



10 CFR 52.79

August 16, 2011
NRC3-11-0030

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

References: 1) Fermi 3
Docket No. 52-033
2) Letter from Raj Anand (USNRC) to Jack M. Davis (Detroit Edison), "Request for Additional Information Letter No. 63 Related to the SRP Chapter 19 for the Fermi 3 Combined License Application," dated July 27, 2011

Subject: Detroit Edison Company Response to NRC Request for Additional Information Letter No. 63

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 Request for Additional Information (RAI) in Reference 2, RAI 19.03-38, concerning loss of large areas of the plant due to explosions or fire, is provided as Attachment 1 to this letter.

Additionally, this letter addresses an open item discussed during a conference call with NRC staff on July 14, 2011. NRC staff identified an open item related to FSAR Table 13.4-201 and Part 10, Section 3, "Fermi 3 Proposed License Conditions." To resolve this open item, the Security Programs listed in Table 13.4-201 that were addressed by a license condition were revised to be required by 10 CFR 73.55(a)(4). Part 10, Section 3 was also revised to include those items listed in FSAR Table 13.4-201 where license conditions were proposed as the implementation requirement. Part 10 is now comprehensive in listing all license conditions in the Fermi 3 COLA.

Attachment 2 contains COLA markups that incorporate the changes outlined in both RAI 19.03-38 and this open item.

D095
NRO

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 16th day of August 2011.

Sincerely,



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

Attachments: 1) Response to RAI Letter No. 63 (Question No. 19.03-38)
 2) COLA Markups Addressing RAI 19.03-38 and Open Item Related to FSAR
 Table 13.4-201 and Part 10, Section 3

cc: Adrian Muniz, NRC Fermi 3 Project Manager
 Raj Anand, NRC Fermi 3 Project Manager
 Michael Eudy, 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 (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 and Environment
 Radiological Protection Section (w/o attachments)

Attachment 1
NRC3-11-0030
(4 pages)

Response to RAI Letter No. 63
(eRAI Tracking No. 5858)

RAI Question No. 19.03-38

NRC RAI 19.03-38

In your response to RAI 19.03-7 you indicate that full implementation of the guidance and strategies required under 10 CFR 50.54(hh)(2) may not be completed until the start of commercial operation. As you know, the NRC has indicated in DC/COL-ISG-016 that it expects:

- 1. To support the NRC inspection program, an item related to 10 CFR 50.54(hh)(2) should be incorporated into the standard license conditions in Chapter 13 of the FSAR related to (1) implementation of specified programs and (2) submitting schedules to support planning for and conduct of NRC inspections;*
- 2. The guidance and strategies required under 10 CFR 50.54(hh)(2) will be fully implemented no later than the time nuclear fuel is first loaded into the reactor and maintained until all nuclear fuel is permanently removed from the site.*

The NRC has indicated in DC/COL-ISG-016 the requirements in 10 CFR 50.54(hh)(2) are necessary for adequate protection of the public.

In light of this, please indicate whether or not you will revise Section 3 of Part 10 of your application for a combined license to include the following license condition:

The licensee shall submit to the appropriate Director of the NRC, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the operational programs in the FSAR table have been fully implemented or the plant has been placed in commercial service, whichever comes first. This schedule shall also address:

- a. full implementation of the operational and programmatic elements of responding to an event associated with a loss of large areas of the plant due to explosions or fire, prior to initial fuel load.*

If you do not plan to include such a license condition in your application, please explain why having less than full implementation of the required guidance and strategies during periods the reactor may operate at a substantial power level for purposes of testing constitutes adequate protection of the public.

Response

FSAR Table 13.4-201 contains Item 21, "Mitigative Strategies Descriptions and Plans," as a proposed license condition to incorporate the requirements of 10 CFR 50.54(hh)(2) and 10 CFR 52.80 prior to fuel load authorization per 10 CFR 52.103(g).

As requested, Part 10, Section 3, will be revised to include a proposed license condition related to schedules to support planning for and conduct of NRC inspections. The proposed license condition encompasses all operational programs listed in FSAR Table 13.4-201, including Item 21 related to an event associated with a loss of large areas of the plant due to explosions or fire.

The proposed license condition added by this response was compared to the similar proposed license condition in the Vogtle Units 3 and 4 COLA. The Vogtle "Operational Program Readiness" proposed license condition addresses nine programs in addition to the programs found in Vogtle FSAR Table 13.4-201. Detroit Edison has reviewed these programs' applicability to the Fermi 3 COLA.

The following programs listed in the Vogtle COLA are not applicable to the ESBWR design:

- b. The reactor vessel pressurized thermal shock evaluation at least 18 months prior to initial fuel load.
- g. The implementation of construction and inspection procedures for concrete filled steel plate modules activities before and after concrete placement, use of construction mock-ups, and inspection of modules before and after concrete placement as discussed in DCD Subsection 3.8.4.8.
- h. The availability of documented instrumentation uncertainties to calculate a power calorimetric uncertainty, prior to initial fuel load.
- i. The availability of administrative controls to implement maintenance and contingency activities related to the power calorimetric uncertainty instrumentation, prior to initial fuel load.

The following programs listed in the Vogtle COLA are included in Fermi 3 FSAR Table 13.4-201, and therefore do not need to be listed as additional programs under the proposed license condition:

- c. The approved preoperational and startup test procedures (including the site-specific startup administration manual (procedure) prior to initiating the plant initial test program) in accordance with FSAR Subsection 14.2.3. [Fermi 3 FSAR Table 13.4-201, Item 19]
- d. The flow accelerated corrosion (FAC) program implementation, including the construction phase activities. [Fermi 3 FSAR Table 13.4-201, Item 1]
- e. Full implementation of the operational and programmatic elements of responding to an event associated with a loss of large areas of the plant due to explosions or fire, prior to initial fuel load. [Fermi 3 FSAR Table 13.4-201, Item 21]

The following programs listed in the Vogtle COLA are considered applicable to the ESBWR design and are not included in Fermi 3 FSAR Table 13.4-201; therefore, they will be included as additional programs under the proposed license condition being added by this response:

- a. The implementation of site specific Severe Accident Management Guidance.
- f. The spent fuel rack coupon monitoring program implementation.

The following proposed license condition will be added to Part 10, Section 3, of the Fermi 3 COLA:

The licensee shall submit to the appropriate Director of the NRC, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the operational programs

in the FSAR table have been fully implemented or the plant has been placed in commercial service, whichever comes first. This schedule shall also address:

- a. The implementation of site specific Severe Accident Management Guidance.
- b. The spent fuel rack coupon monitoring program implementation.

The license condition contained in Part 10, Section 3.2.3, is encompassed by the proposed license condition being added in this response; therefore, it is no longer necessary and is deleted.

Proposed COLA Revision

The proposed COLA revision to Part 10, Section 3, is included in Attachment 2.

**Attachment 2
NRC3-11-0030**

**COLA Markups Addressing RAI 19.03-38 and Open Item
Related to FSAR Table 13.4-201 and Part 10, Section 3
(following 15 pages)**

Table 13.4-201 Operational Programs Required by NRC Regulations (Sheet 6 of 9)

[STD COL 13.4-1-A] [STD COL 13.4-2-A]

Item	Program Title	Program Source (Required by)	Section	Implementation	
				Milestone	Requirement
	Physical Security Program	10 CFR 73.55		Prior to fuel onsite (Protected Area)	License Condition [COM 13.4-017]
		10 CFR 73.56			
		10 CFR 73.57			
	Safeguards Contingency Program	10 CFR 52.79(a)(36)	13.6	Prior to fuel onsite (Protected Area)	License Condition [COM 13.4-017]
		10 CFR 73.55			
		10 CFR 73, Appendix C			
	Training and Qualification Program	10 CFR 73, Appendix B	13.6	Prior to fuel onsite (Protected Area)	License Condition [COM 13.4-017]
	Cyber Security Plan	10 CFR 73.54	13.6	Prior to fuel onsite (Protected Area)	License Condition [COM 13.4-032]
		10 CFR 73.55			
		10 CFR 52.79(a)(36)			
	(portions applicable to radioactive material)	10 CFR 30.32	13.6	Prior to initial receipt of byproduct source, or special nuclear materials (excluding Exempt Quantities as described in 10 CFR 30.18)	10 CFR 30.32(a) 10 CFR 40.31(a) 10 CFR 73.1(a) [COM 13.4-030]
		10 CFR 40.31			
	FFD Program for Construction (Workers and First Line Supervisors)	10 CFR 26.4(f)	13.7	Prior to initiating 10 CFR 26 construction activities	10 CFR 26, Subpart K [COM 13.4-018]
	FFD Program for Construction (Management and Oversight Personnel)	10 CFR 26.4(e)	13.7	Prior to initiating 10 CFR 26 construction activities	10 CFR 26, Subparts A through H, N and O [COM 13.4-018]

3. Fermi 3 Proposed License Conditions

3.1 Emergency Planning Actions:

The COL Application does not contain final versions of some implementation aspects of emergency planning such as Letters of Agreement because these Agreements will not be executed until it is necessary to implement those aspects of the plan. Thus the COL applicant is proposing the following License Condition.

Proposed License Condition:

Prior to loading fuel, Detroit Edison shall execute formal Letters of Agreement with the following entities:

1. Michigan State Police
2. Monroe County Emergency Management Division
3. Wayne County Department of Homeland Security & Emergency Management
4. Frenchtown Charter Township Fire Department
5. Mercy Memorial Hospital Corporation
6. Monroe Community Ambulance
7. Oakwood Southshore Medical Center
8. Ohio Emergency Management Agency
9. Monroe County Community College

These Letters of Agreement will identify the specific nature of arrangements in support of emergency preparedness for operation of the proposed new nuclear unit. The Emergency Plan shall be revised to include these Letters of Agreement after they have been executed.

3.2 License Conditions for Initial Test Program

There are Initial Test Program COL information items that cannot be resolved prior to issuance of the Combined License. Therefore, in accordance with the guidance in Regulatory Guide 1.206, section C.III.4.3, the following License Conditions are proposed to address these COL items.

3.2.1 Startup Administrative Manual, STD COL 14.2.2-A

Prior to initiating the plant's initial test program (ITP), a site specific startup administration manual (SAM) (procedures), which includes administrative procedures and requirements that govern the activities associated with the plant ITP is to be provided to on-site NRC inspectors 60 days prior to their intended use.

3.2.2 Preoperational and Startup Test Procedures, STD COL 14.2.3-A

During the post-licensing period, preoperational and startup test procedures will be subject to a license condition for NRC inspections to verify that the licensee implements the ITP. This process will allow for the performance of necessary plant as-built inspections and walk downs. The licensee will make available to on-site NRC inspectors preoperational and startup test procedures 60 days prior to their intended use.

3.2.3 Program Schedule and Sequence, STD COL 14.2-4-A

Prior to initial fuel load, the licensee shall submit a schedule, no later than 12 months after issuance of the COL, and updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the operational program for the ITP in FSAR Table 13.4-201, Item 19, has been Deleted ☐ emented or the plant has been placed in commercial service, whichever comes first. This schedule shall support implementation details of the ITP and planning for the conduct of NRC inspections of operational programs listed in FSAR Table 13.4-201, Item 19.

**3.2.4 Site-Specific Preoperational and Startup Test Procedures, Enrico Fermi Unit 3 EF3
COL 14.2-6-A**

During the post-licensing period, site-specific preoperational and startup test procedures will be subject to NRC inspections to verify that the licensee implements the ITP. This process will allow for the performance of necessary plant as-built inspections and walk downs. The licensee will make available to on-site NRC inspectors site-specific preoperational and startup test procedures 60 days prior to their intended use.

3.2.3

3.2.5 Power Ascension Test Phase Reports, STD SUP 14.2.2-A

Certain milestones in the startup testing phase of the ITP (e.g., pre-critical testing, criticality testing, and low-power testing) should be controlled to ensure that the designated licensee management reviews, evaluates, and approves relevant test results before proceeding to the power ascension test phase. Accordingly, the licensee shall perform the following:

3.2.4

- (a) Following completion of all pre-critical and criticality testing, the licensee shall confirm that the test results are within range of values predicted in the acceptance criteria in the facility's FSAR. Following these licensee confirmations; the licensee may conduct low power testing and operate the facility at reactor steady-state core power levels not in excess of 5 percent power, in accordance with the conditions of the license.
- (b) Following completion of all low-power testing the licensee shall confirm that the test results are within the range of values predicted in the acceptance criteria in the facility's FSAR. After completing and evaluating low-power test results, the licensee may conduct power ascension testing and will operate the facility at reactor steady-state core power levels not in excess of 100 percent power, in accordance with the conditions of the license.

The licensee is responsible for the review and evaluation of the adequacy of test results presented in the Power Ascension Test Phase reports, as well as final review of overall test results in these reports. Test results, which do not meet acceptance criteria, are identified and corrective actions and retests are performed. The Power Ascension Test Phase reports shall be made available to on-site NRC inspectors.

3.2.6 Test Changes

Within one month of any ITP changes described in Fermi Units 3 FSAR Section 14.2, the licensee shall evaluate these changes in accordance with the provisions of 10 CFR 50.59 or the change process defined in the ESBWR Appendix to 10 CFR Part 52 for the certification design and report them in accordance with 10 CFR 50.59(d).



3.2.5

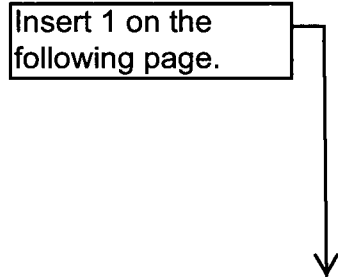
3.3 License Conditions for Byproduct, Source and Special Nuclear Material

The proposed following standard license conditions and requirements for COLs regarding 10 CFR Parts 30, 40, and 70 are considered appropriate to support the Detroit Edison Fermi 3 COL:

1. (i) Pursuant to the Act and 10 CFR Part 70, to receive and possess at any time, special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, described in the final safety analysis report (FSAR), as supplemented and amended

(ii) Pursuant to the Act and 10 CFR Part 70, to use special nuclear material as reactor fuel, after the finding in Section 2.D (1) of this license has been made, in accordance with the limitations for storage and amounts required for reactor operation, and described in the FSAR, as supplemented and amended;
2. Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use, at any time, any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
3. Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required, any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
4. Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

Insert 1 on the
following page.



Insert 1 (previously submitted in Detroit Edison letter NRC3-11-0020 [ML11171A568])

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.

Insert 2 on the
following page.



3.5 Operational Program Implementation

The provisions of the regulations address implementation milestones for some operational programs. The NRC will use license conditions to ensure implementation for those operational programs whose implementation is not addressed in the regulations. FSAR Table 13.4-201 identifies several programs required by regulations that must be implemented by a milestone to be identified in a license condition:

The licensee shall implement the programs or portions of the programs identified below on or before the associated milestones identified below.

3.5.1 18 months prior to Fuel Load

The licensee shall implement the operational program identified below at least 18 months prior to scheduled date of initial fuel load.

- Reactor Operator Training Program

3.5.2 Receipt of Materials

The licensee shall implement the operational program identified below prior to initial receipt of byproduct, source, or special nuclear materials onsite (excluding Exempt Quantities as described in 10 CFR 30.18).

- Radiation Protection Program (for elements necessary to support receipt of byproduct, source, or special nuclear materials onsite)

3.5.3 Fuel Receipt

The licensee shall implement each operational program identified below prior to initial receipt of fuel onsite.

- Fire Protection Program (for elements necessary to support receipt and storage of fuel onsite)
- Radiation Protection Program (for elements necessary to support receipt and storage of fuel onsite)

3.5.4 60 days prior to Preoperational Testing

The licensee shall implement the operational program identified below 60 days prior to the scheduled date of the first preoperational test.

- Initial Test Program – Preoperational Test Program

3.5.5 Fuel Load Authorization

The licensee shall implement the operational program identified below prior to fuel load authorization per 10 CFR 52.103(g).

- Mitigative Strategies Description and Plans

3.5.6 60 days prior to Fuel Loading

The licensee shall implement the operational program identified below 60 days prior to the scheduled date of initial fuel load.

- Initial Test Program – Startup Test Program

3.5.7 Fuel Loading

The licensee shall implement each operational program identified below prior to initial fuel load.

- Environmental Qualification Program
- Reactor Vessel Material Surveillance Program
- Preservice Testing Program
- Fire Protection Program (for elements necessary to support fuel load and plant operation)
- Process and Effluent Monitoring and Sampling Program
- Radiation Protection Program (for elements necessary to support fuel load and plant operation)
- Snubber Testing and Inspection Program – Preservice Testing Program
- Lifecycle Minimization of Contamination

3.5.8 Commercial Service

The licensee shall implement the operational program identified below prior to initial commercial service.

- Flow-Accelerated Corrosion Program

3.5.9 Waste Shipment

The licensee shall implement the operational program identified below prior to initial radioactive waste shipment.

- Radiation Protection Program (for elements necessary to support shipment of radioactive waste)

3.6 Operational Program Readiness

The licensee shall submit to the appropriate Director of the NRC, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until either the operational programs in the FSAR table have been fully implemented or the plant has been placed in commercial service, whichever comes first. This schedule shall also address:

- a. The implementation of site specific Severe Accident Management Guidance.
- b. The spent fuel rack coupon monitoring program implementation.

3.7 Emergency Planning Actions

Because various equipment set points and other information cannot be determined until as-built information is available, the COLA does not fully address certain aspects of the Emergency Action Level (EAL) scheme. Thus, COL applicants using EAL schemes in accordance with NEI 07-01 are proposed the following license condition:

The licensee shall submit a fully developed set of site-specific EALs to the NRC in accordance with the NRC-endorsed version of NEI 07-01, Revision 0, with no deviations. The fully developed site-specific EAL scheme shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.