



10 CFR 52.79

August 12, 2011
NRC3-11-0031

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

References: 1) Fermi 3
Docket No. 52-033
2) Letter from Michael Eudy (USNRC) to Jack M. Davis (Detroit Edison),
"Request for Additional Information Letter No. 64 Related to Section 9.2.4 for
the Fermi 3 Combined License Application," dated July 27, 2011

Subject: Detroit Edison Company Response to NRC Request for Additional Information
Letter No. 64

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) in Reference 2, RAI 09.02.04-1, concerning potable and sanitary water systems, is provided as Attachment 1 to this letter.

Information contained in this response will be incorporated into a future COLA submission as described in the RAI response.

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 12th day of August 2011.

Sincerely,

A handwritten signature in black ink, appearing to read "PWS", written over a horizontal line.

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

D095
MEO

USNRC
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Attachment: 1) Response to RAI Letter No. 64 (Question No. 09.02.04-1)

cc: Adrian Muniz, NRC Fermi 3 Project Manager
Michael Eudy, NRC Fermi 3 Project Manager
Raj Anand, NRC Fermi 3 Project Manager (w/o attachment)
Jerry Hale, 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 to
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Attachment 1
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(5 pages)

Response to RAI Letter No. 64
(eRAI Tracking No. 5905)

RAI Question No. 09.02.04-1

NRC RAI 09.02.04-1

10 CFR 50 Appendix A, Criterion 2 states that structures, systems, and component (SSCs) important to safety shall be designed to withstand the effects of natural phenomena such as earthquakes and floods.

10 CFR 50 Appendix A, Criterion 4 states that SSCs important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operations, maintenance, testing, and postulated accidents.

ESBWR Design Control Document (DCD) Revision 9, Table 3.2-1, "Classification Summary," describes the potable water and sanitary waste system (U42) as being seismic category NS and located in the reactor building, service building, control building, electrical building, outdoors onsite, turbine building, and any other location.

ESBWR DCD Revision 9, Section 3.4.1 "Flood Protection," does not specifically account for or credit the flooding analysis including the U42 system.

ESBWR DCD Revision 9, Section 9.2.4, "Potable and Sanitary Water System," describes the U42 system as conceptual design and will be replaced with site-specific design information in the COLA FSAR.

Fermi 3 COL FSAR, Revision 3, Section 3.4, "Water Level (Flood) Design," states the there are no departures or supplements.

Fermi 3 COL FSAR, Revision 3, Section 9.2.4, "Potable and Sanitary Water System," describes the potable water system (PWS) and sanitary water discharge system (SWDS) and that failure of the system does not compromise any safety-related equipment or component and does not prevent safe shutdown of the plant. In addition, Table 9.2-203, "Potable Water System Component Design Characteristics (CDI)," states that the potable water storage tank is 75.7 m³ (20,000 gallons). Specifically, the applicant should address in the COL FSAR the following with respect to the potable and sanitary water system:

- 1. The exact location of the potable water storage tank with respect to building or yard location.*
- 2. Discussion of the potable water storage tank and any bounding flooding analysis in Sections 3.4 and 9.2.4 of the COL FSAR and any effects on safety related SSCs. If the tank is located in the yard, discuss the site grading around the tank and direction of water away from safety related SSCs.*
- 3. Discussion of this potable water storage tank and any bounding flooding analysis in Sections 3.4 and 9.2.4 of the COL FSAR and any effects on the non-safety related SSCs that are designated as "Regulatory Treatment of Nonsafety-Related Systems" (RTNSS) SSCs. If the tank is located in the yard, discuss the site grading around the tank and direction of water away from RTNSS SSCs.*
- 4. Discussion in Section 9.2.4 of the PWS and SWDS, specifically the potable water storage tank, related to GDC 2.*
- 5. Discussion in Section 9.2.4 of the PWS and SWDS, specifically the potable water storage tank, related to GDC 4 as it related to discharging fluids which may result from PWS and SWDS equipment failures.*

Response

The potable water storage tank will be located inside the Water Treatment/Service Water Building. There are no safety related Structures, Systems, or Components (SSCs) in the Water Treatment/Service Water Building. In the event that a failure of the potable water storage tank resulted in water exiting the Water Treatment/Service Water Building, the water would flow away from any safety related SSCs as shown on the final grade drainage area figures, FSAR Figures 2.4-215 and 2.4-217.

The Plant Service Water System (PSWS) is a Regulatory Treatment of Nonsafety-Related Systems (RTNSS) system with components located inside and outside the Water Treatment/Service Water Building. Per ESBWR DCD Table 19A-4, design and installation of RTNSS equipment in the Water Treatment/Service Water Building includes protection from the effects of internal flooding and PSWS equipment located outdoors includes protection from flooding. Therefore, RTNSS equipment located inside and outside the Water Treatment/Service Water Building will be protected from flooding caused by a postulated failure of the potable water storage tank.

As stated in FSAR Subsection 9.2.4.3, the Potable Water System (PWS) and Sanitary Waste Drain System (SWDS) are not safety related and do not connect to any safety related systems. As described above, failure of the potable water storage tank would not adversely impact any safety related or RTNSS SSCs; therefore, those safety related and RTNSS SSCs satisfy 10 CFR 50 Appendix A Criteria 2 and 4.

Proposed COLA Revision

The proposed COLA revision to FSAR Section 9.2.4.2 is shown on the attached markup.

Markup of Detroit Edison COLA
(following 1 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.

9.2.4.1 Design Bases

Safety Design Basis

EF3 CDI

The Potable Water System (PWS) and Sanitary Waste Discharge System (SWDS) do not perform any safety-related function. Therefore, the PWS and SWDS have no safety design bases.

Power Generation Design Basis

The PWS and SWDS are designed to provide potable water supplies and sewage collection necessary for normal plant operation and shutdown periods. The PWS provides sufficient supply and is designed to supply 12.6 liters per second (200 gallons per minute) of potable water during peak demand periods. The PWS is designed to produce and maintain the quality of water required by the authorities having jurisdiction.

9.2.4.2 System Description

Potable Water System

The PWS consists of pumps, water heaters, and interconnecting piping and valves as shown on [Figure 9.2-201](#). PWS component characteristics are shown in [Table 9.2-203](#). Treated water from the Frenchtown Township system is supplied to the potable water storage tank. In addition to non-radiological areas, potable water is provided to areas where inadvertent backflow into the system could result in radiological contamination of the potable water. For those branches with outlets in areas where the potential for radiological contamination exists, backflow prevention is provided through the installation of backflow preventers.

located in the Water Treatment/
Service Water Building

Sanitary Waste Discharge System

The SWDS consists of waste basin, wet well, septic tank, settling tank, wet well pumps, sewage discharge pumps and associated valves, piping and controls. Sewage is pumped from the septic tank to the Frenchtown Township Sewage Treatment facility. Since the effluent from the SWDS is routed to a water treatment facility, and not discharged to the environment, it is not necessary for the effluent to meet federal, state and local permits. A simplified diagram of the SWDS is shown in [Figure 9.2-202](#).