



10 CFR 51.45  
10 CFR 52.77

June 17, 2011  
NRC3-11-0019

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

- References:
- 1) Fermi 3  
Docket No. 52-033
  - 2) Letter from Stephen Lemont (USNRC) to Peter W. Smith (Detroit Edison), "Requests for Additional Information Related to the Environmental Review for the Combined License Application for Fermi Nuclear Power Plant, Unit 3," dated May 12, 2009
  - 3) Letter from Peter W. Smith (Detroit Edison) to USNRC, "Detroit Edison Company Response to NRC Requests for Additional Information Related to the Environmental Review," NRC3-09-0010 (ML091940218), dated June 19, 2009
  - 4) Letter from Peter W. Smith (Detroit Edison) to USNRC, "Detroit Edison Company Response to NRC Requests for Additional Information Related to the Environmental Review," NRC3-09-0016 (ML093380331), dated November 23, 2009
  - 5) Meeting Minutes from NRC Public Conference Call for the Fermi 3 COL Environmental Review, May 23, 2011

Subject: Detroit Edison Company Response to NRC Questions Related to the Environmental Review-Site Selection Process

In Reference 2, the NRC requested additional information to support the review of Part 3 (Environmental Report) of the Fermi 3 Combined License Application (COLA). This letter is providing revised responses to 2 RAIs previously submitted in References 3 and 4. Detroit Edison is revising these RAI responses based on feedback received in telephone discussions with NRC staff as documented in Reference 5. These responses are contained in Attachments 1 and 2 respectively.

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HRO

Detroit Edison is responding to seven additional questions, unrelated to previous RAIs, contained in Reference 5. These responses are contained in Attachment 3.

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 17<sup>th</sup> day of June 2011.

Sincerely,



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

Attachments: 1) Response to ER RAI Question AL9.3-2  
2) Response to ER RAI Question AE2.4.2-2  
3) Response to Seven Questions from 5-23-11 NRC Public Call

cc: Adrian Muñiz, NRC Fermi 3 Project Manager (w/o attachments)  
Jerry Hale, NRC Fermi 3 Project Manager (w/o attachments)  
Bruce Olson, NRC Fermi 3 Environmental Project Manager  
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 Natural Resources and Environment  
Radiological Protection Section (w/o attachments)

**Attachment 1  
NRC3-11-0019**

**Supplemental Response to RAI letter related to Fermi 3 ER**

**RAI Question AL9.3-2  
(2 pages)**

**NRC RAI AL9.3-2**

*Provide copies of the Alternative Site Selection Reports (both the original site selection study completed in 2006 and the 2008 update on which the alternative sites discussion in ER Section 9.3 is based).*

**Supplemental Question**

*Provide the following portions of the 2006 site selection study and the 2008 update on the docket. For the 2006 study, provide Section 2.4, the nuclear site considerations, and Section 4.2.4, the explanation of the differences between Site "F" and Site "M". For the 2008 update, provide Table 4-2, which is referenced in the text of the document but doesn't appear in the document. The text indicates that this table includes comments on the noteworthy factors differentiating the candidate sites.*

**Supplemental Response**

The original response to this RAI was submitted to the NRC in Detroit Edison letter NRC3-09-0010 (ML091940218), dated June 19, 2009.

Detroit Edison is providing the following information to resolve the issues identified in this question. For the reasons provided below, Detroit Edison is not providing the requested portions of the referenced 2006 and 2008 documents.

Fermi 3 COLA, Part 3, Section 9.3 "Site Selection Process" and Appendix 9A "Site Profiles" contain the most current and relevant information concerning the Fermi 3 siting process. The dated information in the above referenced 2006 study is not directly relevant to the Fermi 3 site selection process and should not be used as a source of information for completing NRC's review of the Fermi 3 application. The 2006 report was completed prior to the publication of NRC's current guidance and is not adequate for that purpose. Information in the 2006 report was utilized by Detroit Edison as a preliminary study which evaluated several different generation technologies (e.g., coal, natural gas, nuclear, and wind) and potential site locations. However, this report does not represent a Fermi 3 site selection analysis. Current information is available in Fermi 3 COLA, Part 3, Section 9.3 "Site Selection Process" and Appendix 9A "Site Profiles."

As discussed above and in response to NRC ER RAI AL9.3-2, Attachment 4 of Detroit Edison Letter NRC3-09-0010, dated June 19, 2009 (ML091940262), Fermi 3 COLA Section 9.3 and Appendix 9A of the Environmental Report contain the relevant details of the alternative site selection process for Fermi 3. The draft 2008 Siting Study Update was never issued as a separate report (except in draft form), instead this draft information, and additional information resulting from the analysis were incorporated into Fermi 3 COLA, Part 3, Section 9.3 "Site Selection Process" and Appendix 9A "Site Profiles." "Therefore, a final, stand alone 2008 alternate site selection report was not developed and instead all information was placed within ER Section 9.3 and Appendix 9A. Table 4-2 was never developed. The information that Table 4-2 would have contained is provided in Fermi 3 COLA, Part 3, Table 9.3-3 "Evaluation Scores of Candidate Sites," and Table 9.3-4 "Ranking of the Candidate Sites," which contain comments on the noteworthy factors differentiating the candidate sites as requested.

**Attachment 2  
NRC3-11-0019**

**Supplemental Response to RAI letter related to Fermi 3 ER**

**RAI Question AE2.4.2-2  
(2 pages)**

**NRC RAI AE2.4.2-2**

*Provide a copy of the interim monitoring report "Aquatic Ecology Survey, Detroit Edison Company Fermi 3 Project, Interim Report" prepared by AECOM Environment, and dated December 2008. Provide a more recent version and the final report when available.*

*ER Section 2.4.2 indicated that additional aquatic ecology monitoring was underway and the information in the requested interim report was discussed at the Fermi 3 site audit. This report contains the most recent available information that:*

- evaluates the abundance and occurrence of aquatic organisms in the vicinity of the Fermi site;*
- identifies the aquatic habitat features in the vicinity of the Fermi site;*
- provides additional support for statements in the ER that Federal and State-listed threatened and endangered aquatic species have not been observed in the vicinity of the Fermi site; and*
- evaluates impingement mortality associated with the intake structure based upon the first half of the ongoing one-year monitoring effort.*

*The final report is expected to include the results of the entire one-year monitoring effort for aquatic ecology, including results of the entrainment monitoring at the existing Fermi 2 intake.*

**Supplemental Question**

*Does Detroit Edison allow fishing in the canals? Several recreationally and commercially important fish species have been documented in the canal system on the Fermi site. Detroit Edison responded that fishing is not allowed in the canals. This question is related to RAI AE2.4.2-2.*

**Supplemental Response**

The original response to this RAI was submitted to the NRC in Detroit Edison letter NRC3-09-0010 (ML091940218), dated June 19, 2009. The results of the final aquatic survey was provided in Detroit Edison letter NRC3-09-0016 (ML093380331), dated November 23, 2009. Subsequently, in the meeting minutes from a public call with NRC staff on May 23, 2011 regarding the environmental review, the above supplemental question was provided.

The Fermi canals are in the owner controlled area and no fishing is allowed.

**Attachment 3  
NRC3-11-0019**

**Response to  
Questions from May 23, 2011 NRC Public Call  
(6 pages)**

**Question 1**

*DTE's contractor used criteria such as proximity to transmission lines and numbers of residences or sensitive receptors in the process of identifying potential sites. Provide the objective measures (e.g., numeric criteria) used in this process. This information will assist the NRC in its determination whether DTE "used a logical process that would reasonably be expected to produce a list of the best potential sites" in the region considered (see ESRP 9.3).*

**Response 1**

As discussed in Section 9.3.2.2.1.1, general siting criteria were used to identify those potential greenfield sites suitable for the size and type of nuclear power plant proposed by Detroit Edison. Region of interest screening was performed at a high level with the purpose of quickly identifying areas that would potentially be suitable for the siting of a nuclear power station. As shown in Figure 9.3-1, Greenfield Areas refer to one or more areas within the region of interest (ROI) that remain after unsuitable areas have been removed. In the Detroit Edison site selection process, Greenfield Areas are the equivalent of "candidate areas" in NUREG-1555. Greenfield Areas were identified using a GIS-based mapping tool, EnergyVelocity. EnergyVelocity contains energy industry-specific information such as the locations of electric transmission lines, natural gas lines, electric company service territories, locations of existing power plants, and state and federal lands. EnergyVelocity was used to determine the general areas within the ROI that may be suitable sites for locating a new generation facility based on an overlay of the following factors: (1) proximity to transmission lines; (2) proximity to rail; (3) proximity to transportation corridors; and (4) proximity to water supply. These factors are among those listed in NUREG-1555 for consideration during the selection of candidate areas. Although no specific numerical criteria were used in identifying Greenfield Areas, the use of inclusionary criteria ensures that Greenfield Areas encompass those areas of the region of interest that might reasonably be expected to include sites suitable for the size and type of nuclear power plant proposed by Detroit Edison. To ensure that no potentially suitable areas were overlooked, Detroit Edison also included Greenfield Areas just outside the ROI.

Within the Greenfield Areas, the evaluation relied upon atlases and USGS topographic maps to identify additional areas that should objectively be avoided for siting a power generation facility, such as state and national parks, natural resource conservation areas, and areas with excessively complex terrain. This is consistent with NUREG-1555, which notes that negative attributes at a specific location (e.g., seismicity, threatened and endangered species) may be used to de-select some sites. As with the process used to identify Greenfield Areas, no specific numeric criteria were used. However, because the exclusionary features are easily identified by reference to readily-available sources, the areas excluded are objectively unsuitable for the size and type of nuclear power plant proposed by Detroit Edison. The process is therefore logical and reproducible. This approach ensures that the process identifies those potential sites that would be among the best that could reasonably be found for the proposed plant.

Brownfield sites, existing Detroit Edison sites, and nuclear stations (an existing nuclear site and a site that previously had been licensed for nuclear development) were considered for inclusion as potential sites separately as discussed in Section 9.3.



**Question 2**

*DTE's contractor considered existing DTE power stations in its search for potential sites. Were all existing power stations included as potential sites? Or were some existing stations (e.g., small peaking stations) eliminated from consideration?*

**Response 2**

All of Detroit Edison's power stations and peaker plants within the ROI were considered. However, many of the smaller existing power generation properties were eliminated from further consideration when identifying potential sites due to the lack of adequate space to construct a new facility (either at present or due to planned equipment installations). The remaining sites were considered as potential sites.

**Question 3**

*DTE's contractor narrowed the list of potential sites down to eight candidate sites. Provide the objective measures (e.g., numeric criteria) used in this process. This information will assist the NRC in its determination whether DTE used a "well documented process for screening potential sites," whether "all potential sites were screened in a consistent manner," and whether the process "provides reasonable assurance that potentially licensable candidate sites have not been omitted" (see ESRP 9.3).*

**Response 3**

The 24 potential sites were evaluated using additional, more-detailed information gathered through further research and site visits in order to determine whether a site was potentially licensable. As discussed in Section 9.3.2.3.1, each potential site was screened for its ability to house nuclear technology based on technical and environmental factors. As allowed by NUREG-1555, specific numeric criteria related to minimum property size (500 acres) and minimum cooling water supply (40,000 gpm) were used to "de-select" potential sites. These two criteria resulted in elimination of 13 potential sites (B, D, G, I, J, K, L, O, P, Q, R, S, and T). Three other sites were determined to not be licensable based on the professional judgment and engineering experience of the site selection team. As NUREG-1555 acknowledges, licensability includes consideration of whether other necessary Federal, State, and local permits could be obtained. Sites E and W4 were determined to be unsuitable based on the sites' proximity to major resort areas and the absence of any other industrial facilities nearby (i.e., development of a nuclear plant would significantly change the character of the area). Site H was also eliminated based on the significant change to the character of the area. This is consistent with NRC guidance in NUREG-1555 which states that, to be a candidate site, there should be no significant issues that preclude the use of the site for a new nuclear unit.

By collecting and evaluating site-specific information for each potential site and by assessing each site independently to determine potential licensability based on the information gathered, Detroit Edison employed a consistent process for assessing potential sites. The process used was logical and ensures that no potentially licensable candidate sites were omitted from study.

**Question 4**

*For those potential sites that were eliminated from further study, Environmental Report (ER) Table 9.3-2 includes a brief description of the reasons for the elimination of each site. This table is taken from the 2008 update to the siting study. In at least some cases (e.g., Site B-North Britton, Site H-Dexter) the reasons listed for elimination differ from those provided in the 2006 siting study. The reasons for the differences are unclear, and the bases for new issues that have been introduced are also unclear. Explain how the screening process used in the 2008 update differs from that used in the 2006 study. Provide any objective criteria used in the 2008 update that may have been different from those used in 2006. (For example, for Site B, the 2006 study states as an advantage "Rail (115 lbs.) and transmission line relatively close." But the ER and the 2008 update state "Long distance to some utilities.")*

**Response 4**

In an effort to be responsive to the staff's question, Detroit Edison is providing the following response. However, as noted in Detroit Edison's response to Question 1 of this RAI, the 2006 study is not compliant with the current NRC guidance documents and is not an appropriate source of input for the staff's evaluation.

The 2006 study investigated potential sites for several types of generation, including coal, natural gas, nuclear, and wind. The 2008 study used information gathered and collected during the 2006 study, but focused on the specific attributes associated with a nuclear facility. As discussed above and as shown in Table 9.3-2, Detroit Edison applied two specific numeric criteria related to nuclear generation — minimum property size (500 acres) and minimum cooling water supply (40,000 gpm) — to eliminate 13 potential sites from further consideration (B, D, G, I, J, K, L, O, P, Q, R, S, and T). Three other sites were determined to be unlicensable for a new nuclear plant based on the team's professional judgment and engineering expertise (E, H, and W4). As a result, these sites were not carried forward as candidate sites.

With respect to the specific example cited, Site B was eliminated from consideration as a candidate site for a new nuclear unit based on the lack of adequate water supply. Proximity to rail was considered a significant factor in the 2006 study with respect to a possible coal-fired generation facility, but was not a determinative factor for nuclear. Table 9.3-2 provides the site selection team's observations for the sites that were eliminated, including those observations that were not dispositive factors in the decision to eliminate the site from further consideration.

**Question 5**

*The criterion "Public Receptivity" in ER Table 9.3-3 is given a very high weighting factor of 10 percent of the total for all criteria. Only two other criteria (Geologic/Seismic Activity with a weight of 6 percent and Security Considerations with a weight of 5 percent) have weights over 4 percent. Considering the inherently uncertain nature of public receptivity, did DTE perform a sensitivity analysis to determine any changes in the rankings if this criterion were given a much lower weight, or eliminated? Provide the results of any such analysis previously performed, or perform the analysis and provide the results.*

**Response 5**

The public receptivity criterion was included to reflect Detroit Edison's commitment to being a responsible neighbor to the people in its service territory. During the siting study work, a sensitivity analysis was not specifically performed. In accordance with the NRC's request, Detroit Edison performed sensitivity analyses to assess the effects on scoring of the 8 candidate sites. Detroit Edison performed the analysis under the following scenarios:

- Complete removal of this criterion
- Weighting at 2 percent
- Weighting at 5 percent
- Weighting at 7 percent

The rankings for each sensitivity case are detailed below. As the table and graph demonstrate, the top three sites (Fermi, Greenwood, and Belle River) do not change with varying weights of the public receptivity factor. This confirms that, even if public receptivity was not considered, none of the candidate sites are environmentally preferable to the proposed site. Moreover, even if one of the candidate sites were deemed environmentally preferable, consistent with NUREG-1555 additional public concerns can be taken into account when assessing whether an alternative site is obviously superior to the proposed site. As a result, elimination of the public receptivity factor would have no effect on the conclusions in ER Section 9.3.

**Question 6**

*Have there been any documented instances of heat or cold shock related to operation of Fermi 2?*

**Response 6**

The Circulation Water System is operated in accordance with procedures that require gradual pump shutdowns to minimize the potential for thermal impacts in the mixing zone of Lake Erie. Review of the corrective action data from Fermi 2 shows that this approach has been successful in minimizing the impact on aquatic life such that no fish kills due to thermal shock have occurred. This conclusion has been confirmed by review of event reports made to the Nuclear Regulatory Commission (NRC) and inspection reports issued by the NRC to Fermi 2.

**Question 7**

*What are the procedures used by Detroit Edison to mitigate the potential for heat and cold shock and any interaction between Fermi 2 and 3?*

**Response 7**

The Fermi 2 system operating procedure (Plant Technical Procedure 23.101) for the Circulating Water System contains specific cautions directing gradual pump shutdown to minimize the potential for thermal shock in the mixing zone of the Lake Erie. Since Fermi 3 is not a licensed facility and construction has not commenced, there are no operational procedures for the proposed facility. Fermi 2 procedures do not address the potential for interaction between the facilities since no operational or construction activity for Fermi 3 has commenced. The plant technical procedure described above will be made available for review by NRC staff and their contractors.