



10 CFR 52.79

September 7, 2012  
NRC3-12-0026

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

- References:
- 1) Fermi 3  
Docket No. 52-033
  - 2) Letter from Tekia Govan (USNRC) to Peter W. Smith (Detroit Edison), "Request for Additional Information Letter No. 79 Related to Chapters 03.07.02 and 13.03 for the Fermi 3 Combined License Application," dated August 7, 2012
  - 3) SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," dated February 17, 2012
  - 4) Letter from Jerry Hale (USNRC) to Jack M. Davis (Detroit Edison), "Request for Additional Information Letter No. 77 Related to Chapter 1.05 for the Fermi 3 Combined License Application," dated May 17, 2012
  - 5) Letter from Peter W. Smith (Detroit Edison) to USNRC, "Detroit Edison Company Response to NRC Request for Additional Information Letter No. 77," NRC3-12-0025, dated August 24, 2012

Subject: Detroit Edison Company Response to NRC Request for Additional Information Letter No. 79

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In Reference 2, the NRC requested additional information to support the review of certain portions of the Fermi 3 Combined License Application (COLA). The first Request for Additional Information (RAI) in Reference 2, RAI 03.07.02-9, is related to the Fermi 3 site-specific soil-structure interaction (SSI) analyses. The second RAI in Reference 2, RAI 13.03-65, addresses the Fukushima Near-Term Task Force recommendations contained in Reference 3. The response to RAI 13.03-65 is provided in Attachment 1 of this letter.

In Reference 4, the NRC requested that Detroit Edison evaluate the impacts of the newly released Central and Eastern United States (CEUS) Seismic Source Characterization (SSC) model. In Reference 5, Detroit Edison described the impacts of the CEUS SSC model, including providing the CEUS foundation input response spectra (FIRS) for the Reactor Building/Fuel Building (RB/FB) and Control Building (CB). The CEUS FIRS remain enveloped by the ESBWR

Certified Seismic Design Response Spectra, but are greater than the FIRS presented in the Fermi 3 FSAR, Revision 4, which are based on the updated EPRI Seismic Owners Group (SOG) model. Since the FIRS represent the fundamental source of seismic inputs to the Fermi 3 site-specific SSI analyses, Detroit Edison committed to address the impact of the CEUS FIRS in conjunction with the response to Reference 2.

While the CEUS FIRS remain well-bounded by the ESBWR CSDRS, they are greater than the updated EPRI-SOG FIRS which are currently presented in the FSAR. Additionally, the staff has noted that the various Fermi 3 SSI analyses utilize two different sets of seismic inputs. To address these issues, Detroit Edison intends to perform the SSI analyses described below with acceleration time histories (seismic inputs) developed from the CEUS FIRS. The FSAR will be revised appropriately to describe the CEUS seismic inputs.

In RAI 03.07.02-9, the staff identified issues with various aspects of the Fermi 3 SSI analyses, primarily that the current analyses are not capable of capturing frequencies of at least 50 Hz, as recommended by Interim Staff Guidance DC/COL-ISG-1, in order to sufficiently capture the high frequency content of the horizontal and vertical FIRS. As the staff is aware, limitations on the size of the model that can be analyzed with the seismic analysis software make it difficult to design analyses that satisfy all available guidance for the Fermi site. To address these issues, Detroit Edison intends to re-perform the SSI analyses as described below.

The licensing basis case analyses (i.e., no backfill) that are described in FSAR Subsection 3.7.2 will be performed with the CEUS seismic inputs. These analyses will utilize the direct (flexible volume) method of the SASSI software. Because backfill is not included, these analyses can be performed with the direct method and a sufficiently fine mesh such that frequencies up to about 50 Hz can be captured.

In order to evaluate both the effect of backfill and the effect of nearby structures, analyses that include backfill will also be performed. Because a sufficiently fine mesh must be utilized such that frequencies up to about 50 Hz can be captured, the direct method cannot be utilized for cases where backfill is considered. In order to address this issue, Detroit Edison is proposing that the modified subtraction method be utilized.

To justify use of the modified subtraction method, it must be benchmarked against the direct method. Demonstrating that the modified subtraction and direct methods provide acceptably close results for the Fermi site will allow the modified subtraction method to be used for analyses that are too large for the direct method.

Because of software limitations, Detroit Edison is proposing the use of quarter models, including backfill, for benchmarking of the modified subtraction method for use at the Fermi site. Quarter models will be utilized in order to ensure that the direct method analysis captures frequencies of up to about 50 Hz. Once benchmarked, the MSM will be used to determine the effect of backfill by re-performing previous SSI cases that used the subtraction method or did not capture the full frequency range. These analyses will consider the effects of backfill and utilize the CEUS seismic inputs and the modified subtraction method.

In order to determine structure-soil-structure interaction (SSSI) effects, Detroit Edison has elected to re-perform the SSSI analyses with the modified subtraction method. As requested by the staff in Part 5 of RAI 03.07.02-9, these analyses will be performed with the CEUS seismic

inputs and a sufficiently fine mesh such that frequencies of up to about 50 Hz can be captured. The above describes a wholesale replacement of the Fermi 3 SSI analyses submitted to date.

A detailed schedule is still under development; however, based on preliminary scoping, Detroit Edison anticipates completing the necessary analytical work and fully responding to RAI 03.07.02-9, including submittal of the analyses described above, by September 2013. Detroit Edison is exploring options to improve this preliminary schedule.

Despite the extended schedule, Detroit Edison anticipates several opportunities to interface with the staff and discuss preliminary results, such as after seismic input development and after benchmarking the modified subtraction method. Additionally, Detroit Edison is proposing that a meeting be scheduled in the near future to fully discuss the analyses described above.

If you have any questions, or need additional information, please contact me at (313) 235-3341.

I state under penalty of perjury that the foregoing is true and correct. Executed on the 7<sup>th</sup> day of September 2012.

Sincerely,



Peter W. Smith, Director  
Nuclear Development – Licensing and Engineering  
Detroit Edison Company

Attachment: 1) Response to RAI Letter No. 79 (Question 13.03-65)

cc: Adrian Muniz, NRC Fermi 3 Project Manager  
Tekia Govan, NRC Fermi 3 Project Manager  
Michael Eudy, NRC Fermi 3 Project Manager (w/o attachment)  
Bruce Olson, NRC Fermi 3 Environmental Project Manager (w/o attachment)  
Fermi 2 Resident Inspector (w/o attachment)  
NRC Region III Regional Administrator (w/o attachment)  
NRC Region II Regional Administrator (w/o attachment)  
Supervisor, Electric Operators, Michigan Public Service Commission (w/o attachment)  
Michigan Department of Natural Resources and Environment  
Radiological Protection Section (w/o attachment)

**Attachment 1**  
**NRC3-12-0026**  
(6 pages)

**Response to RAI Letter No. 79**  
**(eRAI Tracking No. 6627)**

**RAI Question No. 13.03-65**

**NRC RAI 13.03-65**

*The NRC staff requests that you address provisions for enhancing emergency preparedness as it relates to staffing associated with Recommendation 9.3 outlined in Enclosure 5 of the March 12, 2012 letter "Request for information pursuant to Title 10 of the Code of Federal Regulations 50.54(f) regarding Recommendations 2.1, 2.3, and 9.3, of the near-term task force review of insights from the Fukushima Dai-ichi accident." (ML12053A340).*

**Response**

Detroit Edison proposes the license condition summarized below to address provisions that shall be taken to enhance emergency preparedness related to staffing per Recommendation 9.3 provided in the March 12, 2012, letter (ML12053A340) to licensees and construction permit holders.

The current regulatory environment is one best described as "in transition." A new emergency planning rule is currently being implemented by the industry with some aspects of the new rule not required to be fully implemented for several years. Advance Notice of Proposed Rulemaking (based on the Fukushima Task Force Report) published in April 2012 described additional considerations for rulemaking that may significantly affect emergency response facility requirements. Current licensees are implementing the orders issued as a result of Fukushima and will acquire empirical data, generate lessons learned, and identify efficiencies beneficial to subsequent emergency response facility implementation.

Detroit Edison's proposed license condition is written to allow for a more efficient assessment and implementation of corrective actions identified as a result of the Fukushima events. Committing to perform assessments after regulatory guidance has been established and after lessons learned allows for a more efficient, regulatory compliant result. In addition, this approach allows for consideration of improvements in technology as part of the assessment of communications abilities.

The proposed license condition requires Detroit Edison to perform an assessment of on-site and augmented staffing capability that satisfies regulatory requirements for response to a multi-unit event at least two years prior to scheduled initial fuel load. The two-year timeframe is sufficient to address additional staffing needs and/or organizational changes that may be identified in the assessment (e.g., hiring and training of new employees, changes to the emergency response organization, etc.) prior to the full participation exercise and subsequent initial fuel loading.

The proposed license condition is added to the license condition previously proposed in response to RAI 01.05-2 (ML12199A150), dated July 13, 2012, which addressed the communications portion of emergency preparedness, per Recommendation 9.3 of the March 12, 2012, letter (ML12053A340) to licensees and construction permit holders. The previously submitted portion of the license condition is indicated by italics.

The proposed license condition reads as follows:

**Emergency Planning Actions**

The applicant is proposing the following license condition related to staffing:

At least two (2) years prior to scheduled initial fuel load, the licensee shall have performed an assessment of the onsite and augmented staffing capability to satisfy the regulatory requirements for response to a multi-unit event. The staffing assessment will be performed in accordance with NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, or other NRC endorsed guidance in effect six months prior to commencement of the assessment.

At least two (2) years prior to scheduled initial fuel load, the licensee shall revise the Fermi 3 Emergency Plan to include the following:

- Incorporation of corrective actions identified in the staffing assessment described above.
- Identification of how the augmented staff will be notified given degraded communications capabilities.

*The applicant is proposing the following license condition related to communications:*

*At least two (2) years prior to scheduled initial fuel load, the licensee shall have performed an assessment of on-site and offsite 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, "Guidance for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, or other NRC approved guidance in effect six months prior to completion of the assessment.*

*At least one hundred eighty (180) days prior to scheduled initial fuel load, 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.*

### **Proposed COLA Revision**

Part 10, Subsection 3.8.1, "Emergency Planning Actions," is revised as shown on the attached markup.

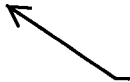
**Markup of Detroit Edison COLA**  
(following 2 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in the next submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be different than presented here.

### 3.7 Emergency Planning Actions

Because various equipment set points and other information cannot be determined until as-built information is available, the COLA does not fully address certain aspects of the Emergency Action Level (EAL) scheme. Thus, COL applicants using EAL schemes in accordance with NEI 07-01 are proposed the following license condition:

The licensee shall submit a fully developed set of site-specific EALs to the NRC in accordance with the NRC-endorsed version of NEI 07-01, Revision 0, with no deviations. The fully developed site-specific EAL scheme shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

 Insert 1 on the following page



Insert 1 – Previously submitted in the response to RAI 01.05-2 (ML12199A150)

### **3.8 Fukushima Actions**

#### **3.8.1 Emergency Planning Actions**

→ The applicant is proposing the following license condition related to communications:

At least two (2) years prior to scheduled initial fuel load, the licensee shall have performed an assessment of on-site and offsite 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, "Guidance for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, or other NRC approved guidance in effect six months prior to completion of the assessment.

At least one hundred eighty (180) days prior to scheduled initial fuel load, 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.

Insert 2

The applicant is proposing the following license condition related to staffing:

At least two (2) years prior to scheduled initial fuel load, the licensee shall have performed an assessment of the onsite and augmented staffing capability to satisfy the regulatory requirements for response to a multi-unit event. The staffing assessment will be performed in accordance with NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, or other NRC endorsed guidance in effect six months prior to commencement of the assessment.

At least two (2) years prior to scheduled initial fuel load, the licensee shall revise the Fermi 3 Emergency Plan to include the following:

- Incorporation of corrective actions identified in the staffing assessment described above.
- Identification of how the augmented staff will be notified given degraded communications capabilities.