

Fermi2LRANPEm Resource

From: Wentzel, Michael
Sent: Tuesday, February 03, 2015 1:27 PM
To: Randall D Westmoreland (westmorelandr@dteenergy.com)
Cc: Lynne Goodman (goodmanl@dteenergy.com)
Subject: Fermi 2 SAMA RAIs
Attachments: Fermi 2 SAMA RAIs (ML15026A307).pdf

Randy,

Attached is a copy of the SAMA RAIs.

Thanks,
Mike

Michael Wentzel
Project Manager
NRR/DLR/RPB2
(301) 415-6459
michael.wentzel@nrc.gov

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Recipients:

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"Randall D Westmoreland (westmorelandr@dteenergy.com)" <westmorelandr@dteenergy.com>

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

February 3, 2015

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 ENVIRONMENTAL
REVIEW OF THE FERMI 2 LICENSE RENEWAL APPLICATION—SEVERE
ACCIDENT MITIGATION ALTERNATIVES

Dear Mr. Kaminskas:

By letter dated April 24, 2014, DTE Electric Company (DTE) submitted an application pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51 and 10 CFR Part 54, to renew the operating license NPF-43 for Fermi 2 Nuclear Power Plant, for review by the U.S. Nuclear Regulatory Commission (NRC).

By letter dated November 18, 2014, the NRC staff issued requests for additional information (RAIs) related to its review of Severe Accident Mitigation Alternatives (SAMA) at Fermi 2. By letter dated January 9, 2015, DTE submitted its responses to the RAIs. The NRC staff is reviewing the information contained in the RAI responses and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information were discussed with Randall Westmoreland, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at (301) 415-6459 or by e-mail at michael.wentzel@nrc.gov.

Sincerely,

/RA/

Michael Wentzel, Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosure:
As stated

cc w/encl: Listserv

February 3, 2015

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Site Vice President - Nuclear Generation
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Fermi 2 - 280 OBA
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Michael Wentzel, Project Manager
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-341

Enclosure:

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cc w/encl: Listserv

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FERMI 2
SEVERE ACCIDENT MITIGATION ALTERNATIVES
REQUESTS FOR ADDITIONAL INFORMATION

By letter dated January 9, 2015, DTE Electric Company (DTE) submitted its responses to U.S. Nuclear Regulatory Commission (NRC) staff's requests for additional information (RAIs) pertaining to the severe accident mitigation alternatives (SAMA) review for the Fermi 2 license renewal application. The following RAIs request additional clarification of information provided in your January 9, 2015 letter.

RAI 1 (relating to response to RAI 1.c.iii)

What is the value for the phenomenological failure probability of the common cause failure of all four combustion turbine generators in the event of a "weather centered" loss of the 345kV (Division 2) Switchyard?

RAI 2 (relating to response to RAI 2.e)

The SAMA analysis release category (RC) frequency is based upon a truncation of $1\text{E-}12/\text{yr}$ which results in undercounting the Class II frequency by $3.14\text{E-}09/\text{yr}$ compared to the Class II frequency from the Level 1 quantification. This is stated to have been resolved by lowering the truncation to $1\text{E-}14/\text{yr}$. It is stated that this $3.14\text{E-}09/\text{yr}$ difference was added to the probabilistic risk assessment (PRA) documentation RC medium/early (M/E) frequency but not that used in the SAMA analysis. Discuss the basis for assigning this undercounting due to truncation to RC M/E and not other RC's such as high/early (H/E) and the impact of not including these truncated out Class II cutsets in the evaluation of the benefit for the SAMAs.

RAI 3 (relating to response to RAI 2.g.iii)

The RAI response provided a wealth of information supporting the selection of representative sequences in terms of the determination of the base case risk, however, the impact of representative selection on the calculation of delta risk for a SAMA is not specifically addressed. Furthermore, the information provided indicates that the specific example in the RAI will not adversely impact the selection of cost-beneficial SAMAs; however, it does raise concern about the impact of combining Class IIA sequences with Class IV sequences. As indicated in the RAI response, separating the Class IIA sequences from the Class IV sequences in the H/E release category results in a 15% increase in dose risk and a 0.6% increase in offsite economic cost risk (OECR) in the total risk. Table 2.g-4 indicates the revised Class II contribution is 2.69 times the person-rem/yr and 1.08 times the OECR contributions when they are included in the H/E base case release category. Thus, the staff believes, the benefit of any SAMA that significantly reduces the risk of Class IIA (loss of containment heat removal) sequences will be underestimated. Please address the impact of combining Class IIA sequences with Class IV sequences and clarify the impact of representative selection on the calculation of delta risk for a SAMA.

ENCLOSURE

RAI 4 (relating to response to RAI 4.c)

The economic multiplier stated in the RAI response is 2.1384, which is different from the value of 1.2964 stated on page D-96 of the environmental report (ER). The RAI response does not mention any reason for different values. Please clarify which is the correct value for the economic multiplier value used in the assessment of cost beneficial SAMAs.

RAI 5 (relating to responses to RAIs 5.a.ii, 5.a.vi, 5.a.vii, 6.h and 7.a)

The response to these RAIs provides the result of new cost benefit analyses. Was this based on doing the complete analysis similar to that for the ER evaluation involving determining the new RC frequencies and resulting cost risks, or were some other assumptions made? Some of the results do not appear to be consistent with those given in Table D.2-1 for similar SAMAs.

RAI 6 (relating to response to RAI 6.c)

While Fermi 2 may not have the same vulnerability that prompted SAMA 023 to develop procedures to repair or replace failed 4 kV breakers, this SAMA was cited to mitigate a number of important Fermi events in Table D.1-2 and screening it out is not considered appropriate. Evaluate the benefit of a procedure to develop or replace failed 4 kV breakers where ever it may be of a benefit at Fermi 2.

RAI 7 (relating to response to RAI 6.e)

The response indicates that assuming a 15% reduction in main steam isolation valves (MSIVs) failure to close and safety relief valves (SRVs) failure to open has essentially no impact ($\sim < 0.01$) on risk. On the other hand, operator failures to depressurize have risk reduction worths of 1.10, 1.05, and 1.03. These are equivalent to SRVs failure to open and would indicate that the above reduction in SRV failure to open would lead to a 2% reduction in CDF. Please discuss the MSIV and SRV hardware failure modeling characteristics included in the Fermi 2 PRA that lead to this very small risk impact.

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