DTE Energy
One Energy Plaza, Detroit, MI 48226-1279

DTE Energy

10 CFR 52.79

January 24, 2014
NRC3-14-0003

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

References: 1) Fermi 3
Docket No. 52-033
2) Letter from Peter W. Smith (DTE Electric) to USNRC, "DTE Electric Company Submittal of Fermi 3 COLA Markups for Implementation of ESBWR DCD, Revision 10," NRC3-13-0034, dated December 17, 2013

Subject: DTE Electric Company Submittal of Information Related to Steam Dryer Flow Induced Vibration

During a public teleconference on January 23, 2014, the NRC staff provided feedback to DTE Electric on the proposed Fermi 3 COLA changes related to the steam dryer flow induced vibration testing requirements submitted in Reference 2. Based on the feedback provided by the NRC staff, DTE Electric is providing additional proposed changes to Fermi 3 COLA.

The additional proposed COLA changes are contained in the attachment to this letter. Please note the attached FSAR markups were made to Draft Revision 6 of the Fermi 3 FSAR, which incorporates the proposed FSAR changes submitted in DTE Electric correspondence since the submittal of the last revision in February 2013. The changes to Proposed License Condition 3.10 supersede those submitted in Reference 2. The proposed COLA changes will be included in the next revision of the Fermi 3 COLA scheduled to be submitted in February 2014.

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If you have any questions, or need additional information, please contact me at (313) 235-3341.

I state under penalty of perjury that the foregoing is true and correct. Executed on the 24th day of January 2014.

Sincerely,

Peter W. Smith, Director
Nuclear Development – Licensing and Engineering
DTE Electric Company

Attachment: Markup of the Fermi 3 COLA

cc: Adrian Muniz, NRC Fermi 3 Project Manager
Tekia Govan, NRC Fermi 3 Project Manager
John Klos, NRC Fermi 3 Project Manager
Bruce Olson, NRC Fermi 3 Environmental Project Manager (w/o attachment)
Fermi 2 Resident Inspector (w/o attachment)
NRC Region III Regional Administrator (w/o attachment)
NRC Region II Regional Administrator (w/o attachment)
Supervisor, Electric Operators, Michigan Public Service Commission (w/o attachment)
Michigan Department of Natural Resources and Environment
Radiological Protection Section (w/o attachment)
Regina A. Borsh, Dominion Energy, Inc.
Barry C. Bryant, Dominion Energy, Inc.

Attachment to
NRC3-14-0003
(following 6 pages)

Markup of the Fermi 3 COLA

The following markup represents how DTE Electric intends to reflect this information in the next submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be different than presented here.

The FSAR markups were made to Draft Revision 6 of the Fermi 3 FSAR, which incorporates the proposed FSAR changes submitted in DTE Electric correspondence since the submittal of the last COLA revision in February 2013.

Fermi 3 COLA

Part 2 (FSAR) Markup

- NEDE-33313P, "ESBWR Steam Dryer Structural Evaluation"
- NEDE-33408P, "ESBWR Steam Dryer – Plant Based Load Evaluation Methodology, PBLE01 Model Description"

The steam dryer is classified as a prototype according to RG 1.20, Revision 3. The following describes the approach for the steam dryer Comprehensive Vibration Assessment Program elements, consistent with Regulatory Guide 1.20 and Section 10.2 of NEDE-33313P:

Section 10.2 of NEDE-33313P provides four elements of a steam dryer Comprehensive Vibration Assessment Program that must be addressed.

1. The ESBWR steam dryer Comprehensive Vibration Assessment Program is described in DCD Section 3.9, DCD Appendix 3L, and NEDE-33313P, Section 10.0, which includes a description for preparing and submitting to the NRC a Steam Dryer Monitoring Plan no later than 90 days before startup.

The detailed design of the steam dryer will follow the methodology described in DCD Appendix 3L and the incorporated engineering reports.

2. As described in NEDE-33313P, Section 10.2(b), an example of a steam dryer predicted analysis that concludes the steam dryer will not exceed stress limits with applicable bias and uncertainties and the minimum alternating stress ratio of 2.0 is provided in NEDE-33408P. ~~Because there currently is no ESBWR as-designed steam dryer,~~ the example of an as-designed steam dryer that has been subject to the predicted analysis process and successful startup testing described in NEDE-33408P serves as the design analysis report for the steam dryer and provides sufficient information for licensing. The post-licensing commitments in ITAAC and license conditions confirm the acceptability of theESBWR steam dryer design.

The final detailed design of the ESBWR steam dryer has not yet been completed. Therefore,

3. The startup program and associated license conditions that include appropriate notification points during power ascension, providing data to the NRC at certain hold points and at full power, and providing to the NRC a full stress analysis report and evaluation within 90 days of reaching the full power level, are established in accordance with NEDE-33313P, Section 10.2(c).
4. Periodic steam dryer inspection during refueling outages is as described in NEDE-33313P, Section 10.2(d), and associated license conditions.

[START COM-FSAR-3.9-001]For reactor internals other than the steam dryer, the comprehensive vibration assessment program will be developed and implemented as described in DCD Appendix 3L with no departures. The vibration measurement and inspection programs will

comply with the guidance specified in RG 1.20, Revision 3, consistent with the Fermi 3 reactor internals classification. A summary of the vibration analysis program and description of the vibration measurement (including measurement locations and analysis predictions) and inspection phases of the comprehensive vibration inspection program will be submitted to the NRC six months prior to implementation. ~~For the steam dryer, a Steam Dryer Monitoring Plan will be submitted to the NRC no later than 90 days before startup.~~**[END COM-FSAR-3.9-001]**

[START COM-FSAR-3.9-006] For reactor internals other than the steam dryer, the preliminary and final reports (as necessary), which together summarize the results of the vibration analysis, measurement and inspection programs will be submitted to the NRC within 60 and 180 days, respectively, following the completion of the programs. ~~For the steam dryer, an analysis of the steam dryer will be submitted to the NRC within 90 days of reaching the full power level.~~**[END COM-FSAR-3.9-006]**

3.9.3.1 Loading Combinations, Design Transients and Stress Limits

Replace the last sentence with the following.

STD COL 3.9.9-2-A

[START COM 3.9-002] The piping stress reports identified in this DCD section will be completed within six months of completion of DCD ITAAC Table 3.1-1. **[END COM 3.9-002] [START COM 3.9-004]** The FSAR will be revised as necessary in a subsequent update to address the results of this analysis. **[END COM 3.9-004]**

3.9.3.7.1(3)e Snubber Preservice and Inservice Examination and Testing

Preservice Examination and Testing

Add the following at the end of this section.

STD COL 3.9.9-4-A

A preservice thermal movement examination is also performed; during initial system heatup and cooldown, for systems whose design operating temperature exceeds 121°C (250°F), snubber thermal movement is verified.

Fermi 3 COLA

Part 10 (License Conditions and ITAAC) Markup

Insert the Following Proposed License Conditions at the End of Part 10:

3.10 Steam Dryer License Conditions

The licensee shall use supporting information in Reports NEDE-33312P (Revision 5, December 2013) and NEDE-33313P (Revision 5, December 2013) for implementing the actions associated with the following license conditions:

Steam Dryer License Conditions:

1.a A Steam Dryer Monitoring Plan (SDMP) for the steam dryer shall be prepared and provided to the NRC no later than 90 days before startup.

1.b Power Ascension Test (PAT) procedures for the steam dryer testing shall be provided to NRC inspectors no later than 10 days before startup. The PAT procedures shall include the following:

- Level 1 and Level 2 acceptance limits for on-dryer strain gages, and on-dryer accelerometers to be used up to 100% power.
- Specific hold points and their duration during 100% power ascension.
- Activities to be accomplished during hold points.
- Plant parameters to be monitored.
- Actions to be taken if acceptance criteria are not satisfied.
- Verification of the completion of commitments and planned actions.

2. An initial hold point during the first power ascension shall be at no more than 75 percent of full power. At this hold point, the licensee shall complete the actions specified in item 2 of the model license condition specified in paragraph (c) of Section 10.2, "Comprehensive Vibration Program Elements for a COL Applicant," in NEDE-33313P (Revision 5).

3. Continued power ascension: The licensee shall complete the actions specified in item 3 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P (Revision 5).

4. Power ascension monitoring: The licensee shall complete the actions specified in item 4 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P (Revision 5).

5. Flow-induced resonances: The licensee shall complete the actions specified in item 5 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P (Revision 5).

6. Limit curve modifications: The licensee shall complete the actions specified in item 6 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P (Revision 5).

7. At the initial hold point and the hold points at approximately 85 and 95 percent power, power ascension shall not proceed for at least 72 hours after making the steam dryer data analysis and results available to the NRC by facsimile or electronic transmission to the NRC project manager.

8. During the Power Maneuvering in the Feedwater Temperature Operating Domain testing, pressures, strains, and accelerations shall be recorded from the on-dryer mounted instrumentation across the expected range of normal steady state plant operating conditions. An evaluation of the dryer structural response over the range of steady state plant operating conditions shall be included in the stress analysis report described in item 9 below.

9. Full power achievement: The licensee shall complete the actions specified in item 9 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P (Revision 5).

10. A periodic steam dryer inspection program shall be implemented as follows:

    a. During the first two scheduled refueling outages after reaching full power conditions, a visual inspection shall be conducted of all accessible areas and susceptible locations of the steam dryer in accordance with accepted industry guidance on steam dryer inspections. The results of these baseline inspections shall be provided to the NRC within 60 days following startup after each outage.

    b. At the end of the second refueling outage following full power operation, an updated SDMP reflecting a long-term inspection plan based on plant-specific and industry operating experience shall be provided to the NRC within 180 days following startup from the second refueling outage.