

July 10, 2013

Mr. Peter W. Smith, Director
Nuclear Development
Licensing and Engineering
337 WCB
DTE Electric Company¹
One Energy Plaza
Detroit, MI 48226-1221

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 87 RELATED TO
CHAPTERS 02.05.02 and 03.07.01 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 Title 10 of the *Code of Federal Regulations* (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. In order to minimize delays to the current licensing schedule, we request that you respond within 30-days of receipt of this RAI.

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 301-415-6197 or by e-mail at tekia.govan@nrc.gov.

Sincerely,

/RAI/

Tekia Govan, Project Manager
Licensing Branch 3
Division of New Reactor Licensing
Office of New Reactors

Docket No.: 052-033

eRAI Tracking No. 7170

Enclosure: Request for Additional Information

¹ On December 21, 2012, the Detroit Edison company sent the NRC a letter indicating that, effective January 1, 2013, the name of the company would be changed to "DTE Electric Company." The legal entity will remain the same (see ML12361A437).

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NAME	STabatabai	DJackson	AMuniz	TGovan
DATE	06/22/2013	06/24/2013	07/09/2013	07/10/2013

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

OFFICIAL RECORD COPY

Request for Additional Information 87

Application Title: Fermi Unit 3 - Docket Number 52-033

Operating Company: Detroit Edison

Review Section: 02.05.02 - Vibratory Ground Motion

Application Section:

QUESTIONS

02.05.02-21

10 CFR Part 100, Appendix A requires the determination of the static and dynamic engineering properties of the materials underlying the site, which should include properties needed to determine the behavior of the underlying material during earthquakes and the characteristics of the underlying material in transmitting earthquake-induced motions to the foundations of the plant. FSAR Section 3.7.1.1.4.1.1 (provided as markups of FSAR Section 3.7.1, April 26, 2013) describes the dynamic properties of the engineered granular backfill above the bedrock; however, in order to satisfy the requirements of 10 CFR Part 100, Appendix A, please provide the information described below.

- (a) In FSAR Section 3.7.1.1.4.1.1 you state that the shear-wave velocity values for the engineered granular backfill are based on empirical relationships for angular-grained material from Richart et al. (1970) and for sandy gravelly soils from Menq (2003). However, the FSAR only states that the lower range (LR) and upper range (UR) profiles represent the envelope of the six shear-wave velocity profiles described above for the empirical relationships of Richart et al. (1970) and Menq (2003). Please provide details regarding how the UR and LR profiles are each developed from these six individual shear-wave velocity profiles, which is not described in the FSAR.
- (b) Please provide electronic versions of the six individual profiles shear-wave velocity profiles.
- (c) Please provide the standard deviation [i.e. $\sigma \ln(V_s)$] for UR, IR, and LR shear-wave velocity profiles
- (d) FSAR Figure 3.7.1-203 presents the modulus and damping relationships for the various depth ranges (i.e. between 0 ft and 36 ft) for the Menq (2003) shear modulus reduction and damping curves, which represents the LR, as well as the EPRI (1993), which represents the UR, shear modulus reduction and damping relationships. Please provide these curves electronically.
- (e) FSAR Figure 3.7.1-210 shows the site response logic tree used to compute the mean amplification functions. According to this figure, the LR velocity profile (paired with the Menq (2003) shear modulus reduction and damping curves) is assigned a weight of 0.15, the IR velocity profile (paired with the average of the UR and LR curves) is assigned a weight of 0.50, and the UR velocity profile (paired with the EPRI (1993) curves) is assigned a weight of 0.35. Please provide a justification for this weighting scheme.

Enclosure