to MNPLR in item (a), above.
- (c) Provide the performance Leakage Rate (PLR) (= UCL+MNPLR) where UCL is the upper confidence limit,
- (d) Determine if the "as-found" Type A test meet the performance criterion by showing if $PLR \leq 1.0 L_a$,
- (e) Cite the calculation method for UCL, i.e. Mass Point method from ANSI/ANS-56.8-1994, Total Time, or Point-to-Point etc.

SBPB-RAI-4

NEI 94-01, Revision 3-A, states that prior to determining and implementing extended test intervals for Type B and Type C components, an assessment of the plant's containment penetration and valve performance should be performed and documented. Factors that should be considered during the assessment include (but not limited to) past component performance, service, design, safety impact; and cause determination. In addition, Section 11.3.2, "Programmatic Controls," require additional considerations if the test interval is greater than 60 months such as "As-found tests," "schedule," and "review." Your letter dated March 22, 2016, does not address how these factors are incorporated into the current Fermi 2 plant specific 10 CFR 50, Appendix J, testing program.

The staff requests that the licensee provide a summary of how Fermi 2 incorporates these factors and considerations in its current 10 CFR 50, Appendix J, testing program and whether any significant program enhancements will be required after the staff's approval of the proposed amendment.

SBPB-RAI-5

Per the guidance of NEI 94-01 Revision 0, Section 10.2.3.2 and subject to the four exemptions identified in NRC Regulatory Guide 1.163, (Draft was DG-1037) "Performance-Based Containment Leak-Rate Testing program," (ADAMS Accession No. ML11327A025), Fermi 2 is currently allowed to extend the test intervals for Type C containment isolation valves (CIVs) up to 60 months.

Section 10.2.3.2, "Extended Test Interval of NEI 94-01," of both Revision 0 and Revision 3-A states in part:

Test intervals for Type C valves may be increased based upon completion of two consecutive periodic As-found Type C tests where the result of each test is within a licensee's allowable administrative limits.

The staff requests that the licensee provide additional information regarding:

- 1) The two most recent individual "As-Found" Type C test results, including administrative limits, for Fermi 2 containment isolation valves. Also provide a brief valve description and any required corrective actions.

Your letter, dated March 22, 2016, details repetitive Type C Local Leak Rate Test (LLRT) failures for valves associated with Penetrations X-42 and X-19. Please provide a summary about the causes of these failures and what long term corrective actions have been or will be implemented to prevent recurrence.

- 2) Also in your March 22, 2016 letter, you indicate a valve seat condition failure for Penetration X-9B (i.e. Valve B2100F076B). Have there been other failures of LLRTs associated with Penetrations X-9A and X-9B since RF12 in 2007 that would suggest the corrective actions associated with LER 2007-001 may need further enhancement? (If there had been other failures, it would have been in this table. Also referencing an LER we are getting into inspection space.