The Detroit Edison Company
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DTE Energy
Detroit Edison

10 CFR 52.79

August 13, 2010
NRC3-10-0034

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

References: 1) Fermi 3
Docket No. 52-033
2) Letter from Jerry Hale (NRC) to Jack M. Davis (Detroit Edison), "Request for Additional Information Letter No. 37 Related to the SRP Sections 2.5.1, 13.3 and 17.5 for the Fermi 3 Combined License Application," Dated June 30, 2010

Subject: Detroit Edison Company Response to NRC Requests for Additional Information Letter No. 37

In Reference 2, the NRC requested additional information to support the review of certain portions of the Fermi 3 Combined License Application (COLA). The responses to the Request for Additional Information (RAI) associated with Reference 2, SRP Sections 2.5.1, 13.3, and 17.5 are provided as Attachment 1 through 7 of this letter. Information contained in these responses will be incorporated into a future COLA submission as described in the attachments.

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 13th day of August 2010.

Sincerely,

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

D095
NRO

Attachments:
1) Response to RAI Letter No. 37, RAI Question No. 13.03-52
2) Response to RAI Letter No. 37, RAI Question No. 13.03-53
3) Response to RAI Letter No. 37, RAI Question No. 17.5-20
4) Response to RAI Letter No. 37, RAI Question No. 17.5-21
5) Response to RAI Letter No. 37, RAI Question No. 17.5-22
6) Response to RAI Letter No. 37, RAI Question No. 02.05.01-31
7) Response to RAI Letter No. 37, RAI Question No. 02.05.01-32

cc: Jerry Hale, NRC Fermi 3 Project Manager
Adrian Muniz, NRC Fermi 3 Project Manager
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 of Environmental Quality, Radiological Protection and Medical Waste Section (w/o attachments)

Attachment 1
NRC3-10-0034

Response to RAI Letter No. 37
(eRAI Tracking No. 4786)

RAI Question No. 13.03-52

NRC RAI 13.03-52

Supplemental RAI 13.03-17: Subject: ETE General Assumptions

The applicant's response to Supplemental RAI 13.03-01 regarding all households awaiting the return of a commuter(s) addressed the affect on the number of vehicles in the evacuation stream and the reduction in transit-dependent persons in Section 8, "Transit Facility and Special Facility Evacuation Time Estimates." However, Section 5, "Estimation of Trip Generation Time," also contains references in text, tables, and figures to commuters who do not return home and households that do not await the return of a commuter. Revise the distributions and text references regarding commuters in Section 5 to account for the households delay in evacuating until commuters return home, mobilization and evacuation distributions change, or explain why the distributions that include commuters in Figure 5-3, "Comparison of Trip Generation Distributions," and Table 5-1, "Trip Generation Histograms for the EPZ Population," remain appropriate.

Response

The original response to Letter 25, NRC RAI 13.03-36: Supplemental RAI 13.03-01 was submitted in Detroit Edison letter NRC3-10-0016 (ML101190369), dated April 16, 2010.

As indicated in Figure F-6 of the ETE report, 38% of households have no commuters. Thus, there is still a need for separate distributions for households with commuters and households without commuters. The distributions in Figure 5-3 and Table 5-1 are valid. The "Residents with Commuters" distribution is applicable for all households with a commuter, while the distribution "Residents, No Commuters" (labeled as "Residents without Commuters" in Table 5-1) is applicable for the 38% of households who have no commuters.

As noted in the text of this RAI, there are several references in the revised ETE report (in text, tables and figures) of commuters who do not return home and households that do not await the return of a commuter. The ETE report has been revised as indicated below to remove these references and to be consistent with the response to Supplemental RAI 13.03-01.

Proposed COLA Revision

The following changes are presented in the "Fermi Nuclear Power Plant Development of Evacuation Time Estimates Report" as shown in the attached markups.

1. Revised Table 1-1 "ETE Study Comparisons".

2. Revised page 5-4 of the ETE report.

3. Revised Figure 5-1 "Events and Activities Preceding the Evacuation Trip".

4. Revise page 5-12, first paragraph of the ETE report.

5. Revised page 5-13 of the ETE report.

6. Revised Table 6-3 "Percent of Population Groups Evacuating for Various Scenarios".

Markup of Detroit Edison COLA
(following 6 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in a future submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by revisions to the ESBWR DCD, 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.

Table 1-1. ETE Study Comparisons (cont.)		
Roadway Geometric Data	Field surveys conducted. Date not provided.	Field surveys conducted in 2008. Major intersections were video archived. GIS shape-files of signal locations and roadway characteristics created during field survey. Road capacities based on HCM.
School Evacuation	Direct evacuation to designated Reception Center/Host School.	Direct evacuation to designated Reception Center/Host School.
Transit Dependent Population	Transit dependent population is mentioned; however, no estimate of this population is provided.	Defined as households with 0 vehicles ~~+ households with 1 vehicle with commuters who do not return home + households with 2 vehicles with commuters who do not return home. Telephone surveys results used to estimate transit dependent population.~~
Ridesharing	Assumed 100 percent of transit dependent population will ride out with neighbors or "designated public service vehicles".	50 percent of transit dependent persons will ride out with a neighbor or friend.
Trip Generation for Evacuation	2 hours and 45 minutes for daytime – normal weather. 3 hours and 5 minutes for daytime – adverse weather. 1 hour and 15 minutes for nighttime scenarios. Trip generation rates based on assumptions for notification time, time to prepare to leave work, time to travel home from work, and time to prepare the home for departure.	Based on residential telephone survey of specific pre-trip mobilization activities: Residents with commuters returning leave between 30 minutes and 4 hours. ~~Residents without~~ commuters ~~returning~~ leave between 15 minutes and 3 hours. Employees and transients leave between 15 minutes and 2 hours. All times measured from the Advisory to Evacuate.

Households with no

An employee who lives outside the EPZ will follow sequence (c) in Figure 5-1. A household within the EPZ that has one or more commuters at work, and will await their return before beginning the evacuation trip will follow the first sequence of sequence (a) in Figure 5-1. A household within the EPZ that has no commuters at work~~, or that will not await the return of any commuters,~~ will follow the second sequence of sequence (a) in Figure 5-1, regardless of day of week or time of day. Note that event 5, "Leave to evacuate the area," is conditional either on event 2 or on event 4. For this study, we adopt the conservative posture that all activities will occur in sequence.

Households with no commuters on weekends or in the evening/night-time, will follow the applicable sequence of sequence (b) in Figure 5-1. Transients will always follow one of the sequences of sequence (b) in Figure 5-1. Some transients away from their residence could elect to evacuate immediately without returning to the residence, as indicated in the second sequence of sequence (b).

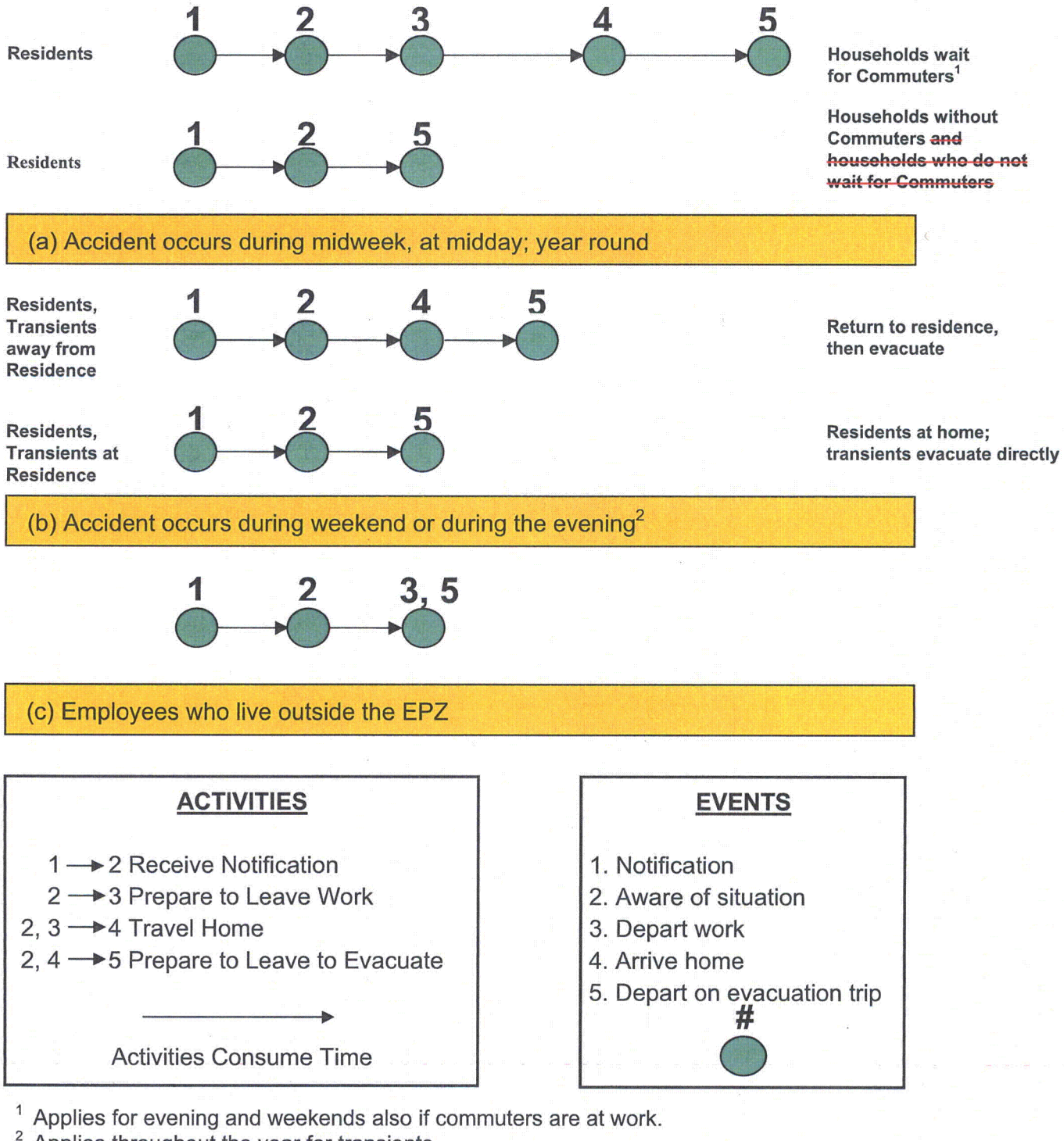
It is seen from Figure 5-1, that the Trip Generation time (i.e. the total elapsed time from Event 1 to Event 5) depends on the scenario and will vary from one household to the next. Furthermore, Event 5 depends, in a complicated way, on the time distributions of all activities preceding that event. That is, to estimate the time distribution of Event 5, we must obtain estimates of the time distributions of all preceding events.

Estimated Time Distributions of Activities Preceding Event 5

The time distribution of an event is obtained by "summing" the time distributions of all prior contributing activities. (This "summing" process is quite different than an algebraic sum since we are operating on distributions – not scalar numbers.)

Time Distribution No. 1, Notification Process: Activity 1 → 2

It is reasonable to expect that 85 percent of those within the EPZ will be aware of the accident within 30 minutes with the remainder notified within the following 20 minutes. The notification distribution is given below:



[1] Applies for evening and weekends also if commuters are at work.
[2] Applies throughout the year for transients.

Figure 5-1. Events and Activities Preceding the Evacuation Trip

Calculation of Trip Generation Time Distribution

The time distributions for each of the mobilization activities presented herein must be combined to form the appropriate Trip Generation Distributions. We assume that the stated events take place in sequence such that all preceding events must be completed before the current event can occur. For example, if a household awaits the return of a commuter, the work-to-home trip (Activity 3 → 4) must precede Activity 4 → 5.

To calculate the time distribution of an event that is dependent on two sequential activities, it is necessary to "sum" the distributions associated with these prior activities. The distribution summing algorithm is applied repeatedly as shown to form the required distribution. As an outcome of this procedure, new time distributions are formed; we assign "letter" designations to these intermediate distributions to describe the procedure.

Apply "Summing" Algorithm To:	Distribution Obtained	Event Defined
Distributions 1 and 2	Distribution A	Event 3
Distributions A and 3	Distribution B	Event 4
Distributions B and 4	Distribution C	Event 5
Distributions A and 4	Distribution D	Event 5
Distributions C and 5	Distribution E	Event 5
Distributions D and 5	Distribution F	Event 5

Distributions A through F are described below.

Distribution	Description
A	Time distribution of commuters departing place of work (Event 3). Also applies to employees who work within the EPZ but live outside the EPZ, and to Transients within the EPZ.
B	Time distribution of commuters arriving home.
C	Time distribution of residents with commuters who return home, leaving home to begin the evacuation trip.
D	Time distribution of residents with no commuters ~~returning home~~ to begin the evacuation trip.
E	Time distribution of residents with commuters who return home, leaving home to begin the evacuation trip after snow clearance activities.
F	Time distribution of residents with no commuters ~~returning home~~, leaving to begin the evacuation trip after snow clearance activities.

in the household

in the household

As shown in Figure 5-2 and in Appendix F, the mobilization activity distributions include outliers – generally, these represent anomalous responses to the survey question. Following standard statistical practice, outliers were identified by (a) computing the estimated mean and standard deviation from the complete set of data, (b) computing value x_{LIMIT} as the mean plus 3.0 standard deviations, above which one expects 0.135% of the observations, (c) inspecting the gap between this limit value and the next-lowest observed value, (d) if that gap is sizable, classify the points above x_{LIMIT} as outliers and eliminate those points from the sample, (e) repeat the process from "a" to "d" until there are no outliers to consider.

in household

The data sets and distributions are then used to construct distributions for the total mobilization times under different scenarios (e.g. commuter returning, no commuter ~~returning~~, no snow or snow in each). In general, these are additive, using weighting based upon the probability distributions of each element; Figure 5-3 presents the combined trip generation distributions designated A, C, D, E and F. These distributions are presented on the same time scale. (The use of strictly additive activities is a conservative approach, because it makes all activities sequential – preparation for departure follows the return of the commuter; snow clearance follows the preparation for departure, and so forth. In

Table 6-3. Percent of Population Groups Evacuating for Various Scenarios										
Scenarios	Residents With Commuters in Household	Residents With No Commuters in Household	Employees	Transients	Shadow	Special Event 1	Special Event 2	School Buses	Transit Buses	External Through Traffic
1	62%	38%	96%	40%	33%	0%	0%	10%	100%	100%
2	62%	38%	96%	40%	33%	0%	0%	10%	100%	100%
3	10%	90%	10%	100%	30%	0%	0%	0%	100%	100%
4	10%	90%	10%	100%	30%	0%	0%	0%	100%	100%
5	10%	90%	15%	25%	30%	0%	0%	0%	100%	40%
6	62%	38%	100%	15%	33%	0%	0%	100%	100%	100%
7	62%	38%	100%	15%	33%	0%	0%	100%	100%	100%
8	62%	38%	100%	15%	33%	0%	0%	100%	100%	100%
9	10%	90%	10%	25%	30%	0%	0%	0%	100%	100%
10	10%	90%	10%	25%	30%	0%	0%	0%	100%	100%
11	10%	90%	10%	25%	30%	0%	0%	0%	100%	100%
12	10%	90%	15%	10%	30%	0%	0%	0%	100%	40%
13	10%	90%	10%	100%	30%	100%	0%	0%	100%	100%
14	62%	38%	96%	40%	33%	0%	100%	10%	100%	100%

Resident Households With Commuters ..... Households of EPZ residents who await the return of commuters prior to beginning the evacuation trip.

Resident Households With No Commuters .... Households of EPZ residents who do not have commuters ~~or will not await the return of commuters prior to beginning the evacuation trip.~~

Employees ..... EPZ employees who live outside of the EPZ.

Transients ..... People who are in the EPZ at the time of an accident for recreational or other (non-employment) purposes.

Shadow ..... Residents and employees in the Shadow Region (outside of the EPZ) who will spontaneously decide to relocate during the evacuation. The basis for the values shown is a 30% relocation of shadow residents along with a proportional percentage of shadow employees. The percentage of shadow employees is computed using the scenario-specific ratio of EPZ employees to residents.

Special Events 1, 2 ..... Additional transient vehicles present for the River Raisin Jazz Festival and additional vehicles in the FNPP area during the construction on the new unit in the Year 2018 and the refueling of the operational unit.

School and Transit Buses ..... Vehicle-equivalents present on the road during evacuation servicing schools and transit-dependent people (1 bus is equivalent to 2 passenger vehicles), respectively.

External Through Traffic ..... Traffic on local highways and major arterial roads at the start of the evacuation. This traffic is stopped by access control approximately 90 minutes after the evacuation begins.

Attachment 2
NRC3-10-0034

Response to RAI Letter No. 37
(eRAI Tracking No. 4786)

RAI Question No. 13.03-53

NRC RAI 13.03-53

Supplemental RAI 13.03-19: Subject: Analysis of Evacuation Times, Methodology – Travel Delay

In response to Supplemental RAI 13.03-04, the applicant agreed that route specific-speeds should be used for ambulances rather than network-wide average speeds. The applicant stated that ambulances will use the same routes as buses evacuating ambulatory patients from medical facilities within the EPZ, and provided route specific speeds in Table 8-13A, "Evacuation Time Estimates for Ambulances – Good Weather" that range from 25.8 to 42.1 mph with departures at 60 minutes.

The route specific speeds for ambulances would be expected to be similar to the speeds for school buses leaving the same vicinity with vehicle departure at 50 minutes as identified in Table 8.5A, "School Evacuation Time Estimates – Good Weather." However, speeds in Table 8.5A range from 10.0 to 21.1 mph. Similarly, Table 8-11A, "Special Facility Folding Wheelchair Evacuation Time Estimates – Good," shows a vehicle departure time for Medilodge II at 75 minutes and a speed of 10.2 mph. In Table 8.13A, ambulances depart Medilodge at 60 minutes and travel at 37.6 mph. Explain why the speeds of 25.8 to 42.1 mph at 60 minutes, as provided in Table 8-13A, are greater than the speeds for vehicles leaving both before and after 60 minutes, as identified in Tables 8-5A and 8-11A.

Response

The original response to Letter 25, NRC RAI 13.03-39: Supplemental RAI 13.03-04 was submitted in Detroit Edison letter NRC3-10-0016 (ML101190369), dated April 16, 2010.

As stated on page 8-10 of the ETE report, ambulances are traveling along the same routes as those school buses evacuating ambulatory patients from medical facilities. However, the ambulances are departing the medical facilities at 60 minutes (Table 8-13A) after the Advisory to Evacuate (ATE) whereas the school buses evacuating ambulatory patients are departing 75 to 135 minutes after the ATE (Table 8-11A).

According to Table 5-1, Trip Generation Histograms for the EPZ Population, only 10 percent of residents with commuters (who constitute 62% of the households in the EPZ according to Figure F-6 of the ETE report) begin their evacuation trip within 60 minutes after the ATE. Once more residents begin to mobilize (after 60 minutes after the ATE), roads become congested and network speeds begin to decrease. As shown in Enclosure 1 to this response, the route speed (see the response to RAI Letter No. 9, Question 13.03-12 in Detroit Edison Letter NRC3-09-0033, dated October 14, 2009 (ML092931167) for additional information on route specific speeds) for Medilodge II decreases significantly after 60 minutes after the ATE (vertical line shown in the graph) have elapsed. The route speed, over time, mimics the pattern of the average network speed for the entire system. This explains why travel speeds for a single facility (Medilodge II in this case) can vary significantly within a 15-minute timeframe and why speeds are less at times after 60 minutes.

Buses evacuating school children are routed in the direction of their respective relocation school, as stated on page 8-5 of the ETE report. As indicated in the public information calendar and in Table 8-3 of the ETE report, schools in Monroe School District are relocated to Bedford Senior High School, which is located south of the EPZ as shown in Figure 10-1 of the ETE report.

Medical Facilities are evacuated to host medical facilities as stated on pages J14 and J15 of Annex J, Appendix 1, Attachment B to the Monroe County Emergency Management Plan. These host medical facilities are mapped as shown in Figure 8-3 "Fermi Nuclear Power Plant Host Medical Facilities" in the attached markups. The nearest in state host medical facilities for Monroe County – St. Joseph Mercy Hospital, Herrick Memorial Hospital and Emma L. Bixby Hospital are located to the west of the EPZ.

The congestion diagrams in Section 7 of the ETE report indicate that the evacuation routes southbound out of Monroe are heavily congested, while those routes going to the west and northwest have less congestion. This results in higher average travel speeds for westbound routes and for medical facilities.

For example, Pathway Christian Academy and Mercy Memorial Nursing Center are located near each other. The school is routed to the south towards its host school, and the medical facility is routed west towards its host facility. Pathway Christian Academy has an average travel speed along its route of 21.1 mph (according to Table 8-5A) and Mercy Memorial Nursing Center has an average travel speed along its route of 42.1 mph (according to Table 8-13A).

We have reviewed all of the special facility routes and the speeds associated with those routes and find them to be accurate. The evacuation route for each facility is documented in Table 8-9 "Bus Route Descriptions" of the ETE report, which can be cross-referenced with the link-node analysis network maps provided in Appendix K of the ETE report.

Proposed COLA Revision

The following changes are presented in the "Fermi Nuclear Power Plant Development of Evacuation Time Estimates Report" as shown in the attached markups.

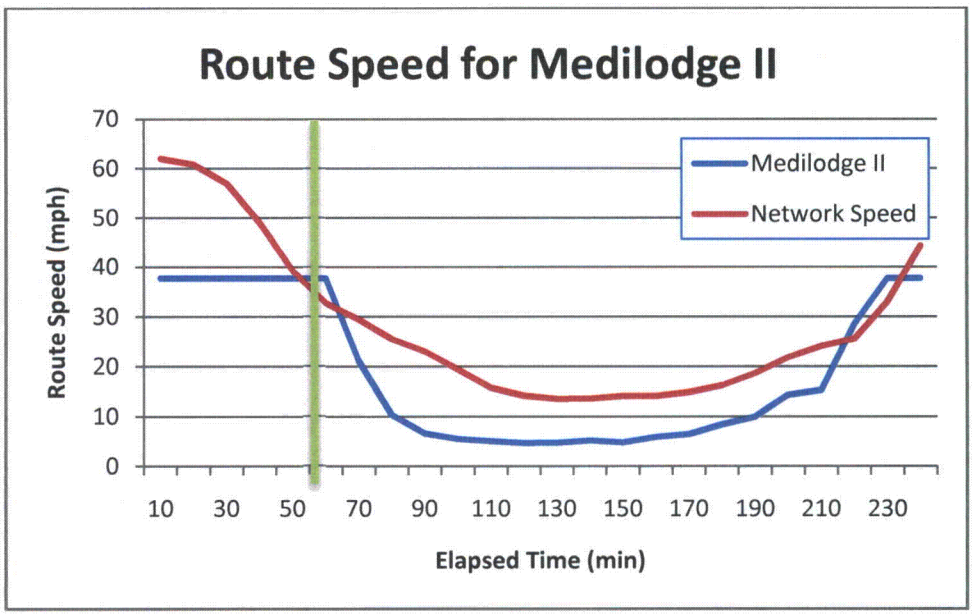
1. Revised page 8-8.

2. Added Figure 8-3 "Fermi Nuclear Power Plant Host Medical Facilities".

Enclosure 1
NRC3-10-0034

RAI Question 13.03-53

Route Speed for Medilodge II
(Following 1 page)


Route Speed for Medilodge II
Route Speed (mph)
70
60
50
40
30
20
10
0
10
30
50
70
90
110
130
150
170
190
210
230
Elapsed Time (min)
Medilodge II
Network Speed

Markup of Detroit Edison COLA
(following 3 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in a future submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by revisions to the ESBWR DCD, 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.

ETE for single wave and second wave evacuations are provided in Tables 8-7A and B. Single wave ETE are applicable when school is not in session or when school is in session and there are sufficient bus resources available to service school children and the transit dependent general population simultaneously. In the event there are not sufficient buses available to transport the transit dependent until the evacuation of the school children has been completed, the second wave ETE will apply. The ETE for the transit-dependent population approximate, on average, the ETE for the 100th percentile of the general population.

Evacuation of Ambulatory Persons from Special Facilities

The bus operations for this group are similar to those for school evacuation except:

Buses are routed west towards the medical host facilities as shown in Figure 8-3.

- Buses are assigned on the basis of 30 patients to allow for staff to accompany the patients.
- The passenger loading time will be longer at approximately one minute per patient to account for the time to move patients from inside the facility to the vehicles. For those facilities with more than 30 ambulatory patients, it is assumed that buses load concurrently and that loading time is equal to 30 minutes for the entire facility.

It is estimated that mobilization time averages 1 hour. In the event there is a shortfall of transit vehicles for a single wave evacuation, then buses used to evacuate schools will have to return to evacuate the special facilities for a "second wave" evacuation. The aforementioned bus route feature in the UNITES software was used to define bus routes along the most likely path from a special facility being evacuated to the EPZ boundary. The average speed along the route output by PC-DYNEV was used to calculate the route travel time; Tables 8-8A and 8-8B provide the ETE for a single and two wave evacuation for buses evacuating ambulatory persons from special facilities in good weather and rain, respectively. The routes input to UNITES for these facilities are documented in Table 8-9.

Evacuation of Wheelchair Bound Persons from Special Facilities

Table 8-4 indicates that 9 standard bus runs and 27 specially equipped bus runs are needed to evacuate all of the wheelchair bound population within the entire EPZ. As stated in Section 2.3, it is assumed that half of the wheelchair bound persons in the EPZ use rigid wheelchairs while the other half use folding wheelchairs. Those wheelchair-bound persons using folding wheelchairs can be evacuated in a standard bus and their wheelchair can be folded and placed in the rear of the bus or in the seat adjacent to the seat they are sitting in. Those wheelchair-bound persons using rigid wheelchairs will need to be evacuated in specially equipped buses. Loading times are estimated at 5 minutes per wheelchair bound person as staff will have to assist them in boarding the bus. For those facilities with more than 15 (wheelchair bus capacity) wheelchair bound persons, it is assumed that buses load concurrently and that the loading time is equal to 75 minutes (15 x 5) for the entire facility. According to Table 8-10, there are 36 specially equipped buses available with a total wheelchair capacity of 99; thus, average capacity

Insert new Figure 8-3, "Fermi Nuclear Power Plant Host Medical Facilities" before this table. See Insert A.

Table 8-8A. Special Facilities Evacuation Time Estimates - Good Weather

Special Facility	Single Wave						Second Wave							
	Mobilization (min.)	Loading Time (min.)	Route Length (mi.)	Average Speed (mph)	Route Travel Time (min.)	ETE (hr:min)	Arrive at RC (min.)	Unload (min.)	Driver Rest (min.)	Return to EPZ (min.)	Loading Time (min.)	Average Speed (mph)	Route Travel Time (min.)	ETE (hr:min)
Monroe County														
ALCC	60	6	7.2	42.8	10	**1:20**	85	5	10	16	6	42.8	10	**2:15**
Alterra	60	15	4.0	11.2	21	**1:40**	85	5	10	16	15	5.2	46	**3:00**
IHM Motherhouse	60	30	3.4	8.2	25	**1:55**	85	5	10	16	30	4.3	48	**3:15**
Lutheran Home	60	30	5.0	5.3	57	**2:30**	85	5	10	16	30	3.9	77	**3:45**
Maplewood Manor	60	30	7.0	41.6	10	**1:40**	85	5	10	16	30	41.6	10	**2:40**
Medlodge II	60	30	3.4	6.5	32	**2:05**	85	5	10	16	30	4.7	44	**3:10**
Mercy Memorial Hospital	60	30	5.4	6.7	48	**2:20**	85	5	10	16	30	4.6	71	**3:40**
Mercy Memorial Nursing Center	60	30	5.4	42.1	8	**1:40**	85	5	10	16	30	42.1	8	**2:35**
Tendercare of Monroe	60	30	4.1	7.5	32	**2:05**	85	5	10	16	30	4.7	52	**3:20**
Wayne County														
Marybrook Residence	60	10	4.6	17.5	16	**1:30**	85	5	10	16	10	8.1	34	**2:40**
					Maximum for EPZ:	**2:30**							**Maximum for EPZ:**	**3:45**
					Average for EPZ:	**1:50**							**Average for EPZ:**	**3:00**

Insert A

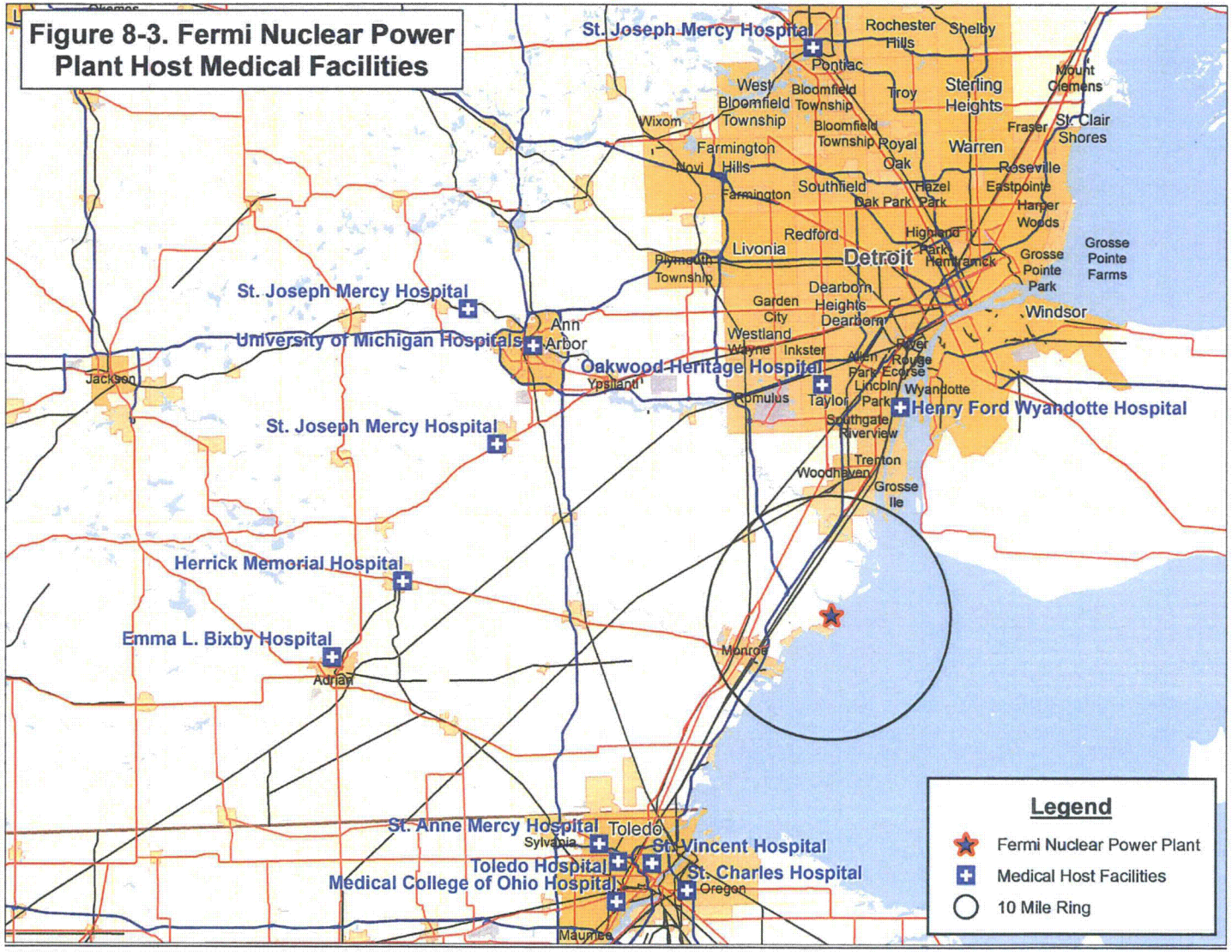


Figure 8-3. Fermi Nuclear Power Plant Host Medical Facilities
St. Joseph Mercy Hospital
Rochester Hills
Shelby
Pontiac
Mount Clemens
West Bloomfield Township
Bloomfield Township
Troy
Sterling Heights
Wixom
Bloomfield Township
Fraser
St Clair Shores
Farmington Hills
Royal Oak
Warren
Novi
Roseville
Farmington
Southfield
Hazel Park
Eastpointe
Oak Park
Harper Woods
Redford
Highland Park
Livonia
Detroit
Hamtramck
Grosse Pointe Park
Grosse Pointe Farms
Plymouth Township
St. Joseph Mercy Hospital
Dearborn Heights
Garden City
Dearborn
Windsor
Ann Arbor
Westland
University of Michigan Hospitals
Wayne
Inkster
River Rouge
Oakwood Heritage Hospital
Allen Park
Ecorse
Jackson
Ypsilanti
Romulus
Taylor
Lincoln Park
Wyandotte
Henry Ford Wyandotte Hospital
St. Joseph Mercy Hospital
Southgate
Riverview
Trenton
Woodhaven
Grosse Ile
Herrick Memorial Hospital
Emma L. Bixby Hospital
Adrian
Monroe
St. Anne Mercy Hospital
Toledo
Sylvania
St. Vincent Hospital
Toledo Hospital
St. Charles Hospital
Medical College of Ohio Hospital
Oregon
Maumee
Legend
Fermi Nuclear Power Plant
Medical Host Facilities
10 Mile Ring

Attachment 3
NRC3-10-0034

Response to RAI Letter No. 37
(eRAI Tracking No. 4810)

RAI Question No. 17.5-20

NRC RAI 17.5-20

SRP Section 17.5 and the Nuclear Energy Institute (NEI) QAPD template (NEI 06-14, Revision 7, "Quality Assurance Program Description") are based upon the requirements of ASME standard NQA-1 "Quality Assurance Requirements for Nuclear Facility Applications" (1994 Edition).

The NRC endorsed the NEI QAPD template as a method for providing a QAPD that meets the requirements of 10 CFR Part 50, Appendix B.

The Fermi 3 Combined License Application, Part 2: Final Safety Analysis Report (FSAR), Chapter 17.5 states the QAPD applies to activities to adapt the design to specific plant implementation, construction, and operations is based on NEI 06-014A (previous version of NEI 06-14).

The Fermi 3 QAPD (FSAR Appendix 17AA) Part IV, "Regulatory Commitments," commits to ASME NQA-1 (1994 Edition) as described in the QAPD. However, Fermi 3 FSAR Table 1.9-204, "Industrial Codes and Standards," indentifies ASME NQA-1 (2004 Edition) as applicable to those portions of the Fermi 3 design that are beyond the scope of the DCD and to the operational aspects of the facility.

Please clarify when each version of the ASME NQA-1 standard will apply for Fermi 3, and describe how Fermi 3 policies and procedures will address coordinating the two standards.

Response

Fermi 3 FSAR Table 1.9-204 identifies the Industrial Codes and Standards that are applicable to those portions of the Fermi 3 design and operation that are beyond the scope of the DCD. The correct NQA-1 reference is to the 1994 edition. FSAR Table 1.9-204 will be revised to reflect ASME NQA-1, 1994 Edition.

The Fermi 3 QAPD, Appendix 17AA of FSAR Chapter 17, is based on NEI QAPD template NEI 06-014, Revision 7. FSAR Section 17.5 will be revised to reference revision 7 of the template.

Proposed COLA Revision

Changes to FSAR Chapter 1 and FSAR Chapter 17 as discussed above, are detailed in the attached markups.

Markup of Detroit Edison COLA
(following 2 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in a future submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by revisions to the ESBWR DCD, 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.

Table 1.9-204 Industrial Codes and Standards (Sheet 1 of 4) [EF3 SUP 1.9-1]

Code or Standard Number	Year	Title
		American Nuclear Society (ANS)
2.8	1992	Determining Design Basis flooding at Power Reactor Sites an American
3.1	1993	Selection, Qualification, and Training of Personnel for Nuclear Power Plants
		American National Standards Institute
N323A	1997	Radiation Protection Instrumentation Test and Calibration, Portable Survey Instruments
N323D	2002	Installed Radiation Protection Instrumentation
		American Society of Civil Engineers (ASCE)
ASCE 43-05	2005	Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities
ASCE SEI/ASCE 7-05	2005	Minimum Design Loads for Buildings and other Structures
ASCE Practice No. 70	1990	Evapotranspiration and Irrigation Water Requirements
		American Society Heating, Refrigerating, and Air-Conditioning (ASHRAE)
ASHRAE Handbook	2005	American Society Heating, Refrigerating, and Air-Conditioning Engineers Handbook
		American Society of Mechanical Engineers (ASME)
NQA-1	~~2004~~ 1994	Quality Assurance Programs Requirements for Nuclear Facilities
Boiler and Pressure Vessel Code, Section IX	2007	Qualification Standard for Welding and Brazing Procedures, Welder, Brazers and Welding and Brazing Operators
OM Code		Code for the Operation and Maintenance of Nuclear Power Plants
		American Society for Testing and Materials (ASTM)
C88-05	2005	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C131-06	2006	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C535-03	2003	Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
D422-63	2002	Standard Test Method for Particle-Size Analysis of Soils
D512-04	2004	Standard Test Methods for Chloride Ion in Water

procedures necessary to review and accept the B&V developed COLA products.

The third phase commences with submittal of the Fermi 3 COLA. At this point, the ND QAPD is superseded by the Fermi 3 QAPD submitted as part of the COLA (FSAR Chapter 17, Appendix 17AA). B&V remains the COLA contractor for Detroit Edison and continues to perform delegated quality functions. Detroit Edison retains responsibility via processes and programs necessary to implement the Fermi 3 QAPD, including procurement control and verification of the effectiveness of B&V's 10 CFR 50 Appendix B/NQA-1 QA program. All COLA activities through anticipated COL issuance will be completed in accordance with the Fermi 3 QAPD, this includes delegating responsibilities as described in Part II, Section 2 of the Fermi 3 QAPD.

EF3 COL 17.2-1-A
EF3 COL 17.2-2-A

QA applied to activities to adapt the design to specific plant implementation, construction, and operations is addressed in the Detroit Edison Fermi 3 QAPD (Appendix 17AA). The QAPD is based on NEI 06-014~~A~~ (Reference 17.5-201).

The implementation milestones for the Operational Quality Assurance Program are provided in Section 13.4

17.5.1 References

17.5-201 Nuclear Energy Institute, "Quality Assurance Program Description." NEI 06-14~~A~~. , Revision 7, July 2009

STD COL 17.4-1-H

17.6 Maintenance Rule Program

NEI 07-02, "Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed Under 10 CFR Part 52," (Reference 17.6-7) is incorporated by reference with the following supplemental information:

STD SUP 17.6-1

The text of the template provided in NEI 07-02 is generically numbered as "17.X." When the template is incorporated by reference into this section, numbering is changed from "17.X" to "17.6."

STD SUP 17.6-3

17.6.1.1. Maintenance Rule Scoping per 10 CFR 50.65(b)

Attachment 4
NRC3-10-0034

Response to RAI Letter No. 37
(eRAI Tracking No. 4812)

RAI Question No. 17.5-21

NRC RAI 17.5-21

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 NRC endorsed the Nuclear Energy Institute (NEI) QAPD template (NEI 06-14, Revision 7, "Quality Assurance Program Description") as a method for providing a QAPD that meets the requirements of 10 CFR Part 50, Appendix B.

Attachment 6 to NRC3-09-0027, "Detroit Edison Company Response to NRC RAI Letter No.10," dated September 30, 2009, states FSAR Appendix 17AA, Part II, Section 1, Fermi 3 QAPD "Organization" will be revised to reflect NEI 06-14, Revision 7.

NEI Template 06-14, Revision 7, Part II, section 1 "Organization", The fourth note states "Structure Section 1, "Organization" of the QAPD such that it clearly delineates how the QA program is implemented during all applicable phases such as the period of construction and testing and the operations phase. The transition process from one phase to another must be described. Position descriptions should clearly delineate these roles during each applicable phase such as the construction/pre-operational phase, the operations phase, as well as the transition period between the phases."

Proposed changes to the Fermi 3 QAPD (FSAR Appendix 17AA) Part II, Section 1, provided as part of Attachment 8 to NRC3-10-0016, "Detroit Edison Company Response to NRC Request for Additional Information Letter No.25," dated April 26, 2010, contains general information addressing the organizational change process between phases.

Staff review identified that the QAPD does not appear to meet the organizational guidance of the NEI QAPD template for all described phase transitions. Specifically, Section 1 does not provide enough detailed information to address the fourth note of the NEI template 06-14, Revision 7, Part II, Section 1, "Organization."

Please provide the following additional details within Part II, Section 1, of the QAPD to address the fourth note of NEI 06-14, Revision 7, Part II, section 1, or provide justification for any exceptions to the guidance provided in NEI 06-14, Revision 7:

(a) Please identify each applicable project phase described within the QAPD, Part II, section 1 "Organization".

(b) Please describe the organizational transition process between each of the applicable project phases. Response should address implementation and control of major transitions such as staff positions, staff locations, project management, and

continuity of on-going quality programs (e.g. corrective actions, quality assessments, etc.).

Note: This RAI is supplemental to RAI 17.5-10 included in NRC RAI Letter No. 25, dated March 2, 2010.

Response

a. *Please identify each applicable project phase described within the QAPD, Part II, section 1 "Organization".*

The Fermi 3 QAPD organizational structure encompasses three project phases as described in Section 1. The Pre-COL phase is described within QAPD Section 1.1 and Figure II.1-1, the Design and Construction phase is described within QAPD Section 1.2 and Figure II.1-2, and the Operations phase is discussed in Section 1.3 and Figure II.1-3. The descriptions of Sections 1.1, 1.2, and 1.3 will be revised as shown in the attached markups to more clearly identify each project phase to which the organizational description of these sections applies.

b. *Please describe the organizational transition process between each of the applicable project phases. Response should address implementation and control of major transitions such as staff positions, staff locations, project management, and*

Project phase transition responsibilities and transitional activities between project phases are currently described in Pre-COL Organization sections 1.1.2.1 "Senior Vice President, MEP", 1.1.2.2 "Nuclear Development", as well as Design and Construction Organization sections 1.2 "Fermi 3 Design and Construction Organization", 1.2.2.1 "Senior Vice President, MEP", 1.2.2.2 "Nuclear Development", 1.2.3.2.1.1 "Fermi 3 Quality Assurance Project Manager".

QAPD Section 1, "Organization" will be revised to include further transition process details in two new sections, 1.1.8 and 1.2.9 as shown in the attached markups. Transitional activities associated with specific position responsibilities will be included within the transition descriptions.

Proposed COLA Revision

QAPD Sections 1.1, 1.2, and 1.3 will be revised as shown on the attached markups to include descriptions of each applicable QAPD phase as discussed above. Sections 1.1.8 and 1.2.9 will be inserted to describe transitional activities between phases.

Markup of Detroit Edison COLA
(following 6 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in a future submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by revisions to the ESBWR DCD, 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.

PART II QAPD DETAILS

SECTION 1 ORGANIZATION

are satisfied and that Detroit Edison's responsibility to ensure

This section describes the Fermi 3 organizational structure, functional responsibilities, levels of authority and interfaces for establishing, executing, and verifying QAPD implementation. The organizational structure includes corporate support and on-site functions for Fermi 3 including interface responsibilities for multiple organizations that perform quality-related functions. Implementing documents assign more specific responsibilities and duties, and define the organizational interfaces involved in conducting activities and duties within the scope of the QAPD. Management gives careful consideration to the timing, extent, and effects of organizational structure changes. (MEP)

Major Enterprise Projects, specifically the Nuclear Development (ND) organization ~~is~~ responsible for new nuclear plant licensing, engineering, procurement, construction, startup and operations development activities. During these phases, several organizations within Detroit Edison implement and support the QAPD. These organizations include, but are not limited to ~~Major Enterprise Projects (~~MEP~~)~~, MEP Program Office, and Corporate Services.

Design, engineering and environmental services may be provided to the Fermi 3 ~~Nuclear Development~~ organization by suppliers in accordance with their 10 CFR 50 Appendix B/NQA-1 QAPDs, as established contractually to assure that applicable regulatory requirements ~~to assure~~ adequate quality assurance under 10 CFR 50 Appendix B, Criterion I is satisfied.

The Fermi 3 Site organization is responsible for operational activities. During operations, the corporate services organization within Detroit Edison also implements and supports the QAPD.

~~Design, engineering and environmental services may be provided to the Fermi 3 Operations organization by suppliers in accordance with their 10 CFR 50 Appendix B/NQA-1 QAPDs, as established contractually to assure that applicable regulatory requirements to assure adequate quality.~~

The following sections describe the reporting relationships, functional responsibilities and authorities for organizations implementing and supporting the Fermi 3 ~~Nuclear Development~~ QA Program. The Fermi 3 Pre-COL ~~Nuclear Development~~ organization, the Fermi 3 Design and Construction organization, and the Fermi 3 Site organization are shown in QAPD Figure II.1-1, Figure II.1-2, and Figure II.1-3 respectively.

1.1 Fermi 3 Pre-COL Organization

This section describes the organizational structure for the COL application activities of Fermi 3 and the Fermi 3 Pre-COL organizational structure is shown in Figure II.1-1.

Insert 1A

Markups to Revision 2

For COL application activities, independence shall be maintained between the organization or organizations performing the checking (quality assurance and control) functions and the organizations performing the functions. This provision is not applicable to design review/verification.

1.1.7 NQA-1-1994 Commitment

In establishing its organizational structure, Detroit Edison, Fermi 3 commits to compliance with NQA-1-1994, Basic Requirement 1 and Supplement 1S-1.

Insert 2A

1.2 Fermi 3 Design and Construction Organization

This section describes the organizational structure through the design and construction phase of the Fermi 3 project. It is anticipated that even after fuel load, construction activities will be ongoing. Those positions required to support these activities will retain their applicable construction / preoperational responsibilities until it is deemed that they are no longer necessary. As the construction of systems, structures, and components (SSC), or portions thereof is completed, control and authority (including oversight, configuration and operations) is transferred from the contractor to the cognizant owner departments in the operations phase fully described in Section 1.3. During the transition, responsibilities will be clearly defined in instructions and procedures to ensure appropriate control is maintained over each SSC. The Fermi 3 Design and Construction organization is represented in Figure II.1-2.

Insert 1B

1.2.1 Chairman and CEO

The ~~DTE Energy~~ Chairman/CEO is responsible for all aspects of design, construction and operation of Detroit Edison's nuclear plants as described in Section 1.1.1

s

1.2.2 Major Enterprise Projects ~~– Nuclear Development~~

The Major Enterprises Project (MEP) organization, specifically Nuclear Development, is responsible for new nuclear plant licensing, engineering, procurement, construction, startup and operational development activities necessary to deliver new nuclear generating capacity to the ~~Sr. Vice President~~/CNO. ~~Nuclear Development will facilitate organizational transitions between the Fermi 3 Pre-COL, Design and Construction, and Operations phases. Nuclear Development is responsible for controlling interfaces between the operating units and any preconstruction or construction activities.~~

1.2.2.1 Senior Vice President, MEP

The Sr. VP MEP ultimately reports to the ~~DTE Energy~~ Chairman / CEO and is responsible for the administration of the Fermi 3 QAPD. The Sr. VP MEP also directs the planning and development of the Nuclear Development staff and organization resources as well as the initial Fermi 3 staff and organization resources. The Sr. VP MEP is responsible to size the Fermi 3 Quality Assurance organization commensurate with the duties and responsibilities assigned

The reactor technology vendor, indentified in FSAR Subsection 1.4.2,

systems, structures and components (SSC), or portions thereof to support transfer from the construction contractor to the cognizant owner departments as described in FSAR Appendix 13AA, Section 13AA.2.2.

Insert 9 (2 pgs)

1.2.5.2 ~~NSSS~~ Reactor Technology Vendor

~~NSSS~~ provides engineering services for plant design and licensing of Fermi 3 on the Detroit Edison site. These engineering services for Fermi 3 include site-specific engineering and design necessary to support preconstruction and construction activities associated with the nuclear steam supply system (NSSS), i.e. the certified portion of the design.

The

the remaining plant design and licensing of Fermi 3 on the Detroit Edison Site.

1.2.5.3 ~~A/E~~ Architect/Engineer (A/E)

A/E Firm provides engineering services for ~~the development of the COL application~~. These engineering services include ~~site-specific license engineering, and design activities necessary to support development of the COL application, and planning and support for preconstruction and construction activities~~ for Fermi 3.

site specific support of the reactor technology vendor, design of other support facilities not provided by the reactor technology vendor, site planning and associated activities, preconstruction planning, and construction support

1.2.6 **Authority to Stop Work**

Quality assurance and inspection work in progress which is not being performed in accordance with approved procedures or where safety or SSC integrity may be jeopardized. This extends to off-site work performed by suppliers that furnish safety-related materials and services to Fermi 3.

1.2.7 **Quality Assurance Organizational Independence**

For the Design and Construction phase, independence shall be maintained between the organization or organizations performing the checking (quality assurance and control) functions and the organizations performing the functions. This provision is not applicable to design review/verification.

1.2.8 **NQA-1-1994 Commitment**

In establishing its organizational structure, Fermi 3 commits to compliance with NQA-1-1994, Basic Requirement 1 and Supplement 1S-1.

Insert 2B

, identified in FSAR Subsection 1.4.2.1,

1.3 **Fermi 3 Operational Organization**

This section describes the organizational structure for the operational activities of Fermi 3 and the Fermi 3 Site organizational structure is shown in Figure II.1-3.

Insert 1C

1.3.1 **Chairman and CEO**

The Chairman/CEO is responsible for all aspects of design, construction and operation of Detroit Edison's nuclear plants as described in Section 1.1.1

Insert 10

1.3.2.1 **Senior Vice President / CNO**

Insert 1A

The Pre-COL organizational structure applies to the Pre-COL phase, which encompasses the activities associated with the COL application process, including pre-COL design activities associated with adapting the ESBWR DCD design to site specific conditions and other activities. The Pre-COL phase may overlap temporally with the Design and Construction Phase. Pre-COL activities will phase out as Fermi 3 transitions into the next project phase. Transition activities are described in Section 1.1.8.

Insert 1B

The Design and Construction organizational structure applies to the Design and Construction (D&C) phase associated with developing Fermi 3 detailed design and construction of the Fermi 3 plant. The D&C phase includes detailed site specific design activities and construction activities associated with the Fermi 3 project as well as other associated activities. The Design and Construction phase may overlap temporally with the Pre-COL phase in the beginning of the D&C phase and with the Operations phase at the end of the D&C phase. D&C activities will phase out as the Fermi 3 project transitions into the next project phase. D&C transition activities are described in Sections 1.1.8 and 1.2.9.

Insert 1C

The Operations organizational structure applies to the Operational phase of the Fermi 3 plant. The Operations phase activities are initiated upon the completion of systems construction (or portions thereof) and continues throughout the life on the Fermi 3 plant. The Operations phase may overlap temporally with the Design and Construction phase. Transition activities to Operations are described in QAPD Section 1.2.9.

Insert 2A

1.1.8 Transition from Pre-COL to Design and Construction.

Upon commencement of Design and Construction activities, those positions which are identified for the Design and Construction (D&C) phase, QAPD Section 1.2, will be staffed and have the appropriate authority required to perform design and construction activities. Those positions required to support Pre-COL activities will retain their applicable responsibilities until it is deemed that they are no longer necessary. Oversight, configuration, design, and construction responsibilities are transitioned as discussed below for each transitional position. During the transition, responsibilities will be clearly defined in instructions and procedures to ensure appropriate authority is maintained for each SSC.

The Chairman and CEO position described in QAPD Sections 1.1.1, 1.2.1, and 1.3.1 transitions throughout each project phase and maintains responsibility for Fermi 3.

The Sr. VP / CNO position described in QAPD Sections 1.1.3.1, 1.2.3.1, and 1.3.2.1 transitions through each project phase and maintains responsibility for Detroit Edison nuclear facilities.

The MEP Organization, including Sr. VP MEP (Section 1.1.2.1), Director Nuclear Development (Section 1.1.2.2.1), Director Nuclear Licensing and Engineering (Section 1.1.2.2.2.1), COLA Contractor (1.1.2.2.2.3), Reactor Technology Vendor (Section 1.1.2.2.2.2), and Director MEP Program Office (Section 1.1.2.3.1) transitions from the Pre-COL phase to the Design and Construction phase as D&C activities commence. Position responsibilities and activities described in the Pre-COL phase transition to the position responsibilities and activities of the Design and Construction phase (Sections 1.2.2.1, 1.2.2.2.1, 1.2.2.2.2.1, 1.2.2.2.2.2, 1.2.5.2, and 1.2.2.3.1).

The Director, Quality Management position described in QAPD Sections 1.1.3.2.1, 1.2.3.2.1, and 1.3.2.2.1 transitions through each project phase and maintains responsibility for the Fermi 3 QA program as described. Upon commencement of D&C activities, the Fermi 3 Quality Assurance Project Manager position described in Section 1.2.3.2.1.1 is activated.

The Director, Corporate Services position described in QAPD Sections 1.1.4.1, 1.2.4.1, and 1.3.4.1 transition through each project phase and maintains responsibilities for corporate services as described.

Commencement of D&C activities includes establishment of an Engineering Procurement and Construction (EPC) Contractor, QAPD Section 1.2.5, EPC Executive, Section 1.2.5.1, and Architect / Engineer (A/E), Section 1.2.5.3. The Reactor Technology Vendor scope described in Section 1.1.2.2.2.2 is transitioned to encompass the definition of Section 1.2.5.2.

Insert 2B

1.2.9 Transition from Design and Construction to Operations

[START COM FSAR-17AA-002] No later than six months prior to fuel load of the unit, those positions which are identified for Operations (QAPD Section 1.3) will be staffed and have the appropriate authority required to perform operations activities. **[END COM FSAR-17AA-002]** It is anticipated that even after fuel load, construction activities will be ongoing. Those positions required to support these activities will retain their applicable construction / preoperational responsibilities until it is deemed that they are no longer necessary. As the construction of systems (or portions thereof) are completed, control and authority (including oversight, configuration and operations) is transferred from the EPC contractor to the applicable Fermi 3 departments having cognizance in the operations phase. During the transition, responsibilities will be clearly defined in instructions and procedures to ensure appropriate authority is maintained for each structure, system, and component.

The Chairman and CEO position described in QAPD Sections 1.1.1, 1.2.1, and 1.3.1 transitions throughout each project phase and maintains overall responsibility for Fermi 3.

The Sr. VP / CNO position described in QAPD Sections 1.1.3.1, 1.2.3.1, and 1.3.2.1 transitions through each project phase and maintains responsibility for Detroit Edison nuclear facilities.

The MEP Organization, including Sr. VP MEP (Section 1.2.2.1), Director Nuclear Development (Section 1.2.2.2.1), Director Nuclear Licensing and Engineering (Section 1.2.2.2.2.1), COLA Contractor (1.2.2.2.2.2), and Director MEP Program Office (Section 1.2.2.3.1) are not maintained in the Operations phase. The position responsibilities defined in the D&C phase will diminish as the D&C activities are completed. Operational functions will be in place as discussed above and in the Operations phase of the organizational description.

The Director, Quality Management position described in QAPD Sections 1.1.3.2.1, 1.2.3.2.1, and 1.3.2.2.1 transitions through each project phase and maintains responsibility for the Fermi 3 QA program as described. Upon completion of D&C activities, the Fermi 3 Quality Assurance Project Manager position described in Section 1.2.3.2.1.1 is eliminated and the responsibilities related to Fermi 3 Operations are transferred to the Fermi 3 Quality Assurance Manager as described in Section 1.3.2.2.1.1.

The Director, Corporate Services position described in QAPD Sections 1.1.4.1, 1.2.4.1, and 1.3.4.1 transition through each project phase and maintains responsibilities for corporate services as described.

Upon completion of D&C activities, the EPC Contractor, QAPD Section 1.2.5, EPC Executive, Section 1.2.5.1, Reactor Technology Vendor, Section 1.2.5.2, and Architect / Engineer (A/E), Section 1.2.5.3, transfer control and authority to the Operational organization, QAPD Section 1.3, under the Senior Vice President / CNO, Section 1.3.2.1.

Attachment 5
NRC3-10-0034

Response to RAI Letter No. 37
(eRAI Tracking No. 4813)

RAI Question No. 17.5-22

NRC RAI 17.5-22

10 CFR 50.34(f)(3)(iii)(B) states an applicant's quality assurance (QA) program is based on consideration of performing quality assurance/quality control functions at construction sites to the maximum feasible extent.

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 NRC endorsed the Nuclear Energy Institute (NEI) QAPD template (NEI 06-14, Revision 7, "Quality Assurance Program Description") as a method for providing a QAPD that meets the requirements of 10 CFR Part 50, Appendix B.

Attachment 6 to NRC3-09-0027, "Detroit Edison Company Response to NRC RAI Letter No.10," dated September 30, 2009, states FSAR Appendix 17AA, Part II, Section 1, Fermi 3 QAPD "Organization" will be revised to reflect NEI 06-14, Revision 7.

Proposed changes to the Fermi 3 QAPD (FSAR Appendix 17AA) Part II, Section 1, provided as part of Attachment 11 to NRC3-10-0016, "Detroit Edison Company Response to NRC Request for Additional Information Letter No.25," dated April 16, 2010, provides detailed organization and position descriptions for the pre-COL, design and construction, and operational organizations.

Please clarify the following for proposed changes to section 1 of the QAPD, Part II:

a) *Section 1.2.2.2.1 states the Director, Nuclear Development reports to the Sr. VP MEP and to the CNO and is responsible for the implementation of quality assurance requirements in the areas specified by the QAPD. Please clarify the "specified" areas in the QAPD and who has responsibilities for other "unspecified" areas.*

b) *QAPD Figure II.1-2, "Design and Construction Organization (Insert 15)," depicts the Architect/Engineer (1.2.5.3) position without a reporting line. Please clarify the Architect/Engineer reporting structure.*

c) *QAPD Figure II.1-3, "Fermi 3 Site Organization (Insert 16)," appears to indicate all depicted positions are located onsite (based on the title), but some positions appear to be corporate positions. Please clarify which positions are located on the Fermi site.*

d) *Both QAPD Figure II.1-2, "Design and Construction Organization (Insert 15)," and QAPD Figure II.1-3, "Fermi 3 Site Organization (Insert 16)," show all Fermi 3 QA positions located offsite. Please include any onsite QA personnel in the position*

descriptions and organization charts in section 1, or describe how offsite QA staff coordinates onsite quality activities for the various Fermi 3 phases.

Note: This RAI is supplemental to RAI 17.5-13 included in NRC RAI Letter No. 25, dated March 2, 2010.

Response

a) *Section 1.2.2.2.1 states the Director, Nuclear Development reports to the Sr. VP MEP and to the CNO and is responsible for the implementation of quality assurance requirements in the areas specified by the QAPD. Please clarify the "specified" areas in the QAPD and who has responsibilities for other "unspecified" areas.*

The Director, Nuclear Development is responsible for implementing quality assurance requirements, including management of the corrective action and non-conformance processes. The statement in QAPD Section 1.2.2.2.1 will be clarified to read; "Director, Nuclear Development reports to the Sr. VP MEP and to the CNO and is responsible for implementation of quality assurance requirements specified by the QAPD, including management of the corrective action and non-conformance processes."

b) *QAPD Figure II.1-2, "Design and Construction Organization (Insert 15)," depicts the Architect/Engineer (1.2.5.3) position without a reporting line. Please clarify the Architect/Engineer reporting structure.*

The Architect/Engineer (AE) reports to the Engineering Procurement Construction (EPC) Executive. QAPD Figure II.1-2 and FSAR Chapter 13 Figure 13.1-201 will be revised to clarify this reporting relationship.

c) *QAPD Figure II.1-3, "Fermi 3 Site Organization (Insert 16)," appears to indicate all depicted positions are located onsite (based on the title), but some positions appear to be corporate positions. Please clarify which positions are located on the Fermi site.*

Within QAPD Figure II.1-3, "Fermi 3 Site Organization", the Chief Executive Officer (CEO), Chief Operations Officer (COO), Chief Financial Officer (CFO), and Director Corporate Services positions are not located on the Fermi site. All other positions represented on Figure II.1-3 are anticipated to be located onsite. QAPD Figure II.1-3 will be revised to clarify position locations. The organizational descriptions of the Design and Construction phase Site Organization (QAPD Section 1.2.3.3), and the Operations phase Fermi 3 Site Organization (QAPD Section 1.3.3) do not exclusively define organizational locations, the organizational titles are representative of the responsibilities and functions of the organizations, not the locations of these organizations. Fermi 3 QAPD Figures II.1-2 and II.1-3 will be revised to clarify position locations.

d) *Both QAPD Figure II.1-2, "Design and Construction Organization (Insert 15)," and QAPD Figure II.1-3, "Fermi 3 Site Organization (Insert 16)," show all Fermi 3 QA positions*

located offsite. Please include any onsite QA personnel in the position descriptions and organization charts in section 1, or describe how offsite QA staff coordinates onsite quality activities for the various Fermi 3 phases.

The organizational descriptions of the Design and Construction phase Site Organization (QAPD Section 1.2.3.3), and the Operations phase Fermi 3 Site Organization (QAPD Section 1.3.3) do not exclusively define organizational locations, the titles are representative of the functions of the organizations, not the locations of these organizations. Fermi 3 QAPD Figures II.1-2 and II.1-3 will be revised to clarify that Fermi 3 QA positions will be located on the Fermi site.

Proposed COLA Revision

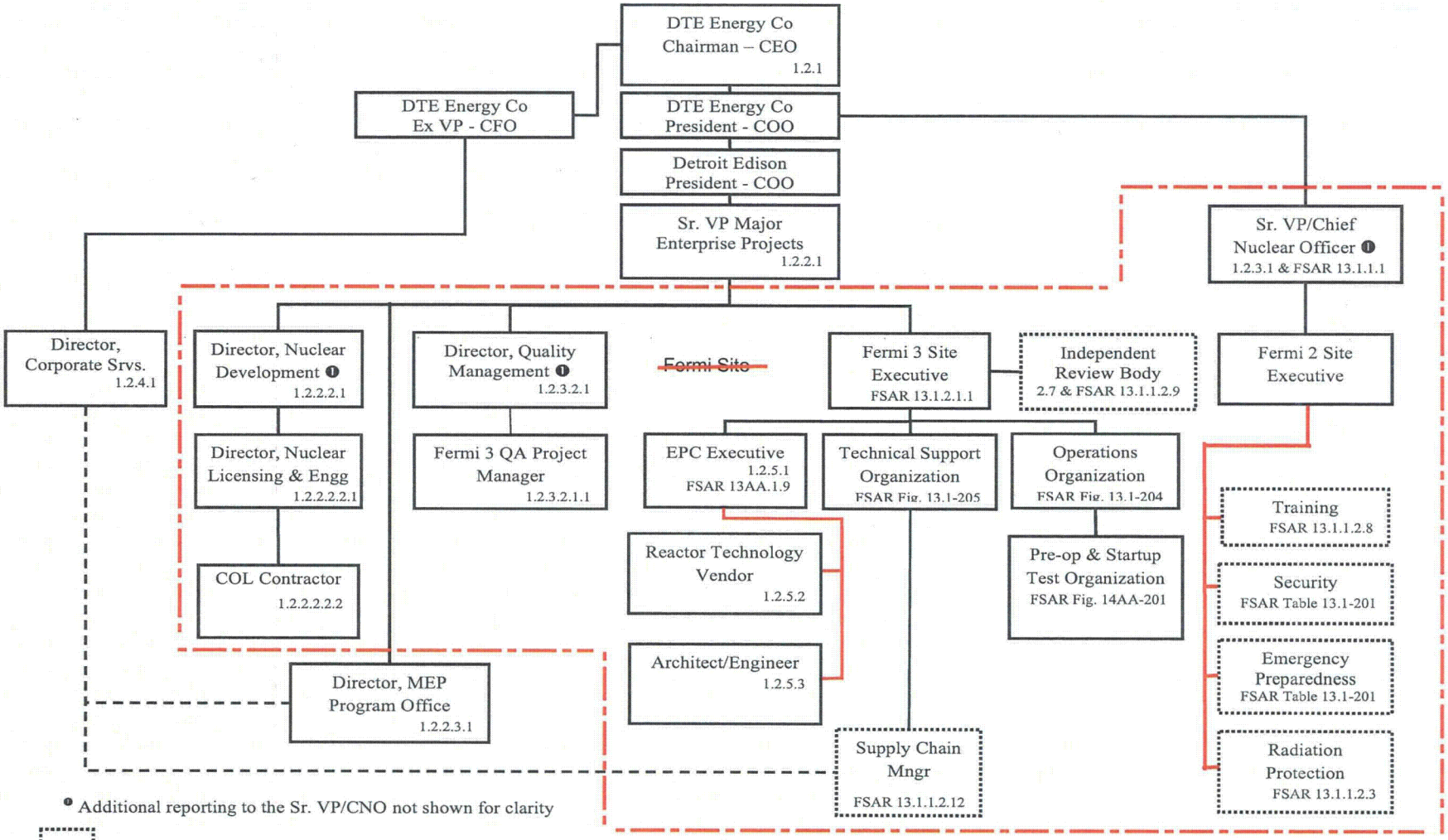
Fermi 3 QAPD Section 1.2.2.2.1, QAPD Figures II.1-2 and II.1-3, and FSAR Chapter 13 Figure 13.1-201 will be revised as shown on the attached markups to address the issues discussed above.

Markup of Detroit Edison COLA
(following 4 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in a future submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by revisions to the ESBWR DCD, 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.

Figure 13.1-201 Design and Construction Organization

[EF3 COL 13.1-1-A]



Applicable QAPD section numbers are cross referenced above for additional detail. "FSAR" prefix represents FSAR indicated cross reference to Chapter 13 section or figure

- Indicates onsite positions. Positions locations outside this border are not defined onsite.

MEP

through construction. The Sr. VP MEP is also responsible for establishing and managing contracts for the development of new nuclear generation. The Sr. VP MEP shall transition the ~~Nuclear Development~~ organization through the Pre-COL / Design and Construction / Operations responsibilities described in the QAPD, as those Fermi 3 activities commence.

Insert 5

1.2.2.2.1 **Director, Nuclear Development**

The Director, Nuclear Development reports to the Sr. VP MEP and to the CNO and is responsible for the implementation of quality assurance requirements ~~in the areas~~ specified by the QAPD. For the purposes of this program, the description of the duties of the Director Nuclear Development and the Nuclear Development staff will be limited to those activities that support the Fermi 3 Design and Construction activities.

1.2.2.2.2 **Nuclear Development, Nuclear Licensing and Engineering**

The Nuclear Development Licensing and Engineering (NDLE) organization is responsible for support of the Nuclear Development organization by providing engineering, licensing and document control support where applicable.

, including management of the corrective action and non-conformance process

1.2.2.2.2.1 **Director, Nuclear Licensing and Engineering**

The Director, Nuclear Licensing and Engineering reports to the Director Nuclear Development and is responsible for the administration of engineering, nuclear fuel and nuclear ~~licensing and~~ support activities for Fermi 3 under the QAPD.

, identified in FSAR Subsection 1.4.3, reports to the Director, Nuclear Licensing and Engineering and

1.2.2.2.2.2 **COL Contractor**

The COL Contractor provides engineering services in support of licensing activities necessary to support updates, changes, etc. to the COL. These engineering services include site-specific license engineering, and design activities necessary to support development of proposed COL updates, changes etc., and planning and support for preconstruction and construction of Fermi 3.

1.2.2.3 **MEP Program Office**

The MEP Program Office is responsible for supporting the Nuclear Development organization through performing activities related to procurement, budget, planning, etc. where applicable.

1.2.2.3.1 **Director, MEP Program Office**

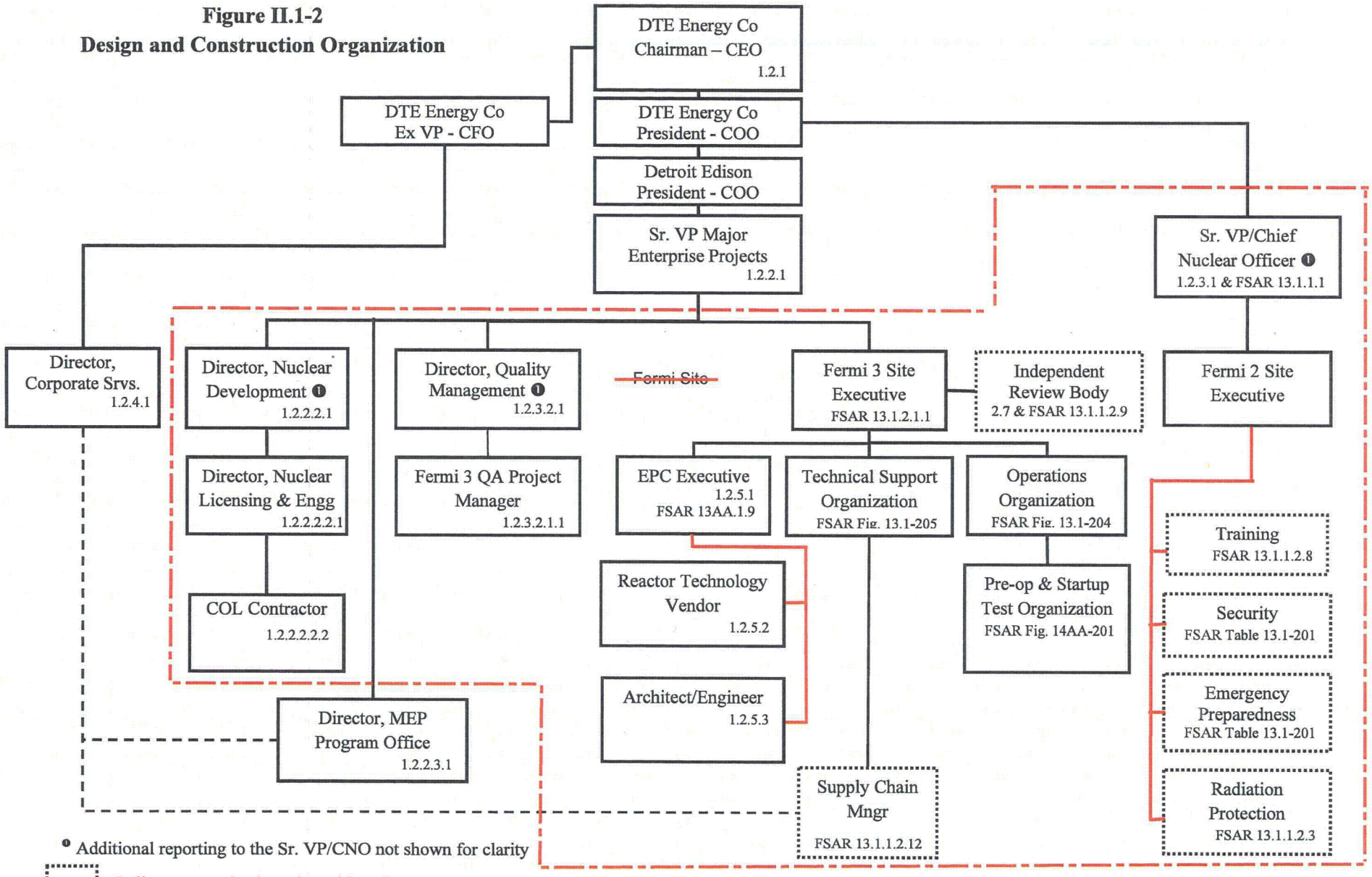
The Director, MEP Program Office reports to the Sr. VP MEP and is responsible for managing the MEP support functions for Nuclear Development activities in accordance with the QAPD.

~~1.2.3 **Corporate Services**~~

~~The Corporate Services organization is responsible for supporting the Nuclear Development organization through performing activities related to procurement, contract management, business performance, records management, logistics, etc., where applicable.~~

Markups to Revision 2

Figure II.1-2
Design and Construction Organization



❶ Additional reporting to the Sr. VP/CNO not shown for clarity

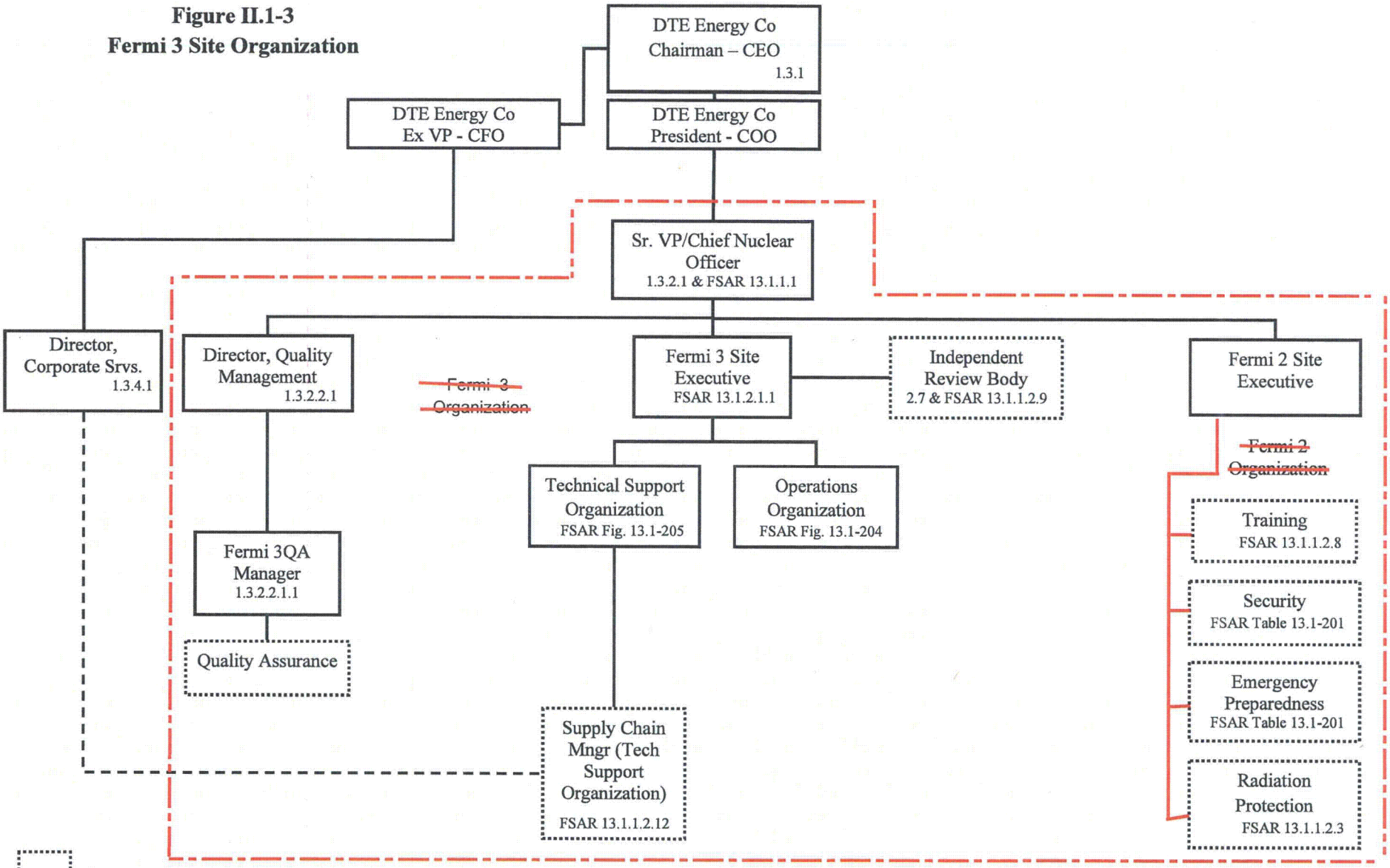
Indicates organizations that, although separate, share resources with Fermi 2 but a single management organization provides oversight for Fermi 3

Signifies functional relationship

Applicable QAPD section numbers are cross referenced above for additional detail. "FSAR" prefix represents FSAR indicated cross reference to Chapter 13 section or figure

- Indicates onsite positions. Positions locations outside this border are not defined onsite.

Figure II.1-3
Fermi 3 Site Organization



Indicates organizations that, although separate, share resources with Fermi 2 but a single management organization provides oversight for Fermi 3

Signifies functional relationship

Applicable QAPD section numbers are cross referenced above for additional detail. "FSAR" prefix represents FSAR indicated cross reference to Chapter 13 section or figure

- Indicates onsite positions. Positions locations outside this border are not defined onsite.

Attachment 6
NRC3-10-0034

Response to RAI Letter No. 37
(eRAI Tracking No. 4822)

RAI Question No. 02.05.01-31

NRC RAI 02.05.01-31

In response to RAI 2.5.1-8, you proposed a markup to revise FSAR Table 2.5.1-201, in order to clarify the correct sense of displacement along the Royal Center fault. However, the revised table provided in response to RAI 2.5.1-8 is FSAR Table 2.0-201. In accordance with 10 CFR 100.23, please provide the proposed markup to revise FSAR Table 2.5.1-201.

Response

In Detroit Edison Letter NRC3-09-0051, dated December 23, 2009 (ML100040537) the response to Request for Additional Information (RAI) 02.05.01-8 was transmitted to the NRC. A proposed COLA revision to FSAR Table 2.5.1-201 was intended to be provided as part of this response. However, Detroit Edison inadvertently included the incorrect FSAR Table as part of the proposed COLA revision.

In Detroit Edison Letter NRC3-10-0006, dated February 11, 2010 (ML100570305), the response to RAI 02.05.01-7 was transmitted to the NRC. The proposed COLA revision for this RAI contained a complete revision to FSAR Table 2.5.1-201. This complete revision to FSAR Table 2.5.10-201 included the revisions discussed in the response to RAI 02.05.01-8. Subsequently, the complete revision to FSAR Table 2.5.1-201 was incorporated into Fermi 3 COLA Rev 2 and transmitted to the NRC via NRC3-10-0013, dated March 23, 2010.

Proposed COLA Revision

None

Attachment 7
NRC3-10-0034

Response to RAI Letter No. 37
(eRAI Tracking No. 4822)

RAI Question No. 02.05.01-32

NRC RAI 02.05.01-32

In response to RAI 2.5.1-15, you provided a proposed revision to FSAR Figure 2.5.1-207 in which you include the approximate limits of the Cottonwood Grove fault and the Reelfoot rift. However, the revised FSAR Figure 2.5.1-207 (provided in response to RAI 2.5.1-15) shows the Cottonwood Creek fault. In accordance with 10 CFR 100.23, please provide a revised FSAR Figure 2.5.1-207 including the approximate limits of the Cottonwood Grove fault.

Response

In Detroit Edison Letter NRC3-10-0002, dated January 11, 2010, (ML100130382) the response to RAI 02.05.01-15 was transmitted to the NRC. The proposed COLA revision to FSAR Figure 2.5.1-207 was included to incorporate the approximate limits of the Reelfoot rift and the Cottonwood Grove fault. However, the proposed figure revision contained in the response to RAI 02.05.01-15 was in error by mislabeling the Cottonwood Grove fault as the Cottonwood Creek fault. The Cottonwood Grove designation is consistent with the FSAR text and the response to RAI 02.05.01-15. This mislabeling has no other impact to the FSAR beyond the affected figure.

FSAR Figure 2.5.1-207 has been revised to correctly identify the Cottonwood Grove fault on the figure. The revised FSAR Figure 2.5.1-207 is attached to this response.

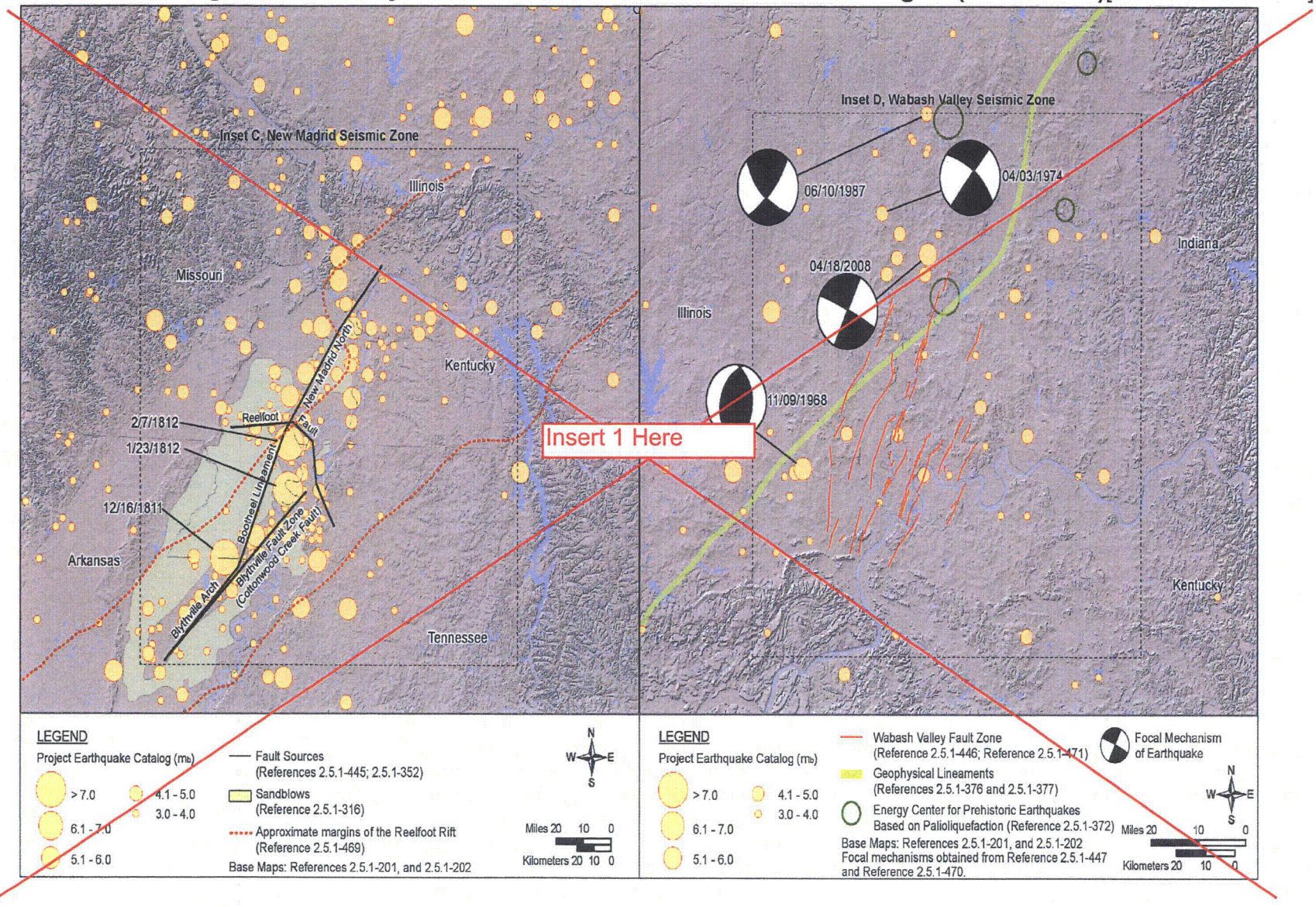
Proposed COLA Revision

See attached revised FSAR Figure 2.5.1-207.

Markup of Detroit Edison COLA
(following 2 pages)

The following markup represents how Detroit Edison intends to reflect this RAI response in a future submittal of the Fermi 3 COLA. However, the same COLA content may be impacted by revisions to the ESBWR DCD, 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.

Figure 2.5.1-207 Regional Seismicity and tectonic Features in the Fermi 3 Site Region (Sheet 3 of 3)[EF3 COL 2.0-26-A]



Insert 1

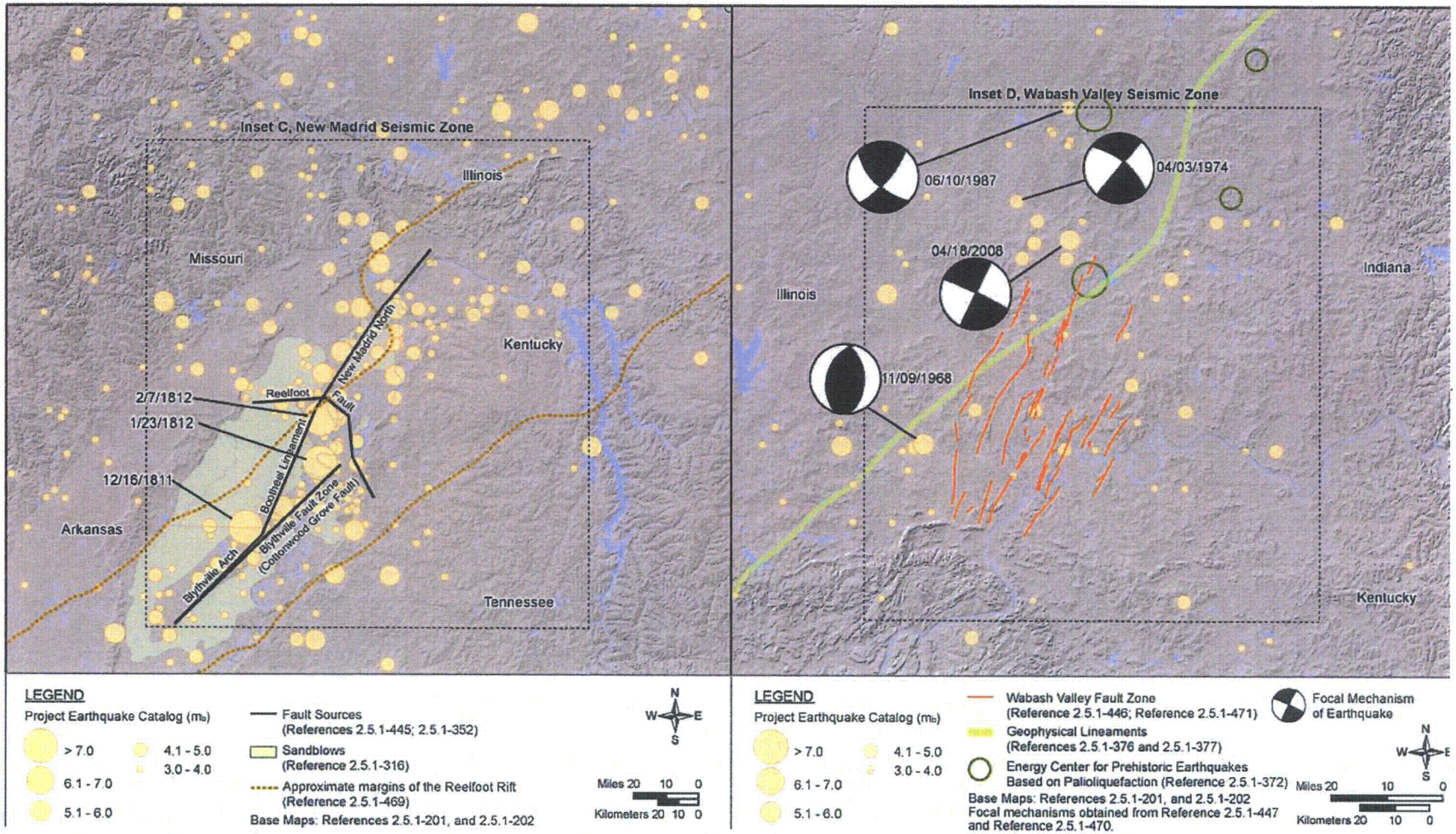



Figure 2.5.1-207 (Sheet 3 of 3)