



10 CFR 52.79

February 16, 2012  
NRC3-12-0006

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

- References:
- 1) Fermi 3  
Docket No. 52-033
  - 2) Letter from Jerry Hale (USNRC) to Jack M. Davis (Detroit Edison), "Request for Additional Information Letter No. 71 Related to Chapter 2.0 for the Fermi 3 Combined License Application," dated January 26, 2012

Subject: Detroit Edison Company Response to NRC Request for Additional Information  
Letter No. 71

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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 response to the Request for Additional Information (RAI) associated with Reference 2 is provided as Attachment 1 of this letter. Information contained in this response will be incorporated into a future COLA submission as described in the Attachment.

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 16<sup>th</sup> day of February 2012.

Sincerely,

A handwritten signature in black ink, appearing to read "PWS", with a long horizontal flourish extending to the right.

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

Attachment: 1) Response to RAI Letter No. 71, RAI Question No. 02.05.04-40

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

**Attachment 1**

**NRC3-12-0006**

**Response to RAI Letter No. 71**

**RAI Question No. 02.05.04-40  
(eRAI Tracking No. 6292)**

**(6 pages)**

**NRC RAI 02.05.04-40**

*10 CFR 100.23 (d) (4) requires that "Each applicant shall evaluate all siting factors and potential causes of failure, such as the physical properties of the materials underlying the site ...," and Regulatory Guide 1.206 Section C.1.2.5.4.5, "Excavations and Backfill", states that the applicant should discuss "sources and quantities of backfill and borrow, including a description of exploration and laboratory studies and the static and dynamic engineering properties of these materials. In accordance with 10 CFR 100.23 (d) (4) and Regulatory Guide 1.206 section C.1.2.5.4.5, as a replacement for the proposed License Condition, please provide the Inspections, Tests, and Analyses and Acceptance Criteria (ITAAC) that will be used to ensure that the concrete fill placed underneath any Category I structures to a thickness greater than 5 feet, meet the design, construction and testing of applicable ACI standards.*

**Response**

At the request of the staff, in response to RAI 02.05.04-37 in RAI Letter No. 55 (ML11171A568), Detroit Edison added a License Condition to Part 10 of the COLA stating:

"Detroit Edison will not place fill material, other than fill concrete that meets the design, construction and testing of ACI 349 and ACI 207.2R, underneath any Category I structure to a thickness greater than 5 feet."

As described in FSAR Subsection 2.5.4.3, the foundation grade for the Fire Water Service Complex (FWSC), a Seismic Category I structure, will be established using fill concrete. The specific requirements for the fill concrete are described in FSAR Subsection 2.5.4.5.4.2, including compressive strength, shear wave velocity and associated testing requirements. In lieu of the above noted license condition, Detroit Edison will update the COLA to include an associated ITAAC to confirm the fill concrete compressive strength. As described in FSAR Subsection 2.5.4.5.4.2, the mean 28-day compressive strength of the fill concrete will be equal to, or greater than 31 MPa (4,500 psi). This will result in a minimum shear wave velocity equal to, or greater than 1,100 m/s (3,600 ft/s), which is greater than the 300 m/s (1000 ft/s) minimum shear wave velocity required in ESBWR DCD, Revision 9 Table 2.0-1 for supporting foundation material.

**Proposed COLA Revision**

The attached markup includes deletion of the license condition associated with the concrete fill and the addition of an associated ITAAC.

**Markup of Detroit Edison COLA Part 10**  
(following 3 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 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.

## 2.4 SITE-SPECIFIC ITAAC

The Site Specific ITAAC are provided in the following sections. Site specific systems were evaluated against selection criteria in FSAR Section 14.3. If a site-specific system described in the FSAR does not meet an ITAAC selection criterion, only the system name and the statement "No entry for this system" is provided.

### 2.4.1 ITAAC FOR BACKFILL UNDER SEISMIC CATEGORY I STRUCTURES

~~Not applicable since no compactable backfill will be placed under Fermi 3 Seismic Category I structures.~~

Insert A

### 2.4.2 ITAAC FOR BACKFILL SURROUNDING SEISMIC CATEGORY I STRUCTURES

The site parameter values in the Referenced DCD, Tier 2, Table 2.0-1 for compactable backfill surrounding the embedded walls of Fermi 3 Seismic Category I structures are not necessary as discussed in FSAR Subsection 2.5.4 and Subsection 3.7.2. Therefore, no ITAAC is necessary for compactable backfill surrounding the embedded walls of Fermi 3 Seismic Category I structures.

ITAAC for fill concrete placed under Seismic Category I structures to a thickness greater than 5 feet are provided in Table 2.4.1-1.

Insert A

Table 2.4.1-1 ITAAC for Fill Concrete Under Seismic Category I Structures		
Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
The foundation grade for the FWSC will be established using fill concrete. Fill concrete placed under Seismic Category I Structures to a thickness greater than 5 feet is designed and tested as specified in FSAR Section 2.5.4.5.4.2.	Testing will be performed to determine the mean compressive strength for the fill concrete.	A report exists that demonstrates that the mean 28-day compressive strength of the fill concrete is equal to, or greater than, 31 MPa (4,500 psi).

(Deleted)

3.4 ~~Seismic Category I Fill Material Limitations~~

~~For the Seismic Category I structure fill material, the applicant is proposing the following License Condition:~~

~~Proposed License Condition:~~

~~Detroit Edison will not place fill material, other than fill concrete that meets the design, construction, and testing of ACI 349 and ACI 207.2R, underneath any Category I structure to a thickness greater than 5 feet.~~