July 20, 2010

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. 39 RELATED TO THE SRP SECTIONS 2.0, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 13.3, 13.6.1 and 17.5 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 45 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 301-415-4093 or by e-mail at adrian.muniz@nrc.gov.

Sincerely,

/RA/

Jerry Hale, Project Manager
BWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 052-033

eRAI Tracking Nos. 4868, 4878, 4879, 4880, 4881, 4884, 4885, and 4891

Enclosure:
Request for Additional Information

July 20, 2010

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Senior Vice President and Chief Nuclear Officer
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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.

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If you have any questions or comments concerning this matter, I can be reached at 301-415-8148 or by e-mail at jerry.hale@nrc.gov.

Sincerely,

/RA/
Jerry Hale, Project Manager
BWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 052-033
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Enclosure:
Request for Additional Information
Distribution:
PUBLIC NGE 1/2 R/F SGreen, NRO AMuniz, NRO MCarpentier, OGC
RidsNroDsraSbpb RidsNroDnrlNge2 NRO-002 M. Hart, NRO K.Williams, NSIR
D.Huyck, NSIR
ADAMS Accession No. ML102010032 NRO-002

OFFICE	NSIR	NSIR	NRO/RSAC	OGC	NGE1/PM
NAME	K. Williams	D. Huyck	M. Hart	M. Carpentier	JHale
DATE	7/7/10	7/8/10	7/9/10	7/12/10	7/19/10

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

OFFICIAL RECORD COPY

Request for Additional Information No. 4868 Revision 2

SRP Section: 13.03 - Emergency Planning
Application Section: Part 5

13.03-54

Title: Emergency Planning related to 10 CFR Part 30, 40 and 70 licenses
FSAR Table 13.4-201 "Operational Programs Required by NRC Regulations," item 14 "Emergency Planning":

(1) Provide an explanation for including the reference to Special Nuclear Materials (SNM) in the "Program Title" column for "Program Source" citations of 10 CFR 30.32 and 40.31.

(2) Provide an explanation for, and listing of, the portions applicable to SNM with respect to regulatory citations 10 CFR 30.32 and 40.31, which address byproduct and source material.

(3) Provide an explanation for why SNM is referenced in Table 13.4-201 under item 14 (in Program Title column and in the "Milestone" column) with no reference to 10 CFR Part 70 in the "Program Source" column or "Requirement" column. *If a 10 CFR Part 70 license is to be referenced in the "Program Title" column, the "Milestone" column and "Requirement" column, describe/list the applicable portions of the Emergency Preparedness program to be implemented at each milestone for receipt of fuel and prior to fuel load.*

Request for Additional Information No. 4878 Revision 2

SRP Section: 02.03.01 - Regional Climatology
Application Section: FSAR 2.3.1

02.03.01-15

This question is related to the applicant's response to RAI 02.03.01-4.

In its response to RAI 02.03.01-4, the applicant states that the 92 tornadoes reported in FSAR Section 2.3.1.3.1.2 is a valid count of tornadoes within the five-county area between January 1, 1950 and December 31, 2007. The applicant also stated that tornado reports were combined and referenced as only a single tornado if the tornado reports indicated that the tornado tracked in a traceable direction between different counties or within the same county during a narrow time period and occurred within 45 minutes of one another.

a. Contrary to the information provided in RAI response 02.03.01-4, Revision 2 to FSAR Section 2.3.1.3.1.2 states 92 tornadoes were reported in the five-county area between January 1, 1955 and December 31, 2007. Please clarify this apparent discrepancy in dates and revise the FSAR accordingly.

b. Two tornadoes occurring in different counties at almost the same time cannot necessarily be counted as one tornado. Please provide a list of the tornadoes occurring within the five-county area indicating which tornado reports were considered unique and which tornado reports were combined.

02.03.01-16

This question is related to the applicant's response to RAI 02.03.01-9.

The applicant's response to RAI 02.03.01-9 presented an evaluation of the winter precipitation roof loads based on ISG-7. In its evaluation of the normal winter precipitation event, the applicant determined the ground-level weight of the historical maximum snowpack for the Fermi site to be 21.0 lb_f/ft^2 based on the maximum snowpack of 24 inches recorded at the Detroit Metropolitan Airport in January 1999. The staff notes that Table C7-1 of ASCE/SEI 7-05 lists a maximum ground snow load of 27 lb_f/ft^2 for Detroit airport. The staff also found an extreme daily snow cover value of 33.0 inches for the Willis 5 SSW COOP station (located approximately 32 km (20 miles) northwest of the Fermi 3 site in Washtenaw County, Michigan) using the NCDC Snow Climatology web site. Using Equation 1 from ISG-7, the staff converted the 33.0 inch snowfall to a snowpack weight of 32.4 lbf/ft2. Please justify not using the Willis 5 SSW extreme daily snow cover value of 33.0 inches to derive the weight of the historical maximum snowpack for the Fermi 3 site.

02.03.01-17

This question is related to the applicant's response to RAI 02.03.01-13. The staff finds the response to RAI 02.03.01-13 incomplete.

Revise the FSAR to discuss the impact on plant design and operation due to the Fermi site being located in a $PM_{2.5}$ nonattainment area. For example, discuss whether the increased particulate loading associated with a $PM_{2.5}$ nonattainment area would adversely impact dust loading on HVAC filter systems.

Request for Additional Information No. 4879 Revision 2

SRP Section: 02.03.02 - Local Meteorology
Application Section: FSAR 2.3.2

02.03.02-7

The original 2001–2007 onsite meteorological tower database submitted in response to environmental RAI AQ2.7-3 (dated October 30, 2009) was subsequently reviewed by the applicant to confirm the validity of the data as described in the supplemental response to RAI 02.03.04-3 (dated March 30, 2010). After deleting invalid data for 590 hourly measurements, the applicant provided a revised 2001-2007 onsite meteorological tower database in a supplemental response to environmental RAI AQ2.7-3 (dated March 30, 2010). The staff has performed a precursory review of the revised database and has determined that the database still contains errors (see attached file). For example, (1) every 24th hour in the current day was listed as the 24th hour in the next day (e.g., 20010<u>0224</u> should have been labeled 20010<u>0124</u>); (2) several hours with missing data were incorrectly labeled (e.g., 200110<u>609</u> was listed as 200110<u>624</u>); and (3) some ambient and dew point temperatures were out of range or drastically different from the surrounding data (e.g., 200325318 and 200513108). Note that the staff did not review all parameters in the revised data file. Although the data with mislabeled hours may not affect any of the onsite data statistics or analyses presented in the FSAR, the hours of data that were out of range or drastically different from the surrounding data could significantly affect the FSAR summary tables for mean and extreme values.

Please review the revised 2001-2007 onsite meteorological database for mislabeled hours and for data that were out of range and drastically different from the surrounding data and revised the database accordingly. Indicate the revisions that were made and provide a copy of the revised database. Revise any FSAR tables, figures, and analyses that may have been impacted by this second revision to the onsite database.

02.03.02-8

FSAR Table 2.3-211 presents 2003-2007 monthly and annual temperature data for Detroit Metropolitan Airport using data compiled from the NCDC Integrated Surface Hourly Database (ISHD) (FSAR Reference 2.3-229). It appears that, for several months, not all the extreme values have been appropriately identified. For example, FSAR Table 2.3-211 lists a minimum temperature of –4.0°F
(—20.0°C) for January, but the staff found a lower minimum temperature of –5.1°F (–20.6°C) on January 25, 2004 at 08:54 UTC (GMT). Please review the Detroit Metropolitan Airport ISHD to ensure all extreme data values have been identified.

02.03.02-9

FSAR Tables 2.3-224 through 2.3-229 and 2.3-236 through 2.3-241 present wind direction persistence summaries for winds blowing from the same 67.5° (three adjoining 22.5°) wind direction sector. The staff is unable to reproduce the results in these tables. Please describe the methodology used to derive these tables.

Request for Additional Information No. 4880 Revision 2

SRP Section: 02.03.03 - Onsite Meteorological Measurements Programs
Application Section: FSAR 2.3.3

02.03.03-8

This question is related to the applicant's response to RAI 02.03.03-2. The staff finds the applicant's response to RAI 02.03.03-2 incomplete.

The staff asked the applicant in RAI 02.03.03-2 to verify the instrumentation performance information provided in FSAR Table 2.3-289, including sensor specifications and system accuracies. The staff also asked the applicant to identify any deviations from the guidance provided in RG 1.23.

The applicant's response to RAI 02.03.03-2 updated the information in FSAR Table 2.3-289 regarding the meteorological tower's sensor manufacturer and model numbers, channel ranges, system accuracies, sensor starting thresholds, and channel measurement resolution. FSAR Section 2.3.3.1.2 was also revised to state that the accuracies and thresholds for each sensor are within the limits specified in the proposed Revision 1 to RG 1.23 (September 1980).

FSAR Table 1.9-202 is intended to evaluate the applicant's conformance with the applicable Division 1, 4, 5, and 8 RGs in effect six months prior to the submittal of the Fermi 3 COL application. Included in FSAR Table 1.9-202 is an evaluation regarding the applicant's conformance to Revision 1 to RG 1.23 (March 2007).

a. Revision 2 to FSAR Table 2.3-289 lists the differential temperature (ΔT) channel as having a system accuracy of ±0.15 °C which exceeds the Revision 1 to RG 1.23 (March 2007) specified accuracy of ±0.1 °C. Please revise the FSAR to address the ΔT channel nonconformance with the system accuracy specified in Revision 1 to RG 1.23 (March 2007), including the impact this nonconformance may have on any analyses presented in FSAR Section 2.3.

b. FSAR Section 2.3.3.1.1 states the sensors for the existing preoperational meteorological monitoring program are mounted on booms that are greater than one tower width away from the tower. Likewise, FSAR Section 2.3.3.2.1 states the sensors for the new operational meteorological monitoring program will also be mounted on booms that will be greater than one tower width away from the tower. Revision 1 to RG 1.23 (March 2007) states (1) wind sensors on the side of a tower should be mounted at a distance equal to at least twice the longest horizontal dimension of the tower and (2) temperature sensor shield inlets should at least 1½ times the tower horizontal width away from the nearest point on the tower. Please revise the FSAR to clarify whether the preoperational and operational meteorological monitoring programs are in conformance with the boom length criteria specified in Revision 1 to RG 1.23 (March 2007). If the preoperational program is not in conformance with Revision 1 to RG 1.23 (March 2007), please discuss the impact the nonconformance may have on any analyses presented in FSAR Section 2.3.

c. Revision 1 to RG 1.23 (March 2007) specifies a digital sampling rate of at least once every 5 seconds. Please revise the FSAR to discuss the digital sampling rates for the existing preoperational meteorological monitoring program and the proposed new operational meteorological monitoring program. If the preoperational monitoring program is not in conformance with RG 1.23 (March 2007), please discuss the impact the nonconformance may have on any analyses presented in FSAR Section 2.3.

Request for Additional Information No. 4881 Revision 2

SRP Section: 02.03.04 - Short Term Atmospheric Dispersion Estimates for Accident Releases
Application Section: FSAR 2.3.4

02.03.04-5

This question is related to the applicant's supplemental responses to RAIs 02.03.03-1, 02.03.04-3, and 02.03.04-4 submitted in Detroit Edison letter NRC3-10-0015, dated March 30, 2010.

Question Summary:

Discrepancies in wind speed and stability class frequency distributions (discussed below) create uncertainty as to which meteorological data set (1985-1989 versus 2002-2007) is most representative of site conditions. Given the uncertainty in the data, please justify why both sets of control room (CR) and technical support center (TSC) atmospheric dispersion (χ/Q) values should not be presented in FSAR Section 2.3.4.3 and the more conservative resulting χ/Q values be presented in FSAR Table 2.0-201 as Fermi 3 site characteristic values.

Details:

As described in the supplemental response to RAI 02.03.04-3, the applicant reviewed the 2001-2007 data from the Fermi meteorological tower and found a number of hourly measurements to be improbable. The applicant removed these hourly measurements from its analysis and used the revised 2001-2007 database to update its CR and TSC atmospheric dispersion factors.

The supplemental response to RAI 02.03.03-1 states that after a review of wind rose data spanning a period of over 30 years, the applicant concluded that the potential exists for recent wind speed measurements at the 10-meter elevation to be slower than the actual wind speeds due to trees located in the vicinity of the Fermi meteorological tower. The applicant further concluded that because the diffusion coefficients in the ARCON96 atmospheric dispersion model are a function of a low wind speed correction and a building wake correction, the limiting ARCON96 χ/Q values may not occur at the lowest wind speeds. Consequently, the applicant also generated CR and TSC χ/Q values using available data from 1985-1989. The applicant stated that aerial photographs of the area surrounding the Fermi meteorological tower during this time period confirm the absence of significant air flow obstructions to wind measurements at the 10 meter elevation. The applicant concludes the CR and TSC χ/Q values from both sets of date (the 1985-1989 and the revised 2001-2007) are bounded by the corresponding ESBWR site parameter values presented in DCD Tier 2 Table 2.0-201.

The applicant provided a copy of the 1985-1989 data from the Fermi meteorological tower in its supplemental response to RAI 02.03.03-1. The staff compared these data against the 2001-2007 dataset and found the older dataset had lower frequencies of (1) low wind speed conditions at the 10-meter elevation and (2) extremely unstable (stability class A) conditions.

02.03.04-6

As part of the supplemental response to RAI 02.03.04-3 dated March 30, 2010, the applicant provided a revision to FSAR Table 2.0-201. This table provides a comparison of Fermi 3 site characteristic values to the ESBWR DCD site parameter values. In particular, Sheets 19 and 20 of FSAR Table 2.0-201 compare the Fermi 3 control room radwaste building unfiltered inleakage and air intake atmospheric dispersion (χ/Q) site characteristic values to corresponding ESBWR DCD site parameter values. Please justify the values selected as Fermi 3 site characteristics for this comparison.

Request for Additional Information No. 4884 Revision 1

SRP Section: 13.06.01 - Physical Security - Combined License
Application Section: NUREG-0800

13.06.01-48

In reference to Letter No. 29, dated May 17, 2010, NRC RAI 13.06.01-7, since it is intended to replace the existing NRC-approved PSP for Fermi 2 at some point in time yet undefined, will the Fermi site create a milestone in their implementation schedule to cover incorporating the COLA security plan as the operating unit security plan?

Regulatory Basis: Title 10 CFR 52.6, Completeness and accuracy of information, requires information provided "shall be complete and accurate in all material respects. "Subpart B of 10 CFR 52, § 52.79(a) (35) (i) and (ii) requires that information submitted for combined license (COL) include how the applicant will meet the requirements of lO CFR 73 and descriptions of implementation of the physical security plan.

13.06.01-49

In reference to Letter No. 29, dated May 17, 2010, the response to RAI 13.06.01-12 does not clearly address the intended question. The approved Fermi 2 PSP revision 9 is docketed as an operating reactor. Fermi 3 is being addressed as a COL application for review. To complete the review, provide information on the measures in place during the winter (between late fall and early spring) which is not addressed in the PSP revision 9 or Part 8 PSP revision 2. Provide information on the surveillance measures for this restricted area and the adjacent area or approach routes, as required in 10 CFR 73.55 and NEI 03-12 (Revision 6). Clarify whether measures are needed for the other waterways described in Section 1.1, or justify omission of the measures for the winter months.

Regulatory Basis: 10 CFR 73.55(e) (10) (ii) Waterborne vehicles. Identify areas from which a waterborne vehicle must be restricted, and where possible, in coordination with local, State and Federal agencies having jurisdiction over waterway approaches, deploy buoys, markers, or other equipment.

In accordance with site specific analysis, provide periodic surveillance and observation of waterway approaches and adjacent areas. 10 CFR 73.55(e)(1)(ii). Describe in the security plan, physical barriers, barrier systems, and their functions within the physical protection program.

13.06.01-50

In reference to Letter No. 29, dated May 17, 2010, the response to RAI 13.06.01-30 does not clearly address the intended question. The approved Fermi 2 PSP revision 9 is docketed as an operating reactor. Fermi 3 is being addressed as a COL application for review. To complete the review, provide information for the following: The information in the second paragraph is inconsistent with the information presented in Section 11.2.3 of the PSP, where it states the measures described here are only implemented during certain times of the year.

Clarify when these measures are in place and what is in place during other times of the year.

Regulatory Basis: 10 CFR 73.55(e) (10) (ii) Waterborne vehicles. Identify areas from which a waterborne vehicle must be restricted, and where possible, in coordination with local, State and Federal agencies having jurisdiction over waterway approaches, deploy buoys, markers, or other equipment.

In accordance with site specific analysis, provide periodic surveillance and observation of waterway approaches and adjacent areas. 10 CFR 73.55(e) (1) (ii). Describe in the security plan, physical barriers, barrier systems, and their functions within the physical protection program.

13.06.01-51

1. In Letter No. 26, dated May 3, 2010, NRC RAI 13.06.01-1, the response does not reflect the entire protective strategy of Fermi 2 and 3. Clarify how the strategy for the co-located site will be reflected in the revision of the Safeguards Assessment Report.

2. How will the security features identified in the Safeguards Assessment report be tracked for completion (e.g. corrective actions, commitment tracking program etc.)?

Regulatory Basis: 10 CFR Part 73.55(a): (2) The security plans must identify, describe, and account for site-specific conditions that affect the licensee's capability to satisfy the requirements of this section. (3) The licensee is responsible for maintaining the onsite physical protection program in accordance with Commission regulations through the implementation of security plans and written security implementing procedures.

Request for Additional Information No. 4885 Revision 2

SRP Section: 02 - Site Characteristics and Site Parameters
Application Section: FSAR 2.0

02-1

FSAR Table 2.0-201 shows that there are Fermi 3 long term dispersion estimate site characteristic values that do not fall within the corresponding ESBWR DCD site parameter values. Section C.III.1.9 of RG 1.206 states that if a COL application FSAR does not demonstrate that the site characteristics fall within the site parameters specified in the design certification, the application shall include a request for an exemption or departure, as appropriate, that complies with the requirements of the reference design certification rule and 10 CFR 52.93. Consequently, please justify why this is not listed as a departure in Part 7 of the Fermi 3 COL application.

Request for Additional Information No. 4891 Revision 2

SRP Section: 17.5 - Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants
Application Section: 17.5

17.5-23

Regulatory Guide (RG) 1.206, section C.I.1.9.1, "Conformance with Regulatory Guides," states:

Certified designs have already provided information addressing conformance with regulatory guides that were in effect 6 months before the submittal date of the design certification application. In accordance with the provisions of 10 CFR 52.63, "Finality of Standard Design Certifications," COL applicants who reference a certified design are not required to re-address conformance with regulatory guides for the portions of the facility design included in the referenced certified design. However, for the site-specific portions of the facility design that are not included in the referenced certified design, a COL applicant should address conformance with regulatory guides in effect 6 months before the submittal date of the COL application.

The Fermi 3 Combined License Application, Part 2: Final Safety Analysis Report (FSAR), Table 1.9-202, "Conformance with Regulatory Guides," evaluates conformance to various revisions of RG 1.26 and 1.29 and also references DCD Tables 1.9-21, 1.9-21a, and 1.9-21b. Please update FSAR Table 1.9-202 and the Fermi 3 QAPD (FSAR Appendix 17AA), Part IV, "Regulatory Commitments," to include only site-specific portions of the facility design that are not included in the referenced certified design.

Additionally, FSAR Table 1.9-202 evaluates conformance for RG 1.8, Rev. 3, May 2000, "Qualification and Training of Personnel for Nuclear Power Plants," RG 1.28, Rev. 3, August 1985, "Quality Assurance Program Requirements (Design and Construction)" and RG 1.33, Rev. 2, February 1978, "Quality Assurance Program Requirements (Operations)." Exceptions are noted for use of NQA-1(1994 Edition) as specified in the QAPD. However, the Fermi 3 QAPD, only commits to ASME NQA-1-1994 Edition, as stated in Part IV, "Regulatory Commitments," and does not commit to RG 1.8, RG 1.28, and RG 1.33.

RG 1.8, RG 1.28, and RG 1.33 provide methods acceptable to the staff for describing in the QAPD how many requirements of Appendix B to 10 CFR Part 50 will be met. The Fermi 3 QAPD should commit to these regulatory guides or provide justification of any proposed alternatives. Exceptions to methods described by these regulatory positions should be explicitly addressed in the Fermi 3 QAPD with detailed justification sufficient for the staff to evaluate compliance with the requirements of Appendix B to 10 CFR Part 50. Further, the Fermi 3 QAPD should be revised to clarify that changes to regulatory commitments described in the QAPD or incorporated by reference are subject to the change process defined by 10 CFR 50.54(a).

Note: the NRC staff has determined that NQA-1-1994 by itself does not meet each of the regulatory positions in RG 1.33. Please address each of the regulatory positions in RG 1.33 in a revised QAPD.