May 27, 2011

Mr. Jack M. Davis
Senior Vice President and Chief Nuclear Officer
Detroit Edison Company
Fermi 2 – 210 NOC
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 58 RELATED TO THE SRP CHAPTER 12 FOR THE FERMI 3 COMBINED LICENSE APPLICATION

Dear Mr.Davis:

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 301-415-1146 or by e-mail at Raj.Anand@nrc.gov.

Sincerely,

/RA/

Raj Anand, Project Manager
BWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 052-033

eRAI Tracking Nos. 5634

Enclosure:
Request for Additional Information

May 27, 2011

Mr. Jack M. Davis
Senior Vice President and Chief Nuclear Officer
Detroit Edison Company
Fermi 2 – 210 NOC
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 58 RELATED TO THE SRP CHAPTER 12 FOR THE FERMI 3 COMBINED LICENSE APPLICATION

Dear Mr.Davis:

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 301-415-1146 or by e-mail at Raj.Anand@nrc.gov.

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Raj Anand, Project Manager
BWR Projects Branch
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Docket Nos. 052-033

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Enclosure:
Request for Additional Information
Distribution:

PUBLIC	NGE 1/2 R/F	SGreen, NRO	MCarpentier, OGC
RidsNroDsraSbpb	RidsNroDnrlNge2	GCicotte, NRO	CHinson, NRO

ADAMS Accession No. ML111470225 NRO-002

OFFICE	NRO/CHPB	NRO/CHPB	OGC	BWR/PM
NAME	G. Cicotte	ERoach	M. Carpentier	R. Anand
DATE	04/26/2011	04/26/2011	04/27/2011	05/26/2011

***Approval captured electronically in the electronic RAI system.**

OFFICIAL RECORD COPY

Request for Additional Information No. 5634

Fermi Unit 3
Detroit Edison
Docket No. 52-033
SRP Section: 12.02 - Radiation Sources
Application Section: 12.2, 11.2, ER 5.4.2

QUESTION

12.02-7

In part in response to RAI HH5.4.2-1 regarding the Environmental Report, and in part with respect to Revision 3 of the FSAR to update the application relative to Revision 9 of the ESBWR design control document (DCD), you provided information in FSAR Section 12.2.2.1 related to radioiodine releases that differ from those of the ESBWR DCD (ML102510498). Portions of the submission are not consistent with the methodology and calculations related to Revision 9 of the DCD. As part of the staff's review, it was determined that the asserted concentrations quoted above relate to the description from the DCD before corrections were made to account for condensate flow that bypasses the condensate purification system, that result in higher radionuclide concentrations and releases. Therefore, a number of clarifications are needed relative to the proposed revisions to the FSAR:

1. The discussion in the response refers to NUREG-0016 methodology, as referenced by the DCD, and upon which the staff's review was based, as "overly conservative." The context was related to the potential to exceed the dose guidelines of 10 CFR 50, Appendix I. However, this characterization and the corresponding operational limitations proposed do not provide a quantification of the asserted conservatism. Please provide this information in sufficient detail for the staff to quantify the effect on effluent concentrations and resultant public doses, and occupational doses to in-plant workers.

2. The NUREG-0016 methodology is used for all BWR design applications, and alternative methodology proposals must provide sufficient information for the staff to evaluate the alternative. The proposal does not provide an alternative methodology, instead appearing to assert the conservatism as a justification for not providing an alternative methodology. As part of 10 CFR 50 Appendix I, the staff must evaluate the potential for under-estimation of the calculated public dose. Please provide an alternative methodology, including quantifiable changes to input clarify your quantification and technical basis for this statement, or provide information to support the deviation from the routine source term in Chapter 11.1 of the DCD, and resulting calculations of effluents.

3. The description of the condensate purification system in the ESBWR DCD was changed such that the purification flow went from 100% to 67% of condensate flow. This resulted in increases to the calculated routine source term (and resultant effluent release concentrations and rate, and consequent off-site and in-plant doses) from radionuclides in the steam/condensate systems. Revision 3 of the application proposes to reduce calculated doses by reducing the source term back to the values calculated in the design before the change in the description. This is proposed to be accomplished through

operational limitations, by turning off condensate feed to the moisture separator/reheaters (MSR), such that purification flow would be 100% of condensate flow. The proposal, however, does not address the revised power level. As MSR operation provides efficiencies in the thermal cycle that appear to comprise as much as 30% of the usable power output of the reactor, it does not appear to be a reasonable operational consideration. Further, the proposal does not quantify the differences to the routine and accident source terms, from prolonged operation at these reduced power levels. As this is proposed to be an operational limitation controlled through the Offsite Dose Calculation Manual, it is not clear that this proposed limitation would reasonably be considered. Please clarify whether this proposed operational limitation will be stated in the ODCM, or will be proposed as a license condition to satisfy 10 CFR 50 Appendix I.

4. As noted above, the resulting calculated maximally-exposed individual and population doses provided in Revision 3 do not appear to be fully consistent with the revised release concentrations in the ESBWR DCD. Please provide additional information regarding the effect of these changes on the information presented in Tables 12.2-17R, 12.2-18bR, 12.2-201, 12.2-203, and 12.2-204 of the application, including operation at the expected reduced thermal efficiencies consistent with the proposed operational limitation of MSR shutdown, and resolving version differences between the the postulated site-specific source term, the ESBWR DCD source term, the calculated releases and tables of releases, and the estimated doses resulting from those releases.