

PMFermiCOLPEm Resource

From: Misenhimer, David
Sent: Wednesday, October 29, 2014 11:50 AM
To: David S.
Cc: FermiCOL Resource; Misenhimer, David
Subject: Phone, Code, Documents for Fermi 3 Open Items Mtg October 30, 2014

Fermi OI call (Public Teleconference)

Thursday, October 30, 2014

This meeting is scheduled for the NRC to discuss with DTE Electric Company the open items that remain in the review of their Fermi 3 COL application.

NRC staff is asked to convene in the designated NRC room.

Applicant and the Public are requested to use the following call-in:

Teleconference number: **888-560-4208**
Participant passcode: **37729**

Agenda Items*:

1. License Condition 03.09-03:

Previous wording:

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

- c. 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).
- d. Continue power ascension with subsequent hold points at approximately 5 percent power level increments where pressures, strains, and accelerations will be recorded and evaluated. Data trending and a projection of strain levels will be generated for the next hold point and full power. Data trending analysis during power ascension must assess whether the limits would be violated at higher power levels. Data trending results and revised limit curves will be made available to the NRC at each hold point.
- e. Power ascension monitoring shall address expected increases in loading and fatigue damage due to variable plant conditions throughout the life of the dryer.
- f. 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).
- g. End-to-end bias and uncertainties shall be determined by comparing the predicted and measured strain or acceleration on the steam dryer at each hold point to confirm the conservatism of the predicted dryer stress field. Adjust the predicted strain and acceleration responses using the frequency-dependent end-to-end bias errors and uncertainty values. If any of the measured sensor data exceed the adjusted predictions, then either modify the bias errors and uncertainty values and limit curves and ensure measured sensor responses do not exceed the adjusted predictions, or quantitatively evaluate the impact on fatigue life.
- h. 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.
- i. 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.
- j. After full power has been achieved, data at the full power level will be provided to the NRC within 72 hours, and a full stress analysis report and evaluation will be provided to the NRC within 90 days of reaching the full power level. The report will include the minimum stress ratio and the final dryer load definition using steam dryer instrumentation, and associated bias errors and uncertainties, to demonstrate that the steam dryer will maintain its

structural integrity over its design life considering variations in plant parameters (such as reactor pressure and core flow rate).

- k. A periodic steam dryer inspection program shall be implemented as follows:
 - i. 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.

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.

New wording:

Steam Dryer Monitoring Plan

1. DTE shall prepare a Steam Dryer Monitoring Plan (SDMP) and submit the SDMP to the NRC no later than 90 days before the scheduled date for initial fuel loading.
2. DTE shall provide Power Ascension Test (PAT) procedures for steam dryer monitoring to the NRC resident inspectors at least 10 days before the scheduled date for initial fuel loading. The PAT procedures must include the following:
 - (i) Level 1 and Level 2 acceptance limits, as defined in Report NEDE-33313P (Revision 5, December 2013), for on-dryer strain gage and on-dryer accelerometer measurements to be used up to 100 percent power;
 - (ii) The power levels at which the steam dryer will be monitored (subject to Conditions [3 and 4]) during power ascension, and the duration of monitoring at each power level;
 - (iii) A description of activities to be accomplished during monitoring at each power level;
 - (iv) Plant parameters to be monitored;
 - (v) A description of the actions to be taken if acceptance criteria are not satisfied.
 - (vi) A description of the process for verification of the completion of commitments and planned actions specified in the PAT procedures.
3. DTE 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) between 70 and 75 percent thermal power.
4. DTE shall measure, record, and evaluate pressures, strains, and accelerations from the steam dryer instrumentation at power levels approximately 5 percent higher than the previous power level at which DTE measured, recorded, and evaluated such parameters until 100 percent thermal power is reached. DTE shall generate data trending and a projection of strain levels for each successive power level, including full power. DTE shall use data trending analysis to assess whether the Level

1 or Level 2 acceptance limits would be exceeded at the next higher power level for which the PAT specifies monitoring. DTE shall provide the data trending results and revised limit curves to the NRC project manager by facsimile or electronic transmission. DTE shall not exceed the power level at which it performed the steam dryer monitoring for at least 72 hours after the NRC project manager has confirmed receipt of the transmission.

5. At each power level for which Conditions [3 and 4] require steam dryer monitoring, DTE shall measure and record pressure, strain, and acceleration responses over a range of plant conditions sufficient to confirm that loading and fatigue effects from normal variations in plant conditions at power levels up to and including 100 percent thermal power will not adversely affect the life of the dryer. DTE shall include its evaluation of steam dryer performance during such variations in plant conditions, including during Power Maneuvering in the Feedwater Temperature Operating Domain testing, in the dryer structural response as part of the full stress analysis report described in Condition 9 below.
6. If a flow-induced resonance is identified at any power level at which Conditions [3 to 5] require steam dryer monitoring, and the strains or vibrations exceed the pre-determined Level 1 or Level 2 limit curve, DTE shall cease power ascension until completing the actions specified in Item 5 of the model license condition specified in paragraph (c) of Section 10.2 in NEDE-33313P (Revision 5) and the following:
 - (i) If a Level 1 limit curve is exceeded, DTE shall reduce power to the last power level at which DTE performed steam dryer monitoring pursuant to Conditions [3-5] and at which the Level 1 limit curve was not exceeded. DTE shall perform a stress analysis to develop a new Level 1 limit curve before increasing power to the next level at which Conditions [3-5] require steam dryer monitoring.
 - (ii) If a Level 2 limit curve is exceeded, or if data trending indicates that a Level 1 limit curve may be challenged before the next power level at which Conditions [3-5] require steam dryer monitoring is reached, DTE shall evaluate the Level 1 and Level 2 limit curves and perform a stress analysis that demonstrates that the stress acceptance limits are satisfied at the higher power level before power is increased.
7. DTE shall determine end-to-end bias and uncertainties by comparing the predicted and measured strain or acceleration on the steam dryer at each power level at which DTE performs steam dryer monitoring pursuant to Conditions [3-5] and confirm the conservatism of the predicted dryer stress field. At each such power level, DTE shall adjust the predicted strain and acceleration responses using the frequency-dependent end-to-end bias errors and uncertainty values. If any of the measured sensor data at that power level exceeds the adjusted predictions, DTE shall either (A) modify the bias errors and uncertainty values and limit curves and ensure measured sensor responses do not exceed the adjusted predictions, or (B) quantitatively evaluate the effect on fatigue life.
8. At the initial power level at which Condition 3 requires steam dryer monitoring and at approximately 80, 85 and 95 percent power, DTE shall provide the steam dryer data analysis and results to the NRC project manager by facsimile or electronic transmission; and shall not exceed the power level at which it performed the steam dryer monitoring for at least 72 hours after the NRC project manager has confirmed receipt of the transmission.

9. DTE shall provide data collected from the steam dryer monitoring required by Condition 4 at 100 percent power to the NRC project manager by facsimile or electronic transmission within 72 hours of completing the collection of that data, with receipt confirmation from the NRC project manager. DTE shall submit a full stress analysis report and evaluation to the NRC document control desk in accordance with 10 CFR 52.4 within 90 days of first reaching 100 percent thermal power. The report must include the minimum stress ratio and the final dryer load definition using steam dryer data, and associated bias errors and uncertainties, and must demonstrate that the steam dryer will maintain its structural integrity over its design life considering variations in plant parameters, including, but not limited to, reactor pressure and core flow rate. If the structural integrity of the steam dryer for the full plant life is not demonstrated by the stress analysis, DTE shall describe its compensatory actions, such as future dryer replacement, in the stress analysis report.
10. DTE shall implement a periodic steam dryer inspection program as follows:
 - (i) During the first two refueling outages after first reaching 100 percent thermal power, DTE shall perform a visual inspection of all accessible areas and susceptible locations of the steam dryer in accordance with industry guidance on steam dryer inspections in the latest NRC staff-approved version of BWRVIP-139-A, "BWR Vessel and Internals Project, Steam Dryer Inspection and Flaw Evaluation Guidelines," with any conditions or limitations specified in the NRC staff approval. The results of these baseline inspections shall be submitted to the NRC within 60 days following startup after each outage.
 - (ii) At the end of the second refueling outage after reaching 100 percent thermal power, DTE shall update the Steam Dryer Monitoring Program to include a long-term inspection plan based on plant-specific and industry operating experience, and shall submit the updated program to the NRC within 180 days following startup from the second refueling outage.

2. License Condition (20.2-1):

Previous wording:

License Condition (20.2-1): Mitigation Strategies for Beyond-Design-Basis External Events

At least one (1) year before the latest date set forth in the schedule for completing the inspections, tests, and analyses in the ITAAC schedule submitted in accordance with 10 CFR § 52.99(a), DTE Electric Company shall use the guidance contained in JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0 and the information presented in Fermi FSAR Section 01.05 to complete the development of strategies and guidance for maintaining and, if necessary, restoring core cooling, containment, and SFPC capabilities beginning 72 hours after loss of all normal and emergency ac power sources, including any alternate ac source under 10 CFR 50.63. These strategies must be capable of:

- Mitigating a simultaneous loss of all ac power sources, both from the onsite and offsite power systems, and loss of normal access to the normal heat sink,
- Maintaining core cooling, containment, and SFPC capabilities for Fermi Unit 3 during and after such an event affecting both Fermi Units 2 and 3, and
- Being implemented in all plant modes.

Before initial fuel load, DTE Electric Company shall fully implement the strategies and guidance required in this license condition, including procedures, training, and acquisition, staging or installing of equipment and consumables relied upon in the strategies.

New wording:

License Condition (20.2-1): Mitigation Strategies for BeyondDesign-Basis External Events

- a. DTE Electric Company shall complete development of an overall integrated plan of strategies to mitigate a beyond-design-basis external event at least 1 year before the completion of the last ITAAC on the schedule required by 10 CFR 52.99(a).
- b. The overall integrated plan required by this condition must include guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities. The overall integrated plan must include provisions to ensure that all accident mitigation procedures and guidelines (including the guidance and strategies required by this section, emergency operating procedures, abnormal operating procedures, and extensive damage management guidelines) are coherent and comprehensive.
- c. The guidance and strategies required by this condition must be capable of (i) mitigating a simultaneous loss of all alternating current (ac) power and loss of normal access to the ultimate heat sink and (ii) providing for adequate capacity to perform the functions upon which the guidance and strategies rely for all units on the Fermi site and in all modes at each unit on the site.
- d. Before initial fuel load, DTE Electric Company shall fully implement the guidance and strategies required by this condition, including:
 1. Procedures;
 2. Training;
 3. Acquisition, staging, or installation of equipment and consumables relied upon in the strategies; and
 4. Configuration controls and provisions for maintenance and testing (including testing procedures and frequencies for preventative maintenance) of the equipment upon which the strategies and guidance required by this condition rely.
- e. The training required by condition d.2 must use a Systematic Approach to Training (SAT) to evaluate training for station personnel, and must be based upon plant equipment and procedures upon which the guidance and strategies required by this section rely.

- f. DTE Electric Company shall maintain the guidance and strategies described in the application upon issuance of the license, and the integrated plan of strategies upon its completion as required by condition a.

3. License Condition (20.4-1):

License Condition (20.4-1): Emergency Planning Actions

Prior to initial fuel load, Detroit Edison will fully implement the following requirements for emergency planning actions related to communications and staffing.

Communications:

At least 18-months before the latest date set forth in the schedule submitted in accordance with 10 CFR 52.99(a) for completing the inspections, tests, and analyses in the ITAAC, the Licensee shall have performed an assessment of on-site and off-site communications systems and equipment required during an emergency event to ensure communications capabilities can be maintained during prolonged station blackout conditions. The communications capability assessment will be performed in accordance with NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities", Revision 0.

At least one hundred eighty (180) days before the date scheduled for initial fuel load as set forth in the notification submitted in accordance with 10 CFR 52.103(a), the Licensee shall complete implementation of corrective actions identified in the communications capability assessment described above, including any related emergency plan and implementing procedure changes and associated training.

Staffing:

At least 18-months before the latest date set forth in the schedule submitted in accordance with 10 CFR § 52.99(a) for completing the inspections, tests, and analyses in the ITAAC, the Licensee shall have performed assessments of the on-site and augmented staffing capability to satisfy the regulatory requirements for response to a multi-unit event. The staffing assessments will be performed in accordance with NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities", Revision 0.

At least 180 days before the date scheduled for initial fuel load set forth in the notification submitted in accordance with 10 CFR § 52.103(a), the Licensee shall revise the Fermi 3 Emergency Plan to include the following:

Incorporation of corrective actions identified in the staffing assessments described above.

Identification of how the augmented staff will be notified given degraded communications capabilities.

*These agenda items will be updated, as needed, prior to the teleconference.

David Misenhimer, P.E.

Project Manager
Office of New Reactors (NRO)
Division of New Reactor Licensing (DNRL)
Projects Branch (LB3)
U.S. Nuclear Regulatory Commission
Two White Flint 6-C28
Mail Stop: T6 D38
Washington, DC 20555-0001
301.415.6590 (direct)

301.415.6323 (fax)

David.Misenhimer@NRC.gov (email)

Hearing Identifier: Fermi_COL_Public
Email Number: 1474

Mail Envelope Properties (9C2386A0C0BC584684916F7A0482B6CA0101FD0DB329)

Subject: Phone, Code, Documents for Fermi 3 Open Items Mtg October 30, 2014
Sent Date: 10/29/2014 11:50:08 AM
Received Date: 10/29/2014 11:50:09 AM
From: Misenhimer, David

Created By: David.Misenhimer@nrc.gov

Recipients:
"FermiCOL Resource" <FermiCOL.Resource@nrc.gov>
Tracking Status: None
"Misenhimer, David" <David.Misenhimer@nrc.gov>
Tracking Status: None
"David S." <dahvidi@hotmail.com>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	Size	Date & Time
MESSAGE	20962	10/29/2014 11:50:09 AM

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received: