

March 9, 2009

Mr. Peter W. Smith  
Director, Nuclear Development-Licensing 337 WCB  
DTE Energy  
One Energy Plaza  
Detroit, MI 48226-1279

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 4 RELATED TO  
THE SRP SECTIONS 11.02, 11.04, 11.05 and 12.02 FOR THE FERMI 3  
COMBINED LICENSE APPLICATION

Dear Mr. Smith:

By letter dated September 18, 2008, Detroit Edison Company (Detroit Edison) submitted for approval a combined license application pursuant to 10 CFR Part 52. The U.S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed application.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter. To support the review schedule, you are requested to respond within 30 days of the date of this letter. If changes are needed to the safety analysis report, the staff requests that the RAI response include the proposed wording changes.

If you have any questions or comments concerning this matter, I can be reached at 301-415-8148 or by e-mail at [jerry.hale@nrc.gov](mailto:jerry.hale@nrc.gov).

Sincerely,

**/RA/**

Jerry Hale, Project Manager  
ESBWR/ABWR Projects Branch 1  
Division of New Reactor Licensing  
Office of New Reactors

Docket Nos. 052-033

eRAI Tracking Nos. 2182, 2184, 2185, 2186, 2222 and 2223

Enclosure:  
Request for Additional Information

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Director, Nuclear Development-Licensing 337 WCB  
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COMBINED LICENSE APPLICATION

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By letter dated September 18, 2008, Detroit Edison Company (Detroit Edison) submitted for approval a combined license application pursuant to 10 CFR Part 52. The U.S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed application.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter. To support the review schedule, you are requested to respond within 30 days of the date of this letter. If changes are needed to the safety analysis report, the staff requests that the RAI response include the proposed wording changes.

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Jerry Hale, Project Manager  
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Docket Nos. 052-033

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Enclosure:  
Request for Additional Information

Distribution:

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NRO-002

OFFICE	SBPB/TR	SBPB/BC	NGE1/PM	OGC	NGE2/L-PM
NAME	SWilliams	TFrye	JHale	MCarpentier	CPatel
DATE	2/19/2009	2/23/2009	3/9/2009	2/23/2009	3/4/2009

\*Approval captured electronically in the electronic RAI system.

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Request for Additional Information No. 2182 Revision 0  
Fermi Unit 3  
Detroit Edison  
Docket No. 52-033  
SRP Section: 11.02 - Liquid Waste Management System  
Application Section: 11.2-1

11.02-1

FSAR Section 11.2.1, EF3 SUP 11.2-1 indicates that the ESBWR already contains all of the augments identified in Table A-1 of Regulatory Guide 1.110, and that the ESBWR liquid waste management system is designed to recycle 100 percent (zero liquid release), which would indicate that no cost-benefit analysis is required. In FSAR Chapter 12, Tables 12.2-203 and 12.2-204, the applicant provides the total annual liquid pathway doses to the maximum exposed individual and the population for expected liquid effluents. These sections indicate that there is a potential for liquid effluents and resulting pathway doses. Therefore, the NRC is requesting that the applicant perform an appropriate cost-benefit analysis using the method and data outlined in Regulatory Guide 1.110.

Request for Additional Information No. 2184 Revision 0  
SRP Section: 11.04 - Solid Waste Management System  
Application Section: 11.4

11.04-1

FSAR Revision 0, Section 11.4 incorporates the conceptual design and features of the solid waste management system (SWMS) described in ESBWR DCD, Tier 2, Revision 4, Section 11.4. This approach has been revised by GEH in Revision 5 of Chapter 11.4 of the ESBWR DCD by including specific SWMS design details for permanently installed subsystems not previously described in Revision 4 of the DCD. Please revise the FSAR, Revision 0, Section 11.4 to the extent that you intend to incorporate the specific endorsements and/or departures to the SWMS described in revision 5 of the ESBWR DCD, Tier 2, Section 11.4. If departures or exceptions to the SWMS are taken in the FSAR when compared to the most current revision of the ESBWR DCD, provide the justification and supporting information for the staff to evaluate the technical and regulatory merits of such deviations for the purpose of conducting an independent confirmation of compliance with Part 50.34a and guidance of Chapter 11.4 of the Standard Review Plan (NUREG-0800) and Regulatory Guide 1.206.

Request for Additional Information No. 2185 Revision 0  
SRP Section: 11.04 - Solid Waste Management System  
Application Section: 11.4

11.04-2

FSAR Section 11.4.1, STD COL 11.4-4-A states that the proposed plant will not utilize temporary low-level radioactive waste storage facilities to support plant operation. The ESBWR DCD, however, provides the capacity to store the amount of low-level radioactive waste that could be generated in 6 months of operation. Accordingly, the staff requests the applicant to describe the facilities plan for long-term storage of low-level radioactive wastes projected to be generated during the operation of Fermi Unit 3, and the operational program addressing the long-term management and

storage of such wastes using the guidance of Regulatory Guide 1.206 and Section 11.4 of the Standard Review Plan (NUREG-0800, Rev. 3).

Request for Additional Information No. 2186 Revision 0  
SRP Section: 11-05 Branch Technical Position - Postulated Radioactive Releases Due to a Waste Gas System Leak or Failure  
Application Section: 11.5.4.6

11-05 Branch Technical Position-1

FSAR Section 11.5.4.6, on process and effluent monitoring and sampling, presents information in Table 11.5-201 on sampling for several Fermi Unit 3 plant systems, including the plant service water system (item 2), storm drains and cooling tower blowdown (item 11), and sanitary waste water (item 14). Footnotes to the table appear internally inconsistent in describing sampling provisions and where the supporting information may be found in the DCD and/or FSAR.

The apparent inconsistencies are:

(a) Plant Service Water System (PSWS, line item 2) - For this system, footnotes No. 6 and 8 of Table 11.5-201 are provided in clarifying sampling provisions and how this sampling stream would be treated through the liquid waste management system (LWMS). However, a review of MFN 06-417 (Supp. 4) indicates that in response to DCD RAI 9.2-8 S02, footnote 8 is being replaced with footnote 4, but Table 11.5-201 does not reflect that change. Accordingly, update FSAR Table 11.5-201, line item 2 for the PSWS, to include the proper footnote citations. This information would ensure that such provisions are clearly identified in the FSAR and not likely to be omitted during the development of the sampling and analysis program for the plant specific Offsite Dose Calculation Manual in confirming compliance with liquid effluent concentration limits of Table 2 in Appendix B to Part 20 and numerical objectives of Appendix I to Part 50.

Request for Additional Information No. 2222 Revision 0  
SRP Section: 12.02 - Radiation Sources  
Application Section: FSAR Section 12.2

12.02-1

FSAR Subsections 12.2.2.1 and 12.2.2.2.3 present compliance with 10 CFR 20 Appendix B for gaseous effluent concentrations at the site boundary, using ESBWR DCD Revision 5 Standard Design.

- a. A review of gaseous effluent releases indicates inconsistencies in the assigned release values in Fermi 3 COL FSAR Table 12.2-17R for all radionuclides. The ESBWR DCD, Rev. 5 Table 12.2-16 provides the expected normal operational nuclide release source term. In discussions with the applicant, it was determined that the gaseous release source term has been adjusted by the ratio of the Fermi Specific X/Q to the ESBWR DCD X/Q for each release point. Accordingly, please provide the rationale for the adjustment of the release values by this ratio. In addition, please provide an example calculation that indicates how this ratio is applied and the justification for the factors used.

- b. In demonstrating compliance with the unity rule of Table 2 (Column 1) of Appendix B to 10 CFR Part 20, add a column to FSAR Table 12.2-17R showing the ratio of each gaseous radionuclide to the corresponding value in Table 2, Column 1 and the sum-of-the-ratios for all radionuclides. Currently, the tabulation does not present the sum-of-the-ratios. Accordingly, provide an updated Table 12.2-17R showing the nuclide concentration ratios over values of Table 2 of Appendix B to 10CFR20, and compliance with the unity rule.

Request for Additional Information No. 2223 Revision 0  
SRP Section: 12.02 - Radiation Sources  
Application Section: FSAR Section 12.2

12.02-2

- a. FSAR Section 12.2.2.4.3 references DCD Table 12.2-19b for compliance with 10CFR 20 Appendix B, Table 2, Column 2. The liquid effluent values provided in the DCD are for an ESBWR with a dilution flow rate of 20,000 liter per minute. A review of liquid effluent data provided in the Fermi 3 COL FSAR, Table 12.2-20aR identifies a different dilution flow rate from that used in the DCD. Accordingly, please address and resolve.
- b. In demonstrating consistency with the unity rule of Table 2 (Column 2) of Appendix B to 10 CFR Part 20, please update the FSAR by listing in a tabular format, the liquid discharge nuclide concentrations, along with comparisons to the corresponding values in Table 2 of 10 CFR part 20 Appendix B, for consistency with the unity rule.