

August 12, 2009

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. 10 RELATED TO  
THE SRP SECTIONS 2.4.2, 2.4.3, 2.4.4, 2.4.5, 2.4.9, 2.4.12, 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 301-415-8148 or by e-mail at [Jerry.Hale@nrc.gov](mailto:Jerry.Hale@nrc.gov).

Sincerely,

*/RA/*

Jerry R. Hale, Project Manager  
ESBWR/ABWR Projects Branch 1  
Division of New Reactor Licensing  
Office of New Reactors

Docket Nos. 052-033

eRAI Tracking Nos. 3301, 3302, 3341, 3343, 3344, 3346, 3347, 3349, 3354, 3355, 3356, 3357, 3361, and 3421

Enclosure:  
Request for Additional Information

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Enclosure:

Request for Additional Information

Distribution:

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OFFICE	CQVP	RHEB	OGC	NGE1/LPM
NAME	JNakoski	RRaione	MCarpentier	MTonacci
DATE	7/23/09	7/20/09	8/5/09	8/11/09

\*Approval captured electronically in the electronic RAI system.

### **Request for Additional Information No. 3301 Revision 0**

SRP Section: 17.5 - Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants  
Application Section: 7.2

17.5-1

Appendix B to 10 CFR Part 50 states, in part, that every applicant for a combined license under part 52 is required to include in its final safety analysis report a description of the quality assurance applied to the design, and to be applied to the fabrication, construction, and testing of the structures, systems, and components of the facility.

The NRC endorsed the Nuclear Energy Institute (NEI) QAPD template (NEI 06-14A, "Template for an Industry Quality Program Description") as a method for providing a QAPD that meets the requirements of 10 CFR Part 50, Appendix B.

Detroit Edison Fermi 3 QAPD (FSAR Appendix 17AA) part II, section 7.2 describes an exception to NQA-1-1994, Supplement 7S-1, Section 10, "Commercial Grade Item," which states that Fermi 3 will also use other appropriate approved regulatory means and controls to support commercial grade dedication activities. Section 7.2 cites the Regulatory Issue Summary (RIS) 2002-22 as providing an approved regulatory method for commercial grade dedication. Attachment 1 to the RIS provides the NRC safety evaluation, documenting the basis for the guidelines documented in the RIS 2002-22.

The regulatory basis for accepting the methods outlined by RIS 2002-22 are 1) the acceptance criteria of SRP Chapter 7, which pertains to licensing of digital I&C and 2) requirements for implementing digital I&C replacements under the provisions of 10 CFR 50.59. However, RIS 2002-22 does not provide an approved regulatory method for commercial grade dedication. The staff requests that the reference be removed from the QAPD.

### **Request for Additional Information No. 3302 Revision 0**

SRP Section: 17.5 - Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants  
Application Section: 16.1

17.5-2

SRP section 17.5, section P, "Corrective Action (10 CFR Part 50, Appendix B, Criterion XVI)," states that specific responsibilities within the corrective action program may be delegated, but that the applicant still maintains responsibility for the program's effectiveness.

The Detroit Edison Fermi 3 QAPD (FSAR Appendix 17AA) part II, section 16.1 states, "Such a reporting program applies to safety-related activities and services performed by Fermi 3 and/or Fermi 3 suppliers / sub-suppliers providing input to the COL application development." Based on Detroit Edison Fermi 3 FSAR Section 17.5, it is unclear to the staff how Detroit Edison will monitor the effectiveness of the program. Please provide information on how Detroit Edison will accomplish this.

### **Request for Additional Information No. 3341 Revision 1**

SRP Section: 17.5 - Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants  
Application Section: FSAR part 2, chapter 17.5

17.5-3

10 CFR 52.79(a)(25) requires the applicant to provide a QA program consistent with Appendix B to 10 CFR Part 50 for design, fabrication and construction activities. Regulatory Guide 1.206 section C.I.17.5.3 states that the FSAR should 1) describe how the applicant will retain responsibility for, and maintain control over, those portions of the QA program delegated to other organizations, 2) should identify the responsible organization and the process for verifying that delegated QA functions are effectively implemented, 3) identify major work interfaces for activities affecting quality, and 4) describe how clear and effective lines of communication between the applicant and its principal contractors are maintained to assure coordination and control of the QA program.

FSAR part 2, chapter 17.5, states that 1) the Black & Veatch's Quality Assurance Program is used for the Detroit Edison Company COL Application Project, including the site characterization and COL preparation, 2) Detroit Edison provided oversight of the contracted activities by way of procurement control, control of purchased services, and oversight / surveillances of those activities and services, and 3) subsequent to contracting with Black & Veatch, Detroit Edison developed and implemented a Nuclear Development Quality Assurance Program which invokes the COLA contractor QA program for COLA activities.

Please clarify how FSAR part 2, chapter 17.5, meets the requirements of 10 CFR 52.79(a)(25) and provide justification for any exceptions to the guidance provided in Regulatory Guide 1.206. Specifically, explain how DTE retains responsibility and maintains control over those portions of the QA program that have been delegated to Black & Veatch, and how DTE verifies that delegated QA functions have been effectively implemented.

### **Request for Additional Information No. 3343 Revision 1**

SRP Section: 17.5 - Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants  
Application Section: FSAR part 2, chapter 17.5

17.5-4

Appendix B to 10 CFR Part 50 states, in part, that every applicant for a combined license under part 52 is required to include in its final safety analysis report a description of the quality assurance applied to the design, and to be applied to the fabrication, construction, and testing of the structures, systems, and components of the facility.

FSAR part 2, chapter 17.5, states, in part, that the Black & Veatch's Quality Assurance Program is used for safety-related COLA preparation activities performed prior to the start of construction (e.g., site characterization and COL preparation). In addition, FSAR part 2, chapter 17.5, states

that the QAPD described in FSAR Appendix 17AA will be applied during activities to adapt the design to specific plant implementation, construction, and operations.

Please clarify the expected scope of work for each QAPD related to design and procurement activities from the beginning of the Detroit Edison Company COL Application Project until the time the COL might be issued. In particular, please identify when and where these design and procurement activities would take place, and specifically under which QAPD the activities will be conducted.

In addition to supporting the staff's review of the COLA, this information will be used to support the planned inspection of the implementation of the Fermi 3 QAPD consistent with the guidance of Inspection Manual Chapter 2502, "Pre-Combined License (Pre-COL) Phase."

### **Request for Additional Information No. 3344 Revision 1**

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

Application Section: FSAR part 2, chapter 13.1 & appendix 13AA. Fermi 3 QAPD (FSAR part 2, appendix 17AA) part II, sections 1 & 2.5.

17.5-6

SRP Section 17.5 part II, subsection A, "Organization," states that the applicant's QAPD should 1) contain an organizational description that addresses the organizational structure, functional responsibilities, levels of authority, and interfaces, 2) include the onsite and offsite organizational elements that function under the cognizance of the QA program, 3) define the interface responsibilities for multiple organizations.

The Fermi 3 QAPD (FSAR Appendix 17AA) part II, section 1.2 and 1.3, uses organizational titles such as "technical services", "technical support and services", and "operations and maintenance". The FSAR part 2, chapter 13.1.1, uses organizational titles such as "management and technical support", "nuclear operations", "engineering and technical services", "maintenance support", and "operations support". FSAR part 2, figure 13.1-201, uses a third set of organizational titles that appear to differ from chapter 13.1 and the QAPD.

The Fermi 3 QAPD, section 1.2, also states the organizational transition from the construction phase to the operating phase is addressed in the FSAR part 2, chapter 13, while many sections of FSAR part 2, chapter 13, refers to "Section 17.5" for information on key positions, functions, and responsibilities. Examples include Appendix 13AA, "Design and Construction Responsibilities," chapter 13.1.1, "Management and Technical Support Organization," and chapter 13.1.2, "Operating Organization," and their subsections.

The Fermi 3 QAPD, section 2.5, states administrative control of the QAPD will be in accordance with 10 CFR 50.55(f) and 10 CFR 50.54(a), as appropriate. Staff review of regulatory requirements has identified that changes to the QAPD are made under 10 CFR 50.54(a) while changes to the FSAR are made under 10 CFR 50.59.

Please clarify the following for section 1 of the QAPD, or provide justification for any exceptions to the guidance provided in SRP Section 17.5 part II, subsection A:

- Define each organizational generic functional description, or title (as appropriate), provided in the Fermi 3 QAPD, and ensure consistency with the FSAR part 2, chapter 13.
- Describe the organizational structure for the COLA preparation, design, construction, and operational phases, and ensure cross-reference consistency between the Fermi 3 QAPD and FSAR part 2, chapter 13.
- Clarify whether 10 CFR 50.54(a) or 10 CFR 50.59 is intended to be applicable to changes made to the operating organizational description provided in FSAR part 2, chapter 13.

### **Request for Additional Information No. 3346 Revision 1**

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

Application Section: Fermi 3 QAPD (FSAR part 2, appendix 17AA) part II, section 1

17.5-5

SRP Section 17.5 part II, subsection A, "Organization," states, in part, that the applicant's QAPD should 1) contain an organizational description that addresses the organizational structure, functional responsibilities, levels of authority, and interfaces, 2) include the onsite and offsite organizational elements that function under the cognizance of the QA program, 3) clearly define the interface responsibilities for multiple organizations, and 4) require independence between the organization performing checking functions from the organization responsible for performing the functions.

The Fermi 3 QAPD (FSAR Appendix 17AA) part II, section 1, contains varying content and depth of position description information. Staff review identified that the QAPD does not appear to meet the organizational guidance of the SRP section 17.5 for all described positions. Please clarify the following for section 1 of the QAPD, or provide justification for any exceptions to the guidance provided in SRP Section 17.5 part II, subsection A:

- Provide organizational flowcharts (e.g. NEI 06-14A figures II.1-1 and II.1-2) outlining the interrelationships between the Detroit Edison Fermi Unit 3 corporate and onsite QA organizations.
- Define the organizational structure, interfaces, and, where appropriate, the authorities for the Chief Nuclear Officer (CNO), new plant oversight manager, and the operations and maintenance organization.
- Provide a separate subsection describing the organizational structure, interfaces, functional responsibilities and authorities for the executive in charge of MEP.
- Clarify the QAP implementation responsibilities of the "Operations and Maintenance", "Technical Support", and "Services" organizations.

- Define “nuclear facility operation” and “facility operation” referenced in section 1.3.1 and 1.3.2, and
- Describe the QA organizational independence during construction referenced in section 1.7.

**Request for Additional Information No. 3347 Revision 1**

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

Application Section: Fermi 3 QAPD (FSAR part 2, appendix 17AA) part II, section 2.7

17.5-7

Regulatory Guide (RG) 1.8, Revision 3, “Qualification and Training of Personnel for Nuclear Power Plants,” endorses the qualification criteria described in Section 4 of ANSI/ANS-3.1-1993, with certain exceptions. The Detroit Edison Fermi 3 QAPD (FSAR Appendix 17AA) part II, section 2.7, paragraph 1.a (Independent Review Body subsection), states a qualified person, independent of the preparer, reviews proposed changes in the procedures as described in the FSAR prior to implementation of the change to determine if a technical specification change or NRC approval is required.

Please describe the qualification requirements for the independent review staff. The qualification requirements for these personnel should meet or exceed those described in Section 4.7 of ANSI/ANS-3.1-1993 and the regulatory position of Regulatory Guide 1.8, Revision 3.

**Request for Additional Information No. 3349 Revision 1**

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

Application Section: Fermi 3 QAPD (FSAR part 2 appendix 17AA) part II, sections 1, 2, 4, 6, and 16

17.5-8

Appendix B to 10 CFR Part 50 states, in part, that every applicant for a combined license under part 52 is required to include in its final safety analysis report a description of the quality assurance applied to the design, and to be applied to the fabrication, construction, and testing of the structures, systems, and components of the facility.

The NRC endorsed the Nuclear Energy Institute (NEI) QAPD template (NEI 06-14A, “Template for an Industry Quality Program Description”) as a method for providing a QAPD that meets the requirements of 10 CFR Part 50, Appendix B.

FSAR Chapter 17.5 states the Fermi 3 QAPD is based on NEI 06-14A.

To ensure consistency with the NEI QAPD template, the following changes to the Fermi 3 QAPD (FSAR Appendix AA) part II are requested or, alternatively, please provide justification for any exceptions to the guidance provided in NEI 06-14A:

- Use “Fermi 3” vice “licensee” consistently in the QAPD (noted in sections 4 and 16),
- Define “corporate support” referenced in section 1, second sentence,
- Clarify the “COM 17AA-001” references in section 2.7,
- Clarify if the Fermi 3 new plant oversight manager is required to have one year of experience performing quality verification activities as referenced in section 2.6, second paragraph,
- Clarify the Independent Review Body responsibilities by inserting a section title “Independent Review Body” at the appropriate point in section 2.7, and
- Clarify if all conditions (a) through (e) in section 6.1 are required for procedure review, or if any one condition is sufficient.

### **Request for Additional Information No. 3354 Revision 0**

SRP Section: 02.04.02 - Floods  
Application Section: 2.4.2

02.04.02-1

The NRC staff request the following information in support of its review of the application:

- The source of information used for the rainfall intensity for various return periods.
- Details for the derivation of the time of concentrations for the drainage subareas as shown in Table 2.4-213. The rationale for choosing the 5-minute duration of PMP for calculation of the local flood should be provided for the staff review.
- The basis for selecting the 5-minute PMP duration (pg 2-441).
- A description of all assumptions used in calculating the local PMP run-off level, such as snowpack on the ground, drainage/culvert blockage, back water from Swan Creek, and any additional assumptions that were used in the calculation of run-off.
- The source of the multiplying factors used in Table 2.4-211 since these are different from the factors in HMR52.
- An evaluation of the effects of snowpack on PMP/PMF analysis. The evaluation for the PMF should include the most severe flooding condition including spring snowmelt for surrounding watershed.
- Information for the run-off and erosion protection for the slopes along the elevated area containing the safety related structures. The information should include pertinent information regarding the flow over the slopes and any necessary erosion protection.



- Data or figure representing the historical records of water levels for Lake Erie from 1860 to present. The historical records prior to 1970, are not provided or discussed in the FSAR. The FSAR should either include complete information in Section 2.4.2.1 or, If only post-1970 records are used in the derivation of the 100-year lake level for Lake Erie (Section 2.4.5.2.2.1), the applicant should provide justification that the derivation is appropriate and conservative.

### **Request for Additional Information No. 3355 Revision 0**

SRP Section: 02.04.03 - Probable Maximum Flood (PMF) on Streams and Rivers  
Application Section: 2.4.3

02.04.03-1

The staff has reviewed FSAR Section 2.4.3, Probable Maximum Flood on Streams and Rivers. In accordance with 100.20(c) and 52.79(a)(1)(iii), the NRC staff request the applicant provide additional information including the following:

- Additional information concerning the source of data used to develop several topographic cross-sections of Swan Creek (Figures 2.4-220 to 2.4-228) and additional information discussing the applicant's development and delineation of the creek on Figure 2.4-218. The source of the information to derive the cross-sections at locations of Swan Creek is not discussed. The Swan Creek boundary in the figure is not clear.
- Additional information on flow rates and basin characteristics for nearby, gauged streams that were used to estimate the flow rates of various return periods for Swan Creek. On pages 2-442 and 2-443, the Plum Brook watershed near Utica was used to estimate the 10%, 2%, 1%, 0.5% and 0.2% peak flows of Swan Creek. The applicant should provide justification for the use of Plum Brook to make the estimation and the process used to apply gauged stream estimates to Swan Creek. Additionally, the applicant should provide an updated estimate of the flow rates for Swan Creek after the gauged stream(s) is selected.
- Information on the calculations for precipitation losses and the discussion of the determination of composite CN value for the Swan Creek watershed used in the PMF calculation. The application does not clearly identify if precipitation losses (initial losses and constant rate losses) were considered in deriving the excess flows of Swan Creek using the NRCS method. The applicant should provide the details used to make the determination of CN.
- Provide information on the justification for ice jam determination for local area and lake. The applicant claimed that no historical ice jam was observed along Swan Creek during the audit although no basis was provided. The applicant should demonstrate that a reasonable search has been conducted.

### **Request for Additional Information No. 3356 Revision 0**

SRP Section: 02.04.04 - Potential Dam Failures  
Application Section: 2.4.4

02.04.04-1

The staff has reviewed FSAR Section 2.4.4, Potential Dam Failures. In accordance with 100.20(c) and 52.79(a)(1)(iii), the NRC staff request the applicant provide additional information on the justification for the statement regarding dams in the watershed. In Section 2.4.3.4, the second paragraph states that "There are no dams existing within the Swan Creek watershed ...". The applicant should demonstrate that a reasonable search of records or applicable databases has been conducted to support its conclusion.

### **Request for Additional Information No. 3357 Revision 0**

SRP Section: 02.04.09 - Channel Diversions  
Application Section: 2.4.9

02.04.09-1

The staff has reviewed the FSAR Section 2.4.9, Channel Diversions. In accordance with 100.20(c) and 52.79(a)(1)(iii), the NRC staff request that the applicant provide justification or evidence that the possibility of a diversion along Swan Creek from ice, landslide or other mechanism is unlikely.

### **Request for Additional Information No. 3361 Revision 0**

SRP Section: 02.04.05 - Probable Maximum Surge and Seiche Flooding  
Application Section: 2.4.5

02.04.05-1

The staff has reviewed the Section 2.4.5, Probable Maximum Surge and Seiche Flooding. In accordance with 100.20(c) and 52.79(a)(1)(iii), the NRC staff request that the applicant provide additional information including:

- Provide all hourly lake-level data that were used to calculate the 100-year lake level. The information would be used to verify the applicant's calculation results.
- Provide lake level updates of Lake Erie to include the maximum hourly water levels observed at Fermi 3 station and Bar Point station (about 9 miles north of Fermi 3). During the site audit, applicant states that the maximum recorded lake level is approximately 1 ft higher than the calculated 100-year lake level.
- Revise the title of Table 2.4-210 to clarify the nature of the data listed in the table. Staff also found that the nature of data listed in Table 2.4-210 is not clear, It could be read as: maximum monthly lake level, maximum daily lake level in a month, or maximum hourly lake level in a month.

- Provide the calculated results of surge for Lake Erie by US Army Corps of Engineers. The requested information could be used for comparison and verification.

### **Request for Additional Information No. 3421 Revision 0**

SRP Section: 02.04.12 - Groundwater

Application Section: 2.4.12

02.04.12-1

The staff has reviewed the FSAR Section 2.4.12, Groundwater. In accordance with 100.20(c) and 52.79(a)(1)(iii), the NRC staff request that the applicant provide information on the assumed release point of potential radioactive contaminants and its justification in the pathway analysis. This information was not explicitly provided in the application.