13.0 CONDUCT OF OPERATIONS

This chapter provides information relating to the preparations and plans for the design, construction, and operation of a nuclear plant. The purpose of this chapter is to provide reasonable assurance that the combined license (COL) applicant will establish and maintain a staff of adequate size and technical competence to ensure that the operating plans the licensee will follow are adequate to protect public health and safety.

13.1 Organizational Structure of Applicant

13.1.1 Introduction

This section of the COL Final Safety Analysis Report (FSAR) describes the organizational structure that includes the design, construction, and preoperational responsibilities of the organizational structure. The management and technical support organization includes a description of the corporate or home office organization, its functions and responsibilities, and the number and qualifications of the personnel. The activities of the organizational structure include facility design, design review, design approval, construction management, testing, and the operation of the plant. Descriptions of the design, construction, and preoperational responsibilities include the following:

- How those in charge at the headquarters will assign and implement these responsibilities within the organizational units.
- The responsible working or performance-level organizational unit.
- The estimated number of persons to be assigned to each unit with responsibility for the project.
- The general level of education and experience required for identified positions or classes of positions.
- Early plans to provide technical support for the operation of the facility.

This section also describes the structure, functions, and responsibilities of the onsite organization established to operate and maintain the plant. The applicant has renumbered Section 13.1.1 and added other subsections in FSAR Section 13.1. Several of these subsections are new and differ from the structure in Section 13.1 of Regulatory Guide (RG) 1.206, “Combined License Applications for Nuclear Power Plants (LWR Edition),” June 2007.

13.1.2 Summary of Application

Section 13.1 of the Fermi Unit 3 (Fermi 3) COL FSAR, Revision 3, incorporates by reference Section 13.1 of the certified the Economic Simplified Boiling-Water Reactor (ESBWR) design control document (DCD), Revision 9. In addition, in FSAR Section 13.1, the applicant provided the following:

COL Item

- EF3 COL 13.1-1-A Management and Technical Support Organization

- EF3 COL 13.1-1-A provides site-specific information to resolve DCD COL Item 13.1-1-A, which requires the COL applicant to describe the organizational structure. EF3 COL 13.1-1-A describes organizational positions at the nuclear power station and in the owner/applicant corporations, in addition to the associated functions and responsibilities.

- EF3 COL 9.5.1-10-A Fire Brigade

EF3 COL 9.5.1-10-A is the Fermi 3 response to DCD COL 9.5.1-10-A. DCD COL 9.5.1-10-A requires the COL applicant to provide a milestone for implementing the provisions for manual firefighting capability for all plant areas.

13.1.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG–1966, "Economic Simplified Boiling-Water Reactor Design Certification, the final safety evaluation report (FSER) related to the ESBWR DCD.

In addition, the relevant requirements of the Commission regulations for the compliance with the Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, and the associated acceptance criteria, are described in Subsections 13.1.1 and 13.1.2-13.1.3 of NUREG–0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)."

The applicable regulatory guidance for the organizational structure of the applicant is as follows:

- American National Standards Institute (ANSI)/American Nuclear Society (ANS)-3.1-1993, as endorsed and amended by RG 1.8, "Qualification and Training of Personnel for Nuclear Power Plants."

The applicable regulations and regulatory guidance for the management, technical support, and operating organizations of the applicant are as follows:

- 10 CFR 50.40(b), "Common Standards"
- 10 CFR 50.54(j–m), "Conditions of Licenses"
- RG 1.33, "Quality Assurance Program Requirements (Operation)"

13.1.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 13.1 of the certified ESBWR DCD. The staff reviewed Section 13.1 of the Fermi 3 COL FSAR, Revision 3, and checked the referenced ESBWR DCD to ensure that the combination of the information in the ESBWR DCD organizational structure of the applicant.

Section 1.2.3 of this safety evaluation report (SER) provides a discussion of the strategy used by the NRC to perform one technical review for each standard issue outside the scope of the DC and use this review in evaluating subsequent COL applications. To ensure that the staff's findings on standard content that were documented in the SER with open items issued for the

North Anna application were equally applicable to the Fermi COL application, the staff undertook the following reviews:

- The staff compared the North Anna 3 COL FSAR, Revision 1, to the Fermi COL FSAR. In performing this comparison, the staff considered changes made to the Fermi COL FSAR (and other parts of the COL application, as applicable) resulting from requests for additional information (RAIs) and open and confirmatory items identified in the North Anna SER with open items.

- The staff confirmed that the applicant endorsed all responses to RAIs identified in the corresponding standard content (the North Anna SER) evaluation.

- The staff verified that the site-specific differences were not relevant to this section.

The staff has completed its review and found the evaluation performed for the North Anna standard content to be directly applicable to the Fermi COL application. This standard content material is identified in this SER by use of italicized, double indented formatting.

The staff reviewed the information in the COL FSAR:

COL Item

- EF3 COL 13.1-1-A Management and Technical Support Organization

EF3 COL 13.1-1-A is related to the organizational structure of the COL applicant, which describes organizational positions at a nuclear power plant and in the owner/applicant corporations, in addition to the associated functions and responsibilities.

The applicant provided the following additional Fermi 3 site-specific COL information to resolve DCD COL Item 13.1-1-A, which addresses the organizational structure of the COL applicant. DCD COL Item 13.1-1-A states:

The COL Applicant referencing the ESBWR will submit documentation that demonstrates that their organizational structure is consistent with the ESBWR Human Factors Engineering (HFE) design requirements and complies with the requirements of 10 CFR 50.54 (i) through (m).

The applicant provided additional information as part of the FSAR to describe the organizational positions at a nuclear power station and in the owner/applicant corporations, in addition to the associated functions and responsibilities. The applicant states that Table 13.1-201, "Generic Position/Site Specific Position Cross Reference," provides the estimated number of positions required for each function. In addition, Table 13.1-201 provides a cross-reference to identify site-specific position titles.

The applicant added new sections and tables with information related to the site-specific organizational structure in Section 13.1. The new information extends beyond the structure in RG 1.206. The new sections and their titles are:

13.1.1 "Management and Technical Support Organization"
13.1.1.1 "Design, Construction, and Operating Responsibilities"
13.1.1.2 "Technical Support for Plant Operations"
13.1.1.3 "Organizational Arrangement"

13.1.1.4 “Qualifications of Technical Support Personnel”
13.1.2 “Operating Organization”
13.1.2.1 “Plant Organization”
13.1.3 “Qualifications Requirements of Nuclear Plant Personnel”
13.1.3.1 “Minimum Qualifications Requirements”
13.1.3.2 “Qualification Documentation”

Table 13.1-201 “Generic Position/Site-Specific Position Cross Reference”
Table 13.1-202 “Minimum Shift Staffing”

In addition, the applicant added a new appendix to Chapter 13 for future designation as historical information titled, “Appendix 13AA Design and Construction-Responsibilities.” This appendix describes the applicant’s construction organization.

The staff has reviewed EF3 COL 13.1-1-A and concludes that the descriptions of the management, technical support, and operating organizations are acceptable and meet the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable. This conclusion is based on the following:

The applicant has identified the structure of the organization and has functionally described how the organization will communicate, implement, manage, and provide technical support for the design, construction, and operation of the facility. The applicant also describes plans for managing the project and described the role and function of the architect-engineer and the nuclear steam supply system vendor during both design and construction. These plans provide reasonable assurance that the applicant will establish an acceptable organization with sufficient resources and experience that will be available for offsite technical support that will satisfy the applicant’s ability to fulfill commitments for the design, construction, and operation of the facility.

The applicant also describes the assignment of plant operating responsibilities; the reporting chain up through the chief executive officer; the functions and responsibilities of each major plant staff group; the proposed shift crew complement for single-unit operation; the qualification requirements for members of the plant staff; and staff qualifications. Resumes for management and principal supervisory and technical positions will be available for review after position vacancies are filled.

In addition, the applicant's operating organization can be characterized as follows:

1. The applicant, based on the preceding information and experience in nuclear power plant design, construction, and operation, is technically qualified, as specified in 10 CFR 50.40(b) and 10 CFR 50.80, as applicable.

2. An adequate number of licensed operators will be available at all required times to satisfy the minimum staffing requirements of 10 CFR 50.54(j).

3. On-shift personnel will be able to provide an initial facility response in the event of an emergency.

4. Organizational requirements for the plant manager and radiation protection manager have been satisfied.

5. Qualifications and requirements of plant personnel conform to the guidance of RG 1.8.

6. Organizational requirements conform to the guidance of RG 1.33.

7. The applicant has designated the organization responsible for the test program and plans to utilize the plant operating and technical staff in developing and conducting the test program and in reviewing test results.

These findings contribute to the judgment that the applicant complies with the requirements of 10 CFR 50.40(b). That is, the applicant is technically qualified to engage in design and construction activities and to operate a nuclear power plant; the applicant will have the necessary managerial and technical resources to support the plant staff in the event of an emergency; and the applicant identifies the organizational positions responsible for fire protection matters and delegates to these positions the authority to implement fire protection requirements.

FSAR Table 1.9-201, "Conformance with Standard Review Plan," identifies an exception to NUREG-0800, Section 13.1.1, Standard Review Plan (SRP) Acceptance Criteria 1.C as follows:

> The experience requirements of corporate staff are set by corporate policy and not provided in detail; however, the experience level of Detroit Edison, as discussed in Section 13.1 and Appendix 13AA, in the area of nuclear plant development, construction, and management establishes that Detroit Edison has the necessary capability and staff to ensure that design and construction of the facility will be performed in an acceptable manner.

The guidance of NUREG–0800, Section 13.1.1, Areas of Review Item 1.B.vii states that the submittal should describe the general education and experience required for identified positions or classes of positions and for management and supervisory positions. The staff found that Detroit Edison has addressed the corporate staff guidance for education and experience as recommended in NUREG–0800, Section 13.1.1 Areas of Review Item 1.B.vii.

The applicant added new FSAR Section 13.1.1.4, which states that the qualifications for managers and supervisors in the technical support organization will meet the requirements for education and experience described in ANSI/ANS-3.1–1993 and RG 1.8. The applicant also stated that the qualification and experience requirements of corporate staff are set by corporate policy and are not provided in detail.

FSAR Subsection 13.1.3.1 states that the qualifications for managers, supervisors, operators, and technicians in the operating organization meet the requirements for education and experience as described in ANSI/ANS-3.1-1993 and endorsed and amended in RG 1.8. For reactor operators (ROs) and senior reactor operators (SROs), Section 13.2 of the COL FSAR modifies those requirements. In addition, for initial appointees to appropriate management and supervisory positions, Subsection 13.1.3.2 states that resumes and other documentation of qualifications and experience will be available for review after vacant position are filled.

In FSAR Table 13.1-202, "Minimum Shift Staffing for Unit 3," the applicant describes the minimum composition of the operating shift crew for unit shutdown and operating modes. Position titles, license requirements, and minimum shift staffing for the various modes of operation are in technical specifications and administrative procedures.

- EF3 COL 9.5.1-10-A Fire Brigade

EF3 COL 9.5.1-10-A is related to onsite fire operations training and the schedule for implementation of the fire protection program. Based on the information provided in Table 13.4-201, "Operational Programs Required by NRC Regulations," the staff finds the applicant's schedule for implementing the fire protection plan meets the guidance of NUREG-0800 and is therefore acceptable. The technical review for EF3 COL 9.5.1-10-A, as it relates to the fire protection programmatic requirements is addressed in Section 9.5 of this SER.

13.1.5 Post Combined License Activities

There are no post COL activities related to this section.

13.1.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix [X], Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional information in the COL application to the relevant NRC regulations, the guidance in Section 13.1 of NUREG–0800, and other NRC RGs. The staff's review concluded that the applicant has provided sufficient information to satisfy the requirements of NRC regulations. The staff determined that the applicant has adequately addressed EF3 COL Item 13.1-1-A involving the management, technical support, and operating organizations, and EF3 COL Item 9.5.1-10-A, as it relates to implementation of the Fermi 3 Fire Protection Program, including the Fire Brigade. In conclusion, the staff determined that the applicant has provided sufficient information for satisfying the requirements of 10 CFR 50.40(b), 10 CFR 50.54(j–m), and 10 CFR 50.80, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

13.2 Training

13.2.1 Introduction

This section of the FSAR addresses the description and schedule of the training program for ROs and senior ROs (i.e., licensed operators). The discussion addresses the scope of licensing examinations as well as training requirements. The licensed operator training program also includes the requalification programs required in 10 CFR 50.54(i)(i-1) and 10 CFR 55.59, "Requalification."

In addition, this section of the FSAR includes the description and schedule of the training program for non-licensed plant staff.

13.2.2 Summary of Application

Section 13.2 of the Fermi 3 COL FSAR incorporates by reference Section 13.2 of the ESBWR DCD, Revision 9.

In addition, in FSAR Section 13.2, the applicant provides the following:

COL Items

- EF3 COL 13.2-1-A Reactor Operator Training

  Descriptions of the training program and licensed operator requalification program for ROs and SROs are addressed in Appendix 13BB. A schedule showing approximate timing of initial licensed operator training relative to fuel loading is addressed in FSAR Section 13.1, Table 13.1-202, Nominal Plant Staff Hiring and Training Schedule. Requalification training is implemented in accordance with FSAR Section 13.4, Table 13.4-201, Operational Programs Required by NRC Regulations.

- STD COL13.2-2-A Training for Non-Licensed Plant Staff

  The applicant states that a description of the training program for non-licensed plant staff is in FSAR Appendix 13BB, Training Program. A schedule showing the approximate timing of initial training for non-licensed plant staff relative to fuel loading is in FSAR Section 13.1, Table 13.1-202, Nominal Plant Staff Hiring and Training Schedule.

Supplemental Information

- STD SUP 13.2-1 Training

  Training programs are discussed in Appendix 13BB. Implementation milestones are discussed in COL FSAR Section 13.4.

13.2.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG–1966, the FSER related to the ESBWR DCD.

The relevant requirements of the Commission regulations for the training and the associated acceptance criteria are in Section 13.2 of NUREG–0800. In particular, the regulatory basis for accepting the applicant's information in Section 13.2 is in 10 CFR Parts 19, 26, 50, 52, and 55; Appendix E of 10 CFR Part 50; the guidance of RGs 1.8 and 1.149; NUREG–1021, "Operator Licensing Examination Standards for Power Reactors"; and NUREG–1220, "Training Review Criteria and Procedures." The COL License Information Item 13.1 is reviewed using the guidance in NUREG–0800, Section 13.2.1, "Reactor Operator Requalification Program; Reactor Operator Training," and Section 13.2.2, "Non-Licensed Plant Staff Training."

The Operational Program for the Non-Licensed Plant Staff Training Program is in 10 CFR 50.120 and 10 CFR 52.79(a)(33).

The Operational Program for the Reactor Operator Training Program is in 10 CFR 55.13, 10 CFR 55.31, 10 CFR 55.41, 10 CFR 55.43, and 10 CFR 55.45.

The Operational Program for the Reactor Operator Requalification Program is satisfied based on meeting the requirements of 10 CFR 52.79(a)(34), 10 CFR 50.54(i), and 10 CFR 55.59.

The relevant criteria for reviewing COL License Information Item 13.1, which relates to the incorporation of operating experience, are based on meeting the provisions of the Three Mile Island Action Item I.C.5, Appendix 1A, "Feedback of Operating Experience." Moreover, COL License Information Item 13.1 is satisfied based on following the guidance of NUREG-0800, Section 13.2, "Training."

13.2.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 13.2 of the certified ESBWR DCD. The staff reviewed Section 13.2 of the Fermi 3 COL FSAR, Revision 3, and checked the referenced ESBWR DCD to ensure that the combination of the information in the ESBWR DCD and the information in the COL FSAR appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information contained in the application and the information incorporated by reference address the relevant information related to this section.

The staff reviewed the information in the Fermi 3 COL FSAR as follows:

COL Items

- STD COL 13.2-1-A Reactor Operator Training

The applicant provides additional information in STD COL Item 13.2.1-A, which states:

> Descriptions of the training program and licensed operator requalification program for ROs and SROs are addressed in Appendix 13BB. A schedule showing approximate timing of initial licensed operator training relative to fuel loading is addressed in Section 13.1. Requalification training is implemented in accordance with Section 13.4.

NUREG-0800, Section 13.2.1 states that the application should contain a description of the training program for ROs and SROs. In FSAR Appendix 13BB, the applicant references Nuclear Energy Institute (NEI), "Technical Report on a Template for an Industry Training Program Description," NEI 06–13A, a generic training program description. The staff determined that NEI 06-13A, Revision 1, provides an acceptable template for describing licensed operator and non-licensed plant staff training programs because it meets the criteria of NUREG-0800, Section 13.2.1.

NUREG-0800, Section 13.2.1 states that the application should describe the scheduling of the training program for ROs and SROs. NEI 06-13A addresses training program schedules in Section 1, "Training Program Description." In FSAR Section 13.1, "Organizational Structure of Applicant," the applicant includes a schedule showing the approximate timing of initial licensed operator training relative to fuel loading. The staff concluded that the applicant-provided licensed operator training program schedule contains sufficient information to satisfy the guidance of NUREG-0800, Section 13.2.1 and is therefore acceptable.

NUREG–0800, Section 13.2.1 states that the application should describe the requalification program for ROs and SROs. NEI 06-13A Section 1 addresses the requalification program

[1] See "*Finality of Referenced NRC Approvals*," in SER Section 1.2.2, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

descriptions. In FSAR Section 13.4, "Operational Program Implementation," the applicant describes the licensed operator requalification program. The staff concluded that the applicant-provided description of the licensed operator requalification program meets the criteria in NUREG–0800, Section 13.2.1 and is therefore acceptable.

- STD COL 13.2-2-A Training for Non-Licensed Plant Staff

The applicant provides additional information in STD COL Item 13.2-2-A, which states:

> A description of the training program for non-licensed plant staff is addressed in Appendix 13BB. A schedule showing approximate timing of initial training for non-licensed plant staff relative to fuel load is addressed in Section 13.1.

NUREG–0800, Section 13.2.2 states that the applicant's training program should meet the guidelines of RG 1.8 for non-licensed personnel. In FSAR Table 13.4-201, the applicant provides a schedule for a milestone of at least 18 months before fuel loading for the requirements of non-licensed plant staff, in accordance with the requirements of 10 CFR 50.120(b). In addition, the applicant will provide a schedule for conducting formal onsite training and on-the-job training, so that the entire plant staff will be qualified before initial fuel loading. In FSAR Table 13.4-201, Operational Program, Items 11 through 13 provide additional details on the commitments and applicable requirements to be met. The staff determined that the applicant's approach is acceptable because it will include those subjects that are required by regulations for the training programs and will base the training programs on the systems approach to training (SAT), as required by regulations and in accordance with the guidance of NEI 06-13A. The staff concluded that the applicant has provided sufficient information to satisfy the guidance of NUREG–0800, Section 13.2.2.

Supplemental Information

- STD SUP 13.2-1 Training

The applicant provides additional information in STD COL Item 13.2-2-A, which states:

> Training programs are addressed in Appendix 13BB. Implementation milestones are addressed in Section 13.4.

The applicant adds FSAR Appendix 13BB, which references NEI 06-13A. But, the applicant does not identify the appropriate NEI 06–13A revision to be used. For example, NEI 06-13A, Revision 0 does not address a cold license training program. Thus, Appendix 13BB does not address provisions for a cold license training plan. NEI 06-13A, Revision 1 addresses a cold license training program and has been endorsed by the NRC. Therefore, the staff issued RAI 13.02-01-1 asking the applicant to explain how Fermi operators will be trained and licensed without a cold license training program. The applicant's response to this RAI dated November 4, 2009 (ML093130117), clarifies the use of NEI 06–13A, Revision 1, as indicated in FSAR Table 1.6-201, "Referenced Topical Reports." The staff found this response acceptable and RAI 13.02-01-1 is closed.

NUREG–0800, Section 13.2.1 states that the description of the training program should address subject matter, duration, organization, position titles, and schedules. NEI 06-13A, Section 1 includes information on subject matter, duration, organization, position titles, and schedules.

The staff concluded that the description of the NEI 06-13A training program provides sufficient information to satisfy the criteria in NUREG–0800, Section 13.2.1 and is therefore acceptable.

NUREG–0800, Section 13.2.1 states that the training program for licensed operators should include (1) the subjects in 10 CFR 55.31, 10 CFR 55.41, 10 CFR 55.43, 10 CFR 55.45, and RG 1.8; and (2) provisions for upgrading licenses. In addition, this program should use the SAT as defined in 10 CFR 55.4. NEI 06-13A Section 1.1 states that the training program for licensed operators is in accordance with and includes the subjects in 10 CFR Part 55—specifically 10 CFR 55.41, 10 CFR 55.43, 10 CFR 55.45, and RG 1.8. NEI 06-13A, Section 1 states that training programs are developed, established, implemented, and maintained using the SAT as defined by 10 CFR 55.4. The staff determined that this program is acceptable and meets the guidance of NUREG–0800, Section 13.2.1, because the applicant will include in the training programs those subjects that are required by regulations and will base the training programs on the SAT, as required by regulations and in accordance with the guidance in NEI 06-13A.

NUREG–0800, Section 13.2.1 states that the licensed operator requalification program should include the content described in 10 CFR 55.59 or should be based on the use of the SAT, as defined in 10 CFR 55.4. NEI 06-13A, Section 1.1 states that the licensed operator training program content and schedule comply with 10 CFR 55.59. NEI 06-13A, Section 1 states that training programs are developed, established, implemented, and maintained using the SAT as defined by 10 CFR 55.4. The staff found this acceptable because the applicant will include in the training programs those subjects that are required by regulations and will base the training programs on the SAT, as required by regulations and in accordance with the guidance in NEI 06-13A. The staff concluded that the applicant has provided sufficient information to satisfy NUREG–0800, Section 13.2.1.

NUREG–0800, Section 13.2.1 states that the program for providing the simulator capability should meet the requirements described in 10 CFR 55.31, 10 CFR 55.45, 10 CFR 55.46, and 10 CFR 50.34(f)(2)(i); in addition to the guidance in RG 1.149. NEI 06-13A, Section 1.1 states that licensed operators will receive plant simulator training to demonstrate an understanding of and the ability to perform the actions listed in 10 CFR 55.45. NEI 06-13A, Section 1.1 also states that a simulator will be used for training licensed operators and for the administration of operating tests, in accordance with 10 CFR 55.46. NEI 06-13A also references RG 1.149. NEI 06-13A does not specifically mention 10 CFR 55.31, but it does address how applicants will apply simulators for licensed operator training (which is in 10 CFR 55.31(a)(5)) and addresses the simulator capability. NEI 06-13A also does not mention 10 CFR 50.34(f)(2)(i), which requires simulators to include the capability of simulating small-break, loss-of-coolant accidents. However, FSAR Table 1.9-202, “Conformance with Regulatory Guides,” states that the applicant conforms to the guidance of RG 1.149, Revision 3. The staff determined that this is acceptable because the applicant will provide the simulator capability required by the regulation. The staff concluded that the applicant has provided sufficient information to satisfy NUREG–0800, Section 13.2.1.

NUREG–0800, Section 13.2.1 states that the training program should include the means for evaluating the effectiveness of the training program in accordance with the SAT. NEI 06-13A Section 1.5 includes a program to evaluate training effectiveness. NEI 06-13A, Section 1 also states that training programs are to be developed, established, implemented, and maintained using the SAT as defined by 10 CFR 55.4. The staff determined that this is acceptable and provides sufficient information to satisfy NUREG–0800, Section 13.2.1, because the applicant will provide a means for evaluating the effectiveness of the training program as recommended by NUREG–0800, Section 13.2.1.

NUREG–0800, Section 13.2.1 states that applicants are to provide implementation milestones for the RO training program. NEI 06-13A includes implementation milestones. The staff determined that this is acceptable because the applicant has provided implementation milestones as recommended by NUREG–0800, Section 13.2.1.

13.2.5 Post Combined License Activities

There are no post COL activities related to this section.

13.2.6 Conclusions

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix [X], Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional COL and supplemental information in the application to the relevant NRC regulations; the guidance in Section 13.2 of NUREG-0800, and other NRC RGs. The staff's review concluded that the applicant has adequately addressed COL Items STD COL 13.2-1-A and 13.2-2-A and STD SUP 13.2-1, relating to training, and in accordance NRC regulations. These items are thus acceptable.

13.3 Emergency Planning

13.3.1 Introduction

This section addresses the plans, design features, facilities, functions, and equipment necessary for radiological emergency planning (EP) that must be considered in a COL application. This includes both the applicant's onsite emergency plan and State and local offsite emergency plans, which the NRC and the Federal Emergency Management Agency (FEMA) evaluated to determine whether the plans are adequate, and that there is a reasonable assurance that they can be implemented. The plans shall be an expression of the overall concept of operation, describe the essential elements of advanced planning that have been considered, and the provisions that have been made to cope with radiological emergency situations.

13.3.2 Summary of Application

Section 13.3 of the Fermi 3 COL FSAR, Revision 3, incorporates by reference Section 13.3 of the certified ESBWR DCD, Revision 9. In addition, in FSAR Section 13.3, the applicant provides the following:

COL Items

- STD COL 13.3-1-A - Identification of OSC and Communication Interfaces with Control Room and TSC.

The applicant provided additional information in Standard (STD) COL 13.3-1-A to address COL Information Item 13.3-1-A (COL 13.3-1-A) of the ESBWR DCD, which states:

The COL applicant is responsible for identifying the OSC and the communication interfaces or inclusion in the detailed design of the control room and TSC (Section 13.3).

- STD COL 13.3-2-A Identification of EOF and Communication Interfaces with Control Room and TSC.

The applicant provided additional information in Standard (STD) COL 13.3-2-A to address COL Information Item 13.3-2-A (COL 13.3-2-A) of the ESBWR DCD, which states:

The COL applicant is responsible for the design of the communication system located in the EOF in accordance with NUREG-0696 (Reference 13.3-2) (Section 13.3).

- STD COL 13.3-3-A - Decontamination Facilities.

The applicant provided additional information in Standard (STD) COL 13.3-3-A to address COL Information Item 13.3-3-A (COL 13.3-3-A) of the ESBWR DCD, which states:

The COL applicant will provide supplies at the site for decontamination of onsite individuals in the service building adjacent to the main change rooms (Section 13.3).

Supplemental Information

Part 5, "Emergency Plan," Revision 3 of the Fermi 3 COL application includes the following:

Onsite Emergency Plans

Part 5, "Emergency Planning," of the Fermi 3 COL application includes the Emergency Plan (the Fermi 3 Emergency Plan). The Fermi 3 Emergency Plan consists of a basic plan and seven appendices. The seven appendices provide additional detailed information regarding various aspects of the Fermi 3 Emergency Plan.

Offsite Emergency Plans

Part 5, "Emergency Planning," of the Fermi 3 COL application includes current State and local emergency plans. In addition, Part 5 includes the detailed evacuation time estimate (ETE) report.

ITAAC

Part 10, "ITAAC," Revision 2, of the Fermi 3 COL application provides information regarding emergency planning – inspections, tests, analyses and acceptance criteria (EP ITAAC). The ITAAC are evaluated in Section 13.3C.19 of this safety evaluation report (SER). The applicant provided the following standard supplement in Chapter 14:

- STD SUP 14.3-1-A

The COL applicant shall provide emergency planning inspections, tests, analyses, and acceptance criteria (ITAAC), based on industry guidance.

License Conditions

- Part 2, License Condition

The applicant proposed a license condition [COM 13.4-031] to submit a fully developed set of site-specific Emergency Action Levels (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.

- Part 10, License Condition

In Part 10, Revision 2, of the Fermi 3 COL application, the applicant proposed a license condition to execute formal Letters of Agreement with State and local agencies with emergency planning responsibilities prior to fuel load.

13.3.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1966, the FSER related to the ESBWR DCD.

The applicable regulatory requirements and guidance for EP are as follows:

- 10 CFR 52.79(a)(21), "Contents of Applications; Technical Information in Final Safety Analysis Report" and 10 CFR 52.79(a)(22)(i) require that the FSAR include emergency plans that comply with the requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50, and certifications from State and local governmental agencies with EP responsibilities. Under 10 CFR 50.47(a)(1)(ii), no initial COL under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. In addition, under 10 CFR 50.47(a)(2), the NRC will base its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate, and whether there is reasonable assurance that they can be implemented, and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and whether there is reasonable assurance that they can be implemented.

- 10 CFR 52.77, 10 CFR 52.80, 10 CFR 50.33(g), and 10 CFR 100.21, "Non-seismic Sitting Criteria."

- NUREG-0800, identifies NUREG-0654/FEMA-REP-1, Revision 1 and other related guidance. The related acceptance criteria are identified in NUREG-0800, Section 13.3.II and the applicable regulatory guidance for reviewing emergency preparedness as an operational program is established in NUREG-0800 Section 13.4.

- In addition, Appendix A to 44 CFR 353, "Memorandum of Understanding (MOU) Between Federal Emergency Management Agency and Nuclear Regulatory Commission Relating to Radiological Emergency Planning and Preparedness," September 14, 1993, states that FEMA is responsible for making findings and determinations as to whether offsite emergency plans are adequate and can be implemented. FEMA radiological emergency preparedness (REP) guidance documents provide guidance on various

topics for use by State and local organizations responsible for radiological emergency preparedness and response. NUREG-0654/FEMA-REP-1, Revision 1, provides guidance to provide a basis for State and local governments to develop radiological emergency plans.

13.3.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 13.3 of the certified ESBWR DCD. The staff reviewed Section 13.3 of the Fermi 3 COL FSAR, Revision 3, and checked the referenced ESBWR DCD to ensure that the combination of the information in the ESBWR DCD and the information in the COL FSAR appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information contained in the application and the information incorporated by reference address the relevant information related to this section.

- The staff reviewed the information in the Fermi 3 COL FSAR:

COL Items

- STD COL 13.3-1-A
- STD COL 13.3-2-A
- STD COL 13.3-3-A

The NRC staff's review of STD SUP 13.3-1-A, 13.3-2-A and 13.3-3-A are addressed in Attachment 13.3A of this SER. Additional detailed evaluation of STD SUP 13.3-1-A and 13.3-2-A can be found in 13.3C-8 and 13.3C.11 for STD SUP 13.3-3-A of this SER.

Supplemental Information

The NRC staff's review of the information provided in the application that is not part of the Fermi 3 Emergency Plan is addressed in Attachment 13.3B, "Emergency Planning Information in the Application," of the SER.

Onsite Emergency Plan

The staff's evaluation of the applicant's emergency plan, located in Attachment 13.3C of this SER, found that the applicant's onsite emergency plan is acceptable because it meets the standards in 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR Part 50. Verification proposed revisions to the Onsite Emergency Plan are incorporated in the next FSAR revision is being tracked as confirmatory items.

Offsite Emergency Plans

FEMA reviewed the offsite emergency plans for the: State of Michigan Emergency Management Plan (December 2005), State of Michigan Department of Environmental Quality Nuclear Facilities Emergency Management Plan (February 2008), Monroe County Emergency Management Plan (March 2006) and Wayne County Emergency Operations Plan (June 2007). In a report dated May 6, 2009, FEMA provided its Interim

[1] See "*Finality of Referenced NRC Approvals*," in SER Section 1.2.2, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

Findings Report (see ADAMS Accession ML092360251) that concluded offsite emergency plans are adequate and there is reasonable assurance that they can be implemented. The staff has reviewed the FEMA report and concurs with FEMA's findings and determination regarding offsite emergency planning.

ITAAC

- STD SUP 14.3-1-A

The COL applicant shall provide emergency planning inspections, tests, analyses, and acceptance criteria (ITAAC), based on industry guidance.

The staff reviewed the proposed site specific EP ITAAC against the generic EP ITAAC provided in Table 14.3.10-1, "Emergency Planning Generic Inspections, Tests, Analyses, and Acceptance Criteria (EP ITAAC)," 10 CFR 52.80(a) and Section 14.3.10 of NUREG-0800. The staff found that the applicant adequately addressed the applicable EP ITAAC needed to provide reasonable assurance that, upon successful completion, the facility will be constructed and operated in conformity with the COL, the provisions of the Atomic Energy Act, and the Commission's rules and regulations. Verification that proposed revisions to the EP ITAAC are incorporated in the next FSAR revision is being tracked as confirmatory items.

License Conditions

- Part 2, License Condition [COM 13.4-031]

The applicant proposed a license condition related to the plant specific EALs. Specifically, the applicant proposed the following:

> The applicant proposed a license condition [COM 13.4-031] to submit a fully developed set of site-specific Emergency Action Levels (EALs) to the NRC in accordance with the NRC-endorsed version of NEI 07-01, Rev. 0, with no deviations. These fully developed site-specific EAL scheme shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

The staff has revised the proposed license condition as follows:

> The applicant shall submit a fully developed set of site-specific Emergency Action Levels (EALs) to the NRC in accordance with the NRC-endorsed version of NEI 07-01, Rev. 0, with no deviations. The EALs shall have been discussed and agreed upon with State and local officials. These fully developed site-specific EAL scheme shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

With this modification, the staff finds this license condition to be acceptable. The NRC staff's evaluation of the EALs is documented in Section 13.3C.4 of the SER.

- Part 10, License Condition

The applicant provided a license condition in Part 10, section 2.3 "Emergency Planning ITAAC," Table 2.3-1 "ITAAC For Emergency Planning," of the Fermi 3 COL FSAR. This table

adequately addresses requirements of 10 CFR 52.80(a) for site specific Emergency Planning ITAAC (EP-ITAAC) in a COLA and therefore is acceptable. The NRC staff's detailed evaluation of the EP ITAAC identified in Table 2.3-1 of Part 10 of the Fermi 3 COL application is documented in Section 13.3C.19 of this SER. The Emergency Planning ITAAC are provided in Table 2.3-1.

- Part 10, License Condition

The applicant proposed a license condition to execute formal Letters of Agreement with State and local agencies with emergency planning responsibilities prior to fuel load. Specifically, the applicant proposed the following:

> 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

The NRC staff's evaluation of the Letters of Agreement is documented in Section 13.3C.1.7 "Written Agreements" of this SER.

13.3.5 Post-Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff finds the following ITAAC and license conditions acceptable:

- The licensee shall perform and satisfy the ITAAC defined in Table 2.3-1 of COL application Part 10.
- The applicant shall submit a fully developed set of site-specific Emergency Action Levels (EALs) to the NRC in accordance with the NRC-endorsed version of NEI 07-01, Rev. 0, with no deviations. The EALs shall have been discussed and agreed upon with State and local officials. These fully developed site-specific EAL scheme shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load..

- License Condition COL application Part 10 – The applicant shall execute formal Letters of Agreement with State and local agencies with emergency planning responsibilities prior to fuel load. 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.

- The applicant proposed a license condition to provide a schedule to support the NRC's inspection of operational programs including the EP. Specifically, the applicant proposed the following:

  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 fully implemented 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.

The staff reviewed the above proposed license condition is Section 13.4.4 "*Technical Evaluation"* of this SER.

13.3.6 Conclusions

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix [X], Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional COL supplemental information in the application to the relevant NRC regulations, the guidance in Section 13.3 of NUREG–0800, and other NRC RGs.

The staff concluded that the Fermi 3 Emergency Plan provides an adequate expression of the overall concept of the operation and describes the essential elements of advanced planning and the provisions adopted to cope with emergency situations. The staff's detailed evaluations of the Fermi 3 Emergency Response Plan are located in Attachments 13.3A, 13.3B, and 13.3C of this SER. Verification that proposed revisions to the emergency plan are incorporated in the next FSAR revision is being tracked as confirmatory items.

The staff has concluded, based on FEMA's IFR and its evaluation of the Fermi 3 Emergency Response Plan, there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore the staff has determined that the Fermi 3 Emergency Response Plan meets the requirements of 10 CFR 50.33(g), 10 CFR 50.34(b)(6)(v), 10 CFR 50.34(f)(2), 10 CFR 50.47, 10 CFR Part 50, Appendix E, 10 CFR 52.77, 10 CFR 52.79(a)(21), 10 CFR 52.79(a)(22)(i), 10 CFR 52.80, 10 CFR 52.81, and 10 CFR 52.83.

Pursuant to 10 CFR 50.47(a), the staff concluded that subject to the License Conditions, noted above, and the satisfactory completion of the emergency planning ITAAC, there is reasonable assurance that adequate protective measures can and will be taken in the event of a

radiological emergency at the Fermi 3 site and that emergency preparedness for Fermi 3 is adequate to support full-power operations.

The staff's final conclusion for Chapter 13.3, "Emergency Planning," is subject to verification that the confirmatory items identified in the following attachments to section 13.3 of this SER have been incorporated in the applicant's next revision of the Fermi 3 FSAR.

Attachment 13.3A – COL Information Items, Supplemental Information Items and Departures

Introduction

This section addresses the COL information items, supplemental information items and departures associated with EP.

13.3A.1 Regulatory Basis

The regulatory basis for acceptance of the resolution of Fermi STD COL 13.3-1-A, requiring the identification of OSC and Communication Interfaces with the Control Room and TSC is established in 10 CFR 50.47(b), 10 CFR 50.34(f)(2)(xxv), and the guidance in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," (including the March 2002 addenda) and NUREG-0696, "Functional Criteria for Emergency Response Facilities."

The regulatory basis for acceptance of the resolution of the STD COL 13.3-2-A, requiring the identification of EOF and Communication Interfaces with the Control Room and TSC is established in 10 CFR 50.47(b), 10 CFR Part 52, Appendix E to 10 CFR Part 50, 10 CFR 50.33(g), 10 CFR 52.79(a)(17), and 10 CFR 50.34(f)(2)(xxv), and the guidance in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," (including the March 2002 addenda) and NUREG-0696, "Functional Criteria for Emergency Response Facilities."

The regulatory basis for acceptance of the resolution of the STD COL 13.3-3-A Decontamination Facilities, requiring supplies be provided for the decontamination of onsite individuals is established in 10 CFR 50.47(b), 10 CFR Part 52, Appendix E to 10 CFR Part 50.

The regulatory basis for acceptance of the resolution of the STD COL 14.3-1-A, Emergency Planning Inspections, Tests, Analysis, and Acceptance Criteria (ITAAC), based on industry guidance, is provided in 10 CFR 52.80(a). It requires that a COL application include the proposed ITAAC, including those applicable to EP, that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the ITAAC are successfully completed, the facility will be constructed and operated in conformity with the COL, the provisions of the Atomic Energy Act, the Commission's rules and regulations and the guidance contained NUREG-0800, specifically, Section 14.3.10 EP ITAAC and Table 14.3.10-1.

13.3A.2 COL Information Items

Technical Information in the Application:

- STD COL 13.3-1-A

Section 13.3, “Emergency Planning,” of the Fermi 3 COL FSAR describes replacing the fifth through ninth paragraphs of the ESBWR DCD (Tier 2) information with the following:

> “As addressed in the emergency plan, the TSC is provided with reliable voice and data communication with the MCR and Emergency Operations Facility (EOF) and reliable voice communications with the Operational Support Center (OSC), NRC, and state and local operations centers.
>
> The OSC communications system has at least one dedicated telephone extension to the control room, and one dedicated telephone extension to the TSC, and one telephone capable of reaching on-site and off-site locations, as a minimum.”

- STD COL 13.3-2-A

Section 13.3, “Emergency Planning,” of the Fermi 3 COL FSAR describes replacing the fifth through ninth paragraphs of the ESBWR DCD (Tier 2) with the same information described for STD COL 13.3-1-A, listed above.

- STD COL 13.3-3-A

Section 13.3, “Emergency Planning,” of the Fermi 3 COL FSAR describes replacing the second sentence in the tenth paragraph of the ESBWR DCD (Tier 2) with the following:

- “Supplies are provided in the service building adjacent to the main change rooms for decontamination of on-site individuals.”

Technical Evaluation:

- <u>STD COL 13.3-1-A</u>

The staff’s review of the information provided by the applicant to address STD COL 13.3-1-A “Identification of OSC and Communication Interfaces with Control Room and TSC” concluded it meets the requirements in 10 CFR 50.47(b) and 10 CFR 50.34(f)(2)(xxv), and the guidance in NUREG-0654/FEMA-REP-1, Revision 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” (including the March 2002 addenda) and NUREG-0696, "Functional Criteria for Emergency Response Facilities.” The detail of this review is addressed in SER Section 13.3C.8.

- <u>STD COL 13.3-2-A</u>

The staff’s review of the information provided by the applicant to address STD COL 13.3-2-A “Identification of EOF and Communication Interfaces with Control Room and TSC” concluded it meets the requirements in 10 CFR 50.47(b), 10 CFR Part 52, Appendix E to 10 CFR Part 50, 10 CFR 50.33(g), 10 CFR 52.79(a)(17), and 10 CFR 50.34(f)(2)(xxv), and the guidance in NUREG-0654/FEMA-REP-1, Revision 1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” (including the March 2002 addenda) and NUREG-0696, "Functional Criteria for Emergency Response Facilities.” The detail of this review is addressed in SER Section 13.3C.8.

- STD COL 13.3-3-A

The staff's review of the information provided by the applicant to address 13.3-3-A "Decontamination Facilities", concluded it meets the requirements in 10 CFR 50.47(b), 10 CFR Part 52 and Appendix E to 10 CFR Part 50. The detail of this review is addressed in SER Section 13.3C.11 of this SER.

13.3A.3 Supplemental Information Items

- STD COL 14.3-1-A

Section 14.3 "Inspections, Tests, Analysis, and Acceptance Criteria" describes replacing the last paragraph of this section in the ESBWR DCD (Tier 2) with the following:

> "The requirements for inclusion of Emergency Planning ITAAC (EP-ITAAC) in a COLA are provided in 10 CFR 52.80(a). In SRM-SECY-05-0197, the NRC approved generic EP-ITAAC for use in COL and ESP applications. This set of EP-ITAAC was considered in the development of the plant-specific EP-ITAAC, which are tailored to the ESBWR design. The plant-specific EP-ITAAC are included in a separate part of the COLA."

Technical Evaluation:

- STD SUP 14.3-1-A

The COL applicant stated the NRC approved generic EP-ITAAC for use in COL applications was considered in the development of the Fermi 3 plant-specific EP-ITAAC. The plant-specific EP-ITAAC are included in the Fermi 3 COLA Part 10. The resolution of this COL item is addressed in this SER Section 13.3C.19.

13.3A.4 Departures

- None that effect Emergency Preparedness

13.3A.5 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix [X], Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

The NRC staff has compared the COL information items and supplemental information items in the Fermi 3 COL application to the applicable NRC regulations and other NRC RGs and concludes that the applicant is in compliance with the applicable regulatory requirements in 10 CFR 50.33(g), 10 CFR 52.79(a)(17), 10 CFR 52.79(a)(21), 10 CFR 50.34(f)(2)(xxv), 10 CFR 50.47(b)(2) and (6), and the applicable guidance in NUREG-0654/FEMA-REP-1, and in NUREG-0800.

Attachment 13.3B –Emergency Planning Information in the Application

Introduction

This section of the SER includes the NRC staff's evaluation of EP information that is required to be provided in the COL application, but does not address the applicant's plans for responding to a radiological emergency, which are evaluated in Attachment 13.3C in this SER.

13.3B.1 Regulatory Basis[1]

The applicable regulatory requirements for EP information are as follows:

- 10 CFR Part 50, Appendix E, Section I, "Introduction," describes the EPZ.

- 10 CFR Part 50, Appendix E, Section E.III, "The Final Safety Analysis Report," requires that the FSAR include plans for coping with emergencies.

- 10 CFR 52.79(a)(21), "Contents of the Applications; Technical Information in the Final Safety Analysis Report," and 10 CFR 50.34(b)(6)(v), "Contents of Applications; Technical Information," also require that the FSAR include an onsite emergency plan that meets the requirements in 10 CFR 50.47 and 10 CFR Part 50, Appendix E.

- 10 CFR 50.33, "Content of the Application: General Information" and 10 CFR 52.77, "Contents of Applications; General Information," require in part, the submittal of State and local emergency plans.

- 10 CFR 50.33(g) requires, in part, a description of the plume exposure pathway and the ingestion pathway EPZs. In addition, 10 CFR 50.47(c)(2), "Emergency Plans," states generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 kilometers [km]) in radius and the ingestion pathway EPZ shall consist of an area about 50 miles (80 km) in radius. The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries. The plans for the ingestion pathway shall focus on such actions as are appropriate to protect the food ingestion pathway.

- 10 CFR 50.34(b)(6)(v) requires plans for coping with emergencies, which shall include the items specified in Appendix E. 10 CFR 50.34(h)(1)(i) and 10 CFR 52.79(a)(41) require that the COL application include an evaluation of the facility against NUREG-0800. Section 13.3 of NUREG-0800 provides guidance for the review of onsite emergency plans for nuclear power plants. 10 CFR 50.34(h)(2) and (3) require that the evaluation identify and describe all differences from the NUREG-0800 acceptance criteria in Section 13.3 and evaluate how the proposed alternatives to the NUREG-0800 criteria provide an acceptable method of complying with the Commission's regulations. Where differences exist, the evaluation should discuss how the proposed alternative

[1] The bracketed [ ], alphanumeric designations used throughout this SER section identify the corresponding NUREG-0654/FEMA-REP-1 evaluation criteria used by the staff to determine compliance with 10 CFR 50.47(b). Braces { } identify requirements in Appendix E to 10 CFR Part 50. Parentheses ( ) identify other applicable regulatory requirements.

provides an acceptable method of complying with the Commission's regulations or portions thereof that underlie the corresponding NUREG-0800 acceptance criteria.

- 10 CFR 52.73, "Relationship to Other Subparts," states that the application for a COL may reference a standard design.

- 10 CFR 52.79(a)(22)(i), "Contents of the Applications: Technical Information in the Final Safety Analysis Report," requires certifications from State and local governmental agencies with EP responsibilities that: (1) the proposed emergency plans are practicable; (2) these agencies are committed to participating in any further development of the plans, including any required field demonstrations; and (3) these agencies are committed to executing their responsibilities under the plans in the event of an emergency.

- 10 CFR 52.81, "Standards for Review of Applications," states that COL applications will be reviewed according to the standards in 10 CFR Parts 50 and 100. Therefore, the requirements of 10 CFR Part 100, "Reactor Site Criteria," Subpart B, "Evaluation Factors for Stationary Power Reactor Site Applications on or after January 10, 1997," are applicable. 10 CFR 100.1(c), "Reactor Site Criteria, Purpose," requires the identification of physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans. In addition, 10 CFR 100.21(g) also requires that applications for site approval identify physical characteristics unique to the proposed site.

- 10 CFR 100.1(c) states that siting factors and criteria are important in assuring that radiological doses from normal operation and postulated accidents will be acceptably low, that natural phenomena and potential man-made hazards will be appropriately accounted for in the design of the plant, that site characteristics are such that adequate security measures to protect the plant can be developed, and that physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans are identified.

- 10 CFR 100.21(g) states that physical characteristics unique to the proposed site that could pose a significant impediment to the development of emergency plans must be identified.

- 10 CFR 30.32(i)(1) license is required to possess radioactive materials in unsealed form, on foils or plated sources, or sealed in glass in excess of the quantities in § 30.72, "Schedule C--Quantities of Radioactive Materials Requiring Consideration of the Need for an Emergency Plan for Responding to a Release.

- 10 CFR 40.31 license is required to possess uranium hexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total.

- 10 CFR 70 (i)(1) license is required to possess enriched uranium or plutonium for which a criticality accident alarm system is required, uranium hexafluoride in excess of 50

kilograms in a single container or 1000 kilograms total, or in excess of 2 curies of plutonium in unsealed form or on foils or plated sources.

13.3B.2 FSAR and Onsite Emergency Plan

Technical Information in the Application: {Appendix E, Section III} (10 CFR 52.79(a)(21)) (10 CFR 50.34(b)(6)(v)) Chapter 13.3 "Emergency Planning," of Part 2, "FSAR," of the COL application in section 13.3.2 "Emergency Plan" states that the emergency plan is prepared in accordance with 10 CFR 52.79(d) and maintained as a separate document. The document is Part 5, "Emergency Plan," (Fermi 3 Emergency Plan) of the COL application. Section I.B, "Scope," states that the plan describes actions to be taken in the event of a radiological emergency at Fermi 3 that may impact the health and safety of the general public or plant employees. In section I.C, "Planning Basis," the Fermi Emergency Plan states that it meets the planning standards set forth in 10 CFR 50.47(b) and the requirements of 10 CFR Part 50, Appendix E. The Plan has been developed to address the applicable provisions of NRC RG 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," and is also based on the guidance in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." The Fermi Emergency Plan also includes seven appendices that provide additional detailed information on various aspects of the onsite emergency plan.

Technical Evaluation: {Appendix E, Section III} (10 CFR 52.79(a)(21)) (10 CFR 50.34(b)(6)(v)) The staff finds that the Fermi 3 COL FSAR includes an emergency plan for coping with emergencies at the Fermi 3 site, which meets the applicable requirements in Section III of Appendix E to 10 CFR Part 50, 10 CFR 52.79(a)(21), and 10 CFR 50.34(b)(6)(v).

13.3B.3 Submittal of State and Local Emergency Plans

Technical Information in the Application: (10 CFR 50.33)

The "Explanatory Notes Regarding the Emergency Plan and Supplemental Information," of the Fermi 3 Emergency Plan states that current state and local emergency planning documents are included as Supplemental Information. The list of state and local emergency planning documents includes:

- Michigan Emergency Management Plan
- Monroe County Management Plan
- Wayne County Operations Plan
- Michigan Department of Environmental Quality Nuclear Facilities Emergency Management Plan (NFEMP)
- The Ohio Plan for Response to Radiation Emergencies at Commercial Nuclear Power Plants

The applicant submitted all required offsite emergency plans for state and local governmental entities that are wholly or partially within the plume exposure pathway EPZ. These state and

local governmental entities include: Michigan Counties of Monroe and Wayne. The offsite emergency plans for Michigan and Ohio, which are wholly or partially within the ingestion pathway EPZ, were required to be submitted; however the state of Ohio's was not. In RAI 13.03-35, the staff requested that the applicant provide the Ohio state radiological emergency response plan and letter of certification consistent with 10 CFR 50.33(g). In response the applicant provided the Ingestion Pathway portion of the State of Ohio Emergency Operations Plan, the certification letter with the state of Ohio and prepared a proposed revision of Appendix 2 to the Fermi 3 COL Emergency Plan that includes the State of Ohio Certification Letter in the list of certification letters.

Technical Evaluation: (10 CFR 50.33) The staff finds the applicant's response to **RAI 13.03-35** acceptable because both the Ohio state emergency response plan and letter of certification requested were provided. The applicant submitted all required offsite emergency plans for State and local governmental entities that are wholly or partially within the plume exposure pathway EPZ. This is acceptable because it meets the requirements in 10 CFR 50.33(g).

13.3B.4 Description of the Emergency Planning Zones

Technical Information in the Application: {Appendix E, Section I} (10 CFR 50.33(g)) (10 CFR 50.47(c)(2)) Section I.D, "Emergency Planning Zones," of the Emergency Plan describes both the plume and ingestion exposure pathway EPZs. The plume exposure pathway EPZ is described as an area approximately 10 miles in radius around the site. Figure I-1, "Fermi 3 Plume Exposure Pathway EPZ," provides an illustration of the EPZ.

The ingestion pathway EPZ is described as an area approximately 50 miles in radius around the site. Figure I-2, "Fermi 3 Ingestion Exposure Pathway EPZ," provides an illustration of the EPZ.

Technical Evaluation: Based on FEMA's and the NRC staff review of the applicant's description of the EPZ, the size is found to be acceptable and meets the requirements of 10 CFR 50.33(g), 10 CFR 50.47(c)(2), and Section 1 of Appendix E to 10 CFR Part 50.

13.3B.5 Certifications from State and Local Governments

Technical Information in the Application: (10 CFR 52.79(a)(22)(i)) Appendix 2, "Certification Letters," to the Fermi Emergency Plan includes a list of certification letters from the Michigan State Police, the Monroe County Emergency Management Division, the Wayne County Department of Homeland Security & Emergency Management and the Frenchtown Charter Township Fire Department. **RAI 13.03-35** requested that the applicant provide Certification Letters for the Appendix 2 list of organizations that may be required to provide support to Fermi 3 in the event of an emergency. In response the applicant proposed a license condition to execute formal Letters of Agreement (LOA), with each agency listed in Appendix 2 of the Fermi 3 emergency plan, prior to loading fuel. The LOAs will identify the specific nature of arrangements in support of the Fermi 3 emergency plan.

Technical Evaluation: The staff finds the applicant's response to **RAI 13.03-35** acceptable because it meets the requirements of 10 CFR 52.79(a)(22)(i). The staff confirmed that Revision 2 to Part 10 "ITAAC" of the Fermi 3 COLA incorporated the information and textual changes provided in the response to RAI 13.03-35. The staff finds that the revision to Section 3.1 "Emergency Planning Actions" of Part 10 to the Fermi 3 COLA provides an

adequate license condition to ensure that the requirements of 10 CFR 52.79(a)(22)(i) will be meet prior to fuel load.

13.3B.6 Evaluation Against the Standard Review Plan

Technical Information in the Application: (10 CFR 52.79(a)(41)) (10 CFR 50.34(h)(1)(i)) (10 CFR 50.34(h)(2 and 3)) In Chapter 1.9 “Conformance with Standard Review Plan and Applicability of Codes and Standards” of part 2 in the Fermi 3 COLA, the applicant provided Table 1.9-201 “Conformance with Standard Review Plan,” to document the conformance of the application with the SRP acceptance criteria. Table 1.9-201 indicates that Chapter 13.3, "Emergency Planning" conforms to the SRP acceptance criteria and is acceptable.

The applicant used the term “conforms” in Table 1.9-201 to mean that no exception is taken to the SRP acceptance criteria as they apply to site-specific design information, operational aspects of the facility, or siting information in the FSAR and the term “Not applicable,” to mean that the SRP acceptance criteria does not apply to the ESBWR or Fermi 3. Any differences with the SRP acceptance criteria are identified and justified, with references to the applicable FSAR section(s) that address the difference.

Technical Evaluation: The staff reviewed the applicant’s evaluation of the Fermi Emergency Plan against the applicable portions of SRP Section 13.3 “Emergency Planning,” dated March 2007. The evaluation found the identified differences between the SRP acceptance criteria in Section 13.3 and application Table 1.9-201 to be adequately described. Therefore, the information is acceptable and meets the requirements of 10 CFR 52.79(a)(41), 10 CFR 50.34(h)(1)(i) and 10 CFR 50.34(h)(2 and 3).

13.3B.7 Reference to a Standard Design

Technical Information in the Application: Section 13.3, "Emergency Planning," of FSAR Part 2, to the COL Application, states that Section 13.3 of the referenced DCD [ESBWR] is incorporated by reference with departures and/or supplements as noted.

Technical Evaluation: The staff finds that the ESBWR DCD was incorporated by reference in the Fermi 3 COL FSAR and the evaluation of the departures and supplements is addressed in Attachment 13.3A of this SER. This is acceptable because it meets the requirements of 10 CFR 52.73.

13.3B.8 Impediments to the Development of Emergency Plans

Technical Information in the Application: (10 CFR 52.81) (10 CFR 100.1(c)) (10 CFR 100.21(g)) Appendix 5 to the Emergency Plan, “Evacuation Time Estimate Summary,” states that the evacuation time estimate (ETE) report, “Fermi Nuclear Plant Development of Evacuation Time Estimates,” dated August, 2010, describes the analyses undertaken and the results obtained by the study. Appendix 5 of the Fermi 3 Emergency Plan concluded, based on the information contained in the ETE Report, that there are no unique physical characteristics to the Fermi nuclear power plant site that poses a significant impediment to the development of emergency plans.

Technical Evaluation: (10 CFR 52.81) (10 CFR 100.1(c)) (10 CFR 100.21(g)) The applicant has demonstrated, through the use of the ETE Report that no physical characteristics unique to the proposed site would pose a significant impediment to the development of emergency plans.

Therefore, the staff finds that the information is acceptable because it meets the requirements of 10 CFR 100.1(c), 10 CFR 100.21(g) and 10 CFR 52.81. The staff's review of the ETE Report is in Section 13.3C.18, "Evacuation Time Estimates Analysis," of this SER.

13.3B.9 Emergency Planning for Byproduct, Source, and Special Nuclear Material Licenses

Technical Information in the Application: (10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1). In Table 13.4-201 "Operational Programs Required by NRC Regulations" of Section 13.4, "Operational Program Implementation," in Part 2 of the Fermi 3 COL application, the applicant requested applicable licenses under 10 CFR Parts 30, 40, and 70 prior to initial receipt of byproduct source, or special nuclear materials (excluding Exempt Quantities as described in 10 CFR 30.18). In **RAI 13.03-62** the staff requested additional information regarding the requirements of 10 CFR 30.32(i)(1), specifically does the request for a Part 30 license involve authorization to receive or possess byproduct material(s) "in unsealed form, on foils, plated sources, or sealed in glass," in excess of the quantities in Schedule C of 10 CFR 30.72? In response, the applicant stated no byproduct material in unsealed form, on foils or plated sources, or sealed in glass, in excess of the quantities in Schedule C of 10 CFR 30.72, would be received, possessed, or used at the Fermi 3 site. Since the quantities do not exceed Schedule C, an emergency plan that meets the requirements of 10 CFR 30.32(i)(3) is not required. As such, the implementation of the Emergency Plan prior to the receipt of byproduct material will be removed from FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations." In **RAI 13.03-63** the staff requested additional information regarding the requirements of 10 CFR 40.31(j)(1), specifically does the request for a Part 40 license involve authorization to receive, possess, or use uranium hexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total? In response, the applicant stated the Part 40 license would not involve authorization to receive, possess, or use uranium hexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total. Because quantities would not exceed values listed above, an emergency plan for responding to the radiological hazards of an accidental release of source material and to any associated chemical hazards related to the material is not required. As such, the implementation of the Emergency Plan prior to the receipt of source material will be removed from FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations." And Chapter 12 of the FSAR will be revised to include a requirement addressing these limitations during the period prior to the implementation of the Emergency Plan (prior to the initial fuel loading following the finding that the acceptance criteria in the combined license has been met as provided in 10 CFR 52.103(g)). In **RAI 13.03-64** the staff requested additional information regarding the requirements of 10 CFR 70.22(i)(1), specifically, does the request for a Part 70 license involve authorization to possess enriched uranium for which a criticality accident alarm system is required?. In response the applicant stated the request for a Part 70 license does not involve authorization to possess enriched uranium for which a criticality accident alarm system is required, uranium hexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total, or in excess of 2 curies of plutonium in unsealed form or on foils or plated sources. Hence an emergency plan that meets 10 CFR 70.22(i)(3) is not required, therefore the implementation of the Emergency Plan prior to the receipt of special nuclear materials will be removed from FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations." And Chapter 12 of the FSAR will be revised to include a requirement addressing these limitations during the period prior to the implementation of the Emergency Plan (prior to the initial fuel loading following the finding that the acceptance criteria in the combined license has been met as provided in 10 CFR 52.103(g)).

Technical Evaluation: (10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1)

The staff finds the applicant's responses to **RAIs 13.03-62, 13.03-63** and **13.03-64** to be acceptable because they meet the requirements of 10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1). The staff created Confirmatory Actions 13.03-73 through 75 to track the proposed revisions to: remove reference to implementation the Emergency Plan prior to initial receipt of byproduct source, or special nuclear materials from FSAR Table 13.4-201 "Operational Programs Required by NRC Regulations," and include information to address the requirements of 10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1) during the period prior to implementation of the Emergency Plan to Section 12.2.1.5 of Chapter 12 of the Fermi 3 FSAR. The staff finds that, with the exception of confirmatory actions, that information provided is acceptable and meets the requirements of 10 CFR 30.32(i), 10 CFR 40.31(j), and 10 CFR 70.22(i)(1).

The staff created **Confirmatory Item 13.03-73** to track the revision to remove the reference to 10 CFR 30.32(i)(3) in FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations" and a revision to Chapter 12 of the FSAR to include a requirement for addressing the limitations of 10 CFR 30.32(i)(3) during the period prior to the implementation of the Emergency Plan, prior to the initial fuel loading, following the finding that the acceptance criteria in the combined license has been met as provided in 10 CFR 52.103(g). (RAI 13.03-62).

The staff created **Confirmatory Item 13.03-74** to track the revision to remove the reference to 10 CFR 40.31(j)(1) in FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations" and a revision to Chapter 12 of the FSAR to include a requirement for addressing the limitations of 10 CFR 40.31(j)(1) during the period prior to the implementation of the Emergency Plan, prior to the initial fuel loading, following the finding that the acceptance criteria in the combined license has been met as provided in 10 CFR 52.103(g). (RAI 13.03-63).

The staff created **Confirmatory Item 13.03-75** to track the revision to remove the reference to 10 CFR 70.22(i)(1) in FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations" and a revision to Chapter 12 of the FSAR to include a requirement for addressing the limitations of 10 CFR 70.22(i)(1) during the period prior to the implementation of the Emergency Plan, prior to the initial fuel loading, following the finding that the acceptance criteria in the combined license has been met as provided in 10 CFR 52.103(g). (RAI 13.03-64).

13.3B.10 Post Combined License Activities

The following License Condition is proposed by the applicant:

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 LOA 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.

13.3B.11 Conclusions

The NRC staff reviewed the EP information required by regulations to be in the application, but not required to be part of the Fermi 3 Emergency Plan. The staff concludes that the information provided is acceptable and meets the requirements and guidance in 10 CFR 50.33, 10 CFR 50.34(b)(6)(v), 10 CFR 50.47(c)(2), 10 CFR 52.73, 10 CFR 52.77, 10 CFR 52.79, 10 CFR 52.81, 10 CFR 100.1(c), 10 CFR 100.21(g), and the applicable portions of Appendix E to 10 CFR Part 50 as discussed above. Verification that proposed revisions to the Fermi 3 Emergency Plan are incorporated in the next FSAR revision is being tracked as confirmatory items.

Attachment 13.3C - Onsite Emergency Plan

Introduction

The NRC evaluates emergency plans for nuclear power reactors to determine whether the plans are adequate and there is reasonable assurance that the plan can be implemented. This Attachment to the SER provides the results of the review of the onsite emergency plan for the proposed new Fermi 3 Nuclear Power Plant site.

The Fermi 3 COL FSAR states in Section 13.3, “Emergency Planning,” that the Fermi 3 Emergency Plan is included in Part 5 of the COL application. Also included as part of the onsite emergency plan are seven appendices, which provide additional detailed information on various aspects of the Fermi 3 Emergency Plan. In addition, Part 10 of the COL application includes a set of Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) related to the Fermi 3 Emergency Plan.

The following section describes the NRC staff’s evaluation of the onsite emergency plan for the Fermi 3 site and parallels the planning standards in NUREG-0654/FEMA-REP-1, Revision 1. Compliance with the guidance in NUREG-0654/FEMA-REP-1, Revision 1, for each planning standard meets the requirements of 10 CFR 50.47(b).

13.3C.1 Assignment of Responsibility (Organizational Control)

13.3C.1.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(1), the staff evaluated it against the detailed evaluation criteria[1] in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed

[1] The bracketed, alphanumeric designations used throughout this FSER section identify the corresponding NUREG-0654/FEMA-REP-1 evaluation criteria used by the staff to determine compliance with 10 CFR 50.47(b).

emergency plan against applicable regulatory requirements related to the area of "Assignment of Responsibility (Organization Control)," in Appendix E to 10 CFR Part 50.[1]

13.3C.1.2 Overall Response Organization

Technical Information in the Emergency Plan: [A.1.a] Section II.A, "Assignment of Responsibility," describes the emergency response participating organizations and includes the concept of operations. Participating organizations, including State agencies, county governments, local government and federal emergency response agencies are described. State organizations identified in Section II.A.1.a.1, "State, Local and Provincial Governmental Agencies," include the Department of State Police and Department of Environmental Quality. Federal Agencies identified in Section II.A.1.a.2 "Federal Agencies," include the NRC, Department of Energy (DOE), FEMA, United States Coast Guard (USCG), and Environmental Protection Agency (EPA).

In Section II.A.1.b the Michigan Department of Community Health (MDCH) is identified as a participating government agency having the overall responsibility to protect the health and safety of the general public from radiation. In **RAI 13.03-01-02** the staff requested additional information regarding whether to include the MDCH in the listing of participating agencies in Section II.A.1.a.1. In response, the applicant provided a description of the responsibilities of the MDCH and described that the MDCH Bureau of Health Systems (Radiation Safety Section) is responsible for assisting the Michigan Department of Environmental Quality (MDEQ) staff in responding to nuclear accidents and during emergency drills and exercises. The applicant explained that MDCH can provide health physics staff and expertise for radiological monitoring teams, worker decontamination centers, and the Joint Information Center (JIC). The applicant will revise Section II.A.1.b of the Fermi 3 Emergency Plan to explain that the MDCH shares the responsibility for coordinating medical support for a nuclear accident with MDEQ.

{Appendix E, Section IV.A.8} Section II.A.1.b, "Concept of Operations," identifies the State government agencies with emergency responsibilities and the Governor of the State of Michigan as having complete authority over offsite emergency operations and decision making. The Emergency Management Division, of the Michigan State Police is identified as responsible for general planning, command and control, and overall direction and coordination. This includes coordinating implementation of protective actions to evacuate and/or shelter the public. The MDEQ is responsible for advising State and local officials on implementation of protective actions. Section II.A.1.b identifies the Chairperson of the Monroe County Board of Commissioners and the Wayne County Executive as responsible local government officials.

Technical Evaluation: [A.1.a] The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to RAI 13.03-01-02, to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-01-02. The staff finds that the Fermi 3 Emergency Plan provides an adequate general discussion of the assignment of responsibilities and addresses protective actions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

[1] Braces identify requirements in Appendix E to 10 CFR Part 50.

{Appendix E, Section IV.A.8} The staff finds that the Fermi 3 Emergency Plan adequately identifies State and/or local officials responsible for planning, ordering, and controlling appropriate protective actions, including evacuations when necessary. This is acceptable because it meets the requirements in Appendix E to 10 CFR Part 50.

13.3C.1.3 Concept of the Operations

Technical Information in the Emergency Plan: [A.1.b] Section II.A.1, "Emergency Organization," discusses the need to coordinate emergency response actions with Fermi 2 for events affecting both units and explains that a single Emergency Director is designated from the onsite shift management to perform the duties of the Emergency Plan. Section II.A.1.b, "Concept of Operations," describes the applicant's responsibilities beginning with assessment of plant conditions, classification of emergencies, notifications, protective action recommendations (PAR), communications, etc., and ending with termination of emergency conditions. Section II.A.1.b describes the Shift Manager as responsible for directing the activities of the plant staff in the initial assessment, corrective, and protective functions. The Control Room is the initial center for coordination of emergency response actions. The Technical Support Center (TSC) provides support of the command and control function of the control room once activated. Following activation of the emergency response facilities, a qualified senior manager assumes the Emergency Director position.

{Appendix E, Section III} The Final Safety Analysis Report, Section 13.3.2, "Emergency Plan," states that the emergency plan is provided in COLA Part 5. Section II.A, "Assignment of Responsibility," of the Fermi 3 emergency plan describes the participating emergency response organizations and provides overall concept of operations which includes actions beginning with assessment of plant conditions and ending with termination of emergency conditions. The emergency response roles of supporting organizations and offsite agencies are described for State, local, and Federal agencies.

Technical Evaluation: [A.1.b] {Appendix E, Section III} The staff finds that the Fermi 3 Emergency Plan adequately describes the applicant's operational role, its concept of operations, and its relationship to the total effort. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 and the requirements in Appendix E to 10 CFR Part 50.

13.3C.1.4 Organizational Interrelationships

Technical Information in the Emergency Plan: [A.1.c.] Figure II.A-1, "Emergency Operations Center Interrelationships," provides a block diagram of organizational interrelationships for the EOC. Section II.A.1.b, "Concept of Operations," identifies the Monroe County EOC in Monroe, Michigan and the Wayne County EOC in Romulus, Michigan. In **RAI 13.03-01-04** the staff requested additional information on county EOCs. In response, the applicant provided a revised Figure II.A-1 of the Fermi 3 Emergency Plan showing multiple county EOCs. Section II.A.1.a.1, "State, Local and Provincial Governmental Agencies," identifies the Province of Ontario Canada as a participating organization, and the Ontario EOC is included in Figure II.A-1. Roles of the State Police; MDEQ, and MDCH are described in Section II.A.1.b.

Technical Evaluation: [A.1.c.] The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to RAI 13.03-01-04 to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that

Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-01-04. The staff finds that the Fermi 3 Emergency Plan adequately illustrates the interrelationships of the participating organizations in emergency response in a block diagram and in text. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.1.5 Individual in Charge of Emergency Response

Technical Information in the Emergency Plan: [A.1.d] Section II.A.1.d, "Individual in Charge of Emergency Response," explains that the Shift Manager determines if an emergency exists and the proper emergency classification as applicable. Upon declaration of an emergency, the Shift Manager assumes the role of Emergency Director and is in charge of the emergency response.

Technical Evaluation: [A.1.d] The staff finds that the Fermi 3 Emergency Plan adequately identifies a specific individual by title that shall be in charge of the emergency response. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.1.6 24-Hour Response Capability

Technical Information in the Emergency Plan: [A.1.e.] Section II.A.1.e explains that the applicant maintains the capability for 24-hour response, which includes the manning of communications links. This capability is maintained through training of multiple responders for key emergency response positions, assignment of emergency response personnel to extended shifts when needed to support emergency response operations, procurement of external resources to supplement the assigned staff, and providing basic necessities such as food and sleeping facilities, to emergency response personnel.

Technical Evaluation: [A.1.e.] The staff finds that the Fermi 3 Emergency Plan adequately describes provisions for 24-hour per day emergency response, including 24-hour per day manning of communication links. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP 1, Revision 1.

13.3C.1.7 Written Agreements

Technical Information in the Emergency Plan: [A.3] Section II.A.2, "Written Agreements," references Appendix 2 "Certification Letters," for a list of certification letters between the applicant and the State of Michigan, Monroe and Wayne County agencies, and private sector organizations. Appendix 2 states that agreements are on file for the Michigan State Police, Monroe County Emergency Management Division, Wayne County Department of Homeland Security & Emergency Management, Frenchtown Charter Township Fire Department, Mercy Memorial Hospital Corporation, Monroe County Ambulance, and Oakwood Southshore Medical Center. **RAI 13.03-01-05** requested the applicant revise the Emergency Plan to include copies of existing agreements for the organizations identified in Appendix 2. In response to **RAI 13.03-01-05,** the applicant stated that Letters of Agreement supporting the proposed Fermi 3 COL Emergency Plan have not yet been executed specifically. The applicant explained that these letters will be executed prior to operation as verified by ITAAC for Emergency Planning Table 2.3-1 Item 1.0, and will be similar to those executed for the existing Fermi Unit 2. Copies of the existing agreements for Fermi Unit 2 were provided in the response. **Supplemental RAI 13.03-07** requested the applicant include in the Emergency Plan copies of LOA for Fermi Unit 3. In response to **Supplemental RAI 13.03-07**, the applicant further

explained that certification letters have been obtained from the support agencies and that Letters of Agreement will be expected prior to loading fuel at Fermi 3.

Technical Evaluation: [A.3] The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAI 13.03-01-05 and Supplemental RAI 13.03-07** acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 of the Fermi 3 FSAR contains a License Condition stating Letters of Agreement for Fermi 3 will be executed prior to operation. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.1.8 Operations for a Protracted Period

Technical Information in the Emergency Plan: [A.4] Section II.A.3, "Continuous Operations," identifies either the Emergency Officer or the Emergency Director as the individual responsible for ensuring continuity of technical, administrative, material resources during emergency operations, procurement of external resources as needed, and establishment of arrangements of basic necessities.

Technical Evaluation: [A.4] The staff finds that the Fermi 3 Emergency Plan adequately identifies the specific title of the individual responsible for continuity of resources for a protracted period. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.1.9 Conclusions

On the basis of its review of the onsite emergency plan as described above for assignment of responsibility, the staff concludes that the information provided in the Fermi 3 Emergency Plan is acceptable and meets the requirements of 10 CFR 50.47(b)(1) because it complies with the guidance in Planning Standard A of NUREG-0654/FEMA-REP-1 and the applicable portions of Appendix E to 10 CFR Part 50 as described above.

13.3C.2 Onsite Emergency Organization

13.3C.2.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(2), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Onsite Emergency Organization," in Appendix E to 10 CFR Part 50.

13.3C.2.2 Normal Plant Operations Organization

Technical Information in the Emergency Plan: **{Appendix E, Section IV.A.1}** Section II.B.1, "Onsite Emergency Organization," explains that minimum staff to conduct routine and emergency operations is maintained consistent with 10 CFR 50.54(m), and describes responsibilities of on-shift personnel. In addition it states, Table II.B-1 describes minimum onshift staffing requirements and augmented staffing according to functional areas, Emergency Response Facility (ERF), and emergency classification. Details of the normal plant organization are provided in plant administrative procedures. In **RAI 13.03-02-01** the staff requested the title and description of the plant administrative procedures. In response, the

applicant stated that details of the normal plant organization are provided in Section 13.1 of the Fermi 3 FSAR. The applicant provided text for Section II.B.1 of the Fermi 3 Emergency Plan identifying the reference to Section 13.1 of the FSAR. Plant administrative procedures provide the details of the normal plan organization, including reporting relationships. On-shift personnel are considered immediately available to respond to an emergency. **RAI 13.03-02-06** requested the title of the Emergency Response Organization (ERO) Staffing Emergency Plan Implementing Procedure (EPIP) and a description of the controls required to allow lower level documents to contain the emergency response plan's information (i.e. 10 CFR 50.54(q) commitment for Plan changes. In response, the applicant provided revised text for Section II.B that states details regarding ERO position descriptions, responsibilities, and major tasks of ERO staffing required for initial emergency response actions and provisions for timely augmentation of on-shift personnel are described in the following EPIPs: 1) Notifications/ Communications; 2) Technical Support Center Activation and Operation; 3) Operational Support Center Activation and Operation; 4) Emergency Operations Center Activation and Operation; and 5) Joint Information Center Activation and Operation. The applicant also provided revised text for Section II.P.6 that explains changes to EPIPs are controlled in accordance with the requirements of 10 CFR 50.54(q).

Technical Evaluation: {Appendix E, Section IV.A.1} The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAIs 13.03-02-01 and 13.03-06** acceptable because they conform to the regulatory requirements of 10 CFR Part 50, Appendix E, Section IV.A.1 and the guidance in NUREG-0654/FEMA-REP-1. The staff has confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to **RAIs 13.03 02-01 and 13.03-06.** The staff finds that the Fermi 3 Emergency Plan adequately describes details of the normal plant organization and appropriately describes changes made to EPIPs will be controlled in accordance with the requirements of 10 CFR 50.54(q). This is acceptable because they conform to the regulatory requirements of 10 CFR Part 50, Appendix E, Section IV.A.1 and the guidance in NUREG-0654/FEMA-REP-1.

13.3C.2.3 Onsite Emergency Organization

Technical Information in the Emergency Plan: [B.1] {Appendix E, Section IV.A.2.b} Section II.B.1, "Onsite Emergency Organization," explains that the Shift Manager assumes responsibility as Emergency Director upon declaration of an emergency and describes the assignment of plant staff for emergency response. The full Emergency Response Organization is activated at an Alert, Site Area Emergency, or General Emergency, and includes the Control Room (CR), Operational Support Center (OSC), TSC, and Emergency Operations Facility (EOF). Figure II.B-1, "Control Room," Figure II.B-2, "Operational Support Center," Figure II.B-3, "Technical Support Center," and Figure II.B-4, "Emergency Operations Facility," illustrate the emergency response organization, and functional responsibilities for various positions performing the functions detailed in Table II.B.2, "Emergency Response Organization Functional Responsibilities."

Section II.B.4, "Fermi 3 Emergency Response Organization Staff," describes that positions, titles and major tasks to be performed by persons assigned to functional areas of an emergency are identified in emergency planning implementing procedures (EPIPs), and these assignments cover the functions listed in Table II.B-1, "Minimum Staffing Requirements for Emergencies." Table II.B-1 describes minimum on-shift staffing by functional areas and augmented staffing at Alert or higher. Table II.B-2, "Emergency Response Organization Functional Responsibilities,"

describes key positions and functional responsibilities for the overall Emergency Response Organization.

Table II.B-2, includes the responsibilities of the Radiation Protection Advisor in the TSC who provides work direction for radiation protection and dose assessors; Dose Assessors in the TSC who perform onsite and offsite dose assessment and projections; Chemistry Technicians in the Control Room and TSC who perform dose assessment on potential and actual releases; Radiation Protection Coordinator in the EOF who directs the Radiological Emergency Team Coordinator and Dose Assessors; and the Dose Assessor/Meteorological Assessor in the EOF who performs dose assessment and projections.

Technical Evaluation: [B.1] {Appendix E, Section IV.A.2.b} The staff finds that the Fermi 3 Emergency Plan adequately describes the onsite emergency response organization with a detailed discussion of the plant staff emergency assignments. This is acceptable because it conforms to the requirements of Appendix E, Section IV.A.2.b of 10 CFR Part 50 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.2.4 Designation of an Emergency Coordinator

Technical Information in the Emergency Plan: [B.2] Section II.B.1 “Onsite Emergency Organization” states that the Shift Manager assumes responsibility as Emergency Director upon declaration of an emergency and has the responsibility and authority to initiate any required emergency response actions, including emergency classification changes; notification of federal, state, local and provincial authorities; and Protective Action Recommendations (PARs) to offsite authorities. The Emergency Director is responsible for coordinating the onsite emergency response under the direction and control of the Emergency Officer, when the EOF is declared operational.

Technical Evaluation: [B.2] The staff finds that the Fermi 3 Emergency Plan adequately identifies a designated individual as the emergency coordinator, who shall be on shift at all times, and who shall have the authority and responsibility to immediately and unilaterally initiate any emergency action, including providing PARs to authorities responsible for implementing offsite emergency measures. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.2.5 Line of Succession for the Emergency Coordinator

Technical Information in the Emergency Plan: [B.3] Section II.B.2, “Emergency Director Line of Succession,” states if the Shift Manager is rendered unable to fulfill the duties and responsibilities of the Emergency Director position (such as due to personal illness or injury), the Unit Supervisor present on shift (a position that also is staffed at all times) assumes the Emergency Director position, until relieved by the Plant Manager, or designated alternate. The normal line of succession would be from the Shift Manager to the Plant Manager, or alternate, after becoming fully familiar with the pertinent plant and radiological conditions and status of emergency response/accident mitigation efforts.

Technical Evaluation: [B.3] The staff finds that the Fermi 3 Emergency Plan adequately identifies a line of succession for the emergency coordinator position, and identifies the specific conditions for higher level utility officials assuming this function. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.2.6 Responsibilities of the Emergency Coordinator

Technical Information in the Emergency Plan: [B.4] {Appendix E, Section IV.A.2.c} Section II.B.3, "Emergency Director Responsibilities," lists responsibilities which include implementing immediate onsite corrective and protective actions, and initiating offsite notifications and PARs. Emergency Director responsibilities that may not be delegated are, to direct notification of and make protective action recommendations to governmental authorities, implement offsite emergency response actions, authorize plant and emergency workers to receive radiation doses in excess of 10 CFR Part 20 limits and authorize the distribution and use of Potassium Iodide (KI). Section II.B.1 describes that when the EOF is activated, the Emergency Officer, a position filled by a qualified senior manager, is responsible for overall direction and control of the entire activated Emergency Response Organization and for coordination with offsite agencies. The Emergency Officer has the non-delegable responsibility to make PARs and direct notification of them to governmental authorities responsible for implementing offsite emergency response actions.

{Appendix E, Section IV.A.2.a} Section II.B.1 "Onsite Emergency Organization" states that the Shift Manager assumes responsibility as Emergency Director upon declaration of an emergency and has the responsibility and authority to initiate any required emergency response actions and is responsible for coordinating the onsite emergency response. These responsibilities are summarized in Table II.B-2, "Emergency Response Organization Functional Responsibilities."

Technical Evaluation: [B.4] The staff finds that the Fermi 3 Emergency Plan adequately establishes the functional responsibilities assigned to the emergency coordinator, and clearly specifies which responsibilities may not be delegated. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

{Appendix E, Section IV.A.2.a} The staff finds that the Fermi 3 Emergency Plan adequately describes the onsite emergency response organization with a detailed discussion of the authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency. This is acceptable because it conforms to the requirements in Appendix E, Section IV.A.2.c to 10 CFR Part 50.

13.3C.2.7 On-shift and Augmentation Emergency Response Staff

Technical Information in the Emergency Plan: [B.5.] Section II.B "Emergency Response Organization" describes the Fermi 3 ERO positions and associated responsibilities. It outlines the staffing to provide initial emergency response actions and timely augmentation of on-shift personnel. Emergency Plan Implementing Procedures provide the details of ERO position descriptions, responsibilities, and major tasks to support initial emergency response actions and timely augmentation of Notifications/Communications, TSC Activation and Operation, Operational Support Center Activation and Operation, Emergency Operations Center Activation and Operation and Joint Information Center Activation and Operation. In **RAI 13.03-02-12**, the staff requested the Emergency Plan be revised to include a description of staffing for maintenance personnel to reflect Figure II.B-1, "Control Room." In response, the applicant explained on-shift maintenance personnel are assigned to the Damage Control and Rescue Team. **Supplemental RAI 13.03-11** requested the applicant include a description of the staffing of on-shift maintenance personnel to match Figure II.B-1 "Control Room" position block diagram. In response, the applicant stated that footnote 3 of Table II.B-1 will be revised to clarify that one individual qualified to provide mechanical maintenance support and one individual qualified to provide electrical maintenance support are on-shift; one individual

qualified to provide electrical maintenance support and one individual qualified to provide instrumentation and control (I&C) maintenance support would respond in 30 minutes for an Alert or higher; one individual qualified to provide mechanical maintenance support, one qualified Radwaste Operator, and one individual qualified to provide electrical maintenance support would respond in 60 minutes for an Alert or higher. The response further explains that Figure II.B-1 will be revised to indicate that the on-shift maintenance personnel are assigned to the Damage Control and Rescue Teams identified in Table II.B-1. In **RAI 13.03-02-13,** the staff requested that the Emergency Plan include a description of the Control Room Communicator, shown in Figure II.B-1. In response, the applicant explained that Table II.B-1 of the Fermi 3 COL Emergency Plan provides a description of the major tasks and organizational title associated with the Control Room Communicator position. The applicant explained that the Control Room Communicator, at the direction of the Control Room Emergency Director, completes initial notification of and communications with Detroit Edison, State, local, and NRC emergency response organizations. In **RAI 13.03-02-20 and RAI 13.03-02-21,** the staff requested additional information regarding the Emergency Director and Emergency Officer respectively. In response, the applicant provided a revised Table II.B-2 that included the Emergency Officer's responsibility to direct notification of and make PARs to governmental authorities.

Section II.B.1 “Onsite Emergency Organization” states the minimum staff required to conduct routine and immediate emergency operations is maintained consistent with 10 CFR 50.54(m) and the Fermi 3 Technical Specifications. Section 13.1 of the Final Safety Analysis Report provides further detail of normal plant organization and reporting relationships.

Table II.B-1 describes Detroit Edison’s intent to achieve the 30 and 60-minute augmentation times indicated in Table B-1 of NUREG-0654/FEMA-REP-1, and in Supplement 1 to NUREG-0737. On-shift personnel are considered to be immediately available to respond to the emergency situation and initiate emergency response actions. The normal complement of shift personnel is augmented according to the emergency classification.

Section II.C.2 “Offsite Organization Representation in the EOF” describes Detroit Edison personnel assignment as liaisons to the State, Monroe County, and Wayne County Emergency Operations Centers (EOCs), upon activation. These representatives act as technical liaisons to the offsite agencies providing plant status and emergency activity information updates. In **RAI 13.03-02-17,** the staff requested Table II.B-2 "Emergency Response Organization Functional Responsibilities," of the Emergency Plan be revised to include Emergency Director responsibilities provided in Section II.A.1.b "Concept of Operations,” such as the activation of the ERO and the direction of initial notification of PARs. In response, the applicant provided a revised Table II.B-2 showing the Shift Manager's/Emergency Director's responsibility to direct initial notification of PARs and activate the emergency response organization. In **RAI 13.03-02-19**, the staff requested an explanation as to how a position in the augmenting ERO could perform the call-in of the team. In response, the applicant provided a revised Table II.B-2 of the Fermi 3 COL Emergency Plan showing the Control Room Emergency Director's responsibility to ensure Detroit Edison personnel are called out as conditions warrant.

Section II.B.4 “Fermi 3 Emergency Response Organization Staff” states Detroit Edison provides for minimum Fermi 3 ERO staffing consistent with Table II.B-1 of this Plan (based on Table B-1 of NUREG-0654). Table II.B-2 “Emergency Response Organization Functional Responsibilities” describes the Fermi 3 key ERO positions and their functional responsibilities. In **RAI 13.03-02-07** the staff requested the Notification/Communication functions in Table II.B.1 be revised to be consistent with Table B-1 of NUREG-0654. In response, the applicant explained

that Non-Licensed Operators are assigned the Notification/Communication function, and as Non-Licensed Operators, these individuals are assigned other functions. **Supplemental RAI 13.03-08** requested the applicant revise Table II.B.1 of the Fermi 3 Emergency Plan to identify one of the excess Non-Licensed Operators as dedicated to the Notification/Communication function, and not assigned other functions. In response, the applicant stated that Table II.B-1, "Minimum Staffing Requirements for Emergencies," and Figure II.B-1, "Control Room," will be revised to indicate that an on-shift Non-Licensed Operator is designated to perform the Notification/Communication function.

In **RAI 13.03-02-09** the staff requested that Table II.B.1, Plant System Engineering, Repair and Corrective Actions section list areas of expertise to be consistent with NUREG-0654 Table B-1 listing. In response, the applicant stated that Non-Licensed Operators are qualified to perform radwaste operations during emergencies and provided a revised Table II.B-1 that identifies core/thermal hydraulics, electrical and mechanical engineering analysis as technical support and maintenance personnel assigned to the Damage Control and Rescue Team and a footnote to Table II.B-1 will be added to clarify that one Non-Licensed Operator may be assigned the Radwaste Operator duties to support emergency response or recovery activities, as needed.

In **RAI 13.03-02-10** the staff requested that Table II.B-1 be revised to include "firefighting communications." In response, the applicant provided a revised Table II.B-1 of the Emergency Plan that included "firefighting communications." In **RAI 13.03-02-11** the staff requested the applicant describe who the shift personnel are and their qualifications allowing them to fill the designated position in Table II.B-1. In response, the applicant explained that the Table II.B-1 footnote indicates that the corresponding staff numbers are not included in the total provided in the table and the individuals filling asterisked emergency response positions may be assigned multiple Table II.B-1 tasks. The applicant explained that the primary functions assigned to Damage Control and Rescue Teams are fulfilled by on-shift Operations and Maintenance personnel, with support provided by RP Technicians, and on-shift Maintenance personnel are also assigned to complete the "Repair and Corrective Actions" task. **Supplemental RAI 13.03-10.b** requested the applicant clarify the inconsistency between Table II.B-1 and footnote 3. In response to **Supplemental RAI 13.03-10.b**, the applicant states that footnote 3 of Table II.B-1 will be revised to clarify that one individual qualified to provide mechanical maintenance support and one individual qualified to provide electrical maintenance support are on-shift; one individual qualified to provide electrical maintenance support and one individual qualified to provide I&C maintenance support would respond in 30 minutes for an Alert or higher; and one individual qualified to provide mechanical maintenance support, one qualified Radwaste Operator, and one individual qualified to provide electrical maintenance support would respond in 60 minutes for an Alert or higher.

Section II.B, "Emergency Response Organization," describes the Fermi 3 ERO key positions and associated responsibilities. This section outlines the staffing to provide initial emergency response actions and provisions for timely augmentation of on-shift personnel, when required. Emergency Plan Implementing Procedures (EPIP) provide ERO position descriptions, responsibilities, and major tasks of the ERO staffing required for initial emergency response actions and provisions for timely augmentation of Notifications/Communications and ERF activation and operation.

Technical Evaluation: [B.5] The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAI 13.03-02-07, RAIs 13.03-02-09 through 13.03-02-13, RAI 13.03-17, RAI 13.03-02-19 through RAI 13.03-02-21**, **Supplemental RAIs 13.03-08, 13.03-10.b and 13.03-11** to be acceptable because they

conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to the RAI's listed above. The staff finds Fermi 3 Emergency Plan's revised Table II.B-1, Table II-B-2 and Figure II.B-1 adequately describes the ERO positions and associated responsibilities. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.2.8 Interfaces Between Functional Areas

Technical Information in the Emergency Plan: [B.6] Figure II.A-1, "Emergency Operation Center Interrelationships," shows the interfaces between and among the site functional areas of emergency response activity, Corporate Headquarters, State of Michigan, Monroe and Wayne Counties, Province of Ontario, and federal agencies. In **RAI 13.03-01-01** the staff requested a description of the interactions with the Province of Ontario. In response, the applicant described interactions with the Province of Ontario which include: 1) notifications; 2) interactions at the Emergency Operations Facility (EOF); and 3) interactions at the Joint Information Center (JIC). The applicant stated that interactions with the EOF and JIC are discussed in Sections II.C.2 and II.G.3, respectively, of the Fermi 3 Emergency Plan. The applicant provided a revised Figure II.B-4, "Emergency Operations Facility," identifying a liaison with the Province of Ontario. Additionally, the applicant provided revised text for Section II.E.1.b.3 of the Emergency Plan identifying initial notification to the Province of Ontario. In **RAI 13.03-02-05**, the staff requested the block diagram include interfaces between and among the onsite functional areas of emergency activity, licensee headquarters support, local services support, and State and local government response organization, including the TSC, OSC, and EOF. In response, the applicant will revise Figure II.A-1 showing interfaces with the TSC and OSC in a revision of the Emergency Plan.

Roles of the State Police, Michigan Department of Environmental Quality (MDEQ), and Michigan Department of Community Health (MDCH) are described in Section II.A.1.b, "Concept of Operations." In **RAI 13.03-01-03** the staff requested that the roles of the State Police, MDEQ, MDCH, DOE, EPA, and USCG be included in Figure II.A-1. In response, the applicant explained that in Figure II.A-1, the Michigan State Police, MDEQ, and MDCH are included under the listing for "Emergency Support Functions," as provided in the "State Emergency Operations Center" box of Figure II.A-1. The applicant explained that because DOE manages the Federal Radiological Monitoring and Assessment Center (FRMAC), DOE is included in the "Federal Radiological Monitoring and Assessment Center (FRMAC)" box of Figure II.A-1. The applicant also explained that because the activities of the EPA and Coast Guard do not occur in one of the EOCs, these organizations are not included in Figure II.A-1.

Section II.A.1.a.1, "State, Local and Provincial Governmental Agencies," identifies the Province of Ontario Canada as a participating organization, and the Ontario EOC is included in Figure II.A-1 under 'Adjacent States.'

Technical Evaluation: [B.6] The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAI 13.03-01-01, RAI 13.03-01-03 and RAI 13.03-02-05** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to the RAIs listed above. The staff finds that the Fermi 3 Emergency Plan adequately specifies the interfaces between and among the onsite functional areas of emergency activity, licensee headquarters support, local services support, and State and local government response

organization as well as illustrates them in a block diagram that includes the onsite TSC, Operational Support Center, and the Emergency Operations Facility. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1

13.3C.2.9 Corporate Support

Technical Information in the Emergency Plan: [B.7] {Appendix E, Section IV.A.3} Section II.B.6, "Detroit Edison Headquarters Support for the Fermi 3 Emergency Response Organization," explains that corporate support functions include notifications and communications with other organizations not directly involved in the emergency response, and keeping upper management and other Company locations informed of emergency activities. Figure II.A-1, "Emergency Operations Center Interrelationships," illustrates interfaces of the site functional areas of emergency response activity and Corporate Headquarters. In **RAI 13.03-02-02** the staff requested additional information regarding the applicant's Headquarters personnel interface with other functional areas. In response, the applicant will revise Figure II.A-1 of the Fermi 3 Emergency Plan to include the interface with Detroit Edison Corporate Headquarters.

Technical Evaluation: [B.7] {Appendix E, Section IV.A.3} The staff finds the additional information submitted in response to **RAI 13.03-02-02** acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI **13.03-02-02.** The staff finds that the Fermi 3 Emergency Plan adequately describes who in the corporate management, administrative, and technical support personnel will augment the plant staff during emergency events. This is acceptable because it conforms to the requirements in Appendix E, Section IV.A.3 to 10 CFR Part 50 and the guidance in NUREG-0654/FEMA-REP-1.

13.3C.2.10 Contractor and Private Organizations Support

Technical Information in the Emergency Plan: [B.8] {Appendix E, Section IV.A.5} Section II.B.7, "Support from Contractor and Private Organizations," identifies and describes assistance from the following supporting contractor and private organizations: Institute of Nuclear Power Operations (INPO), General Electric-Hitachi (GEH), the DOE Radiation Emergency Assistance Training Center/Training Site (REAC/TS), other private sector medical service agencies including Mercy Memorial Hospital, Oakwood Southshore Medical Center, and a local ambulance service, Entergy Nuclear Palisades LLC, Indiana Michigan Power, and American Nuclear Insurers (ANI).

In **RAI 13.03-02-04** the staff requested the identification of employees and non-employees, by position and title, having special qualifications for coping with emergency situations. In response, the applicant explained that the scope of responsibilities of external organizations that may be called upon to assist in emergency response activities will be identified in properly executed letters of agreement or other legal instruments consistent with the requirements of 10 CFR 50.33(g). The applicant stated that the list of public and private sector organizations provided in Section II.A of the Emergency Plan encompasses the full range of emergency response expertise that may be called upon for assistance in emergencies. The applicant further stated that no other persons with special qualifications outside of those described in Sections II.A and II.B have been identified.

Technical Evaluation: [B.8] {Appendix E, Section IV.A.5} The staff finds the additional information submitted in response to **RAI 13.03-02-04** acceptable because it conforms to the requirements in Appendix E to 10 CFR Part 50, Section IV.A.5 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff finds that the Fermi 3 Emergency Plan adequately specifies contractor and private organizations that may be requested to provide technical assistance to, and augmentation of, the emergency response organization. This is acceptable because it conforms to the requirements in Appendix E to 10 CFR Part 50, Section IV.A.5 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.2.11 Local Emergency Response Support

Technical Information in the Emergency Plan: [B.9] {Appendix E, Section IV.A.6} Section II.B.8, "Local Emergency Response Support," describes the agreements established and maintained with outside support agencies including law enforcement, fire protection, ambulance, and hospital support. Section II.L, "Medical and Public Health Support," describes hospital and medical support, onsite first aid capability, and medical transportation.

Appendix 2, "Certification Letters," includes certification letters from the Michigan State Police, Monroe County Emergency Management Division, Wayne County Department of Homeland Security & Emergency Management, Frenchtown Charter Township Fire Department, Mercy Memorial Hospital Corporation, Monroe County Ambulance, and Oakwood Southshore Medical Center. These letters indicate that the specific nature of emergency response arrangements will be established in agreements, and existing agreements revised if and when the applicant proceeds with construction and operation of the new plant. In **RAI 13.03-01-05** the staff requested copies of existing agreements with signature pages for organizations identified in Appendix 2 to show that these agreements delineate authorities, responsibilities, and action limits. In response**,** the applicant stated that Letters of Agreement (LOA) supporting the proposed Fermi 3 COLA Emergency Plan have not yet been executed. **Supplemental RAI 13.03-07** requested the applicant include in the Emergency Plan copies of LOAs. In response to **Supplemental RAI 13.03-07**, the applicant explained that certification letters have been obtained from the support agencies and that formal LOAs will be executed prior to loading fuel at Fermi 3 and proposed a Licensee Condition to addresses inclusion of the LOAs in the Emergency Plan prior to loading fuel.

Technical Evaluation: [B.9] {Appendix E, Section IV.A.6} The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAI 13.03-01-05, and Supplemental RAI 13.03-07** acceptable because they conform to the requirements of Appendix E, Section IV.A.6 and the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 of the Fermi 3 FSAR, Part 10 of the COLA incorporated the information and textual changes provided in the response to RAIs listed above. The staff finds that the Fermi 3 Emergency Plan and FSAR Part 10, adequately identify the services that may be needed during an emergency and have committed to establishing letters of agreement with agencies providing those services. This is acceptable because they conform to the requirements of Appendix E, Section IV.A.6 and the guidance in NUREG-0654/FEMA-REP-1.

13.3C.2.12 Conclusions

On the basis of its review of the onsite emergency plan as described above for onsite emergency organization, the NRC staff concludes that the information provided in the Fermi 3 Emergency Plan and FSAR is acceptable and meets the requirements of 10 CFR 50.47(b)(2) because it conforms with the guidance in Planning Standard B of NUREG-0654/FEMA-REP-1

and the applicable portions of requirements of Appendix E to 10 CFR Part 50 as described above.

13.3C.3 Emergency Response Support and Resources

13.3C.3.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(3), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Emergency Response Support and Resources," in Appendix E to 10 CFR Part 50.

13.3C.3.2 Person Authorized to Request Federal Support

Technical Information in the Emergency Plan: [C.1.a] Section II.C.1, “Federal Response Capability,” explains that the Emergency Director or the Emergency Officer (when the EOF is activated) is responsible for requesting Federal assistance, as needed. Section II.B, “Emergency Response Organization,” explains the Emergency Director is authorized to obtain assistance from offsite support organizations.

Technical Evaluation: [C.1.a] The staff finds that the Fermi 3 Emergency Plan adequately addresses the person authorized to request federal support. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.3.3 Expected Assistance from State, Local, and Federal Agencies

Technical Information in the Emergency Plan: [C.1.b] {Appendix E, Section IV.A.7} Section II.C, “Emergency Response Support and Resources,” describes that the FRMAC Advance Party could be expected in the site vicinity within 12 hours following the order to deploy, and assistance from the NRC offices in Chicago, Illinois will arrive in the site vicinity within 5 hours following notification. Support is available from DOE-Oak Ridge, under the DOE Radiological Assistance Program, and DOE Oak Ridge includes medical support from the Radiation Emergency Assistance Center/Training Site. Section C.1.e identifies the State EOC in Lansing, Michigan or alternate State EOC in Northville, Michigan and the Wayne Count EOC in Romulus, Michigan as available to support the federal response. The Emergency Operations Plan for Wayne County and the Emergency Management Plan for Monroe County each describe their respective EOCs. Section C.2, “Offsite Organization Representation in the EOF,” explains that the State of Michigan team will interface with plant personnel in performing radiological dose calculations, determining offsite PARs, and coordinating field monitoring team activities.

Technical Evaluation: [C.1.b] {Appendix E, Section IV.A.7} The staff finds that the Fermi 3 Emergency Plan adequately identifies the assistance expected from appropriate State, local, and Federal agencies with responsibilities for coping with emergencies. This is acceptable because it conforms to the requirements in Appendix E to 10 CFR Part 50, Section IV.A.7 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.3.4 Resources to Support the Federal Response

Technical Information in the Emergency Plan: [C.1.c] Section II.C, "Emergency Response Support and Resources," lists airfields in the vicinity of the plant that may be used by emergency support groups including 2 helicopter pads on site. Additional provisions for incorporating the Federal response capability include the applicant providing facilities and resources to support the federal response through the emergency operations facility (EOF). Office space and communications equipment is available for the NRC personnel in the technical support center (TSC), EOF, and Joint Information Center (JIC). State and local command centers that may be available to support the Federal response include the State emergency operations center (EOC) or alternate State EOC; Monroe County EOC; and Wayne County EOC. Section II.B, "Emergency Response Organization," states the EOF administrator coordinates logistical support for onsite emergency personnel. In **RAI 13.03-03-01** the staff requested a description of on-site provisions such as office space made available to Federal, State, and local emergency personnel. In response, the applicant explained that Section II.C.1.d of the Emergency Plan indicates that facilities and resources are provided to support the federal response at the EOF, and office space and communications equipment are also available for NRC personnel in the TSC, EOF, and JIC as described in Section II.H.1. The applicant explained that Section II.H.1.c of the Emergency Plan indicates that the TSC provides work space for 5 NRC representatives and Section II.H.1.d indicates that the EOF provides workspace for State and local representatives.

Technical Evaluation: [C.1.c] The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAI 13.03-03-01** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1**.** The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-03-01. The staff finds that the Fermi 3 Emergency Plan adequately describes provisions for incorporating the Federal response capability into its operation plan; including specific licensee, State and local resources available to support the Federal response. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.3.5 Representatives to Offsite Governments

Technical Information in the Emergency Plan: [C.2.b] Section II.C, "Emergency Response Support and Resources," states that personnel are assigned as liaisons to the State, Monroe County, Wayne County and Province of Ontario EOCs when they are activated.

Technical Evaluation: [C.2.b] The staff finds that the Fermi 3 Emergency Plan adequately addresses the dispatch of a representative to principal offsite governmental EOCs. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.3.6 Radiological Laboratory Support

Technical Information in the Emergency Plan: [C.3] Section II.C, "Emergency Response Support and Resources," identifies fixed and mobile radiological laboratories, their radiation monitoring and analysis capabilities, the advance time needed to respond following notification, and explains that these laboratories are available to support emergency response activities on a 24-hour per day basis.

Technical Evaluation: [**C.3]** The staff finds that the Fermi 3 Emergency Plan adequately identifies radiological laboratories and their general capabilities and expected availability to provide radiological monitoring and analyses services which can be used in an emergency.

This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.3.7 Other Sources of Assistance

Technical Information in the Emergency Plan: [C.4] Section II.C, "Emergency Response Support and Resources," explains that the applicant has made arrangements to obtain additional emergency response support from the Institute of Nuclear Power Operations (INPO) Fixed Nuclear Facility Voluntary Assistance Agreement signatories and General Electric-Hitachi has an emergency support program in place to provide design engineering expertise, specialized equipment, and other services. Appendix 2, "Certification Letters," of the Fermi 3 Emergency Plan provides a list of the certification letters established between the applicant, the State of Michigan, Monroe and Wayne County agencies, and private sector organizations committed to supporting implementation of the Emergency Plan. The original agreements are kept on file by Fermi 3 Emergency Preparedness or the applicant's Contract Services. The certifications letters are from Michigan State Police; Monroe County Emergency Management Division; Wayne County Department of Homeland Security & Emergency Management; Frenchtown Charter Township Fire Department; Mercy Memorial Hospital Corporation; Monroe Community Ambulance; and Oakwood Southshore Medical Center. In **RAI 13.03-01-05 and Supplemental RAI 13.03-07** (described in Section 13.3C.1.7 "Written Agreements") the staff requested the applicant include in the Emergency Plan, copies of the letters of agreement. In response the applicant proposed a license condition to obtain Letters of Agreement will be expected prior to loading fuel at Fermi 3.

{Appendix E, Section III} Section II.C.2, "Offsite Organization Representation in the EOF," of the Fermi 3 Emergency Plan identifies roles of the State of Michigan to perform radiological dose calculations and PARs. Section II.C.4, "Other Supporting Organizations," identifies the roles of the INPO Fixed Nuclear Facility Voluntary Assistance Agreement signatories and General Electric-Hitachi which has an emergency support program in place to provide design engineering expertise, specialized equipment, and other services. In addition, a mutual assistance agreement exists with other utilities for offsite environmental monitoring.

Technical Evaluation: [C.4] The staff finds the additional information and textual revision to the Fermi 3 emergency plan and the Fermi 3 FSAR, Part 10 of the COLA, submitted in response to **RAI 13.03-01-05, and Supplemental RAI 13.03-07** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan Revision 2 of the Fermi 3 FSAR Part 10, incorporated the information and textual changes provided in the response to **13.03-01-05, and Supplemental RAI 13.03-07.** The staff finds that the Fermi 3 Emergency Plan and the Fermi 3 FSAR Part 10 of the COLA adequately describes provisions for Letters of Agreement from organizations which would support Fermi 3 in the event of an emergency.

{Appendix E, Section III} The staff finds that the Fermi 3 Emergency Plan adequately describes the applicant's operational role, its concept of operations, and its relationship to the total effort. This is acceptable because it conforms to the requirements in Appendix E to 10 CFR Part 50, Section III.

13.3C.3.8 Conclusions

On the basis of its review of the onsite emergency plan as described above for the emergency response support and resources, the NRC staff concludes that the information provided in the

Fermi 3 Emergency Plan is acceptable and meets the requirements of 10 CFR 50.47(b)(3) because it complies with the guidance in Planning Standard C of NUREG-0654/FEMA-REP-1 and the applicable portions of Appendix E to 10 CFR Part 50 as described above.

13.3C.D Emergency Classification System

13.3C.4.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(4), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Emergency Classification System," in Appendix E to 10 CFR Part 50.

13.3C.4.2 Emergency Classification System

Technical Information in the Emergency Plan: [D.1 and D.2] {Appendix E, Section IV.B and C} Section II.D, "Emergency Classification System," of the Fermi Emergency Plan describes their standard emergency classification and action level scheme as based on system and effluent parameters that affected State and local response organizations may rely on for determining initial offsite response measures. Fermi 3 EPIP for, emergency classification will provide the parameter values and equipment status that are indicative of each emergency class. Changes to this EPIP will be performed in accordance with the requirements of 10 CFR 50.54(q) and the guidance provided in Regulatory Issue Summary 2005-02. Section II.I "Accident Assessment," further describes the availability of and location of initial and continuing information for accident assessment throughout the course of an event including plant parameter display systems, liquid and gaseous sampling system, Area and Process Radiation Monitoring Systems, and Accident Radiation Monitoring Systems including high range containment radiation monitors.

Section II.D.1 "Classification System" describes the emergency classification system being used including the four emergency classes described in 10 CFR 50, Appendix E: Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency. Each classification in the system is characterized by EALs or initiating conditions that address emergencies of increasing severity. In RAI 13.03-17 the staff requested the applicant to address its plans to finalize the Fermi 3 Emergency Classification and Action Level Scheme and provided them with two options. In response the applicant chose to follow Option 2 for the Fermi 3 Combined License Emergency Plan. Option 2 requires the applicant to submit an emergency plan section that describes the emergency classification system and addresses four critical elements required for an EAL scheme.

Section II.D.2. "Emergency Action Levels (EALs)," states emergency classifications are characterized by EALs, consistent with the general class descriptions in accordance with RG 1.101. The EALs, where possible, will be related to plant instrumentation readings and classified by determining what EAL Initiating Conditions (ICs) have been met.

Technical Evaluation: [D.1 and D.2] {Appendix E, Section IV.B and IV.C}: The staff has reviewed proposed License Condition [COM 13.4-031] to be added to the Fermi 3 COL Part 2, chapter 13, "Operational Program Implementation," Table 13.4-201 Operational Programs that states, "The licensee shall submit a fully developed set of site-specific Emergency Action Levels (EALs) to the NRC in accordance with the NRC-endorsed version of NEI 07-01, Rev. 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."

The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to RAI 13.03-17 to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-17. The staff finds that the Fermi 3 Emergency Plan provides an adequate overview of its EAL scheme, its general list of licensee actions at each emergency classification level and its commitment to control the EALs in accordance with 10 CFR 50.54(q).

The staff finds the proposed EAL scheme license condition and response to RAI 13.03-17 to be acceptable because they conform to the requirements of Appendix E to 10 CFR Part 50, Section IV.B and IV.C and the guidance in NUREG-0654/FEMA-REP-1.

13.3C.4.3 Emergency Action Levels Review by State and Local Authorities

Technical Information in the Emergency Plan {Appendix E, Section IV.B} Section II.D.3. "State/Local Emergency Action Level Scheme," states Detroit Edison coordinates with the State of Michigan, Monroe, and Wayne Counties to ensure consistency between classification schemes. The content of the EALs is reviewed with the state, county, and provincial authorities on an annual basis. Detroit Edison informs the offsite governmental agencies of any EAL changes that significantly impact the ICs or technical basis.

Technical Evaluation {Appendix E, Section IV.B} The staff finds that the Fermi 3 Emergency Plan and license condition COM 13.4-031, discussed in section 13.3.4 of this SER, adequately describes that the initial EAL scheme will be discussed with and agreed to by the state, county, and provincial authorities and that an annual EAL review meeting with the state, county, and provincial authorities will be held to discuss any changes made to the scheme. This is acceptable because it conforms to the requirements of 10 CFR Part 50, Appendix E, Section IV.B requirement for licensees to annually review their EAL schemes with offsite stakeholders.

13.3C.4.4 Conclusions

On the basis of its review of the Fermi 3 Emergency Plan as described above, for the emergency classification system, the NRC staff concludes that the information provided to describe the EAL scheme is acceptable because it conforms to the requirements of 10 CFR 50.47(b)(4), Appendix E to 10 CFR Part 50, Sections IV.B and IV.C and the guidance in Planning Standard D of NUREG-0654/FEMA-REP-1, Revision 1

13.3C.5 Notification Methods and Procedures

13.3C.5.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(5), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Notification Methods and Procedures," in Appendix E to 10 CFR Part 50 and 10 CFR 50.72.

13.3C.5.2 Notification Procedures, Capabilities, and Agreements

Technical Information in the Emergency Plan: [E.1] {Appendix E, Section IV.D.1 and D.3} Section II.E, “Notification Methods and Procedures,” of the Fermi 3 Emergency Plan describes that the Emergency Director in the Control Room or TSC, or Emergency Officer in the EOF, is responsible for notifying state, county, and Federal agencies, in accordance with emergency plan implementing procedures (EPIPs). Section II.E also explains that specific requirements for notifications to the NRC for classified emergency events are detailed in 10 CFR 50.72, and guidance is provided in emergency plan implementing procedures. Appendix 6, “Emergency Plan Implementing and Supporting Procedures (Typical List) and Procedure Cross-Reference to Plan,” identifies a procedure for Notification/Communications.

Section II.E states the Province of Ontario is notified immediately after the NRC and only once at each initial emergency classification of an Unusual Event, Alert, Site Area Emergency, or General Emergency. Section E also states an event will be reported to the NRC Operations Center immediately after notification of the appropriate state and county agencies, but not later than one hour after the time of initial classification, escalation, termination or entry into the Recovery phase. In **RAI 13.03-05-01** the staff requested a discussion to explain how notifying the Province of Ontario an hour or more after an initial emergency declaration is considered early notification to the populace. In response, the applicant described interactions with the Province of Ontario, including initial notification to the Province of Ontario within one hour of the specified initiating conditions. The applicant explained that for the existing Fermi 2 facility, requirements for notification of Federal, State, and local officials, including the Province of Ontario, are established in EPIP, "Emergency Notifications." The Fermi 3 COL Emergency Plan Appendix 6 lists an EPIP entitled, "Notifications/Communications."

Section II.E, “Notification Methods and Procedures,” states the applicant will notify the State of Michigan, Monroe, and Wayne Counties within 15 minutes of a declared emergency at Fermi 3.This section also outlines the content of initial and follow-up messages to response organizations within the 10-mile Plume Exposure Pathway EPZ. Section II.E explains the state and county emergency response plans describe procedures for state and county officials to make a public notification decision promptly after notification from Fermi 3 of an emergency. The system of disseminating information to the public includes notification by pre-scripted messages through appropriate broadcast media such as the EAS and that the counties will initiate activation of the Alert and Notification System (ANS) upon direction by state or local authorities. The ANS can be activated within 15 minutes upon determination of the need for public notification.

Technical Evaluation: [E.1] {Appendix E, Section IV.D.1 and D.3} The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAI 13.03-05-01** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-05-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the procedures used to address a mutually agreeable base for notification and means of verification. This is acceptable because it conforms to the emergency classification guidance in NUREG-0654/FEMA-REP-1, Appendix 1, “US Nuclear Regulatory Commission Emergency Action Level Guidelines for Nuclear Power Plants” and the requirements in 10 CFR Part 50, Appendix E, Section IV.D.1 and D.3.

13.3C.5.3 Notification and Activation of the Emergency Response Organization

Technical Information in the Emergency Plan: [**E.2] {Appendix E, Section IV.C}** Section II.A.1.b, "Concept of Operations" states the Emergency Director directs the activation of the Fermi 3 ERO for emergencies classified as Alert, Site Area Emergency and General Emergency. The Emergency Director may direct the activation of all or part of the Fermi 3 ERO for a Notification of Unusual Event, based on an assessment of plant conditions and support needs.

Section II.E, "Notification Methods and Procedures," describes Plant Page/Party Line (PA/PL) system as the primary means for notification of onsite personnel. The Control Room will make an announcement that an emergency has been declared and what actions should be taken. ERO members are requested to respond to their designated emergency response facility. The Control Room will also notify onsite and offsite personnel assigned to the ERO, using an automatic callout system or commercial telephone as backup. Appendix 6, "Emergency Plan Implementing and Supporting Procedures (Typical List) and Procedure Cross-Reference to Plan," identifies a procedure for Notification/Communications.

Technical Evaluation: [E.2] {Appendix E, Section IV.C} The staff finds that the Fermi 3 Emergency Plan adequately addresses procedures for alerting, notifying, and mobilizing emergency response personnel. This is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.C and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.5.4 Initial Message Content to Offsite Response Organizations

Technical Information in the Emergency Plan: [E.3] {Appendix E, Section IV.A.4 and IV.C} Section II.E, "Notification Methods and Procedures," of the Fermi 3 Emergency Plan lists the content of initial notification message established between the applicant and the states and county agencies for a classified emergency. The initial notification message will contain plant contact information (location, date, time), current classification of emergency and reason, whether a release is taking place, basic meteorological data, any recommended PARs, and potentially affected population/areas. Additional information was requested in **RAI 13.03-05-02** regarding the implementation of a message authentication scheme.

Technical Evaluation: [E.3] {Appendix E, Section IV.A.4 and IV.C} The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAI 13.03-05-02** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-05-02. The staff finds that the Fermi 3 Emergency Plan adequately describes the message authentication scheme. This is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.A.4 and IV.C and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.5.5 Follow-up Messages to Offsite Response Organizations

Technical Information in the Emergency Plan: [E.4] Section II.E, "Notification Methods and Procedures," explains for all emergency classifications, follow-up messages will be issued from the plant to affected state and local authorities to provide further description of the emergency. As available and appropriate, information including plant contact information (location, date, time); meteorological data (wind speed and direction, stability class, and precipitation); reactor

information; plant status and new information; offsite release dose data; calculated dose rates; and projected dose; and measured offsite radiation levels will be supplied.

Technical Evaluation: [E.4] The staff finds that the Fermi 3 Emergency Plan adequately provides for follow-up messages from the facility to offsite authorities. The staff verified that the nature of the information provided is consistent with the requirements of the State and local emergency plans. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.5.6 Notification of the Public

Technical Information in the Emergency Plan: [E.6]. Section II.E, "Notification Methods and Procedures," explains that the siren system is designed to be operationally segregated by county boundary within the 10-mile radius. The ANS signal will be a three (3) minute steady signal. Upon determination of the need for public notification, the ANS can be activated within 15 minutes.

The "Cross Reference of Fermi 3 Emergency Plan to Other Regulations and Regulatory Documents In Accordance with RG 1.206, Section C.I.13.3.1," identifies the sections within the State of Michigan Emergency Management Plan and the Monroe and Wayne County emergency plans where information is provided on administrative means for notification.

Section II.E.5, "Instructions to the Public in the Plume Exposure EPZ," states that the locations of the sirens were determined by a comprehensive engineering study which addressed population density, geographical features, siren output, and mounting heights of sirens to ensure coverage of the EPZ. The siren system is designed to be operationally segregated by county boundary within the 10-mile radius.

Section II.E.5 further describes the operational state of readiness for the ANS is maintained by agreement with the local agencies to test the system by sounding the sirens on a periodic basis that meets or exceeds FEMA guidance. Reports of inoperable equipment are provided to maintenance personnel designated by the Fermi 3 Emergency Preparedness Department. The testing and maintenance program identifies inoperable equipment in a timely manner and restores the equipment to a functional status commensurate with FEMA operability requirements in accordance with FEMA-REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants". In addition to the routine test and repair program, preventive maintenance of the ANS will be performed on an annual basis, as described in plant procedures.

Technical Evaluation: [E.6] The staff finds that the Fermi 3 Emergency Plan adequately establishes administrative and physical means, and the time required for notifying and providing prompt instructions to the public in the plume exposure pathway EPZ. This is acceptable because it conforms to the guidance of NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.5.7 Written Messages to the Public

Technical Information in the Emergency Plan: [E.7] Section II.E, "Notification Methods and Procedures," of the Fermi 3 Emergency Plan states the State of Michigan has developed emergency alert system (EAS) messages for the public which are consistent with the emergency classification scheme. These draft messages are included as part of the State of Michigan EAS Plan and contain instructions with regard to specific protective actions to be

taken by occupants and visitors of affected areas. Detroit Edison will provide Offsite authorities supporting information for messages to the public. Messages may include instructions such as: take shelter and go indoors; close windows and doors; turn off ventilation systems; directions for evacuation; directions to stay tuned to specific stations for further information; ad hoc respiratory protection (for example, handkerchief over mouth or thyroid blocking).

Technical Evaluation: [E.7] The staff finds the Fermi 3 Emergency Plan adequately discusses written messages intended for the public developed by the State of Michigan. In particular, draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas, were prepared. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.5.8 Notification of the NRC

Technical Information in the Emergency Plan: {Appendix E, Section IV.A.4} (10 CFR 50.72(a)(3)) and (10 CFR 50.72(c)(3)) Section II.E.1.b.2, “Nuclear Regulatory Commission,” explains that an event will be reported to the NRC Operations Center immediately after notification of the appropriate state and county agencies, but not later than one (1) hour after the time of initial classification, escalation, termination or entry into the Recovery phase. Section F.1.5, "NRC Telephones," describes separate telephone lines dedicated for communications with the NRC which include the Emergency Notification System (ENS). The ENS provides initial notifications and ongoing information about plant systems, status and parameters to the NRC. The Emergency Response Data System (ERDS) will be initiated within one (1) hour of the declaration of an Alert classification or higher. In **RAI 13.03-34** the staff requested that a description of an accelerated notification of security related attack, within approximately 15 minutes from discovery, to the NRC be added to the Fermi 3 Emergency Response Plan as described in Regulatory Issue Summary 2006-12, Endorsement of Nuclear Energy Institute (NEI) Guidance "Enhancements To Emergency Preparedness Programs For Hostile Action." In its response the applicant provided a revision to Section II.El.b.2 of the Fermi 3 Emergency Plan that describes an accelerated notification process within 15 minutes of a security related attack at the site. Specific requirements for notifications to the NRC for classified emergency events are detailed in 10 CFR 50.72, and guidance is provided in emergency plan implementing procedures.

Technical Evaluation: {Appendix E, Section IV.A.4} (10 CFR 50.72(a)(3)) The staff finds the additional information and textual revision to the Fermi 3 emergency plans submitted in response to **RAI 13.03-34** to be acceptable because they conform to the guidance in NUREG-0800. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-34. The staff finds the Fermi 3 Emergency Plan provides an adequate description of notifying the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes, as well as, an abbreviated notification within 15 minutes of a security-related event. This is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.A.4, and 10 CFR 50.72(a)(3).

(10 CFR 50.72(c)(3)) The staff finds that the Fermi 3 Emergency Plan adequately describes the telephone notifications made under 10 CFR 50.73(a) and (b), in addition to making the required initial notification, adequate provisions have been made that upon request of the NRC an open and continuous communication channel with the NRC will be maintained. This is acceptable because it conforms to the requirements in 10 CFR 50.72(c)(3).

13.3C.5.9 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding notification methods and procedures are acceptable because they and meets the requirements of 10 CFR 50.47(b)(5), 10 CFR 50.72(a)(3) and (c)(3), 10 CFR Part 50, Appendix E, Sections IV.A.4, IV.C, IV.D.1 and D.3 and the guidance in Planning Standard E of NUREG-0654/FEMA-REP-1.

13.3C.6 Emergency Communications

13.3C.6.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(6), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Emergency Communications," in Appendix E to 10 CFR Part 50 and Generic Letter (GL) 91-14.

13.3C.6.2 Content of the Emergency Communications Plan

Technical Information in the Plan: [F.1.a] Section II.F.1, "Description of Communications Links," states Fermi 3 maintains the capability to make initial notifications to the designated offsite agencies on a 24-hour per day basis. The offsite notification Ring down Phone System provides communications to state and county warning points, and Emergency Operations Centers from the Control Room, TSC and EOF. Backup methods include commercial telephone lines, radios, and facsimile. State and county warning points are continuously staffed. Figure II.F-1 describes the emergency communications telephone network; and Figure II.F-2 describes the communication links between the Fermi 3 site, Monroe County, Wayne County and the State of Michigan.

Figure F-2, "Personnel in Charge of Communications Links at Fermi 3, Monroe County, Wayne County, and the State of Michigan," provides the titles and alternates for those in charge of communication links. Section II.F.1 states that Fermi 3 maintains the capability to make initial notifications to the designated offsite agencies on a 24-hour per day basis. State and county warning points are continuously staffed and available to receive notification of an event at Fermi 3.

Additional technical detail to describe the intra-plant and plant-offsite communications is located in Section 9.5.2 of this SER.

Technical Evaluation: [F.1.a] The staff finds that the Fermi 3 Emergency Plan adequately addresses communication plans for emergencies providing for 24-hour per day notification to and activation of the State/local emergency response network, and at a minimum, provides a telephone link and alternate, including 24-hour per day manning of communication links that initiate emergency response actions. These actions are acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Additional technical staff review of information regarding Emergency Communications is located in Section 9.5.2, "Communications Systems," of this SER.

Technical Information in the Plan: [F.1.b.] Section II.F.1 describes communications systems used between the applicant and State and local governments in the plume exposure pathway EPZ. The communication systems described include telephone communications through: private automatic branch exchange lines, automatic ring down phones, NRC telephones, microwave system, Joint Information Center phones, and radio communications systems as backup communication methods.

Technical Evaluation: [F.1.b] The staff finds that the Fermi 3 Emergency Plan adequately addresses provisions for communications with State and local governments within the EPZs. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA–REP-1, Revision 1.

Technical Information in the Plan: [F.1.c.] Section II.F.1 describes communications systems used between the applicant and Federal emergency response organizations. These systems include the PABX lines, the Emergency Notification System (ENS), the Health Physics Network (HPN), the Reactor Safety Counterpart Link (RSCL), the Protective Measures Counterpart Link (PMCL), the ERDS Channel, the Management Counterpart Link (MCL).

Technical Evaluation: [F.1.c] The staff finds that the Fermi 3 Emergency Plan adequately addresses provisions for communications as needed with Federal emergency response organizations. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Plan: [F.1.d.] Section II.F.1 describes communications systems used between the control room, TSC, and EOF, the nuclear facility, the principal State and local EOCs, and the field assessment teams. These communication systems include PABX lines, sound powered telephone system, ring down phone system, automatic callout system, microwave system, telephones in the JIC, radio communications, facsimile transmission, PA/PL system, and OCANS.

Technical Evaluation: [F.1.d] The staff finds the Fermi 3 Emergency Plan adequately describes the communication plans that included provisions for emergency communications between the nuclear facility and the EOF, State and local EOCs, and radiological monitoring teams. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Plan: [F.1.e.] Section II.F.1.a.4, “Automatic Callout System” describes that notification of onsite personnel will be completed through a combination of public address announcements, alarms and proceduralized phone calls. Fermi 3 utilizes an automatic callout system that employs pagers as the primary notification method and an automatic telephone system as a back-up to rapidly notify members of the ERO. The system consists of a computer with modem equipment capable of initiating and receiving telephone calls. When contact is made, the system automatically requests security identification and then responds. The pager vendor’s system accepts group and individual numbers from the callout system, activating several radio transmitters which, in turn, activate personal pagers assigned to ERO members. The system is designed with redundant power, phone, and computer components with geographic separation.

Technical Evaluation: [F.1.e] The staff finds that the Fermi 3 Emergency Plan adequately describes the emergency communication plans that include provision for alerting or activating

emergency personnel in each response organization. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Plan: [F.1.f.] Section II.F.1 describes communications systems used between the applicant and NRC Headquarters, NRC Regional Office Operations Center and the EOF and radiological monitoring team assembly areas. These systems include the ENS, HPN, RSCL, PMCL, the ERDS Channel, MCL, LAN, and the nuclear security system. Offsite Radiological Emergency Teams (RET) vehicles are equipped with a radio to provide mobile communications which are carried over Detroit Edison UHF service frequencies assigned to Western Wayne County. The radio control console for directing actions of the Offsite RETs is located in the EOF/RET Dispatch Room.

Technical Evaluation: [F.1.f] The staff finds that the Fermi 3 Emergency Plan adequately describes the communication plans for emergencies and addresses provisions for communication by the licensee with NRC headquarters and NRC Regional Office Emergency Operations Centers and the EOF and radiological monitoring team assembly area. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Plan: {Appendix E, Section IV.E.9} Section II.F.1, "Description of Communication Links," describes multiple onsite and offsite communications systems. Communication systems include telephone systems, radio systems, facsimile, PA/PL, OCANS. Backup power sources exist including, batteries, and standby generators.

Technical Information in the Plan: {Appendix E, Section IV.E.9(a)} Section II.F.3, "Communication System Tests," of the Fermi 3 Emergency Plan explains that communications between the Fermi 3 ERFs and the state/county warning points are tested monthly.

Technical Information in the Plan: {Appendix E, Section IV.E.9(b)} Section II.N.2.a, "Communication Drills," states that communication systems between the control room, TSC, EOF, to NRC Headquarters Operations Center shall be tested monthly.

Technical Information in the Plan: {Appendix E, Section IV.E.9(c)} Section II.N.2.a states that communications between the plant, State, and local EOCs and offsite radiological emergency teams are tested annually.

Technical Information in the Plan: {Appendix E, Section IV.E.9(d)} Section II.N.2.a states that communication systems between the control room, TSC, EOF, to NRC Headquarters and Regional Operations Center shall be tested monthly.

Technical Evaluation: {Appendix E, Section IV.E.9, (a), (b), (c) and (d)} The staff finds that the Fermi 3 Emergency Plan adequately describes at least one onsite and one offsite communications system and that each system has a backup power source. This is acceptable because it conforms to the requirements described in Appendix E to 10 CFR Part 50.

In addition, the applicant's communication plans have arrangements for emergencies, including titles and alternates for those in charge at both ends of the communication links and the primary and backup means of communication. Consistent with the function of the governmental agency, these arrangements included:

a. Provisions for communications with contiguous State/local governments within the plume exposure pathway EPZ. Such communications shall be tested monthly.

b. Provisions for communications with Federal emergency response organizations. Such communications shall be tested annually.

c. Provisions for communications among the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility; and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams. Such communications shall be tested annually.

d. Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, the onsite technical support center, and the emergency operations facility. Such communications shall be tested monthly.

These provisions for onsite and offsite communications are acceptable because they meet the requirements in Appendix E to 10 CFR Part 50.

Technical Information in the Plan: (GL 91-14) Section II.F.1.a.5, “NRC Telephones,” of the Fermi 3 Emergency Plan describes that the ENS, HPN, RSCL, PMCL, ERDS, MCL, and the LAN are separate telephone lines dedicated for communications with the NRC. In **RAI 13.03-06-01** the staff requested additional information regarding guaranteed power provided to the emergency communications equipment. In response, the applicant described the Emergency Telecommunications System (ETS) and referred to ESBWR DCD, Section 9.5.2, and FSAR Section 9.5.2.2 regarding the guaranteed power to the communications equipment. The applicant stated that the ESBWR DCD, Section 9.5.2.1 provides the following power generation design bases for the plant communications systems:

- Communication subsystems are independent of one another, therefore, a failure in one subsystem does not degrade the performance of the other subsystems;

- The communication system is in accordance with applicable codes and standards and the equipment is shielded as necessary, from the adverse effects of electromagnetic interference (EMI) and radio frequency interference (RFI); and

- The communication subsystems are functional during a loss of offsite power.

The applicant explained that the FSAR Section 9.5.2.2 provides additional detail regarding power supplies to the Emergency Notification System, stating that "electrical power for this phone system is provided by two redundant AC power sources, and batteries, with an 8 hour capacity rating, would automatically supply power to these phones if a complete loss of AC power to the phones occurred. This design ensures that the ENS located at the site is fully operable from the site in the event of a loss of offsite power at the site and is in compliance with the requirements of NRC Bulletin 80-15 for the ENS." **Supplemental RAI 13.03-12** requested that the applicant revise Section II.F.1.a.5. of the Emergency Plan to include a reference to the sections of ESBWR DCD and the FSAR which describe guaranteed power to the communication systems. In response to **Supplemental RAI 13.03-12**, the applicant provided verbiage to be included in Section F.1 that states “Subsection 9.5.2.2 of the Fermi FSAR and Subsection 9.5.2 of the ESWBR DCD provide a description of the plant communications systems.”

Technical Evaluation: (GL 91-14) The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **Supplemental RAI 13.03-12** to be acceptable because it conforms to the guidance in GL 91-14. The staff confirmed that Revision 9 the ESBWR DCD, Section 9.5.2 and Revision 3 of the Fermi 3 COLA FSAR Section 9.5.2.2 incorporated the additional information and textual revisions provided in the response to **Supplemental RAI 13.03-12.** Therefore, the staff finds that the Fermi 3 Emergency Plan adequately includes provisions for communications with the NRC. This is acceptable because it meets the guidance in GL 91-14.

13.3C.6.3 Communications with Medical Facilities

Technical Information in the Plan: [F.2] Section II.F.2, "Communication with Fixed and Mobile Medical Support Facilities," of the Fermi 3 Emergency Plan states that commercial telephones are the primary communications method to both primary and backup medical hospitals. Back-up communication systems include radio or other mobile services. Communication between ambulances and hospitals is the responsibility of ambulance and hospital services.

Technical Evaluation: [F.2] The staff finds that the Fermi 3 Emergency Plan adequately describes a coordinated communication link for fixed medical support facilities and ambulance service(s). This is acceptable because it conforms to the guidance in NUREG 0654/FEMA-REP-1, Revision 1.

13.3C.6.4 Periodic Testing of the Emergency Communications System

Technical Information in the Plan: [F.3] Section II.F.3, "Communication System Tests," of the Fermi 3 Emergency Plan states communications between the Fermi 3 ERFs and the state/county warning points are tested monthly. Section II.N.2.a, "Communication Drills," provides the following additional communication testing schedules:

- Communication between the control room, TSC, EOF, Michigan State Police, Monroe County Central Dispatch, and Wayne County Central Communications are tested monthly.

- Communications between Fermi 3 ERFs and the offsite response organizations are tested during annual drills.

- Communications between plant, state, and local EOCs and offsite radiological emergency teams are tested annually.

- Communications between the Control Room, TSC, Operational Support Center (OSC), EOF, and Joint Public Information Center (JPIC) are tested annually.

Technical Evaluation: [F.3] The staff finds that the Fermi 3 Emergency Plan adequately describes the conduct of periodic testing of the entire emergency communications system. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.6.5 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding emergency communications is acceptable and conforms to the requirements of 10 CFR 50.47(b)(6), 10 CFR Part 50, Appendix E, Section IV.E.9, (a), (b), (c) and (d), the guidance in Planning Standard F of NUREG-0654/FEMA-REP-1 and the guidance in GL 91-14 as described above.

13.3C.7 Public Education and Information

13.3C.7.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(7), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Public Education and Information," in Appendix E to 10 CFR Part 50.

13.3C.7.2 Content of Public Information

Technical Information in the Plan: [G.1] Section II.G, “Public Education and Information,” describes Detroit Edison’s public education and information program and outlines the process for keeping the public in the 10-mile EPZ informed in the event of an emergency. Details regarding types of information provided to the public and coordination with the news media are specifically described in emergency plan implementing procedures. Section II.G.1, “Public Information Program,” states the public education and information program for the Fermi 3 Plant is updated annually by Detroit Edison, in coordination with state and county agencies, to address how the general public is notified and what their actions should be in an emergency. This information includes, but is not limited to, educational information on radiation, information regarding who to contact for additional information, protective measures (sheltering information, evacuation route maps, reception/congregate care center locations, and respiratory protection information) and special instructions for the handicapped.

Section II.G.2, “Distribution and Maintenance of Public Information,” states Detroit Edison distributes a safety information publication on an annual basis to residents and transients in the 10-mile EPZ. The information is distributed by mail to each residence and to appropriate locations where a transient population may obtain a copy, including hotels, highway rest areas, and state recreation areas, and activities such as school program presentations, speeches at meetings of community groups, booth displays at the Monroe County Fair and tours of Fermi 3. The tour programs include exhibits, lectures, and the opportunity to ask questions about all aspects of plant operations. The public information program provides the permanent, as well as the transient, population with an adequate opportunity to become aware of the information that is available. Public information materials instruct the public to go indoors and turn on their radios or televisions when they hear the ANS sirens operating. The publications identify the local radio and television stations to which the public can tune in for information related to the emergency.

Technical Evaluation: [G.1] The staff finds that the Fermi 3 Emergency Plan adequately describes both the periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency and means for accomplishing the dissemination of the information. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.7.3 Distribution and Maintenance of Public Information

Technical Information in the Plan: [G.2] { Appendix E, Section IV.D.2} Section II.G.2, "Distribution and Maintenance of Public Information," states that the applicant will update and mail safety information publications annually to residents and to locations where transients may be located including hotels, highway rest areas, and state recreation areas. These materials instruct the public to go indoors and turn on radios and televisions when sirens sound. Educational information on radiation and radio and television stations that will provide information on the event are included in these public education materials.

Technical Evaluation: [G.2] {Appendix E, Section IV.D.2} The staff finds that the Fermi 3 Emergency Plan adequately describes a public information program that provides the permanent and transient population within the plume exposure EPZ an adequate opportunity to become aware of the information annually. The program includes provision for written material that is available in a residence during an emergency. This is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.D.2 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.7.4 Points of Contact for the News Media

Technical Information in the Plan: [G.3.a] Section II.G.3, "News Media Coordination," identifies the JIC as being located 12 miles west-southwest of Fermi 3 at the Monroe County Community College with the provision of an Onsite News Center briefing area for the media, when appropriate. The Onsite News Center is located in the Nuclear Operations Center (NOC) Auditorium. The NTC is located approximately one mile southwest of the plant. Section II.G.4, "Information Exchange," identifies a Company officer as the designated Corporate Utility Spokesperson for the applicant in the event of an accident at Fermi 3. This Utility Spokesperson will brief the news media from the Onsite News Center during non-radiological releases. If the Joint Information Center (JIC) is activated the Utility Spokesperson and JIC staff will coordinate with the EOF, Corporate Communication personnel, and federal, state, county, and Canadian spokespersons in the JIC. Section II.G.3 identifies the JIC as located 12 miles west-southwest of Fermi 3 at the Monroe County Community College and having capacity to accommodate approximately 500 members of the news media. In **RAI 13.03-07-01** the staff requested that news media contacts be provided. In response, the applicant explained that Section II.G of the Emergency Plan describes multiple activities that address interactions with the news media, including publication and distribution of public educational information that discusses public information sources and conduct of an annual News Media Acquaintance Program. The applicant further explained that completion of these activities requires identification of and coordination with the news media consistent with the controlling regulatory requirements and guidance. The applicant provided a copy of the current public emergency information publication that includes a listing of EAS radio and television stations and stated Fermi 2 and Fermi 3 will use a common public emergency information publication similar to the one currently used by Fermi 2. Section II.G, "Public Education and Information," states that details regarding types of information provided to the public and coordination with the news media are described in emergency plan implementing procedures.

Technical Evaluation: [G.3.a] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-07-01** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1**.** The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the additional information and textual revisions provided in the response to RAI **13.03-07-01.** The staff finds

that the Fermi 3 Emergency Plan adequately designates the points of contact and physical locations for use by news media during an emergency. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.7.5 Space for News Media

Technical Information in the Plan: [G.3.b] Section II.G.3 describes the JIC as being located at the Monroe County Community College with a capacity to accommodate approximately 500 members of the news media and an Onsite News Center which serves as a briefing area for the media, when appropriate with a capacity accommodate 20 to 50 news media personnel.

Technical Evaluation: [G.3.b] The staff finds that the Fermi 3 Emergency Plan adequately describes the physical location of space provided for use by a limited number of news media at the EOF during an emergency declared at the Fermi 3 site. This is acceptable because it conforms to the guidance provided in NUREG-0654/FEMA-REP-1.

13.3C.7.6 Designated Spokesperson

Technical Information in the Plan: [G.4.a] Section II.G.4, "Information Exchange," of the Fermi 3 Emergency Plan identifies a Company officer will be designated Corporate Utility spokesperson for an event at Fermi 3. In **RAI 13.03-07-03** the staff requested additional information regarding designated spokespersons. The applicant explained that the designated Federal, State, local, and Canadian spokespersons are specified in the respective plans and that Section II.G.4 describes the process by which the Corporate Utility Spokesperson and other designated spokespersons obtain access to and execute timely exchange of all necessary information.

Technical Evaluation: [G.4.a] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-07-03** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the additional information and textual revisions provided in the response to RAI 13.03-07-03. The staff finds that the Fermi 3 Emergency Plan adequately identifies a spokesperson that has access to all necessary information. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.7.7 Timely Exchange of Information

Technical Information in the Plan: [G.4.b] Section II.G.4, "Information Exchange," states that there will be timely exchange of information between spokespersons. In **RAI 13.03-07-04** the staff requested additional information regarding a description by title/position for plant's points of contacts for the release of public information. In response, the applicant identified news media training to include information regarding points of contact for release of public information in an emergency.

Technical Evaluation: [G.4.b] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-07-04** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the additional information and textual revisions provided in the response to **RAI 13.03-07-04.** The staff finds that the Fermi 3 Emergency Plan adequately describes the established arrangements for timely

exchange of information among designated spokespersons. This is acceptable because it meets the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.7.8 Rumor Control

Technical Information in the Plan: [G.4.c] Section II.G.4, "Information Exchange," addresses rumors. If a member of the public needs to obtain information they can request clarification on any questions they may have by calling a publicized number to the Monroe County Emergency Management Division (EMD). Telephones at Monroe County EMD will be staffed by local government representatives. Utility personnel in the JIC will coordinate rumor control with personnel at the Monroe County EMD prior to media briefings so that rumors can be refuted or confirmed. This communication with the public will aid in dispelling rumors. Annex D, Appendix I, "Nuclear Accident Procedures Public Information," of the Monroe County Emergency Management Plan states that Public Inquiry Personnel will man phones, but that an automatic answering service may be utilized. Section II.G.4, "Information Exchange," states that state and local plans and procedures have been established and provide further details concerning the control of rumors.

Technical Evaluation: [G.4.c] The staff finds that the Fermi 3 Emergency Plan adequately describes the coordinated arrangements for dealing with rumors. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.7.9 Annual Media Orientation

Technical Information in the Plan: [G.5] Section II.G.5, "News Media Training," states that the applicant with the assistance of state and local authorities will conduct programs annually to acquaint the news media with emergency planning and procedures. These programs cover radiation and radiological effects of nuclear plants, provide information regarding points of contact for release of information under emergency conditions, and offer information to enhance the media's ability to communicate radiological events to the public.

Technical Evaluation: [G.5] The staff finds that the Fermi 3 Emergency Plan adequately describes a coordinated program, conducted at least annually, to acquaint the news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.7.10 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding public education and information is acceptable because it meets the requirements of 10 CFR 50.47(b)(7), 10 CFR Part 50, Appendix E, Section IV.D.2 and conforms with the guidance in Planning Standard G of NUREG-0654/FEMA-REP-1.

13.3C.8 Emergency Facilities and Equipment

13.3C.8.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(8), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency

plan against applicable regulatory requirements related to the area of "Emergency Facilities and Equipment," in Appendix E to 10 CFR Part 50, 10 CFR 50.34, and 10 CFR 50.72. In addition, the staff evaluated the proposed emergency plan against the guidance in Supplement 1 to NUREG-0737, "Clarification of TMI Action Plan Requirements."

Technical Support Center

13.3C.8.2 Technical Support Center Functions

Technical Information in the Emergency Plan: [H.1] {Appendix E, Section IV.E.8} (8.2.1.a) Section II.H.1.b, "Technical Support Center," states that the Technical Support Center (TSC) is activated for Alert and higher emergencies and provides support to the Control Room for plant status assessment and potential offsite impact and emergency action implementation. The TSC is of sufficient size to accommodate 26 people, including 21 Detroit Edison personnel and workspace for five NRC representatives. The TSC provides plant management and technical support to the Control Room, relieves reactor operators of peripheral duties not directly related to reactor system manipulations, provides continuing event classification evaluation, emergency response coordination within the Protected Area, and may be used for technical support during recovery operations. The TSC staff provides protective actions onsite and offsite, and communication with government agencies until the EOF is operational. Section II.B of the Fermi 3 Emergency Plan provides a description of the TSC technical, engineering, senior management and other position staffing.

Technical Evaluation: [H.1] {Appendix E, Section IV.E.8} (8.2.1.a) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC staffing and ability to effectively direct and control necessary emergency actions during an event. This is acceptable because it conforms to the requirements of 10 CFR Part 50, Appendix E, Section IV.E and the guidance in NUREG-0654/FEMA-REP-1 and Supplement 1 to NUREG-0737.

13.3C.8.3 TSC Location

Technical Information in the Emergency Plan: (8.2.1.b) (50.34(f)(2)(xxv)) Section H.1.b describes the TSC's as being located in the Electrical Building within the Protected Area and meeting all the ESBWR Standard Plant TSC design requirements.

Technical Evaluation: (8.2.1.b) (50.34(f)(2)(xxv)) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC location. This is acceptable because it meets the requirements in 10 CFR 50.34(f)(2)(xxv) and the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.b.

13.3C.8.4 TSC Staffing Requirements

Technical Information in the Emergency Plan: (8.2.1.c and j) Table II.B-1, "Minimum Staffing Requirements for Emergencies," lists the TSC staffing within 30 minutes, including Emergency Director, Communicator, Radiation Protection Advisor, and within 60 minutes, also including Technical Engineer or Nuclear Safety Advisor and Support Engineer. In **RAI 13.03-08-02** the staff requested additional information regarding how TSC staffing meets NUREG-0737, Supplement 1, particularly concerning core/thermal hydraulics, electrical and mechanical technical support. In response, the applicant provided a revised Table II.B-1 that identifies core/thermal hydraulics, electrical and mechanical engineering analysis as technical

support provided by on-shift personnel. In **RAI 13.03-02-09** the staff requested additional information regarding Table II.B-1 “Minimum Staffing Requirements for Emergencies” not describing Core/Thermal Hydraulics, maintenance expertise for Electrical, I&C, and Mechanical and Radwaste Operator expertise, or individuals to fill these functions. In response to **RAI 13.03-02-09** the applicant explained that the staffing identified in Table II.B-1 is based on enhancements gained from years of experience from the operation of the existing Fermi Unit 2, and that the effectiveness of the proposed emergency response organization staffing has been proven through the organization's response to multiple drills, exercises, and emergency events. In addition the reduction evaluation(s) performed that describes how the reduced staffing does not reduce the effectiveness of the emergency response plan was requested. The staff requested additional information in **Supplemental RAI 13.03-09** regarding the enhancements resulting from experience that demonstrates the proposed reduced staffing represents sufficient staffing and expertise. In response, the applicant explained that in the response **RAI 13.03-02-12**, a revision of Table II.B-1 was included that showed Detroit Edison Maintenance personnel are assigned to the Damage Control and Rescue Team. The staff found that a revision to Table II.B-1 was included in response to **RAI 13.03-02-09** rather than with the response to **RAI 13.03-02-12**. The applicant further explained that as indicated in FSAR (Table 13.1-202), the Radwaste Operator is not a member of the minimum shift organization for the ESBWR and that Non-Licensed Operators are qualified to perform radwwaste operations during emergencies. The applicant explained that a footnote to Table II.B-1 will be added to clarify that one Non-Licensed Operator may be assigned the Radwaste Operator duties to support emergency response or recovery activities, as needed. The applicant provided a revised Table II.B-1 that included a footnote explaining that one Non-Licensed Operator may be assigned the Radwaste Operator duties.

In **RAI 13.03-08-03** the staff requested additional information regarding how TSC staffing meets NUREG-0696, for full functional operation within 30 minutes. In response, the applicant explained that the staffing identified in Table II.B-1, “Minimum Staffing Requirements for Emergencies,” is based on NUREG-0654/FEMA-REP-1, Revision 1 and Revisions 2 and 3 of RG 1.101 The applicant explained similar staffing is used for the existing Fermi Unit 2, and has been has been successful in responding to drills, exercises, and emergency events.

Technical Evaluation: (8.2.1.c and j) The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-08-03, 13.03-02-09 and Supplemental RAI 13.03-09** to be acceptable because they conforms to the guidance in Supplement 1 to NUREG-0737, Sections 8.2.1.c and j. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the additional information and textual revisions provided in the response to RAI 13.03-08-03, 13.03-02-09 and Supplemental RAI 13.03-09. The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC staffing, size, and equipment

13.3C.8.5 TSC Structure

Technical Information in the Emergency Plan: (8.2.1.d) Section II.H.1.b, “Technical Support Center,” describes the TSC design as being in accordance with the ESBWR Standard Plant which complies with all TSC requirements. The applicant explained that they have incorporated the ESBWR provided TSC with no departures or deviations from the DCD. The applicant stated the ESBWR DCD provides relevant information regarding the design and location of the TSC. Table 3.2-1, “Classification Summary,” of the ESBWR DCD Tier 2 states that the Electrical Building structure is Seismic Category NS. Section 3.2.1, “Seismic Classification,” of the ESBWR DCD Tier 2 states the Seismic Category NS structures and equipment are designed for

seismic requirements in accordance with the International Building Code (IBC) and the reference is for the 2003 Revision.

Technical Evaluation: (8.2.1.d) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC structure. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.d.

13.3C.8.6 TSC Environmental Controls

Technical Information in the Emergency Plan: (8.2.1.e) Section II.H.1.b, "Technical Support Center," states that the TSC has environmental controls for providing room temperature air, humidity and cleanliness appropriate for personnel and equipment. Section 9.4.7, "Electrical Building HVAC System," of the ESBWR DCD Tier 2 states that the Electrical Building heating, ventilation, and air conditioning (HVAC) has a subsystem for the TSC, the TSC HVAC Subsystem (TSCVS), and while the TSC ventilation system is not specified in SRP Section 9.4.1, the ESBWR design is committed to providing a TSC that has environmental conditions in the TSC compatible with the design limits of its equipment. The TSCVS provides filtered conditioned air to the TSC, has two redundant Air Filtration Units (AFU) with fans, high efficiency particulate air (HEPA) filters, charcoal filters for radioactive material removal when needed and maintains the TSC at a slight positive pressure. Redundant air handling units with filters, heating and cooling coils and humidifier provide conditioned air to the TSC.

Technical Evaluation: (8.2.1.e) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC environmental controls. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.e.

13.3C.8.7 TSC Radiological Protection

Technical Information in the Emergency Plan: (8.2.1.f) Section II.H.1.b, states that the TSC room is provided with radiological protection and monitoring for personnel radiation exposure to maintain doses less than 5 rem total effective dose equivalent (TEDE), as defined in 10 CFR 50.2 for the duration of the accident and that the level of protection is similar to that of the Control Room. Section 11.5.1.1.2, "Radiation Monitors Required for Plant Operation," of the ESBWR DCD Tier 2 states that the Process Radiation Monitoring System includes monitoring of the gaseous intake stream for the TSC HVAC air intake. Section 11.5.3.2.12, "Technical Support Center HVAC Air Intake," of the ESBWR DCD Tier 2 states that this system continuously monitors the intake air duct with a single gamma radiation monitor.

Section 7.5.2.2, "Containment Monitoring System," of the DCD describes the Containment Monitoring System for gaseous sampling and effluent radiation monitoring and the parameters that are monitored during normal and accident conditions.

{Appendix E, Section IV.E.1} Section II.H.1.b, explains the TSC room is provided with radiological protection and monitoring for personnel radiation exposure to maintain doses less than 5 rem TEDE for the duration of the accident, and the level of protection is similar to that of the Control Room.

Technical Evaluation: (8.2.1.f) {Appendix E, Section IV.E.1} The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC radiological protection. This is acceptable because it meets the requirements of 10 CFR Part 50, Appendix E, Section IV.E.1 and the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.f.

Section 15.4.5.3.2.5 “Technical Support Center Radiological Consequence Analysis” of the DCD FSER contains further evaluation detail concerning of the habitability of the TSC and concludes the TSC radiological consequence analysis provided in the ESBWR DCD, and incorporated by reference in the Fermi 3 COL, is acceptable.

13.3C.8.8 TSC Communications

Technical Information in the Emergency Plan: (8.2.1.g) Section II.H.1.b states that the TSC has reliable voice and data communications to the Control Room, OSC, EOF, NRC Operations Center and other offsite agencies. Section II.F.1, “Emergency Communications,” describes the communications available in the TSC. The PABX system connects the Control Room, TSC, OSC, and EOF. A microwave system provides primary functions for emergency telephones and back-up emergency telephone communications using administrative lines and can access offsite locations. A Ring down Phone System which is programmed for automatic dialing provides communications to state and county warning points and Emergency Operations Centers from the Control Room, TSC and EOF. In addition, facsimile machines are available in the Control Room, TSC, EOF and Joint Information Center (JIC). A Plant Page/Party Line (PA/PL) system with handsets and speakers are also available in TSC.

Technical Evaluation: (8.2.1.g) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC communications. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.g.

13.3C.8.9 TSC Data Collection, Storage, and Analysis

Technical Information in the Emergency Plan: (8.2.1.h) Section II.H.1.b states that the TSC has the capability to record and display vital plant data in real time and the display capability includes a workstation capable of displaying the parameters required for a SPDS. SPDS is described in 7.1.5 of the ESBWR DCD. Section 7.1.5.1.2, “N-DCIS (Non safety-related Distributed Control and Information Systems) Non safety-Related Design Bases,” of the ESBWR DCD Tier 2 states N-DCIS collects and archives data for display on SPDS. Section II.H.4, “Onsite Monitoring Systems,” also states that key Radiological Monitoring System (RMS) data is linked to the plant computer which is available in the TSC and EOF. The RMS provides the needed radiation and activity levels to determine source terms for dose projection procedures.

Additional technical detail to describe the TSC data collection, storage and analysis capability is in Section 7 “Instrumentation and Control Systems,” of the ESBWR SER.

Technical Evaluation: (8.2.1.h) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC Data Collection, Storage, and Analysis capabilities. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.h.

13.3C.8.10 TSC Human Factors Engineering

Technical Information in the Emergency Plan: (8.2.1.h and k) Section 18.1, “Human Factors Engineering, Overview,” of the ESBWR DCDTier 2 states that the Human Factors Engineering (HFE) programs addresses the Main Control Room, Remote Shutdown System, TSC, EOF displays, and Local Control Stations that have safety-related functions or are defined by task analysis. Section 18.2.1, “HFE Program and MMIS (Man-Machine Interface System)

and HFE Implementation Plan," states that the HFE design team establishes the HFE Program and the MMIS and HFE Implementation Plan which provides direction and integration of HFE-related design implementation and evaluation activities. Additional details of the HFE Plan and its implementation are described in detail in Chapter 18 of the ESBWR DCD Tier 2.

13.3C.8.11 TSC Plant Records

Technical Information in the Emergency Plan: (8.2.1.i) Section II.H.1.b, "Technical Support Center," states that TSC personnel have access to up-to-date as-built drawings, schematics and diagrams of structures and systems to the component level, technical specifications, plant and emergency operating procedures, Final Safety Analysis Report, on-site and off-site emergency plans, offsite population data, evacuation plans, and Emergency Plan Implementing Procedures. In **RAI 13.03-08-04** the staff requested additional information regarding whether plant operating records are included in the records available to TSC personnel. In response, the applicant stated that the TSC staff has access to plant operating records.

Technical Evaluation: (8.2.1.i) The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-08-04** to be acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.i. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the additional information and textual revision provided in the response to RAI 13.03-08-04. The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC Plant Records availability. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.i.

13.3C.8.12 TSC Activation

Technical Information in the Emergency Plan: [H.4] Section II.H.3 "Activation and Staffing of Emergency Response Facilities (ERFs)," states the TSC is staffed and activated for Alert and higher declarations. The TSC is staffed and activated using emergency plan implementing procedures and Table II.B-1, "Minimum Staffing Requirements for Emergencies," position staffing and times.

Technical Evaluation: [H.4] The staff finds that the Fermi 3 Emergency Plan adequately provides for activation and staffing of the TSC. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Operations Support Center

13.3C.8.13 Operations Support Center Functions

Technical Information in the Emergency Plan: [H.1] (8.3.1.a) Section II.H.1.c, "Operational Support Center (OSC)," states that the OSC provides an area for coordination of shift personnel supporting emergency response operations without causing congestion in the Control Room. The OSC is not designed to be habitable under all emergency conditions and emergency plan implementing procedures have provisions for relocating the OSC as needed and as directed by the Emergency Director. The OSC is where survey, repair and operations teams are sent from into plant areas and is the staging area for personnel who may be assigned to first aid, search and rescue, damage control and emergency repair activities.

Technical Evaluation: [H.1] (8.3.1.a) The staff finds that the Fermi 3 Emergency Plan adequately describes the OSC functions. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737, Section 8.3.1.a and NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8.14 OSC Location

Technical Information in the Emergency Plan: (8.3.1.b) (50.34(f)(2)(xxv)) Section II.H.1.c, "Operational Support Center (OSC)," describes that the OSC is located in the Service Building within the Protected Area, is separate from the Control Room and provides an area for coordination of shift personnel to support emergency response operations without causing congestion in the Control Room.

Technical Evaluation: (8.3.1.b) (50.34(f)(2)(xxv)) The staff finds that the Fermi 3 Emergency Plan adequately describes the location of the Operations Support Center. This is acceptable because it conforms to the requirements of 10 CFR 50.34(f)(2)(xxv) and the guidance in Supplement 1 to NUREG-0737, Section 8.3.1.b.

13.3C.8.15 OSC Coordination Activities

Technical Information in the Emergency Plan: (8.3.1.a) Section II.H.1.c, "Operational Support Center (OSC)," describes that the OSC provides an area for coordination of shift personnel supporting emergency response operations without causing congestion in the Control Room. The OSC is where survey, repair and operations teams are sent from into plant areas and is the staging area for personnel who may be assigned to first aid, search and rescue, damage control and emergency repair activities. The OSC Coordinator manages OSC activities and dispatches emergency personnel on assignments as directed by the Emergency Director. Operating personnel (not assigned to the Control Room), Radiation Protection personnel, Chemistry personnel, and Maintenance personnel, including mechanical, electrical and I&C are some of the disciplines that report to the OSC. The OSC Coordinator responsibilities also include accountability for anyone dispatched to the OSC and radiological exposure control of personnel in the OSC and TSC.

Technical Evaluation: (8.3.1.a) The staff finds that the Fermi 3 Emergency Plan adequately describes the OSC Coordination Activities functions. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.3.1.a.

13.3C.8.16 OSC Communications

Technical Information in the Emergency Plan: (8.3.1.c) Section II.H.1.c, "Operational Support Center (OSC)," explains that the OSC communications system shall have at least one dedicated telephone line each to the Control Room and the TSC, and a telephone line that can reach onsite and offsite, at a minimum. Section II.F.1, "Emergency Communications," states the OSC communications system shall have at least one dedicated telephone extension to the Control Room, one dedicated telephone extension to the TSC, and one telephone capable of reaching onsite and offsite locations, as a minimum. Section II.F of this Plan provides additional information about the onsite communications systems.

Technical Evaluation: (8.3.1.c) The staff finds that the Fermi 3 Emergency Plan adequately describes the OSC communications. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737, Section 8.3.1.c.

13.3C.8.17 OSC Activation and Staffing

Technical Information in the Emergency Plan: [H.4] Section II.H.3, "Activation and Staffing of Emergency Response Facilities (ERFs) states the OSC is staffed and activated for Alert and higher declarations. The OSC is staffed and activated using emergency plan implementing procedures and Table II.B-1, "Minimum Staffing Requirements for Emergencies," position staffing and times.

Technical Evaluation: [H.4] The staff finds that the Fermi 3 Emergency Plan adequately provides for activation and staffing of the OSC. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8.18 OSC Capacity and Supplies

Technical Information in the Emergency Plan: [H.9] Section II.H.1.c, "Operational Support Center (OSC)," states that the OSC provides an area for coordination of shift personnel supporting emergency response operations without causing congestion in the Control Room. OSC equipment and supplies include protective clothing, dosimetry, and sampling and survey equipment for use by the OSC teams.

Technical Evaluation: [H.9] The staff finds the Fermi 3 Emergency Plan adequately describes the OSC capacity and supplies. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Emergency Operations Facility

13.3C.8.19 Emergency Operations Facility Functions

Technical Information in the Emergency Plan: [H.2] {Appendix E, Section IV.E.8} (8.4.1.a) Section II.H.1.d, "Emergency Operations Facility (EOF)," states that Fermi 2 and 3 share the EOF. The EOF is the location where the Emergency Officer will direct staff in overall company activities involved with an emergency. The EOF is activated at the Alert level and higher declarations. It provides for overall management of the emergency response, performance of non-delegable functions when in command and control, offsite protective actions and radiological monitoring, environmental sample analysis, public information, communications to state and counties, determination of recommended public protective actions, and coordination of Federal, state and county agencies. The EOF has the capability to display technical data via a workstation that at a minimum is capable of displaying the parameters that are required of a SPDS. The SPDS function is described in Subsection 7.1.5 of the ESBWR DCD. The EOF technical data system receives, stores, processes, and displays information sufficient to perform assessments of the actual and potential onsite and offsite environmental consequences of an emergency condition.

Technical Evaluation: [H.2] {Appendix E, Section IV.E.8} (8.4.1.a) The staff finds the Fermi 3 Emergency Plan adequately describes the EOF functions. This is acceptable because it conforms to the requirements of 10 CFR Part 50, Appendix E, Section IV.E.8 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1 and Supplement 1 to NUREG-0737, Section 8.4.1.a.

13.3C.8.20 EOF Location

Technical Information in the Emergency Plan: (8.4.1.b) (50.34(f)(2)(xxv)) Section II.H.1.d, "Emergency Operations Facility (EOF)," describes the EOF as about 5,000 feet from Fermi 3 on owner-controlled property. The EOF is designed for habitability in the event of a postulated accidental radioactive release from Fermi 3. The design includes shielding (protection factor of 20), HVAC system with HEPA filters, and portable airborne radioactivity and area radiation monitors that alarm locally to assure that personnel exposures to radiological hazards do not exceed 10 CFR Part 20 limits. The staff requested additional information in **RAI 13.03-08-08** regarding the location of the EOF in Figure I-3. In response, the applicant stated that the EOF is located approximately 6,000 feet southwest of Fermi Unit 2 and approximately 5,000 feet southwest of the Fermi Unit 3 Reactor Building. In **RAI 13.03-08-07** the staff requested additional information regarding whether the EOF should be included within the owner controlled area in Figures I-3 and II.J-1. In response, the applicant explained, the EOF is located in the Nuclear Operations Center, which is located on "owner-controlled property" but is not within the owner-controlled area.

Technical Evaluation: (8.4.1.b) (50.34(f)(2)(xxv)) The staff finds the additional information and textual revisions to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-08-07 and 13.03-08-08** to be acceptable because they conform to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.b. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the additional information and textual revisions provided in the response to RAsI 13.03-08-07 and 13.03-08-08. The staff finds that the Fermi 3 Emergency Plan adequately describes the EOF location. This is acceptable because it conforms to the requirements in 10 CFR 50.34(f)(2)(xxv) and the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.b.

13.3C.8.21 EOF Size

Technical Information in the Emergency Plan: (8.4.1.c) Section II.H.1.d, "Emergency Operations Facility (EOF)," states the EOF is sized to provide workspace to accommodate about 40 people including 25 Detroit Edison personnel and 9 NRC representatives. The EOF contains available workspace for representatives from offsite government agencies, including the State of Michigan, Monroe and Wayne Counties and the Province of Ontario, who may send representatives if they deem it necessary. In **RAI 13.03-08-06** the staff requested additional information regarding how the minimum size of 2,625 square feet for the EOF meets NUREG-0696 for 40 persons. In response, the applicant stated that the description of the EOF floor area, provided in Section II.H.1.d, is inaccurate. The applicant explained that the floor area exceeds 3,000 square feet, meeting the criterion provided in NUREG-0696.

Technical Evaluation: (8.4.1.c) The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-08-06** to be acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.2.1. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the additional information and textual revisions provided in the response to RAI 13.03-08-06. The staff finds the Fermi 3 Emergency Plan adequately describes the size of the EOF. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.

13.3C.8.22 EOF Structural Capabilities

Technical Information in the Emergency Plan: (8.4.1.d) Section 13.3, Item #9 of the SRP states that if an application is for an additional reactor at an operating reactor site, and the application proposes to incorporate and extend elements of the existing emergency planning

program to the new reactor, those existing elements should be considered acceptable and adequate. Therefore, the building code of the EOF is acceptable because it incorporates elements of the existing emergency plan for Fermi 2.

Technical Evaluation: (8.4.1.d) The staff finds the Fermi 3 Emergency Plan adequately describes the EOF structural capabilities. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.d.

13.3C.8.23 EOF Environmental Requirements

Technical Information in the Emergency Plan: (8.4.1.e) Section II.H.1.d, "Emergency Operations Facility (EOF)," describes the EOF as being designed for habitability in the event of a postulated radioactive release from an accident and includes shielding with a protection factor of 20, an HVAC with HEPA filters, and portable airborne radioactivity and area radiation monitors that alarm locally to assure personnel exposures to not exceed the 10 CFR Part 20 radiation limits.

Technical Evaluation: (8.4.1.e) The staff finds the Fermi 3 Emergency Plan adequately describes the EOF environmental habitability. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.e.

13.3C.8.24 EOF Voice and Data Communications and Information Collection

Technical Information in the Emergency Plan: (8.4.1.f) Section II.H.1.d, "Emergency Operations Facility (EOF)," states that the EOF has extensive communications, which includes communications to the TSC, offsite Radiological Teams, the NRC, offsite EOCs and intra-facility communications. These communications systems are described in Section II.F.1, "Emergency Communications." In addition, facsimile, computer transmission and electronic transfer capabilities are available at the EOF. Several radio networks are available to support communications with radiological monitoring teams, maintenance teams, Nuclear Security personnel and others and provide backup to offsite government and support agencies. Each Offsite Radiological Emergency Team (RET) vehicle has a radio with the radio control console for directing their actions located in the EOF/RET Dispatch Room. If telephones are not operative, the EOF Security Advisor has direct radio contact with the Michigan State Police or the Monroe County Sheriff, in addition to the telephone-to-radio capability of the Nuclear Security System.

Section II.H.1.d states that the EOF has backup power capabilities to the normal commercial power so a loss of commercial power is not expected to impact the communications equipment. The backup power sources include an electrical generator, Uninterruptible Power Supply (UPS) systems and direct current (DC) battery.

Technical Evaluation: (8.4.1.f) The staff finds the Fermi 3 Emergency Plan adequately describes the EOF voice and data communications and information collection capabilities. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.f.

13.3C.8.25 EOF Information Storage and Analysis

Technical Information in the Emergency Plan: (8.4.1.g) Section II.H.1.d, "Emergency Operations Facility (EOF)," states that display capability in the EOF includes a workstation that

is capable of displaying the parameters required for a SPDS. Section II.H.1.d also states that the EOF technical data system receives, stores, processes and displays information that is sufficient for assessments of actual and potential onsite and offsite environmental consequences of an emergency. Section II.H.4, "Onsite Monitoring Systems," states that the SPDS provides a display of plant parameters from which the status of operation may be assessed in the Control Room, TSC, and EOF to promote information exchange between these facilities and assist in the decision making process. Section 7.1.5.1.2, "N-DCIS (Non-safety related Distributed Control and Information Systems) Non-safety-Related Design Bases," of the ESBWR DCD Tier 2 states that this system collects and archives data for display of SPDS in the Main Control Room.

Technical Evaluation: (8.4.1.g) The staff finds the Fermi 3 Emergency Plan adequately describes the EOF information storage and analysis capabilities. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.g.

13.3C.8.26 EOF Plant Records

Technical Information in the Emergency Plan: (8.4.1.h) Section II.H.1.d, "Emergency Operations Facility (EOF)," states that EOF personnel have access to up-to-date as-built drawings, schematics and diagrams of structures and systems to the component level; technical specifications; plant and emergency operating procedures, Final Safety Analysis Report, state and local emergency management plan, offsite population data, evacuation plans, and Emergency Plan Implementing Procedures, either as hard copies or electronic.

Technical Evaluation: (8.4.1.h) The staff finds the Fermi 3 Emergency Plan adequately describes the availability of plant records in the EOF. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.h.

13.3C.8.27 EOF Industrial Security

Technical Information in the Emergency Plan: (8.4.1.j). Section 13.3, Item #9 of the SRP states that if an application is for an additional reactor at an operating reactor site, and the application proposed to incorporate and extend elements of the existing emergency planning program to the new reactor, those existing elements should be considered acceptable and adequate. Therefore, the industrial security provided for the EOF is acceptable because it incorporates elements of the existing emergency plan for Fermi 2.

Technical Evaluation: (8.4.1.j) The staff finds the Fermi 3 Emergency Plan adequately describes the industrial security provided for the EOF. This is acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.j.

13.3C.8.28 EOF Human Factors

Technical Information in the Emergency Plan: (8.4.1.k) Section 18.1, "Human Factors Engineering, Overview," of the ESBWR DCD Tier 2 states that the HFE programs address the Main Control Room, Remote Shutdown System, TSC, EOF displays, and Local Control Stations that have safety-related functions or are defined by task analysis. Section 18.2.1, "HFE Program and MMIS (Man-Machine Interface System) and HFE Implementation Plan," states that the HFE design team establishes the HFE Program and the MMIS and HFE Implementation Plan which provides direction and integration of HFE-related design implementation and

evaluation activities. Additional details of the HFE Plan and its implementation are described in detail in Chapter 18 of the ESBWR DCD Tier 2.

Technical Evaluation: (8.4.1.k) The staff finds that the Fermi 3 Emergency Plan and Chapter 18 of the ESBWR DCD Tier 2 EOF Human Factors Engineering, to adequately describe the EOF Human Factors Engineering functions. This is acceptable because it meets the guidance in Supplement 1 to NUREG-0737, Sections 8.4.1.k.

13.3C.8.29 EOF Activation and Staffing

Technical Information in the Emergency Plan: [H.4] (8.4.1.i) Section II.H.3, "Activation and Staffing of Emergency Response Facilities (ERFs) states the EOF is staffed and activated for Alert and higher declarations. The EOF is staffed and activated using emergency plan implementing procedures and Table II.B-1, "Minimum Staffing Requirements for Emergencies," position staffing and times. Table II.B-1, "Minimum Staffing Requirements for Emergencies," lists the EOF staffing, including Communicator, Emergency Officer, Radiation Protection Coordinator, and Radiological Emergency Team (RET) Sampler or Radiation Protection (RP) Technician, all with 60 minute augmentation times. Section II.H.1.d, "Emergency Operations Facility (EOF)," states that the EOF is where the Emergency Officer directs a staff in overall company emergency activities. Section II.B.1, "Onsite Emergency Organization," states that the Emergency Officer is a qualified senior manager. The augmentation time is 60 minutes for EOF personnel, while Table 2, NUREG-0737, Supplement 1 lists 30 and 60 minute augmentation times. In **RAI 13.03-08-05** the staff requested additional information regarding how the 60 minute augmentation time for EOF staffing meets the goal of 30 and 60 minutes in Table 2, NUREG-0737, Supplement 1. In response, the applicant stated that Emergency Plan Table II.B-1 is based on the guidance provided by NRC in NUREG-0654/FEMA-REP-1, Revision 1 (Table 2 in NUREG-0737, Sup. 1) and Revisions 2 and 3 of RG1.101, "Emergency Response Planning And Preparedness For Nuclear Power Reactors." The applicant explained that Table II.B-1 includes enhancements resulting from multiple years of experience gained through operation of the existing Fermi Unit 2, and the effectiveness of the proposed emergency response organization staffing requirements has been proven through the organization's response to multiple drills, exercises, and emergency events.

Technical Evaluation: [H.4] (8.4.1.i) The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response **RAI 13.03-08-05** to be acceptable because it conforms to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.i. The staff confirmed that Revision 2 of the Fermi 3 Emergency Plan incorporated the additional information and textual revision provided in the response to RAI 13.03-08-05. The NRC staff finds that the Fermi 3 Emergency Plan adequately addresses the EOF activation and staffing. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1, and Supplement 1 to NUREG-0737, Section 8.4.1.i.

Other Emergency Facilities and Equipment

13.3C.8.30 Onsite Monitoring System

Technical Information in the Emergency Plan: [H.5] Section II.H.4, "Onsite Monitoring Systems," states that Detroit Edison maintains and operates onsite monitoring systems needed to provide data that is essential for initiating emergency measures and performing accident assessment. Monitoring of systems for geophysical phenomena, radiological conditions, plant processes, and fire hazards are described. The seismic monitoring system measures and

records acceleration of the structure and remains in a standby mode until an earthquake causes the system to activate the recording capabilities. Offsite seismic data can also be obtained from the United States Geological Survey's National Earthquake Information Center or the University of Michigan at Ann Arbor. Section 3.7.4, "Seismic Instrumentation," of the ESBWR DCD Tier 2 provides details of the system. The Radiological Monitoring System (RMS) data is linked to the plant computer that allows the data to be passed to the TSC and EOF, and provides the needed radiation levels and activity to determine source terms for dose projection procedures. The RMS includes Area Radiation Monitors used for direct measurement of in-plant exposure rates and also includes portable continuous air monitors for measurement of airborne particulate and iodine at various locations; process monitors are used for radioactive noble gas, iodine and particulate measurements in effluent, gaseous and liquid streams; and high range accident RMS monitors are used for measurement of radiation levels at selected locations, including the containment. The Process Monitoring System provides real-time meteorological data for calculating offsite radiological dose assessment. The emergency response portion of the system interfaces with the Meteorological Data Acquisition system to provide and store data to project offsite doses and the Control Room, OSC, TSC, and EOF have a system terminal for access. The Fire Detection System is designed to detect visible and invisible smoke and combustion products and/or heat in designated plant areas. Section 9.5.1, "Fire Protection System," of the ESBWR DCD Tier 2 describes the fire protection system in detail. Section 12.3.4, "Area Radiation and Airborne Radioactivity Monitoring Instrumentation," of the ESBWR DCD Tier 2 provides details of the radiological monitoring instrumentation. In addition to permanent monitors, portable radiation monitoring and sampling equipment is maintained with items dedicated for emergency response, which is described in emergency plan administrative procedures and radiation protection procedures. Section II.H.5, "Access to Data from Monitoring Systems," states that offsite environmental radiological monitoring is provided by a system of continuous air samplers and environmental monitoring dosimeters surrounding the site and the system is described in the Fermi 3 Offsite Dose Calculation Manual.

Technical Evaluation: [H.5] The staff finds that the Fermi 3 Emergency Plan adequately describes the onsite monitoring systems. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8.31 Provisions to Acquire Data from Offsite Sources

Technical Information in the Emergency Plan: [H.6] Section II.H.5, "Access to Data from Monitoring Systems," states that Detroit Edison acquires meteorological data from the National Weather Service (NWS) during periods when the primary system is unavailable. Back-up seismic data is available from the U.S. Geological Survey. Other data sources, such as commercial media outlets, may also be used. Offsite environmental radiological monitoring equipment includes a series of continuous air samplers and environmental monitoring dosimeters surrounding the facility. The Fermi 3 Offsite Dose Calculation Manual (ODCM) describes the monitoring systems. Dosimeters are posted and collected in accordance with Table 1, of the NRC's "Environmental Monitoring for Direct Radiation." The EOF laboratory is the designated facility for the receipt and analysis of environmental samples during emergencies. The in-plant Chemistry and Rad Protection laboratories are also available for the analysis of environmental samples. The calibration and operational readiness of all laboratory equipment is assured in accordance with plant procedures. In addition to the monitoring systems, equipment, and radiological laboratory facilities provided at the plant, Detroit Edison maintains arrangements for back-up radiological monitoring and analysis support from offsite organizations. Section II.A of this Plan provides a description of the arrangements and the capabilities of the facilities. Appendix 2 of this Plan provides pertinent agreements from these

support organizations. Section II.C.3 of this Plan also provides information concerning available laboratory facilities.

Technical Evaluation: [H.6] The staff finds that the Fermi 3 Emergency Plan adequately describes provisions to acquire data from, or for emergency access to, offsite monitoring and analysis equipment.. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8.32 Offsite Radiological Monitoring Equipment

Technical Information in the Emergency Plan: [H.7] Section II.H.6, "Offsite Radiological Monitoring Equipment," states that offsite radiological monitoring equipment is available for assessment of offsite radiological consequences for the Radiological Emergency Teams. Section II.H.6 explains that the types of radiological monitoring equipment are described in emergency plan administrative procedures and radiation protection procedures.

Technical Evaluation: [H.7] The staff finds that the Fermi 3 Emergency Plan adequately describes the offsite radiological monitoring equipment in the vicinity of the nuclear facility. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8.33 Meteorological Instrumentation

Technical Information in the Emergency Plan: [H.8] Section II.H.7, "Meteorological Instrumentation and Procedures," states that the meteorological monitoring system for Fermi 3 is shared with Fermi 2 and meets the requirements of RG 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants." Both primary and secondary sensors are located on an onsite 60-meter tower at 10 and 60 meter elevations and monitor wind speed and direction, temperature, delta temperature, Pasquill Stability Class, Sigma Theta, and from the primary system only, dew point and precipitation. Instantaneous and various averaged data is available from dial-up terminals in the Control Room, TSC and EOF. If any parameter is unavailable, supplementary data is available from the corporate computer system. A contract with a vendor is established for providing weather and forecast data. The NWS data is also available by contacting the nearest NWS office.

In addition Fermi 3 uses the National Oceanic and Atmospheric Administration (NOAA) gauging station at the Fermi 2 intake canal for hydrological monitoring, which records Lake Erie levels. Additional NOAA data is available from gauging stations at Gibraltar, Michigan, about 10 miles north-northeast of the plant on the Detroit River, and Toledo Ohio, about 22 miles south-southwest of the plant on Lake Erie. This data can be obtained by contacting the Toledo Coast Guard.

Additional detailed information describing the Fermi 3 meteorological systems and equipment is in Section 2.3.3 "Meteorological Monitoring (Related to RG 1.206, Section C.III.1, Chapter 2, C.I.2.3.3, "Onsite Meteorological Measurements Program")," of this SER.

Technical Evaluation: [H.8] The staff finds that the Fermi 3 Emergency Plan adequately describes the meteorological instrumentation and procedures and provisions to obtain representative current meteorological information from other sources. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. Additional detailed staff review of the Fermi 3 meteorological systems and equipment is located in

Section 2.3.3 “Meteorological Monitoring (Related to RG 1.206, Section C.III.1, Chapter 2, C.I.2.3.3, “Onsite Meteorological Measurements Program”),” of this SER.

13.3C.8.34 Inspection/Inventory of Emergency Equipment

Technical Information in the Emergency Plan: [H.10] Section II.H.9, “Emergency Equipment and Supplies / Emergency Kits,” states that emergency response facilities and equipment are inspected and inventoried according to emergency plan administrative procedures and other plant procedures. Inventories of all emergency equipment and supplies are performed on a quarterly basis and after each use in an exercise, drill or emergency. During the inventory radiological monitoring equipment is checked to verify that the required calibration period and location are in accordance with the inventory lists. Surveillances include an operational check of instruments and equipment. Equipment which has a shelf life is identified, checked, and replaced as necessary. Detroit Edison maintains sufficient reserves of instruments and equipment to replace any items that are removed from emergency kits for calibration or repair.

Technical Evaluation: [H.10] The staff finds that the Fermi 3 Emergency Plan adequately describes the provisions to inspect, inventory and operationally check emergency equipment/instruments at least once each calendar quarter and after each use, and that there are sufficient reserve instruments/equipment to replace those which are removed from inventory for calibration or repair. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8.35 Emergency Kits

Technical Information in the Emergency Plan: [H.11] Section II.H.9, “Emergency Equipment and Supplies / Emergency Kits,” provides a listing of general categories of emergency equipment, including communications equipment, protective clothing, respiratory protection, environmental monitoring equipment, decontamination supplies, and miscellaneous tools. The specific equipment and supplies are described in emergency plan administrative procedures and radiation protection procedures.

Technical Evaluation: [H.11] The staff finds that the Fermi 3 Emergency Plan adequately describes the general categories of emergency kits including protective equipment, communications equipment, radiological monitoring equipment and emergency supplies. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8.36 Location to Coordinate Field Monitoring Data

Technical Information in the Emergency Plan: [H.12] Section II.H.10, “Receipt of Field Monitoring Data,“ states that radiological assessment personnel in the EOF, when the EOF is operational, are designated as the central point for the receipt and analysis of offsite radiological field monitoring data results and sample media analysis results that are collected by Radiological Emergency Team (RET) personnel. Sampling and analysis equipment is available to determine the activity of samples.

Technical Evaluation: [H.12] The staff finds that the Fermi 3 Emergency Plan adequately describes the establishment of a central point for the receipt and analysis of all field monitoring data and coordination of sample media at the EOF Environmental Lab. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8.37 Facilities and Supplies for Emergency Medical Treatment

Technical Information in the Emergency Plan: {Appendix E, Section IV.E.4}
Section II.L.2, "Onsite First Aid Capability," describes that at least two first aid qualified personnel are onsite on a 24-hour basis. The onsite nurse is responsible for first aid treatment and the decision for offsite medical assistance during normal hours of operation. The Plant First Responder will perform these duties during off hours. Additional first aid support is available from operations personnel, personnel in the Control Room or Operation Support Center, and Radiation Protection Personnel if necessary. The Onsite Medical Facility at Fermi 3 is designed to provide basic first responder aid to injured or ill personnel prior to arrival of offsite medical support. Supplies and equipment maintained at the Onsite Medical Facility are described in emergency plan administrative procedures. Section 13.3, "Emergency Planning," of the ESBWR DCD Tier 2 and Section 13.3 "Emergency Planning," of the Fermi 3 FSAR state that decontamination facilities and supplies for use by on-site personnel are provided in the service building adjacent to the main change rooms. Section II.K.6, "Contamination Control Measures," states that personnel that are contaminated are directed to the appropriate onsite or offsite decontamination facilities. Section II.J.3, "Personnel Monitoring and Decontamination," states that personnel monitoring and decontamination is performed in accordance with radiation protection procedures.

Technical Evaluation: **{Appendix E, Section IV.E.4}** The staff finds the Fermi 3 Emergency Plan adequately describes the sites facilities and medical supplies available for emergency first aid treatment. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.E.4.

13.3C.8.38 Maintenance of Emergency Equipment and Supplies

Technical Information in the Emergency Plan: {Appendix E, Section IV.G}
Section 13.3C.8.34 "Inspection/Inventory of Emergency Equipment" above describes that Section II.H.9, "Emergency Equipment and Supplies / Emergency Kits," describes and evaluates the emergency response facilities and equipment inspection and inventory program and procedures. Section II.P.3, "Plan Reviews and Updates," states that the Supervisor–Emergency Planning is responsible for an annual review of the Emergency Plan to ensure it and its supporting agreements are current. The Supervisor of Emergency Planning also identifies topics for plan change consideration. Section II.P.4, "Distribution of Revised Plans," states that the Supervisor–Emergency Preparedness determines which recommended changes are incorporated into the Plan, implementing or administrative procedures. Revisions are done in accordance with the plant review and approval process. The Emergency Plan and implementing procedures are distributed on a controlled basis to the Emergency Response Facilities and other agencies in accordance with the plant document control distribution process.

Technical Evaluation: {Appendix E, Section IV.G} The staff finds that the Fermi 3 Emergency Plan adequately describes the provisions to ensure that the emergency plan, its implementing procedures, emergency equipment and supplies are maintained up-to-date. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.G.

13.3C.8.39 ERDS Description, Testing, and Activation

Technical Information in the Emergency Plan: {Appendix E, Section VI} Section E.1.b, "Offsite Emergency Response Organizations," states that ERDS will be initialized within 1 hour

of an Alert or higher declaration. Section II.H.1.b, “Technical Support Center,” states that Control Room communications with the NRC includes information transmission using the ERDS.

Section 9.5.2.5-4-A, “Offsite Interfaces (2),” of the ESBWR DCD Tier 2 states that the applicant will describe the communications methods from the Control Room, TSC, and EOF to NRC including establishment of ERDS in accordance with NUREG-0696. Section 7.1.4.2, “N-DCIS Non-safety-Related Design Bases Summary,” of the ESBWR DCD Tier 2 states that the design bases for N-DCIS includes providing secure data communication to authorized external systems, including the TSC, EOF, and the ERDS. Section 7.1.4.8.4, “Plant Computer Functions (PCF) Description Summary,” of the ESBWR DCD Tier 2 states that the PCF provides support functions for secure communication to the TSC, EOF and ERDS. Section 7.5.1.2, “System Description,” of the ESBWR DCD Tier 2 states that the non-safety part of Post-Accident Monitoring (PAM) includes the SPDS, emergency response facilities information systems, and the ERDS. Section 2.3.3.1.5, “Data Reduction and Transmission,” of the Fermi 3 FSAR states that the NRC can receive selected meteorological data through the ERDS. Section II.F.1.a.5 “NRC Telephones” describes ERDS as a communication system from the utility to the NRC. Section II.N.2 “Drills” states Communication between the Control Room, TSC, and EOF to the NRC Headquarters and Regional Operations Centers shall be tested monthly.

(10 CFR 50.72(a)(4)) Section II.E.1.b, “Offsite Emergency Response Organizations,” states that ERDS will be initialized within 1 hour of an Alert or higher declaration.

Technical Evaluation: {Appendix E, Section VI} (10 CFR 50.72(a)(4)) The staff finds that the Fermi 3 Emergency Plan adequately describes the Emergency Response Data System (ERDS) as a direct near real-time electronic data link between the licensee’s onsite computer system and the NRC Operations Center that provides for the automated transmission of a limited data set of selected parameters and its established testing frequency. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section VI. The staff also finds that the Fermi 3 Emergency Plan adequately describes the activation of ERDS and the regulatory requirements in 10 CFR 50.72(a)(4).

13.3C.8.40 Conclusions

The staff has reviewed the Fermi 3 Emergency Plan in regards to emergency facilities and equipment is acceptable and meets the requirements of 10 CFR 50.34,as described above, 10 CFR 50.47(b)(8), 10 CFR 5072(a)(4) and 10 CFR Part 50, Appendix E, Sections IV.E, G and VI, as described above and the guidance in NUREG-0654/FEMA-REP-1, Planning Standard H and NUREG-0737, Supplement 1 sections as described above.

13.3C.9 Accident Assessment

13.3C.9.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(9), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Accident Assessment" in Appendix E to 10 CFR Part 50 and 10 CFR 50.34.

13.3C.9.2 Initiating Conditions for Emergency Classes

Technical Information in the Emergency Plan: [I.1] Section II.I-1, “Parameters Indicative of Emergency Conditions,” states plant system and effluent parameter values are utilized in the determination of accident severity and subsequent emergency classification, as described in Section II.D of this Plan. Environmental and meteorological events are also determining factors in emergency classification. EPIP “Emergency Classification” identifies plant system and effluent parameters that are indicative of off-normal or accident conditions and includes the various indications that correspond to the emergency initiating conditions. The instrumentation and equipment capabilities available for each emergency response facility are described in Section II.H.

Evaluation of plant conditions is accomplished through the monitoring of plant parameters both from indication in the Control Room and within the plant. Some of the more important plant parameters to be monitored in the Control Room are assembled into a single display location, which is called the SPDS. The SPDS monitors parameters relative to the plant design such as reactor coolant system pressure, containment pressure, reactor power, safety system status, containment radiation level, and effluent monitor readings.

Technical Evaluation: [I.1] The staff finds that the Fermi Emergency Plan adequately identifies plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and identifies the plant parameter values or other information which correspond to the emergency action level initiating conditions. The staff's technical evaluation of parameter values and the corresponding emergency classification level is discussed in Section 13.3C.4.2, "Emergency Classification System," of this SER. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.9.3 Capability to Continuously Assess an Accident

Technical Information in the Emergency Plan: [I.2] (10 CFR 50.34(f)(2)(xvii)) Section II.I-1, “Parameters Indicative of Emergency Conditions,” states the resources available to provide initial and continuing information for accident assessment throughout the course of an event include plant parameter display systems, liquid and gaseous sampling system, Area and Process Radiation Monitoring Systems, and Accident Radiation Monitoring Systems (which includes the high range containment radiation monitors). Section II.I-2, “Plant Monitoring Systems,“ states the initial values and continuing assessment of plant conditions through the course of an emergency may rely on reactor coolant sample results, radiation and effluent monitors, in-plant iodine instrumentation, and containment radiation monitoring. Section II.I.8 “Measuring Radioiodine Concentrations,” states Detroit Edison equips Radiological Emergency Teams (RETs) with portable air samplers, appropriate sample media, and analysis equipment capable of detecting radioiodine concentrations at or below 1E-7 microcuries per cubic centimeter under field conditions. Appendix 4, “Radiological Monitoring and Assessment,” of the Plan provides additional information regarding plant monitoring systems that are significant to continuing radiological assessment.

In **RAI 13.03-09-02,** the staff requested information regarding post-accident sampling capability. In response, the applicant stated post-accident sampling capabilities are addressed in FSAR Section 9.3 and provided a revised Section II.I.1 that includes a reference to Section 9.3 of the FSAR.

Section 9.3.2.2, “System Description,” of the Fermi 3 FSAR states that the post-accident sampling program meets the requirements of NUREG-0800, Section 9.3.2 for actions that are

required in lieu of a Post Accident Sampling System. The post-accident sampling program relies on installed post-accident monitoring instrumentation described in Section 7.5 of the DCD and does not require the capability to obtain and analyze highly radioactive coolant samples, although such samples may be used for emergency classification as well. Plant procedures address obtaining reactor coolant samples from the Reactor Water Cleanup/Shutdown Cooling (RWCU/SDC) sample line and suppression pool samples from the Fuel and Auxiliary Pools Cooling System (FAPCS) sample line, both using the Reactor Building Sample Station; and containment atmosphere samples in accordance with DCD Section 11.5, "Process Radiation Monitoring System," which states that the Process Radiation Monitoring System (PRMS) allows for the determination of gaseous and liquid process and effluent streams radioactive material content during normal and accident conditions. Section 7.5.2.2, "Containment Monitoring System," of the DCD describes the Containment Monitoring System for gaseous sampling and effluent radiation monitoring and the parameters that are monitored during normal and accident conditions.

Technical Evaluation: [I.2] (10 CFR 50.34(f)(2)(xvii)) The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-09-02** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed that the Rev 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-09-02. The staff finds that the Fermi 3 Emergency Plan adequately describes the methods of making initial and continuing assessment of plant conditions through the course of an accident. This is acceptable because it meets the requirements in 10 CFR 50.34(f)(2)(xvii) and conforms to the guidance in NUREG-0654/FEMA-REP-1.

Additional technical detail of staff review of the post-accident sampling program is in Section 9.3.2 "Process Sampling System" of this SER and concludes it meets the guidance provided in SRP Section 9.3.2.I.6 for actions required in lieu of a Post Accident Sampling System.

13.3C.9.4 Capability to Determine Source Term

Technical Information in the Emergency Plan: [I.3a] {Appendix E, Section IV.E.2} Section II.I-3, "Determination of Source Term and Radiological Conditions," describes the use of source term estimations. Core damage estimations provide a means of realistically differentiating between the four (4) core states (no damage, clad failure, and fuel melt, and vessel melt-through) to: 1) evaluate the status of the fission product barriers and how their status relates to the risks and possible consequences of the accident; 2) provide input on core configuration (coolable or uncoolable) for prioritization of mitigating activities; 3) determine the potential quality (type) and/or quantity (percent) of source term available for release in support of projected offsite doses and Protective Action Recommendations (PARs); 4) provide information that quantifies the severity of an accident in terms that can be readily understood and visualized; and 5) support the determination of radiological protective actions that could be considered for long term recovery activities. The offsite does assessment software, Raddose-V, relates various measured parameters, including containment radiation monitor readings, to the source term available for release within plant systems; and effluent monitor readings, to the magnitude of the radioactive materials available for release.

Appendix 4 section 2.1 "Source Term Data Input" states the typically available monitors used to aid in determining an event's potential source term includes Containment High Range Radiation Monitors, Containment Bypass Monitors, Plant Vent Monitors and Steam Line Monitors.

Technical Evaluation: [I.3.a] {Appendix E, Section IV.E.2} The staff finds that the Fermi 3 Emergency Plan adequately establishes methods, techniques and equipment to be used for determining the source term of releases of radioactive material within plant systems based on plant system parameters and effluent monitors and its magnitude. This is acceptable because it meets the requirements of Appendix E Section IV.E.2 and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1,

13.3C.9.5 Capability to Determine the Magnitude of a Radiological Release

Technical Information in the Emergency Plan: [I.3b] {Appendix E, Section IV.B} Section II.I-3, "Determination of Source Term and Radiological Conditions," describes Raddose-V, the offsite does assessment software, as the method/technique used to determine the magnitude of a radiological release. The software relates various measured parameters, including containment radiation monitor readings, to the source term available for release within plant systems; and effluent monitor readings, to the magnitude of the radioactive materials available for release.

Appendix 4, "Radiological Monitoring and Assessment," describes the means for relating various measured parameters, including containment radiation monitor readings, to the source term available for release within plant systems; and also describes the means for relating various measured parameters, including effluent monitor readings, to the magnitude of the release of radioactive materials.

Technical Evaluation: [I.3.b] {Appendix E, Section IV.B} The staff finds that the Fermi 3 Emergency Plan adequately establishes methods and techniques to be used for determining the magnitude of releases of radioactive material within plant systems based on plant system parameters and effluent monitors. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1, and meets the requirements of Appendix E, Section IV.B to 10 CFR Part 50.

13.3C.9.6 Relationship Between Effluent Monitors and Exposure

Technical Information in the Emergency Plan: [I.4] {Appendix E, Section IV.A.4} {Appendix E, Section IV.B} Section II.I-4, "Relationship Between Effluent Monitor Reading and Exposure and Contamination Levels," states emergency plan implementing procedures include the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions. Appendix 4 provides a description of how the offsite dose assessment program uses dose and dose rate determinations based on plant effluent monitors, and contamination estimates based on deposition assumptions and meteorological conditions in making does projections using effluent monitors and exposure data.

Technical Evaluation: [I.4] {Appendix E, Section IV.A.4} {Appendix E, Section IV.B} The staff finds that the Fermi 3 Emergency Plan adequately establishes the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions and how the data is used to make dose projections. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1, and the applicable requirements in Appendix E to 10 CFR Part 50.

13.3C.9.7 Meteorological Information

Technical Information in the Emergency Plan: [I.5] Section II.H.7, "Meteorological Instrumentation and Procedures," states the Meteorological Monitoring System at Fermi 3 is shared with Fermi 2. The meteorological monitoring system meets the requirements of RG 1.23 and provides the capability for predicting atmospheric effluent transport and diffusion. The meteorological system has the capability of being remotely interrogated by multiple users, onsite or offsite. Meteorological data is available in the Control Room, TSC, and EOF from the plant computer network system and dial-up terminals.

Additional detailed information describing the Fermi 3 meteorological systems and equipment is in Section 2.3.3 "Meteorological Monitoring (Related to RG 1.206 Section C.III.1, Chapter 2, C.I.2.3.3, "Onsite Meteorological Measurements Program")," of this SER.

Technical Evaluation: [I.5] The staff finds that the Fermi 3 Emergency Plan adequately describes the capability of acquiring and evaluating meteorological information from both onsite and offsite locations. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.9.8 Projecting Dose When Instrumentation is Inoperable

Technical Information in the Emergency Plan: [I.6] Section II.I-6, "Determination of Release Rates and Projected Doses When Installed Instruments are Inoperable or Off-Scale," states emergency plan implementing procedures establish processes for estimating release rates and projected doses if the associated instrumentation is inoperable or off-scale. The capability for projecting offsite dose and dose rates due to actual or potential airborne releases is via the Raddose-V computer program interfaced with the plant process computer. Raddose-V is available in the Control Room, TSC, and EOF. The manual version of Raddose-V can be available in other onsite/offsite facilities and locations. The basic methodology used to calculate the offsite radiological dose and dose rates was developed by and agreed upon by the applicant, Entergy Nuclear (Palisades), and American Electric Power (D.C. Cook) and accepted by the State of Michigan Department of Environmental Quality for use in emergency planning.

Technical Evaluation: [I.6] The staff finds that the Fermi 3 Emergency Plan adequately establishes the methodology for determining the release rate/projected doses if the instrumentation used for assessment is off-scale or inoperable. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.9.9 Field Monitoring Capability

Technical Information in the Emergency Plan: [I.7] Section II.I-7, "Field Monitoring Capability," states the Radiological Emergency Teams (RETs) perform field monitoring within the Plume Exposure Pathway. These teams are trained to conduct field surveys, obtain air samples, and collect environmental samples, and are qualified in accordance with RG 1.8 and the emergency preparedness training requirements described in Section II.O of this Plan. Emergency plan implementing procedures provide guidance for performance of field monitoring team activities. RETs are equipped with air sampling equipment, personnel dosimetry, radiological survey instruments, procedures, communications equipment, and supplies to facilitate performance of radiation, surface contamination, and airborne radioactivity monitoring.

Technical Evaluation: [I.7] The staff finds that the Fermi 3 Emergency Plan adequately describes the capability and resources for field monitoring within the plume exposure

emergency planning zone. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.9.10 Capability to Rapidly Assess Radiological Hazards

Technical Information in the Emergency Plan: [I.8] Section II.I-7, "Field Monitoring Capability," states the Radiological Emergency Teams (RETs) perform field monitoring within the Plume Exposure Pathway. These teams are trained to conduct field surveys, obtain air samples, and collect environmental samples. Two to four teams are available and can be dispatched within 30 to 60 minutes of an emergency declaration. RET vehicles are equipped with a radio to provide mobile communications carried over Detroit Edison UHF service frequencies assigned to Western Wayne County. The radio control console for directing actions of the Offsite RETs is located in the EOF/RET Dispatch Room. The information collected is forwarded to the TSC or EOF when activated. The EOF laboratory may be used for the receipt and qualitative analysis of all environmental sample media.

If necessary, supplemental teams trained in field survey and monitoring techniques can be called out or may be requested through mutual assistance agreements established with Entergy Nuclear Palisades, L.L.C. and Indiana Michigan Power to provide support during an emergency. A description of the agreement is in section II.C of this Plan. The teams are also equipped with appropriate monitoring and sampling equipment. Data from the supplemental field monitoring team(s) is also reported to the EOF.

Technical Evaluation: [I.8] The staff finds that the Fermi 3 Emergency Plan adequately describes methods, equipment, deployment times and expertise to rapidly conduct offsite assessment of radiological hazards. This is acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.9.11 Capability to Measure Radioiodine Concentrations in Air

Technical Information in the Emergency Plan: [I.9] Section II.I-8, "Measuring Radioiodine Concentrations," states that Radiological Emergency Teams (RETs) are equipped with portable air samplers, appropriate sample media, and analysis equipment capable of detecting radioiodine concentrations at or below 1E-7 µCi/cc under field conditions, taking into consideration potential interference from noble gas activity and background radiation. The collected air sample is measured by hand held survey meter as an initial check of the projection derived from plant data to determine if significant quantities of elemental iodine have actually been released.

Technical Evaluation: [I.9] The staff finds that the Fermi 3 Emergency Plan adequately describes a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as 10^{-7} µCi/cc under field conditions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.9.12 Means to Relate Various Parameters to Dose Rates

Technical Information in the Emergency Plan: [I.10] Section II.I.7 "Protective Action Recommendations and Bases" describes EAL-based PARs Detroit Edison provides based on offsite dose projections. The Radiation Protection staff is responsible for conducting offsite dose projections periodically throughout any emergency during which there is an actual or potential release of an amount of radioactive material that is likely to result in offsite consequences.

Section II.I-9, “Relating Measured Parameters to Dose Rates,” states Appendix 4 of this Plan describes the means for relating measured parameters to dose rates for those key isotopes listed in Table 3 of NUREG-0654/FEMA-REP-1. Appendix 4 describes the provisions for estimating the projected dose based on projected and actual dose rates using the Raddose-V software designed to estimate dose rates from the plume, inhalation, and ground deposition, and calculate deposition rates at 15-minute intervals. The user is able to estimate release rates from plant specific radiation monitor readings and flow rates by direct input, by back calculating from field data, or by grab sample analysis. From these estimates, integrated doses and total deposition are calculated for the length of time covering the release of radioisotopes. Doses and deposition are determined at radial grid and special receptor locations surrounding the facility, based on radiological and meteorological data collected at the plant.

Technical Evaluation: **[I.10]** The staff finds that the Fermi 3 Emergency Plan adequately establishes a means for relating the various measured parameters (e.g., contamination levels, water and air activity levels) to dose rates for key isotopes and gross radioactivity measurements. The Fermi 3 Emergency Plan also adequately describes provisions for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with the protective action guides. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.9.13 Conclusions

The staff has reviewed the Fermi 3 Emergency Plan in regards to Planning Standard I, Accident Assessment of NUREG-0654/FEMA-REP-1 and Applicable Regulation and concludes that the information provided in the Fermi 3 Emergency Plan regarding accident assessment is acceptable and meets the requirements of 10 CFR 50.34(f)(2)(xvii), 10 CFR 50.47(b)(9), 10 CFR Part 50, Appendix E, as described above, and complies with the guidance in NUREG-0654/FEMA-REP-1 Planning Standard I.

13.3C.10 Protective Response

13.3C.10.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(10), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.10.2 Warning Onsite Personnel

Technical Information in the Emergency Plan: [J.1.a-d] Section II.J.1, “Onsite Notification,” states in the event of an emergency, methods are established for notifying personnel within the Protected Area, including employees, visitors, and contractor personnel. The primary means of notification within the Protected Area is the Evacuation Alarm and Remote Warning System. The system provides an audible signal that alerts personnel of an emergency event via siren and public address announcement which includes the emergency classification and response actions to be taken. The In-Plant Page/Party Line (PA/PL) system may also be used for notification inside the Protected Area. In high noise areas where these systems may not be audible, other measures such as visible warning signals or personal notifications may be used.

Individuals located outside of the Protected Area but inside the Owner Controlled Area are informed via audible warnings provided by warning systems and the Security Force. If needed, local law enforcement personnel warn individuals located outside of the Protected Area but inside the Owner Controlled Area. In **RAI 13.03-10-01** the staff requested a discussion why the audible warnings provided by warning systems and the activities of the Security Force may not be successful in notifying individuals outside the PA but inside the OCA. In response, the applicant explained individuals located within the Owner Controlled Area, but outside of the Protected Area, are informed of emergency conditions through audible warnings provided by warning systems and the activities of the Security force.

Information regarding the meaning of the various warning systems and the appropriate response actions is provided through plant training programs, visitor orientation, escort instructions, posted instructions, or within the content of audible messages. Escorts provide response instructions to visitors. All individuals within the Protected Area are notified within about 15 minutes of the declaration of any emergency requiring individual response actions, such as accountability or evacuation. In **RAI 13.03-10-02** the staff requested additional information regarding the time needed to notify persons outside the protected area but within owner controlled areas. In response, the applicant describes the ability to notify all individuals within the Owner Controlled Area within about 15 minutes of an incident requiring protective actions.

Technical Evaluation: [J.1.a-d] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-10-01 and RAI 13.03-10-02** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAIs 13.03-10-01 and RAI 13.03-10-02. The staff finds that the Fermi 3 Emergency Plan adequately establishes the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including employees not having emergency assignments, visitors, contractor and construction personnel, and other persons who may be in the public access areas on or passing through the site or within the owner controlled area. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.3 Evacuation Routes for Onsite Personnel

Technical Information in the Emergency Plan: [J.2] Section II.J.2, "Evacuation Routes and Transportation," states Nuclear Security is responsible for traffic direction and control of persons leaving Fermi 3, including special provisions for a coordinated evacuation under severe conditions such as inclement weather, large groups of personnel to be evacuated, or a high level radioactive release. If site evacuation is inadvisable due to adverse conditions, such as weather-related, radiological, or traffic density conditions, affected individuals are directed to a safe onsite area, as determined by the Emergency Director, for accountability, and if necessary, contamination monitoring and decontamination. Individuals are informed of the evacuation routes and appropriate instructions via plant training programs, visitor orientation, escort instructions, posted instructions, or within the content of audible messages.

Figure II.J-2, "Evacuation Routes and Assembly Areas" identifies the evacuation routes and relocation and monitoring centers for persons leaving Fermi 3. Evacuated personnel will be directed to assemble at the Newport Service Center, Dixie Warehouse, and Trenton Channel Power Plant, or will be sent home. In **RAI 13.03-10-03** the staff requested a letter of commitment from the Newport Service Center, Dixie Warehouse, and Trenton Channel Power

Plant be provided. In response, the applicant explained that the Newport Service Center, Dixie Warehouse, and Trenton Channel Power Plant are owned and operated by Detroit Edison. Therefore, no Letters of Agreement are necessary for use of these facilities. Pre-planned evacuation routes are established and maintained consistent with emergency plan implementing procedures. A secondary route is provided for site evacuation in the event that the primary route is rendered impassable, such as due to radiological or meteorological conditions or other impediments to evacuation. The directions of travel and offsite assembly area(s) are determined by the Emergency Director based on the current meteorological and emergency conditions. Affected individuals evacuate the site via personal vehicles. If any individual onsite does not have access to a personal vehicle, arrangements will be made for transportation with another evacuating individual. In **RAI 13.03-10-04** the staff requested additional information regarding the process for arranging transportation for individuals without vehicles. In response, the applicant provided a revised Section II.J.2 of the Emergency Plan that describes in the event that any individual is unable to arrange for transportation, the Security Force arranges for transportation from the site.

Technical Evaluation: [J.2] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-10-03 and 13.03-10-04** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi Emergency Plan incorporated the information and textual changes provided in the response to RAIs 13.03-10-03 and RAI 13.03-10-04. The staff finds that the Fermi 3 Emergency Plan adequately describes provisions made for evacuation routes and transportation for onsite individuals to a suitable offsite location, including alternatives for inclement weather, high traffic density and specific radiological conditions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.4 Radiological Monitoring of Onsite Personnel

Technical Information in the Emergency Plan: [J.3] Section II.J.3, "Personnel Monitoring and Decontamination," states the Emergency Director directs contamination monitoring of personnel, vehicles, and personal property when there is likelihood that individuals and their property may have become contaminated before or during the site evacuation. Personnel evacuating the site will be monitored for contamination by the portal monitors as they exit the Protected Area or sent to offsite assembly areas and monitored by portable friskers. Based on the status of release of radioactive materials from the plant, limited monitoring may be utilized to speed the evacuation process.

Technical Evaluation: [J.3] The staff finds that the Fermi 3 Emergency Plan adequately provides for radiological monitoring of people evacuated from the site. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.10.5 Evacuation of Non-essential Onsite Personnel

Technical Information in the Emergency Plan: [J.4] Section II.J.4, "Non-essential Personnel Evacuation and Decontamination," states in the event of a Site Area Emergency or General Emergency, nonessential personnel are evacuated. Appropriate equipment and supplies are provided from the facility to facilitate contamination monitoring and decontamination at the relocation and monitoring centers as needed.

Technical Evaluation: [J.4] The staff finds that the Fermi 3 Emergency Plan adequately provides for the evacuation of onsite non-essential personnel in the event of a "site area

emergency" or "general emergency" and provides a decontamination capability. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.10.6 Onsite Personnel Accountability

Technical Information in the Emergency Plan: [J.5] Section II.J.5, "Personnel Accountability," states a capability is in place to account for all individuals within the Protected Area and to determine the identities of any missing individuals within 30 minutes following declaration of a Site Area Emergency or General Emergency. As individuals exit the Protected Area, they leave their identification badges with Nuclear Security personnel. Security will begin the accountability process using either the security computer system or by visual inspection using the badge exchange system and report accountability results to the Emergency Director. Once established, accountability within the Protected Area is maintained throughout the course of the event, unless specifically terminated by the Emergency Director. Emergency plan implementing procedures describe the accountability process which is consistent with the requirements of the Fermi 3 Security Plan.

Technical Evaluation: [J.5] The staff finds that the Fermi 3 Emergency Plan adequately provides for a capability to account for all individuals onsite at the time of the emergency and ascertain the names of missing individuals within 30 minutes of the start of an emergency and account for all onsite individuals continuously thereafter. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.10.7 Protection for Personnel Remaining or Arriving Onsite

Technical Information in the Emergency Plan: [J.6.a-c] Section II.J.6, "Protective Measures," states adequate supplies of radiation protection equipment are maintained for personnel remaining in or entering the Protected Area or Emergency Response Facilities (ERFs), including respiratory protection equipment, protective clothing and radioprotective drugs. This emergency equipment is listed, maintained, and inspected in accordance with radiation protection procedures. The Onsite Medical Facility maintains adequate amounts of potassium iodide (KI) to support the onsite ERO for emergency situations, as determined and authorized by the Emergency Director. Onsite supplies of protective clothing and respiratory protection equipment may be augmented by that provided by off-site responders, such as firefighters responding to the site.

Technical Evaluation: [J.6.a-c] The staff finds that the Fermi 3 Emergency Plan adequately provides for individual respiratory protection, use of protective clothing, and radioprotective drugs (e.g., individual thyroid protection.) This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.10.8 Recommending of Protective Actions

Technical Information in the Emergency Plan: [J.7] Section II.J.6, "Protective Measures," states the Emergency Director makes decisions regarding appropriate protective measures based on evaluation of site conditions, including input from the Nuclear Security. If, based on the judgment of the Emergency Director, personnel assembly, accountability, and evacuation may result in undue hazards to site personnel, the Emergency Director may direct other protective measures.

Section II.J.7 “Protective Action Recommendations and Bases” describes public Protective Action Recommendations (PARs) as being based on plant conditions, estimated offsite doses, or some combination of both. PARs are provided promptly to government officials within affected states and counties. The PAR is provided to offsite agencies within 15 minutes of the General Emergency declaration and within 15 minutes of a change in status of the PAR. In **RAI 13.03-02-03** the staff requested a description of the process for making offsite dose projections and how they are transmitted to State and local authorities, NRC, and other appropriate governmental entities. In response, the applicant stated that the Emergency Director or Emergency Officer is responsible for communicating offsite dose projections to Federal, state, and local authorities. The applicant provided a revised Table II.B-2 identifying the Emergency Director having this responsibility and provided text for Section II.J.7 of the Plan that explicitly discusses these responsibilities.

In addition to the EAL-based PAR, PARs based on offsite dose projections are provided. The Radiation Protection staff is responsible for conducting offsite dose projections periodically throughout any emergency during which there is an actual or potential release of an amount of radioactive material that is likely to result in offsite consequences. Emergency plan implementing procedures establish the requirements for performing required calculations and projections. The projected doses are compared to the Protective Action Guides (PAGs) in Table II.J-1, “Protective Action Guides,” which are derived from EPA 400-R-92-001, “The Manual of Protective Action Guides and Protective Actions for Nuclear Incidents” and Supplement 3 to NUREG- 0654/FEMA REP-1. Table II.J-1 identifies specified dose limits to evacuate (or shelter). In **RAI 13.03-10-05** the staff requested information regarding the use of sheltering the public as a potential protective action recommendation. In response, the applicant explained that Section II.J.7 of the Emergency Plan refers to Table II.J-1, Protective Action Guides, which provides for both evacuation and sheltering. The applicant provided new tables, including Table J-2, “Exposure Pathways, Incident Phases, and Protective Actions,” and Table J-3 “Representative Shielding Factors from Gamma Cloud Source,” that describe potential PAR actions. **Supplemental RAI 13.03-14** requested that the applicant revise the Plan's description of the Emergency Directors expected PAR actions to be taken for a General Emergency declaration to be consistent with 10 CFR 50.47 (b)(10), RIS 2004-13 and NUREG-0654, Supplement 3. In response to **Supplemental RAI 13.03-14**, the applicant stated that Section J.7, “Protective Action Recommendation and Bases,” will be revised to clarify that evacuation will not be recommended if conditions make evacuation dangerous. Furthermore, to aid in determining appropriate protective actions, the applicant will add Table II.J.3, “Representative Shielding Factors from Gamma Cloud Source,” which contains representative shielding factors provided by typical structures against direct exposure from the plume. In Supplemental **RAI 13.03-61** the staff asked the applicant to revise the Fermi 3 emergency response plan’s description of the Emergency Directors expected PAR actions to be taken for a General Emergency declaration to include consideration for the use of KI consistent with 10 CFR 50.47 (b)(10). In response the applicant stated that the Fermi 3 emergency response plan’s discussion of the Emergency Director’s process for developing PARs would be revised to include the consideration of administration of stable iodine for a General Emergency declaration.

Technical Evaluation: [J.7] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-02-03**, **13.03-10-05** and **Supplemental RAIs 13.03-14 and 61** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAIs 13.03-02-03,

13.03-10-05 and Supplemental RAIs 13.03-14 and 61. The staff finds that the Fermi 3 Emergency Plan adequately establishes a mechanism for recommending protective actions to the appropriate State and local authorities. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

The staff created **Confirmatory Action 13.03-72** to track the revision to the Emergency Director's process for developing PARs within the Emergency Plan to identify the administration of stable iodine as a consideration (RAI 13.03-61).

13.3C.10.9 Evacuation Time Estimates

Technical Information in the Emergency Plan: [J.8] Section II.J.8 "Evacuation Time Estimates" states the Evacuation Time Estimate (ETE) is summarized in Appendix 5, "Evacuation Time Estimate Summary," of the Fermi 3 Emergency Plan and that the ETE is consistent with the guidance in Appendix 4 of NUREG-0654/FEMA-REP-1.

Technical Evaluation: [J.8] The staff finds that the Fermi 3 Emergency Plan adequately provides time estimates for the evacuation of the general public within the plume exposure EPZ. The staff's review of the Fermi 3 ETE is detailed in Section 13.3C.18 of this SER. This is acceptable because it meets the guidance in NUREG-0654/FEMA-REP-1.

13.3C.10.10 Plans to Implement Protective Measures

Technical Information in the Emergency Plan: [J.10.a] Section II.J.10, Protective Measures Implementation," of the Fermi 3 Emergency Plan refers to Appendix 5, "Evacuation Time Estimate Summary," as providing a map of the Plume Exposure Pathway EPZ illustrating evacuation routes, Protective Action Areas (PAAs), pre-selected radiological sampling and monitoring points, and locations of shelter areas and relocation centers. In **RAI 13.03-10-06(.1), (.2), (.3)**, the staff requested a map that identifies evacuation routes, pre-selected radiological sampling and monitoring points, and relocation centers in host areas. In response to **RAI 13.03-10-06.1,** the applicant provided Figure 10-2, "Evacuation Routes for PAA 1, 3 and 5, and Figure 10-3, "Evacuation Routes for PAA 2 and 4," which show the evacuation routes from the EPZ. In response to **RAI 13.03-10-06.2,** the applicant explained that the protocol for offsite dose assessment does not include pre-selected radiological sampling and monitoring points. In lieu of pre-selected radiological sampling and monitoring points, the protocol relies on projection of the atmospheric transport and diffusion of the plume using the Raddose V software. Sections II.B and II.I of the Emergency Plan describe the activities of the Radiation Protection Advisor, Radiation Protection Coordinator, Dose Assessor, Radiological Emergency Team Coordinator. As indicated in Table II.B-2, the Radiation Protection Coordinator determines survey areas for offsite RETs and the Radiological Emergency Team (RET) Coordinator coordinates the efforts of the Offsite RETs. Plan Section II.I.7 provides additional information regarding RET activities. RETs are equipped with maps and Global Positioning System (GPS) devices to provide assurance of proper sampling locations consistent with the directions provided. The applicant describes these activities as conducted in accordance with the requirements of the EPIPs entitled "Dose Assessment Methodology" and "Onsite/Offsite Radiological Monitoring" as listed in Appendix 6 of the Fermi 3 COL Emergency Plan, and explained that following this protocol eliminates the need for a map identifying pre-selected radiological sampling and monitoring points. **Supplemental RAI 13.03-15** requested the applicant revise the plan to include a description of how radiological off-site survey data is communicated, in a uniform, understandable and useable manner, to off-site stakeholders in accordance with NUREG-0654 evaluation criterion II.J.10.a. In response to **Supplemental**

RAI 13.03-15, the applicant explained that the Emergency Plan incorrectly states that a map illustrating pre-selected radiological sampling points is included in Appendix 5, and the Emergency Plan will be corrected to indicate that the RETs rely on Global Positioning System devices to determine the location of their survey. The applicant described the process that field teams follow in communicating to users of this information in the EOF. The applicant explained how field information is communicated to the Emergency Response Organization and to the state representatives in the EOF.

In response to **RAI 13.03-10-06.3,** the applicant provided Figure 10-1, "Fermi Nuclear Power Plant Reception Centers and Host Schools," that shows the relocation centers in host areas.

Technical Evaluation: [J.10.a] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-10-06.1, 13.03-10-06.2, RAI 13.03-10-06.3 and Supplemental RAI 13.03-15** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAIs 13.03-10-06.1, 13.03-10-06.2, RAI 13.03-10-06.3 and Supplemental RAI 13.03-15. The staff finds that the Fermi 3 Emergency Plan adequately addresses evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

Technical Information in the Emergency Plan: [J.10.b.] Appendix 5, "Evacuation Time Estimate Summary," of the Fermi 3 Emergency Plan includes Figure A5-1, "Fermi Nuclear Power Plant Permanent Resident Population by PAA," which identifies the population distribution around the facility by evacuation area. Appendix 5 of the Plan summarizes population distributions and contains population by PAA. **RAI 13.03-10-07** requested the applicant revise the Plan to include population information in a sector format consistent with NUREG-0654 J.10.b. In response, the applicant provided Figure A5-2, "Permanent Residents by Sector," that shows population information in a sector format.

Technical Evaluation: [J.10.b] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-10-07** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to **RAI 13.03-10-07.** The staff finds that the Fermi 3 Emergency Plan includes adequate maps showing population distribution around the nuclear facility by protective action areas as well as by sector. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

Technical Information in the Emergency Plan: [J.10.c] Section J.1, "Onsite Notification," states individuals located outside of the Protected Area but inside the Owner Controlled Area are informed through audible warnings provided by warning systems, the Security Force, and if needed, local law enforcement personnel. In **RAI 13.03-10-01** the staff requested a discussion why the audible warnings provided by warning systems and the activities of the Security Force may not be successful in notifying individuals outside the Protected Area but inside the OCA. In response, the applicant stated that Section II.J.1 of the plan did not provide an accurate description of local law enforcement responsibilities under emergency conditions and provided a revised Section II.J.1 to describe individuals located within the Owner Controlled Area, but outside of the Protected Area, are informed of emergency conditions through audible warnings provided by warning systems and the activities of the Security force.

Section II.J.10.c states the primary method of warning the public is by using the Fermi 3 Alert and Notification System sirens. The Directors of Monroe and Wayne County Emergency Management are responsible for activating the portion of the system within their respective jurisdictions. Other warning methods may include telephone communications, television and radio EAS stations, public address systems, bull horns from patrol cars and personal contact. In **RAI 13.03-10-08** the staff asked why the description of implementation of Protective Action Recommendations (PAR) made did not include the Province of Ontario. In response the applicant provided a revision to Section II.J.10 that included the Province of Ontario in the implementation of PARs made by Fermi 3.

Technical Evaluation: [J.10.c] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-10-01** and **RAI 13.03-10-08** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAIs 13.03-10-01 and RAI 13.03-10-08. The staff finds that the Fermi 3 Emergency Plan adequately describes the means for notifying all segments of the transient and resident population. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

Technical Information in the Emergency Plan: [J.10.m] Section II.J.7, "Protective Action Recommendation [PAR] and Bases," In addition to the EAL-based Protective Action Recommendation, Detroit Edison provides PARs based on offsite dose projections. The projected doses are compared to the Protective Action Guides (PAGs) shown in Table II.J-1 which are derived from EPA 400-R-92-001, "The Manual of Protective Action Guides and Protective Actions for Nuclear Incidents" and Supplement 3 to NUREG-0654/FEMA REP-1. PARs are then developed based on the results of these comparisons. Table II.J-2 summarizes possible protective actions to be implemented by State and local agencies during an emergency. As a further aid in determining appropriate protective actions, Table II.J-3 contains representative shielding factors provided by typical structures against direct exposure from the plume. Emergency Plan Implementing Procedure, "Protective Action Recommendations," as listed in Appendix 6, provides details regarding development of Protective Action Recommendations.

Technical Evaluation: [J.10.m] The staff finds that the Fermi 3 Emergency Plan adequately describes a bases for the choice of PARs for the plume exposure pathway during emergency conditions. The basis includes expected protection factors afforded by various shelter structures from direct and inhalation exposure. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.10.11 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding protective response is acceptable because it meets the requirements of 10 CFR 50.47(b)(10) and conforms to the guidance in NUREG-0654/FEMA-REP-1, Planning Standard J.

13.3C.11 Radiological Exposure Control

13.3C.11.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(11), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.11.2 Onsite Exposure Guidelines

Technical Information in the Emergency Plan: [K.1.a-g] Section II.K.1, "Onsite Exposure Guidelines and Authorizations," states that all reasonable measures will be taken to keep emergency personnel exposure for rescue, first aid, decontamination, ambulance, medical treatment, corrective or assessment actions within 10 CFR Part 20 limits. Table II.K-1 provides dose limits for activities and conditions in accordance with the emergency exposure criteria and guidance in EPA-400-R-92-001.

Technical Evaluation: [K.1.a-g] The staff finds that the Fermi 3 Emergency Plan adequately describes onsite exposure guidelines that are consistent with the guidance in EPA-400-R-92-001 for removal of injured persons, undertaking corrective actions, performing assessment actions, providing first aid, performing personnel decontamination, providing ambulance service, and providing medical treatment services. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.11.3 Onsite Radiation Protection Program

Technical Information in the Emergency Plan: [K.2] Section II.K.1 states that the Emergency Director has the non-delegable responsibility for authorizing personnel exposure levels that exceed 10 CFR Part 20 limits during an emergency. Section II.K.2, "Radiation Protection Program," states that Chapter 12 of the Fermi 3 FSAR provides details regarding the Radiation Protection Program and that the Radiation Protection Advisor is responsible for implementation of radiation protection actions in an emergency. Chapter 12 of the FSAR incorporates by reference NEI 07-03 "Generic FSAR Template Guidance for Radiation Protection Program Description."

Section II.K.2 provides exposure guidelines for volunteers if exposures are greater than normal limits. It states that the Radiation Protection Program and emergency plan implementing procedures contain provisions to implement emergency exposure guidelines.

Technical Evaluation: [K.2] The staff finds that the Fermi 3 Emergency Plan adequately provides an onsite radiation protection program to be implemented during emergencies, including methods to implement emergency exposure guidelines and plans that identify by position the individual who can authorize exposures in excess of 10 CFR Part 20 limits. This is acceptable because it conforms to the guidance of NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.11.4 Capability to Determine Dose Received by Emergency Personnel

Technical Information in the Emergency Plan: [K.3.a] Section II.K.3, "Dosimetry and Dose Assessment," states that permanent record and self-reading dosimeters are provided to emergency responders, including those from offsite. The dosimeter ranges are sufficient to measure both routine and accident doses, and that dose assessment capabilities are available on a 24-hour basis. Emergency plan implementing procedures establish the requirements for dosimeter distribution.

Technical Evaluation: [K.3.a] {Appendix E, Section IV.E.1} The staff finds that the Fermi 3 Emergency Plan adequately describes provisions for 24-hour-per-day capability to determine the doses received by emergency personnel involved in any nuclear accident and distribution of dosimeters, both self reading and permanent record devices. This is acceptable because it meets the Appendix E, Section IV.E and conforms to the guidance of NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.11.5 Dose Records for Emergency Personnel

Technical Information in the Emergency Plan: [K.3.b] Section II.K.3, "Dosimetry and Dose Assessment," states that the external dosimetry program has provisions and requirements for use of permanent record and self-reading dosimeters. Emergency plan implementing procedures establish requirements for distributing dosimeters to emergency responders, including those individuals responding to the site from offsite locations. Table II.B-2 "Emergency Response Organization Functional Responsibilities" states the Radiation Protection Advisor ensures personnel exposure records are maintained.

Technical Evaluation: [K.3.b] The staff finds that the Fermi 3 Emergency Plan adequately describes the use and distribution of dosimeters and provisions for maintaining dose records for emergency workers involved in a nuclear accident. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.11.6 Decontamination Action Levels

Technical Information in the Emergency Plan: [K.5.a] Section II.K.5, "Decontamination Action Levels," of the Fermi 3 Emergency Plan states that decontamination requirements for personnel and areas, including action levels and criteria, are implemented in accordance with radiation protection procedures.

Technical Evaluation: [K.5.a] The staff finds that the Fermi 3 Emergency Plan adequately specifies action levels for determining the need for decontamination. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.11.7 Decontamination Facilities and Supplies

Technical Information in the Emergency Plan: [K.5.b] {Appendix E, Section IV.E.3} Section II.K.5, "Decontamination Action Levels," of the Fermi 3 Emergency Plan states that emergency equipment and supplies are maintained at Fermi 3 and include decontamination supplies identified in Section II.H.9, "Emergency Equipment and Supplies / Emergency Kits." Section II.H.9 states that the equipment, supplies and locations are described in emergency plan administrative procedures and radiation protection procedures. Section II.K.6, "Contamination Control Measures," states that personnel will be decontaminated in accordance with established procedures and may be referred to the onsite medical representative if normal procedures do not reduce contamination to acceptable levels. Section II.K.6 also states that supplies, instruments, equipment, and vehicles will be monitored prior to removal from contaminated areas and will be decontaminated in accordance with radiation protection procedures. Ambulances transporting contaminated personnel will be monitored and decontaminated by plant personnel prior to leaving the medical facility.

Technical Evaluation: [K.5.b] {Appendix E, Section IV.E.3} The staff finds that the Fermi 3 Emergency Plan adequately addresses decontamination of emergency personnel, wounds,

supplies, instruments and equipment as well as the location of the decontamination equipment. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1, and the requirements of Appendix E to 10 CFR Part 50.

13.3C.11.8 Onsite Contamination Control

Technical Information in the Emergency Plan: [K.6.a] Section II.K.6, "Contamination Control Measures," states that contaminated areas will be designated and identified to minimize personnel contamination or spread of contamination within the plant and that access to these areas is controlled. Personnel will take required precautionary measures, use protective clothing and equipment and be monitored prior to leaving contaminated areas.

[K.6.b] Section II.K.6 states that if an uncontrolled release of activity occurred then eating, drinking and chewing would be prohibited in all emergency response facilities until surveys show that these activities are permissible.

[K.6.c] Section II.K.6 states that contaminated items and areas will be returned to normal use when contamination levels have been returned to acceptable levels, using criteria contained in plant procedures.

Technical Evaluation: [K.6.a-c] The staff finds that the Fermi 3 Emergency Plan adequately addresses the contamination control measures for, area access, drinking water and food supplies and criteria for permitting the return of areas and items to normal use. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.11.9 Capability to Decontaminate Relocated Onsite Personnel

Technical Information in the Emergency Plan: [K.7] Section II.K.7, "Decontamination of Relocated Site Personnel," of the Fermi 3 Emergency Plan states that radiation protection personnel at the assembly areas monitor and determine the need for decontamination. Provisions for extra clothing are made, and suitable decontaminates are available for the expected type of contaminations, particularly with regard to skin contaminations. Personnel can be sent to designated locations for monitoring and decontamination, if it is not possible locally. Additional details are provided in Sections II.J.3, "Personnel Monitoring and Decontamination," and II.J.4, "Non-essential Personnel Evacuation and Decontamination," to describe the facilities used for monitoring and decontamination in accordance with radiation protection procedures and emergency plan implementing procedures.

Technical Evaluation: [K.7] The staff finds that the Fermi 3 Emergency Plan adequately describes, the capability to decontaminate relocated onsite personnel, provisions for extra clothing and decontaminants suitable for the type of contamination expected. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.11.10 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding radiation exposure control is acceptable and meets the requirements of 10 CFR 50.47(b)(11) and 10 CFR Part 50, Appendix E, Sections IV.E.1 and 3 and complies with the guidance in NUREG-0654/FEMA-REP-1, Revision 1, Planning Standard K.

13.3C.12 Medical and Public Health Support

13.3C.12.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(12), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to "Medical and Public Health Support," in Appendix E to 10 CFR Part 50.

13.3C.12.2 Onsite Medical Services

Technical Information in the Emergency Plan: [L.2] {Appendix E, Section IV.E.5} Section II.L.2, “Onsite First Aid Capability,” states that at least two first aid qualified personnel are onsite on a 24-hour basis. The onsite nurse is responsible for first aid treatment and the decision for offsite medical assistance during normal hours of operation. The Plant First Responder will perform these duties during off hours. Additional first aid support is available from operations personnel, personnel in the Control Room or Operation Support Center, and Radiation Protection Personnel if necessary. The Onsite Medical Facility at Fermi 3 is designed to provide basic first responder aid to injured or ill personnel prior to arrival of offsite medical support. Supplies and equipment maintained at the Onsite Medical Facility are described in emergency plan administrative procedures. Section II.L.1 “Hospital and Medical Support” states written procedures regarding radiological medical emergencies detailing actions to be taken onsite, including offsite transportation of injured, contaminated individuals and hospital notifications. Appendix 6, “Emergency Plan Implementing and Supporting Procedures (Typical List) and Procedure Cross-Reference to Plan” identifies “Medical Response” as the procedure for this part of the Plan.

Technical Evaluation: [L.2] {Appendix E, Section IV.E.5} The staff finds that the Fermi 3 Emergency Plan adequately describes the arrangements made for first aid and the services of medical personnel qualified to handle radiation emergencies on-site. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.E.5 and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.12.3 Offsite Medical Services

Technical Information in the Emergency Plan: [L.1] {Appendix E, Section IV.E.7} Section II.L.1, “Hospital and Medical Support,” of the Fermi 3 Emergency Plan states that written agreements are maintained with Mercy Memorial Hospital as a primary facility and Oakwood Southshore Medical Center as a backup facility for treatment of injured, contaminated or overexposed personnel from Fermi 3. Emergency cabinets containing contamination control supplies and dosimeters are maintained at both hospitals. Both facilities are adequately supplied and equipped to receive and treat contaminated patients. Activities are coordinated to ensure these facilities maintain support capabilities.

Technical Evaluation: [L.1] {Appendix E, Section IV.E.7} The staff finds that the Fermi 3 Emergency Plan adequately describes arrangements made for the services of physicians and other medical personnel qualified to handle radiation emergencies on-site. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.E.7 and conforms to the guidance in NUREG-0654/FEMA-REP-1.

Technical Information in the Emergency Plan: [L.4] {Appendix E, Section IV.E.6}
Section II.L.3, “Medical Transportation,” states that a local ambulance service [Monroe Community Ambulance] has agreed to provide transportation for injured and/or contaminated individual from Fermi 3 on a 24-hour basis to an off-site medical facility. Their commitment to provide service is supported by a Letter of Certification as listed in Appendix 2, “Certification Letters.”

Technical Evaluation: [L.4] {Appendix E, Section IV.E.6} The staff finds that the Fermi 3 Emergency Plan adequately describes arrangements made for transportation of injured and/or contaminated individuals from the Fermi 3 site on a 24-hour basis to an off-site medical facility acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.E.6 and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.12.4 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding medical and public health support is acceptable and meets the requirements of 10 CFR 50.47(b)(12), 10 CFR Part 50, Appendix E, Sections IV.E.5, 6 and 7, and complies with the guidance in NUREG-0654/FEMA-REP-1 Planning Standard L.

13.3C.13 Recovery and Reentry Planning and Post-Accident Operations

13.3C.13.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(13), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Recovery and Reentry Planning and Post-Accident Operations," in Appendix E to 10 CFR Part 50.

13.3C.13.2 Plans and Procedures for Reentry and Recovery

Technical Information in the Emergency Plan: [M.1] {Appendix E, Section IV.H}
Section II.M, “Reentry and Recovery Planning,” states that detailed information describing reentry and recovery activities is included in emergency plan implementing procedures. Section II.M.1.a “Evaluating Reentry Conditions,” states reentry during the recovery phase of an accident will be performed using normal exposure limits. Either normal procedures or procedures that consider existing as well as potential conditions inside affected areas will be developed specifically for each reentry. In **RAI 13.03-13-01** the staff requested additional information regarding the procedures that have been developed. In response, the applicant provided a revised Section II.M that states reentry and recovery activities are conducted in accordance with the EPIP entitled, "Recovery and Reentry" which is identified in Appendix 6 of the Emergency Plan. Section II.M.1.b “Evaluating Entry into Recovery,” states a plan will be developed and coordinated with federal, state, county, and provincial government officials. The recovery plan will include provisions for protection of the public health and safety, public officials kept aware of any impact the recovery plan may have on the off-site’s responsibilities to the public, periodic press briefings to inform the public of progress made, periodic status reports to be given to Detroit Edison employees, government and industry representatives, ALARA principals to be used in managing radiation exposures to workers, and the Recovery Organization size and make-up to be adjusted as necessary. Section II.M.2 “Recovery Organization” states prior to terminating an emergency and entering recovery at a minimum the

following items are to be considered: conditions that initiated the emergency classification are no longer applicable, the potential for uncontrolled releases to the environment are under control or are no longer in excess of Technical Specification limits, the radioactive plume has dissipated and plume tracking is no longer required, environmental monitoring to assess the extent of deposition only is required, in-plant radiation levels are stable or decreasing and acceptable for existing plant conditions, the reactor is shutdown and stable, long-term core cooling is available, containment pressure is within Technical Specification limits, primary containment integrity is established, all required off-site notifications have been made, discussions have been held with federal, state, county, and provincial government agencies; and agreement has been reached to terminate the emergency.

Section II.M.1.a, "Evaluating Reentry Conditions," states, all reentry activities conducted during an emergency are authorized by the Emergency Coordinator and coordinated with Operational Support Center (OSC) personnel. In **RAI 13.03-13-03** the staff requested that the Fermi 3 Emergency Plan be revise to include a description of the Emergency Coordinator position and that figure II-M-1 "Recovery Organization (Basic Frame Work)," be revised to include the Emergency Coordinator position. In response, the applicant provided a revised Section II.M.1 which correctly refers to the Emergency Officer position. The applicant explained that the Emergency Coordinator title was incorrect and should refer to the Emergency Officer, who is described in Section II.B of the Emergency Plan, as the individual who authorizes reentry activities during the emergency phase of an accident.

Section II.M.2, "Recovery Organization," states that decisions to relax protective actions for the public will be made in accordance with the State of Michigan Emergency Management Plan.

Technical Evaluation: [M.1] {Appendix E, Section IV.H} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-13-01 and RAI 13.03-13-03** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAIs 13.03-13-01 and RAI 13.03-13-03. The staff finds that the Fermi 3 Emergency Plan adequately describes general plans and procedures for reentry and recovery and describes the means by which decisions to relax protective measures (e.g., allow reentry into an evacuated area) are reached. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.H and conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.13.3 Recovery Organization

Technical Information in the Emergency Plan: [M.2] Section II.M.2, "Recovery Organization," describes the recovery organization positions and responsibilities for the four key positions identified in Figure II.M-1, "Recovery Organization (Basic Framework)," and a brief discussion of additional support positions that may be needed depending on the specific accident conditions. The Recovery Manager (Manager Nuclear Outage Management) directs the development of the recovery plan and procedures. The Nuclear Production Coordinator (Director, Nuclear Protection or Alternate) develops implementing and operating procedures to support recovery efforts and authorizes the start of plant reentry activities. The Offsite Activities Coordinator provides liaison with offsite agencies and coordinates assistance for offsite recovery activities. A Public Information Coordinator is identified as having responsibility for disseminating information about the recovery to the media and coordinating with all public information groups. In **RAI 13.03-13-02** the staff requested additional information regarding whether the Joint Information Coordinator is the Public Information Coordinator. In response,

the applicant provided a revised Figure II.M-1, "Recovery Organization (Basic Frame Work)," of the Emergency Plan that includes the position "Public Information Coordinator."

Technical Evaluation: [M.2] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-13-02** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-13-02. The staff finds that the Fermi 3 Emergency Plan contains an adequate description of the position/title, authority and responsibilities of individuals who will fill key positions in the facility recovery organization and that the organization includes technical personnel with responsibilities to develop, evaluate and direct recovery and reentry operations. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.13.4 Recovery Operations Initiation

Technical Information in the Emergency Plan: [M.3] Section II.M.1.b, “Evaluating Entry Into Recovery,” of the Fermi 3 Emergency Plan states that recovery plans will be developed by Detroit Edison and coordinated with federal, state, county, and provincial government officials. The plans will include, among other topics, provisions for periodic status reports to be given to Detroit Edison employees and government and industry representatives and for necessary adjustments in the size and makeup of the Recovery Organization to be made, as necessary. Section II.M.2, “Recovery Organization,” describes the Recovery Manager as responsible for notifying offsite authorities in a timely manner that a recovery operation will be initiated and will indicate any expected or potential offsite impact. The “Cross Reference of Fermi 3 Emergency Plan to Other Regulations and Regulatory Documents In Accordance with RG 1.206, Section C.I.13.3.1,” identifies the corresponding state activities in the Michigan Emergency Management Plan (MEMP).

Technical Evaluation: [M.3] The staff finds that the Fermi 3 Emergency Plan adequately addresses the means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.13.5 Methods to Estimate Total Population Exposure

Technical Information in the Emergency Plan: [M.4] Section II.M.3, “Updating Total Population Exposure During Recovery Operations,” of the Fermi 3 Emergency Plan states a method for estimating the total population exposure resulting from the accident from data collected in cooperation with the state and other federal agencies has been developed. Total population exposure is determined through a variety of procedures including examination of pre-positioned environmental monitoring thermo luminescent dosimeters (TLDs), bioassay, estimates based on release rates and meteorology, and estimates based on environmental monitoring of food, water, and ambient dose rates. The state is the lead agency in collection and analysis of environmental samples, and Fermi 3 environmental sampling activities will be coordinated with the state’s efforts. The “Cross Reference of Fermi 3 Emergency Plan to Other Regulations and Regulatory Documents In Accordance with RG 1.206, Section C.I.13.3.1,” identifies the corresponding state activities in the Disaster Specific Procedures Nuclear Power Plant Accident.

Technical Evaluation: [M.4] The staff finds that the Fermi 3 Emergency Plan adequately establishes a method for periodically estimating total population exposure. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.13.6 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding recovery and reentry planning and post-accident operations is acceptable and meets the requirements of 10 CFR 50.47(b)(13) 10 CFR Part 50, Appendix E, Section IV.H and complies with the guidance in NUREG-0654/FEMA-REP-1 Planning Standard M.

13.3C.14 Exercises and Drills

13.3C.14.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(14), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Exercises and Drills," in Appendix E to 10 CFR Part 50.

13.3C.14.2 Emergency Preparedness Exercise Purpose and Content

Technical Information in the Emergency Plan: [N.1.a] Section II.N.1, “Exercises,” of the Fermi 3 Emergency Plan, describes an exercise as an event that tests the integrated capability of a major portion of the basic elements existing within emergency preparedness plans and organizations, and that exercises are conducted in accordance with the NRC and FEMA rules (e.g.,10 CFR 50.47(b)(14) and 44 CFR 350.9).

Technical Evaluation: [N.1.a] The staff finds that the Fermi 3 Emergency Plan appropriately describes an exercise as a test of the integrated capability and the major elements of the emergency plans and preparedness program, and that exercises will be conducted in accordance with NRC and FEMA rules. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Emergency Plan: [N.1.b] Section II.N.1.b, “Exercise Scenarios and Participation,” of the Fermi 3 Emergency Plan, states a full participation exercise will include appropriate state, county, provincial authorities and Fermi 3 personnel actively taking part in testing the integrated capability to adequately assess and respond to a declared emergency at the plant. Section II.N.1.a, “Exercise Scope and Frequency,” describes exercises as varied such that all major elements of the plans and emergency organizations are tested within a 6-year period. One exercise shall start between 6:00 p.m. and 4:00 a.m. within a 6-year period. Exercises may be announced or unannounced and conducted under various weather conditions. Section II.N.4, “Exercise and Drill Evaluation,” states that official observers from Federal, state or local governments will observe, evaluate, and critique the required biennial exercise.

Technical Evaluation: [N.1.b] The staff finds that the Fermi 3 Emergency Plan’s description of a full participation exercise to: include appropriate state, county, provincial authorities and Fermi 3 personnel to test the integrated capability to adequately assess and respond to a declared emergency, vary scenarios to ensure all major elements of the plans and emergency

organizations are tested within a 6-year period. That at least one exercise scenario, for a full participation exercise, during an exercise cycle will; begin between 6:00 p.m. and 4:00 a.m., be unannounced and conducted under various weather conditions. All required biennial exercise evaluations will allow for officials from Federal, state or local governments to observer, evaluate, and critique the performance This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.3 Emergency Preparedness Exercises

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2} Section II.N, "Exercises and Drills," of the Fermi 3 Emergency Plan, states that exercises and drills are conducted to practice, test, and evaluate the adequacy of the emergency preparedness program, including facilities, equipment, procedures, communication links, actions of ERO personnel, and coordination between Fermi 3 and offsite emergency response organizations. Section II.E.5 "Instructions to the Public in the Plume Exposure EPZ" states the ANS is tested on a periodic basis that meets or exceeds FEMA guidance.

Technical Evaluation: {Appendix E, Section IV.F.2} The staff finds that the Fermi 3 Emergency Plan adequately describes the conduct of emergency preparedness exercises that will test the adequacy of; implementing procedures and methods timing and content, emergency equipment and communications networks, the public notification system, and ensure that emergency organization personnel are familiar with their duties. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2.

13.3C.14.4 Full Participation Exercise Before Fuel Load

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.a} Section II.N "Exercises and Drills," of the Fermi 3 Emergency Plan, states the program of exercises and drills are conducted to practice, test, and evaluate the adequacy of the emergency preparedness program, including facilities, equipment, procedures, communication links, actions of ERO personnel, and coordination between Fermi 3 and offsite emergency response organizations. Section II.N.1.b, "Exercise Scenarios and Participation," states full participation exercises will include appropriate offsite state, county and provincial authorities and Fermi 3 personnel to adequately assess and respond to an accident at the plant.

Technical Evaluation: {Appendix E, Section IV.F.2.a} The staff finds that the Fermi 3 Emergency Plan adequately describes the conduct of exercises that will test as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2.a.

13.3C.14.5 Onsite Biennial Exercise

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.b}
Section II.N.1.a, "Exercise Scope and Frequency" of the Fermi 3 Emergency Plan, states that an emergency (biennial) exercise will be conducted at least every two (2) years and be varied such that all major elements of the plans and emergency organizations are tested within a 6-year period. Section II.N.1.b, "Exercise Scenarios and Participation," states full participation exercises will include appropriate offsite state, county and provincial authorities and Fermi 3 personnel to adequately assess and respond to an accident at the plant. Section II.N.2 "Drills" states that drills are aimed at testing, developing, and maintaining skills in a particular operation.

Drills are conducted to ensure that adequate emergency response capabilities are maintained during the interval between evaluated exercises. Section II.N.2.f.2, "Additional Drills," states that during the interval between biennial exercises, at least one (1) "off year" drill should be conducted at the plant involving principal areas of onsite emergency response capabilities. These areas include management and coordination of emergency response, accident assessment, protective action decision-making, and plant system repair and corrective action.

Technical Evaluation: {Appendix E, Section IV.F.2.b} The staff finds that the Fermi 3 Emergency Plan provides an adequate description of a drill and exercise program conducted to perform a federally evaluated exercise every 2 years, additional drills and exercises to practice, test, and evaluate the adequacy of the emergency preparedness program, including facilities, equipment, procedures, communication links, actions of ERO personnel, and coordination between Fermi 3 and offsite emergency response organizations. Any identified drill/exercise deficiencies are evaluated and corrected. Drills are conducted to ensure that adequate emergency response capabilities are maintained during the interval between evaluated exercises involving principal areas of onsite emergency response capabilities. These areas include management and coordination of emergency response, accident assessment, protective action decision-making, and plant system repair and corrective action. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2.b.

13.3C.14.6 Offsite Biennial Exercise

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.c}
Section II.N.1.b "Exercise Scenarios and Participation," the Fermi 3 Emergency Plan, states the State of Michigan Emergency Management Plan delineates the frequency in which the state will participate in an exercise with Detroit Edison. This participation may be either full or partial depending on the objectives of the exercise and the degree to which the state and local plans will be tested. Full participation exercises will include appropriate offsite State, county and provincial authorities and Fermi 3 personnel to adequately assess and respond to an accident at the plant.

Technical Evaluation: {Appendix E, Section IV.F.2.c} The staff finds that the Fermi 3 Emergency Plan adequately describes full participation exercise scenarios performed at least biennially, that provide opportunities for offsite authorities having a role under the Fermi 3 Emergency Plan, to exercise their plans. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2.c.

13.3C.14.7 Ingestion Pathway Exercise with the State

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.d}
Section II.N.1.b "Exercise Scenarios and Participation," of the Fermi 3 Emergency Plan, describes that Ingestion Pathway Exercises are conducted on a 6 year cycle and Fermi 3 participates on a rotating basis with other fixed nuclear facilities in the State of Michigan. Ingestion Pathway Exercises are usually conducted in conjunction with a full participation exercise as the State chooses.

Technical Evaluation: {Appendix E, Section IV.F.2.d} The staff finds that the Fermi 3 Emergency Plan adequately describes how the licensee coordinates with the State of Michigan for Ingestion Pathway exercises. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2.d.

13.3C.14.8 Enabling Local and State Participation in Drills

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.e}
Section II.N.2, "Drills," of the Fermi 3 Emergency Plan, describes the types and frequencies of drills and as appropriate, participation by outside organizations. Section II.N.2.e.2, "Additional Drills," states that routine offers to participate are made to offsite agencies in off year drills.

Technical Evaluation: {Appendix E, Section IV.F.2.e} The staff finds that the Fermi 3 Emergency Plan adequately describes how the licensee enables State and local Governments located within the plume exposure pathway EPZ to participate in licensee's off year drills. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2.e.

13.3C.14.9 Remedial Exercises

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.2.f}
Section II.N.5, "Drill and Exercise Critiques," of the Fermi 3 Emergency Plan, describes a critique and evaluation process following exercises and drills The Supervisor, Emergency Preparedness is responsible for evaluation of recommendations and comments from the critique to ensure corrective actions are implemented. In **RAI 13.03-14-01** the staff requested that the applicant include details regarding remedial exercises in the Fermi 3 Emergency Plan. In response, the applicant provided a revised Section II.N.5 of the Emergency Plan describing that a remedial exercise will be conducted in the event that implementation of the emergency plan is not satisfactorily demonstrated during a biennial exercise.

Technical Evaluation: {Appendix E, Section IV.F.2.f} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-14-01** to be acceptable because it meets the requirements in Appendix E, Section IV.F.2.f. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-14-01. The staff finds that the Fermi 3 Emergency Plan adequately describes how remedial exercises will be conducted if the emergency plan is not satisfactorily tested during the biennial exercise, such that the NRC and FEMA, cannot find reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2.f.

13.3C.14.10 Drills

Technical Information in the Emergency Plan: [N.2] Section II.N.2, "Drills," of the Fermi 3 Emergency Plan, states drills are a supervised instruction period aimed at testing, developing, and maintaining skills in a particular operation and are conducted to ensure that adequate emergency response capabilities are maintained during the interval between evaluated exercises. Section II.N.5, "Drill and Exercise Critiques," states as soon as possible following the conclusion of each drill or exercise, a critique is conducted to evaluate the ability of all participating organizations to respond. The Fermi 3 Emergency Preparedness Department will develop a formal written critique based on input from the drill participants, controllers/evaluators, and observers. The written critique will document the ability of the ERO to respond to the simulated emergency situation or sequence of events and may identify the need for changes to the Plan, procedures, equipment, facilities, or other components of the emergency preparedness program.

Technical Evaluation: [N.2] The staff finds the Fermi 3 Emergency Plan adequately describes that drills are a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation and that each drill is evaluated. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.11 Communications Drills

Technical Information in the Emergency Plan: [N.2.a] {Appendix E, Section IV.E.9(b)} Section II.N.2.a, "Communication Drills," of the Fermi 3 Emergency Plan, states that communication with the Control Room, Technical Support Center (TSC), Emergency Operations Facility (EOF), Michigan State Police, Monroe County Central Dispatch, and Wayne County Central Communications, as well as communication between the Control Room, TSC, and EOF to the NRC Headquarters Operations Center will be tested monthly. Communications with the plant, State, and local emergency operations centers, and offsite radiological emergency teams as well as communication with Control Room, TSC, OSC, EOF, and Joint Public Information Center (JPIC) will be tested annually. Annual drills conducted between Emergency Response Facilities and participating organizations will include confirmation of understanding of the content of the message. In **RAI 13.03-14-02** the staff requested the applicant verify that communications with Federal EROs and States within the ingestion pathway are tested quarterly. In response, the applicant stated that testing of communications from the Control Room, TSC, and EOF to NRC Headquarters and the NRC Region III Office Operations Center are conducted on a monthly basis. The applicant explained that NRC is the lead Federal agency for response to emergencies at Fermi Unit 3 and is therefore the only Federal agency with which communications are tested. The applicant explained that under conditions requiring implementation of the Fermi 3 COL Emergency Plan, communications are not established or maintained with the state of Ohio, which is the only state other than Michigan within the ingestion exposure pathway emergency planning zone. Communications with the state of Ohio are established and tested in accordance with the plans of affected Federal and State authorities. **Supplemental RAI 13.03-16** requested the applicant describe the testing of communications with the state of Ohio which is within the ingestion pathway, consistent with NUREG-0654 N.2.a. In response to **Supplemental RAI 13.03-16**, the applicant will add item 6 to Section II.N.2.a, "Communication Drills," stating:

> Communications with the State of Ohio is tested quarterly by the State of Michigan in accordance with the Disaster Specification Procedures of the Michigan Emergency Management Plant (MEMP) for Nuclear Power Plant Accidents (13.03-16).

The applicant provided a reference to the ingestion pathway testing from the Disaster Specification Procedures which states that "communications with federal response agencies and States within the ingestion pathway are continuous, thereby being tested at least quarterly".

Technical Evaluation: [N.2.a] {Appendix E, Section IV.E.9(b)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-14-02 and Supplemental RAI 13.03-16** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAIs 13.03-14-02 and Supplemental RAI 13.03-16. The staff finds that the Fermi 3 Emergency Plan adequately describes how communications with Federal, State and local governments in the plume exposure pathway EPZ will be tested. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.E.9(b) and conforms to the guidance in NUREG-0654/FEMA-REP-1.

13.3C.14.12 Fire Drills

Technical Information in the Emergency Plan: [N.2.b] Section II.N.2.b, "Fire Drills," states fire drills shall be conducted in accordance with Section 13.1 of the Fermi 3 FSAR and plant procedures. ESBWR DCD, Section 9.5.1.15.4.5, "Fire Brigade Retraining," states that drills are performed at least once each calendar quarter for each shift fire brigade. Each fire brigade participates in at least two drills per year. Critiques are conducted upon completion of each drill. Drills include reviews of the latest plant modifications and corresponding changes in firefighting plans. Section II.N.2.b of the Fermi 3 Emergency Plan states a fire drill involving the Frenchtown Fire Department is conducted annually.

Technical Evaluation: [N.2b] The staff finds the Fermi 3 Emergency Plan adequately describes how fire drills will be conducted in accordance with the Fermi 3 COL FSAR. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.13 Medical Emergency Drills

Technical Information in the Emergency Plan: [N.2.c] Section II.N.2.c, "Medical Emergency Drills," states that annually, a medical emergency drill will be conducted that involves a simulated contaminated individual and provisions for participation by the local support services agencies (i.e., ambulance and offsite medical treatment facility) conducted annually. In addition, the staff finds the Emergency Plan adequately describes that the offsite portions of the medical drill may be performed as part of the required biennial exercise.

Technical Evaluation: [N.2.c] The staff finds the Fermi 3 Emergency Plan adequately describes medical emergency drills involving simulated contaminated individuals and provisions for participation by local support organizations. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.14 Radiological Monitoring Drills

Technical Information in the Emergency Plan: [N.2.d] Section II.N.2.d, "Radiological Monitoring Drills," states that radiation monitoring drills will be conducted annually. These drills include collection and analysis of sample media, such as water, vegetation, and soil, from the Owner Controlled Area or nearby offsite areas and provisions for communications and record keeping. Local organizations are routinely offered the opportunity to participate in the drill.

Technical Evaluation: [N.2.d] The staff finds the Fermi 3 Emergency Plan adequately describes plant environs and radiological monitoring drills (onsite and offsite) conducted annually; and that local organizations are routinely offered the opportunity to participate. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.15 Health Physics Drills

Technical Information in the Emergency Plan: [N.2.e] Section II.N.2.e, "Radiation Protection Drills," states that drills involving the sampling and analysis of simulated elevated radioactive airborne and liquid samples, as well as direct radiation measurements in the plant environment, shall be conducted semi-annually.

Section II.N.2.e, “Radiation Protection Drills,” states simulated elevated radioactive liquid and airborne samples will be used. Information is needed regarding the analysis of in-plant liquid samples with actual elevated radiation levels, including use of the post-accident sampling system, in Health Physics drills. In **RAI 13.03-14-03** the staff requested the applicant provide details regarding use of the post-accident sampling system. In response, the applicant explained that no dedicated Post Accident Sampling System is required for the ESBWR design and provided reference to the applicable Topical Report NEDO-32991, “Regulatory Relaxation for BWR Post Accident Sampling Stations (PASS),” dated October 2000. The applicant further explained that processes for classification of fuel damage events utilize installed post accident radiation monitoring instrumentation as described in DCD Section 7.5, and plant procedures contain instructions for obtaining grab samples utilizing installed systems as addressed in FSAR Section 9.3. The applicant explained that post accident monitoring is adequate to implement the Emergency Plan without reliance on post accident sampling capability. The applicant provided a revised Section II.N that omits Section II.N.2.e, “Radiation Protection Drills.” The staff requested additional information in **Supplemental RAI 13.03-21** regarding the frequency and content of Health Physics drills.

Technical Evaluation: [N.2.e] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAIs 13.03-14-03** and **Supplemental RAI 13.03-21** to be acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAIs 13.03-14-03 and Supplemental RAI 13.03-21. The staff finds that the Fermi 3 Emergency Plan adequately describes how health physics drills will be conducted semi-annually and will involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

13.3C.14.16 Conduct of Drills and Exercises

Technical Information in the Emergency Plan: [N.3.a-f] Section II.N.3, “Conduct of Drills and Exercises,” describes the manner in which drills and exercises are carried out. Advance knowledge will be kept to a minimum to allow for “free play” decision making and to ensure a realistic participation. Drills and exercises scenarios include the basic objective(s) of each drill and exercise and appropriate evaluation criteria; date(s), time period, place(s) and participating organizations; the simulated events; a time schedule of real and simulated initiating events; a narrative summary describing the conduct of the exercises or drills to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of emergency teams, public information activities; descriptions of assignments for qualified controllers/evaluators and provisions for observers from federal, state, and local organizations, as appropriate.

Technical Evaluation: [N.3.a-f] The staff finds that the Fermi 3 Emergency Plan adequately describes how exercises and drills will be carried out to allow free play for decision-making and to meet the exercise objectives. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.17 Observing, Evaluating, and Critiquing Drills and Exercises

Technical Information in the Emergency Plan: [N.4] {Appendix E, Section IV.F.2(g)} Section II.N.4, “Exercise and Drill Evaluation,” states that official observers from Federal, state or local governments will observe, evaluate, and critique the required biennial exercise in which

the State and counties participate. Section II.N.5, “Drill and Exercise Critiques,” states a critique is conducted as soon as possible following the conclusion of each drill and exercise and the Fermi 3 Emergency Preparedness Department will develop a formal written critique that documents the ability of the ERO to respond to the simulated emergency.

Technical Evaluation: [N.4] {Appendix E, Section IV.F.2(g)} The staff finds that the Fermi 3 Emergency Plan adequately describes provisions for; official observers from Federal, State or local governments to observe, evaluate, and critique the required exercises, performance of a critique conducted by the licensee as soon as possible following the conclusion of the drill or exercise. This is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2(g) and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.18 Means to Correct Areas Needing Improvement

Technical Information in the Emergency Plan: [N.5] Section II.N.5, “Drill and Exercise Critiques,” states the critique and evaluation process following an exercise or drill is used to identify areas of the emergency preparedness program that require improvement such as, changes to the Emergency Plan, procedures or other elements of the emergency preparedness program. The Supervisor, Emergency Preparedness is responsible for the evaluation of recommendations and comments to ensure corrective actions are implemented and determining which items will be scheduled, tracked, and the resolution evaluated.

Technical Evaluation: [N.5] The staff finds that the Fermi 3 Emergency Plan adequately describes a means for: evaluating observer and participant comments on areas needing improvement, emergency plan procedural changes, assigning responsibility, implementing corrective actions and establishing management controls to ensure corrective actions are implemented. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.19 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding exercises and drills is acceptable and meets the requirements of 10 CFR 50.47(b)(14), 10 CFR Part 50, Appendix E, Sections IV.E.9(b), IV.F.2.(a) thru (g) and complies with the guidance in NUREG-0654/FEMA-REP-1 Planning Standard N.

13.3C.15 Radiological Emergency Training

13.3C.15.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(15), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Radiological Emergency Training," in Appendix E to 10 CFR Part 50.

13.3C.15.2 Training for Offsite Emergency Organizations

Technical Information in the Emergency Plan: [O.1.a] Section II.O, “Radiological Emergency Response Training,” of the Fermi 3 Emergency Plan states that a training program is implemented that provides for initial training and retraining for individuals with emergency

response duties, including offsite support agencies who may be called on to assist in an emergency. Section II.O.1, “Offsite Emergency Response Training,” states that the applicant conducts, or supports the conduct of, site-specific training for offsite personnel that provide assistance during an emergency. This includes local fire departments, law enforcement, ambulance, and hospital personnel. Additional training of offsite personnel is described in their respective radiological emergency plans with support provided by Fermi 3, as requested. Training topics include Radiological Emergency Response Plan orientation, communications interfaces, transporting and treating contaminated patients basic health physics and radiation protection, and other topics. The applicant, the Michigan State Police, and the local counties have also developed a four-part training program that is presented annually to the local offsite Emergency Response Organization (ERO). A list of participating organizations is provided.

Technical Evaluation: [O.1.a] The staff finds that the Fermi 3 Emergency Plan adequately describes the site-specific emergency response training provided for offsite emergency organizations who may be called upon to provide assistance in the event of an emergency. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.3 Onsite Emergency Response Organization Training

Technical Information in the Emergency Plan: [O.2] Section II.O.2, “Onsite Emergency Response Training,” of the Fermi 3 Emergency Plan states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. The training program includes practical drills during which each individual demonstrates the ability to perform their responsibilities and tasks. The instructor/evaluator immediately corrects any erroneous performance noted during the practical drills and demonstrates proper performance. Section II.O.4 “Onsite Emergency Response Organization Training Program” states knowledge-based training may be provided in a classroom setting or other setting as described in the Emergency Plan administrative procedures and performance-based training and evaluation are conducted for most ERO members during drills, walk-throughs, or table-tops. Completion of training activities and evaluations is documented on ERO qualification guides.

Technical Evaluation: [O.2] The staff finds that the Fermi 3 Emergency Plan adequately describes the training program for members of the onsite emergency organization that provides for classroom training and practical drills that demonstrate the ability to perform assigned emergency functions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.4 First Aid and Rescue Team Training

Technical Information in the Emergency Plan: [O.3] [O.4.f] {Appendix E, Section IV.F.1(b)(vi)} Section II.O.3, “First Aid Training,” of the Fermi 3 Emergency Plan states that personnel that provide first aid will complete a training course equivalent to the Red Cross “Multi-Media” course. In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of specialized initial training and retraining. In response, the applicant provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining provided for emergency response organization personnel, consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization." The applicant described the scope, nature and frequency of specialized initial

training and retraining for the specific categories of personnel including first aid and rescue team personnel.

Technical Evaluation: [O.3] [O.4.f] {Appendix E, Section IV.F.1(b)(vi)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes specialized initial and periodic retraining for individuals who may be called upon to provide first aid. This is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(vi) and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.5 Training Program to Implement the Emergency Plan

Technical Information in the Emergency Plan: [O.4] {Appendix E, Section IV.F.1} Section II.O.2, "Onsite Emergency Response Training," states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. The training program establishes the scope, nature, and frequency of the required training and qualification measures for facility position-specific emergency response members of the ERO. The content of the training program addresses the duties and responsibilities of the assigned position. Training is provided in a classroom setting or other setting as described in emergency plan administrative procedures. Performance-based training and evaluations are conducted for most ERO members through drills, walk-throughs, or table-tops. Completion of training activities and evaluations are documented on ERO qualification guides. The lesson plans, study guides, and written exams are contained in the ERO training program. The initial and requalification training requirements are described in emergency plan administrative procedures. A procedure for Radiological Emergency Response Training is identified in Appendix 6, "Emergency Plan Implementing and Supporting Procedures (Typical List) and Procedure Cross-Reference to Plan." Knowledge based training may be provided in a classroom setting.

In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of training specific for the each of the following categories: personnel responsible for accident assessment; radiological monitoring teams and radiological analysis personnel; police, security and fire fighting personnel; repair and damage control/correctional action teams (onsite); first aid and rescue personnel; local support services personnel including Civil Defense/Emergency Service personnel; medical support personnel; licensee's headquarters support personnel; and personnel responsible for transmission of emergency information and instructions. In response, the applicant provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining provided for emergency response organization personnel, consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization." The applicant described the scope, nature and frequency of specialized initial training and retraining for the specific categories of personnel including Emergency Response organization directors and coordinators; accident assessment personnel; radiological monitoring and analysis personnel; security and firefighting personnel; repair and damage control/corrective action team personnel; first aid and rescue team personnel; medical support personnel; Detroit headquarters support personnel; and personnel responsible for transmission of emergency information and instructions.

Technical Evaluation: [O.4.] {Appendix E, Section IV.F.1} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the training program for instructing and qualifying personnel who will implement radiological emergency response plans. This is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.6 Training for Emergency Response Organization Directors

Technical Information in the Emergency Plan: [O.4.a] {Appendix E, Section IV.F.1(b)(i)} Section II.O.2, “Onsite Emergency Response Training,” states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. ERO personnel are trained to the extent appropriate to their duties and responsibilities. A program is implemented to provide facility position-specific emergency response training for designated members of the ERO. In **RAI 13.03-15-01** the staff requested additional information training specific for Emergency Response Organization Directors. In response, the applicant provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining provided for emergency response organization personnel, consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization."

Technical Evaluation: [O.4.a] {Appendix E, Section IV.F.1(b)(i)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized initial and periodic retraining program for instructing and qualifying directors, managers, and coordinators who will implement radiological emergency response plans. This is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(i) and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.7 Training for Accident Assessment Personnel

Technical Information in the Emergency Plan: [O.4.b] {Appendix E, Section IV.F.1(b)(ii)} Section II.O.2, “Onsite Emergency Response Training,” states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. A program is implemented to provide facility position-specific emergency response training for designated members of the ERO. The training program establishes the scope, nature, and frequency of the required training and qualification measures. In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of training specific for Accident Assessment personnel. In response, the applicant provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining provided for emergency response organization personnel, consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization."

Technical Evaluation: [O.4.b] {Appendix E, Section IV.F.1(b)(ii)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately specialized initial and periodic retraining for personnel responsible for accident assessment, including control room shift personnel. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(ii) and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.8 Training for Radiological Monitoring and Analysis Personnel

Technical Information in the Emergency Plan: [O.4.c] {Appendix E, Section IV.F.1(b)(iii)} Section II.O.2 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. A program is implemented to provide facility position-specific emergency response training for designated members of the ERO which may include emergency exposure limits, and exposure control techniques. In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of training specific for radiological monitoring and analysis personnel. In response, the applicant provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining provided for emergency response organization personnel, consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization."

Technical Evaluation: [O.4.c] {Appendix E, Section IV.F.1(b)(iii)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized initial and periodic retraining for radiological monitoring and analysis personnel.. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(iii) and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.9 Training for Fire Fighting Teams

Technical Information in the Emergency Plan: [O.4.d] {Appendix E, Section IV.F.1(b)(iv)} Section II.O.2 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. A program is implemented to provide facility position-specific emergency response training for designated members of the ERO which may include security access control and site evacuation process. In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of training specific for firefighting teams. In response, the applicant provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining provided for emergency response organization personnel, consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization."

Technical Evaluation: [O.4.d] {Appendix E, Section IV.F.1(b)(iv)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized initial and periodic retraining for firefighting personnel. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(iv) and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.10 Training for Repair and Damage Control Teams

Technical Information in the Emergency Plan: [O.4.e] {Appendix E, Section IV.F.1(b)(v)} Section II.O.2 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. A program is implemented to provide facility position-specific emergency response training for designated members of the ERO which may include emergency response facilities. In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of training. In response, the applicant provided Section II.O.4, "Onsite Emergency Response Organization Training Program," that identifies training provided to repair and damage control/corrective action team personnel.

Technical Evaluation: [O.4.e] {Appendix E, Section IV.F.1(b)(v)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized initial and periodic retraining for repair and damage control teams. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(v) and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.11 Training for Local Emergency Management Personnel

Technical Information in the Emergency Plan: [O.4.g] {Appendix E, Section IV.F.1} Section II.O.1, "Offsite Emergency Response Training," states that the applicant conducts, or supports the conduct of, site-specific training for offsite personnel that provide assistance during an emergency, and conducts an annual seminar for offsite support personnel involved with the onsite/offsite emergency response facilities, Emergency Action Levels (EALs), emergency classification, meteorology, dose assessment, field surveys, and PARs. A list of participating organizations is provided.

Technical Evaluation: [O.4.g] {Appendix E, Section IV.F.1} The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized training and periodic retraining for local support services/emergency service personnel. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1 and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.12 Training for Medical Support Personnel

Technical Information in the Emergency Plan: [O.4.h] {Appendix E, Section IV.F.1(b)(vii)} Section II.O.3 “First Aid Training” states personnel assigned to emergency teams that provide first aid will complete a training course equivalent to Red Cross Multi-Media on a schedule compatible with the Red Cross requirements. In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of training specific for medical support personnel. In response, the applicant provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining provided for emergency response organization personnel, consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization."

Technical Evaluation: [O.4.h] {Appendix E, Section IV.F.1(b)(vii)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized initial and periodic retraining for medical support personnel. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(vii) and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.13 Training for Headquarters Support Personnel

Technical Information in the Emergency Plan: [O.4.i] {Appendix E, Section IV.F.1(b)(viii)} Section II.O.2, “Onsite Emergency Response Training,” states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. In **RAI 13.03-15-01** the staff requested additional information regarding training for headquarters support personnel. In response, the applicant provided Section II.O.4, “Onsite Emergency Response Organization Training Program,” that identifies training is provided to Detroit headquarters support personnel. The content of the training program is appropriate for the duties and responsibilities of the assigned position.

Technical Evaluation: [O.4.i] {Appendix E, Section IV.F.1(b)(viii)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized initial and periodic retraining for licensee’s headquarters support personnel. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(viii) and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.14 Training Related to the Transmitting Emergency Information

Technical Information in the Emergency Plan: [O.4.j] Section II.O.2 states that a program is implemented to provide facility position-specific emergency response training for designated members of the ERO which may include emergency response facilities. In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of training. In response, the applicant provided Section II.O.4, “Onsite Emergency Response Organization

Training Program," that identifies training provided to personnel responsible for transmission of emergency information and instructions.

Technical Evaluation: [O.4.j] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized initial and periodic retraining for personnel responsible for transmission of emergency information and instructions. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.15 Training for Security Personnel

Technical Information in the Emergency Plan: {Appendix E, Section IV.F.1(b)(ix)} Section II.O.2 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. A program is implemented to provide facility position-specific emergency response training for designated members of the ERO which may include emergency response facilities. In **RAI 13.03-15-01** the staff requested additional information regarding the scope, nature and frequency of training. In response, the applicant provided Section II.O.4, "Onsite Emergency Response Organization Training Program," that identifies training provided to security and firefighting personnel.

Technical Evaluation: {Appendix E, Section IV.F.1(b)(ix)} The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-15-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the specialized initial and periodic retraining for security personnel. This is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1(b)(ix).

13.3C.15.16 Retraining of Emergency Response Personnel

Technical Information in the Emergency Plan: [O.5] {Appendix E, Section IV.F.1} Section II.O.2 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR 50, Appendix E and position-specific responsibilities. A program is implemented to provide facility position-specific emergency response training for designated members of the ERO which may include emergency response facilities.

Technical Evaluation: [O.5] {Appendix E, Section IV.F.1} The staff finds that the Fermi 3 Emergency Plan adequately describes the provisions for retraining of personnel with emergency response responsibilities. This is acceptable because it meets the requirements of 10 CFR Part 50, Appendix E, Section IV.F.1 and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.15.17 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding radiological emergency training is acceptable and meets the requirements of

10 CFR 50.47(b)(15) 10 CFR Part 50, Appendix E sections as described above, and complies with the guidance in NUREG-0654/FEMA-REP-1 Planning Standard O.

13.3C.16 Responsibility for the Planning Effort

13.3C.16.1 Regulatory Basis

In determining whether the proposed emergency plan met the applicable regulatory requirements in 10 CFR 50.47(b)(16), the staff evaluated it against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed emergency plan against applicable regulatory requirements related to the area of "Responsibility for the Planning Effort," in Appendix E to 10 CFR Part 50.

13.3C.16.2 Training for Personnel Responsible for Planning Effort

Technical Information in the Emergency Plan: [P.1] Section II.P.1 “Training,” of the Fermi 3 Emergency Plan, states Detroit Edison provides training for the Emergency Preparedness staff consistent with applicable regulatory requirements and guidance; license conditions; other commitments; and accepted good practices. Training includes formal education, professional seminars, plant specific training, industry meetings, and other activities and forums that provide for an exchange of pertinent information.

Technical Evaluation: [P.1] The staff finds that the Fermi 3 Emergency Plan adequately describes the training that will be provided for individuals responsible for the planning effort. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.3 Person Responsible for Emergency Planning

Technical Information in the Emergency Plan: [P.2] Section II.P.2, “Responsibility for the Planning Effort,” of the Fermi 3 Emergency Plan identifies the Licensing Manager as the individual with overall authority and responsibility for emergency preparedness for the applicant. The Licensing Manager is also responsible for issuance and control of the Emergency Plan and activities associated with emergency preparedness.

Technical Evaluation: [P.2] The staff finds that the Fermi 3 Emergency Plan adequately identifies the individual, by title, with the overall authority and responsibility for radiological emergency response planning. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.4 Designation of an Emergency Response Coordinator

Technical Information in the Emergency Plan: [P.3] Section II.P, “Responsibility for the Planning Effort,” states the Supervisor, who reports to the Licensing Manager, is designated as the Emergency Planning Coordinator and is responsible for developing and updating the Emergency Plan and implementing and administrative procedures which support the Plan. The Emergency Preparedness Supervisor also coordinates the development and revision of the Plan and procedures with other response organizations. The Licensing Manager has responsibility for issuance and control of the Emergency Plan.

Technical Evaluation: [P.3] The staff finds that the Fermi 3 Emergency Plan adequately designates an Emergency Planning Coordinator with the responsibility for the development and updating of emergency plans and coordination of these plans with other response organizations. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.5 Update and Maintenance of the Emergency Plan

Technical Information in the Emergency Plan: [P.4] {Appendix E, Section IV.G} Section II.P.3, "Responsibility for the Planning Effort," states an annual review of the Plan is performed to ensure the Plan and its supporting agreements are current. Changes to the Emergency Plan include issues identified during training, audits, assessments, drills, exercises, or actual emergency events.

Technical Evaluation: [P.4] {Appendix E, Section IV.G} The staff finds that the Fermi 3 Emergency Plan adequately describes provisions for updating the emergency plan and agreements, reviewing and certifying it to be current on an annual basis. In addition, the updating provisions described, take into account changes identified by drills and exercises. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1, and meets the applicable requirements in Appendix E to 10 CFR Part 50.

13.3C.16.6 Distribution of Emergency Plans

Technical Information in the Emergency Plan: [P.5] Section II.P.4 "Distribution of Revised Plans" state revisions to the Plan are completed in accordance with the plant review and approval processes. Revisions to the Plan are reviewed by affected organizations and then routed to the onsite review organization for review and approval. The Plan and implementing procedures are distributed as necessary on a controlled basis to the Emergency Response Facilities and selected State, local, provincial, and Federal agencies, in accordance with the plant's document control distribution process.

Technical Evaluation: [P.5] The staff finds that the Fermi 3 Emergency Plan adequately describes that the emergency response plans and approved changes will be forwarded to all organizations and appropriate individuals with responsibility for implementation of the plan. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.7 Supporting Plans

Technical Information in the Emergency Plan: [P.6] Section II.P.5, "Supporting Plans," of the Fermi 3 Emergency Plan identifies the supporting plans from the State, county, and Federal governments, as well as from the NRC and the applicant.

Technical Evaluation: [P.6] The staff finds that the Fermi 3 Emergency Plan contains an appropriate detailed listing of supporting plans and their source. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.8 Emergency Plan Implementing Procedures

Technical Information in the Emergency Plan: [P.7] Section II.P.6 "Implementing and Supporting Procedures," states that Appendix 6 of the Fermi 3 Emergency Plan contains a

listing, by title, of those procedures that implement the Plan and maintain the Plan. Appendix 6 also includes the sections of the plan and the corresponding implementing procedures.

Technical Evaluation: [P.7] The staff finds that the Fermi 3 Emergency Plan contains an Appendix with an appropriate listing of the procedures, by title, that are required to implement the plan and their corresponding sections of the Plan that they implement. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.9 Table of Contents and Cross-Reference Table

Technical Information in the Emergency Plan: [P.8] Section II.P.7 "Table of Contents and Cross-Reference," states that the Fermi 3 Emergency Plan contains a specific table of contents and that the format of the Plan follows the format of NUREG-0654 – FEMA-REP-1. Appendix 7, "NUREG-0654 Cross-Reference," of the Fermi 3 Emergency Plan provides a cross-reference between the Emergency Plan, Appendix E to 10 CFR 50, the evaluation criteria of NUREG-0654/FEMA-REP-1, and the State and local emergency plans.

Technical Evaluation: [P.8] The staff find that the Fermi 3 Emergency Plan contains an adequate specific table of contents that cross-references applicable regulations and guidance documents to the supporting sections of Fermi 3 Emergency Response Plan. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.10 Annual Independent Review of the Emergency Plan

Technical Information in the Emergency Plan: [P.9] Section II.P.8, "Emergency Plan Audits," states to meet the requirements of 10 CFR 50.54(t), periodic independent reviews of the Emergency Preparedness Program will be conducted to examine conformance with 10 CFR 50.47, 10 CFR 50.54, and 10 CFR 50, Appendix E. The Nuclear Quality Assurance organization will perform, or oversee the performance of, the independent audit and coordinates with the Supervisor, Emergency Preparedness to ensure that audit findings and recommendations for improvement are subject to management controls consistent with the plant's corrective action program. The frequency of periodic audits is established and maintained based on an assessment of performance as compared to performance indicators; however, the audit frequency may not be less than once every 24 months. In addition, program audits are conducted as soon as reasonably practicable after a change occurs in personnel, procedures, equipment, or facilities that could potentially adversely affect emergency preparedness, but no longer than 12 months after the change.

In **RAI 13.03-16-01,** the staff requested that the applicant revise the Plan audit frequency description to be consistent with 10 CFR 50.54(t) (1) (ii), and not to exceed 24 months. In response the applicant provided a revised Section II.P.8 that clearly describes the intervals between audits, and will include this revised information in a future revision to the Emergency Plan.

Technical Evaluation: [P.9] The staff finds the additional information and textual revision to the Fermi 3 emergency plan submitted in response to **RAI 13.03-16-01** to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1. The staff confirmed Revision 2 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff finds that the Fermi 3 Emergency Plan adequately describes arrangements for and the conduct of independent reviews of the emergency preparedness program at intervals not to exceed 12 months after a change that has

the potential to adversely affect the site's emergency preparedness. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.11 Quarterly Update of Emergency Telephone Numbers

Technical Information in the Emergency Plan: [P.10] Section II.P.9, "Emergency Telephone Numbers," states the Emergency Preparedness Supervisor or designee is responsible for performing a quarterly review of telephone numbers in emergency response procedures and for ensuring that required updates are completed.

Technical Evaluation: [P.10] The staff finds that the Fermi 3 Emergency Plan adequately provides for updating telephone numbers in emergency procedures at least quarterly. This is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.16.12 Conclusions

The NRC staff concludes that the information provided in the Fermi 3 Emergency Plan regarding the responsibility for EP is acceptable and meets the requirements of 10 CFR 50.47(b)(16) 10 CFR Part 50, Appendix E, Section E.IV.G and complies with the guidance in NUREG-0654/FEMA-REP-1 Planning Standard P.

13.3C.17 Security-Based Event Considerations

13.3C.17.1 Regulatory Basis

NUREG-0800, Chapter 13.3, "Emergency Planning," specifies that applicants for a combined license address the Commission orders issued February 25, 2002, as well as any subsequent NRC guidance, to determine what security-related aspects of EP and preparedness are to be addressed in the emergency plan.

The Commission Orders issued February 25, 2002, and security-related enhancements identified in NRC Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," identify the following areas to be addressed in the COL application, Emergency plan, or emergency plan implementing procedures:

1. Security-based Emergency Classification Levels and EALs - The emergency plan includes EALs to ensure that a site specific, security event results in an emergency classification declaration of at least a notification of unusual event. The classification scheme should also reflect the strategy for escalation to a higher level event classification.

2. NRC Notifications - Notification procedures allow for NRC notification of safeguards events immediately after notification of local law enforcement agencies, or within about 15 minutes of the recognition of a security-based threat.

3. Onsite Protective Measures - Consideration has been given to a range of protective measures for site workers, as appropriate, during a security-based event (e.g., evacuation of personnel from target buildings, site evacuation by opening security gates, dispersal of licensed operators, sheltering of personnel in structures away from potential site targets, and arrangements for accounting for personnel after attack).

4. ERO Augmentation - ERFs and alternative facilities have been identified to support the rapid response from ERO members to mitigate site damage from a security-based event once the site is secured. The alternative facilities could likely be located outside of the PA and should include the following characteristics: accessible even if the site is under threat or actual attack; communication links with the EOF, control room and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities, including damage control team planning and preparation. The alternative facility should also be equipped with general plant drawings and procedures, telephones, and computer links to the site.

5. Potential Vulnerabilities from Nearby Hazardous Facilities, Dams, and other Sites - The potential effect has been determined on the plant, onsite staffing and augmentation, and onsite evacuation strategies from damage to nearby hazardous facilities, dams, and other nearby sites, in consideration of a security-based event.

6. Drills and Exercises - Emergency Preparedness drill and exercise programs maintain the key skills necessary for mitigating security-based events. The ERO demonstrates security-based emergency preparedness program activities under the schedule as committed to in its emergency plans.

7. Emergency Preparedness and Response to a Security-based Event - Onsite staffing, facilities, and procedures are adequate to accomplish actions necessary to respond to a security-based event, and the emergency plan and/or procedures reflect the site specific needs.

13.3C.17.2 Security-Based Emergency Classification and Emergency Action Levels

Technical Information in the Emergency Plan: (NUREG-0800) Emergency classifications for security or hostile action based events information is included in the EALs addressed in Section 13.3C.4 of this SER.

Technical Evaluation: (NUREG-0800) The staff's evaluation is also in Section 13.3C.4 of this SER.

13.3C.17.3 NRC Notification

Technical Information in the Emergency Plan: (NUREG-0800) NRC notification information is in Section 13.3C.5.8, 'Notification to the NRC."

Technical Evaluation: (NUREG-0800) The staff's evaluation is also in Section 13.3C.5.8 of this SER.

13.3C.17.4 Onsite Protective Measures

Technical Information in the Emergency Plan: (NUREG-0800) Section J.6 "Protective Measures," addresses security measures for a hostile action event at the site. It describes conditions that initiate hostile action event protective actions for the site other than personnel assembly, accountability and evacuation; the expected protective actions for a radiological event. Specifically, during a security event the Emergency Director, in coordination with Nuclear Security, makes decisions regarding the appropriate protective actions for site personnel. If, in the Emergency Director's judgment, personnel assembly, accountability, and evacuation would

not be the safest protective actions for site personnel he, or she, may direct protective measures such as:

- Evacuation of personnel from areas and buildings perceived as high-value targets
- Site evacuation by opening, while continuing to defend, security gates
- Dispersal of key personnel
- Onsite sheltering
- Staging of ERO personnel in alternate locations pending restoration of safe conditions
- Implementation of accountability measures following restoration of safe conditions.

Technical Evaluation: The staff finds the Fermi 3 Emergency Plan adequately describes onsite protective measures necessary to respond to a security event. This is acceptable because it meets the guidance in NUREG-0800.

13.3C.17.5 Emergency Response Organization Augmentation

Technical Information in the Emergency Plan: (NUREG-0800) ERO augmentation is addressed in Section II.A.1 under "Coordination with Fermi 2" stating that in the event that emergencies are declared simultaneously at Fermi 2 and Fermi 3, a single Emergency Director is designated from onsite shift management, in accordance with emergency plan implementing procedures. The Emergency Director performs those duties described in this Plan, as well as those described in the Fermi 2 Emergency Plan, and coordinates activities between the Technical Support Centers and Operational Support Centers. Section II.B.1 "Emergency Organization," Table II.B-1 "Minimum Staffing Requirements for Emergencies" and Table II.B.2 "Emergency Response Organization Functional Responsibilities", II.B.4 "Fermi 3 Emergency Response Organization Staff" address ERO command and control, ERO minimum staffing and position functions/tasks. Section II.E.1 "Notification and Mobilization of Emergency Response Personnel" describes processes and procedures for ERO notification and mobilization. Section II.J.5 "Personnel Accountability" states that personnel accountability is performed in accordance with emergency plan implementing procedures consistent with the requirements of the Fermi 3 Security Plan. Section II.J.6 "Protective Measures," states during a security event, conditions may dictate initiation of protective measure other than personnel evacuation, assembly and accountability. The ED makes decisions regarding appropriate protective measures based on evaluation of site conditions, including input from Security. The ED may direct other protective measures if personnel evacuation, assembly and accountability may result in undue hazards to site personnel.

Technical Evaluation: (NUREG-0800) The staff finds that the Fermi 3 Emergency Plan adequately describes ERO augmentation necessary to respond to a security event. This is acceptable because it meets the guidance in NUREG-0800.

13.3C.17.6 Potential Vulnerabilities from Nearby Hazardous Facilities, Dams, and Other Sites

Technical Information in the Emergency Plan: (NUREG-0800) The assessment of Potential Vulnerabilities from Nearby Hazardous Facilities, Dams, and Other Sites that could potentially affect the safety of the Fermi 3 facility is addressed in the COL FSAR Chapter 2.2 "Nearby Industrial, Transportation, and Military Facilities." FSAR Section 2.2.1 "Locations and Routes," states there are no chemical plants, refineries, mining operations, drilling operations, active oil or gas wells, military bases, or missile sites within the vicinity of Fermi 3. Section 2.2.3

“Evaluation of Potential Accidents” states that the separation between the: interstates, main railway line and waterway routes and the Fermi site are within the safe distance criteria of RG 1.91.

Technical Evaluation: (NUREG-0800) The staff finds the Fermi 3 Emergency Plan adequately describes the assessment of other nearby hazards that could potentially affect the safety of the Fermi 3 facility. This is acceptable because it meets the guidance in NUREG-0800.

13.3C.17.7 Security-Based Drills and Exercises

Technical Information in the Emergency Plan: (NUREG-0800) Section II.N.1.b Exercise Scope and Frequency of the Fermi 3 Emergency Plan addresses performance of Security-Based Drills and Exercises. This section states the applicant will demonstrate emergency response capability to a security-based threat at least once within a 6-year period.

Technical Evaluation: (NUREG-0800) The staff finds the Fermi 3 Emergency Plan adequately describes the security-based drill and exercise program. This is acceptable because it meets the guidance in NUREG-0800.

13.3C.17.8 Emergency Preparedness and Response to a Security-Based Event

Onsite staffing, facilities, and procedures are adequate to accomplish actions necessary to respond a security-based event, and the emergency plan and/or procedures reflect the site-specific needs

Technical Information in the Emergency Plan: (NUREG-0800) Emergency Preparedness and Response to a Security-Based Event information is described in Sections 13.3C.2, “Onsite Emergency Organization”, 13.3C.8 “Emergency Facilities and Equipment,” and 13.3C.10 “Protective Response,”

Technical Evaluation: (NUREG-0800) The staff’s evaluation is also in Sections 13.3C.2, 13.3C.8 and 13.3C.10 of this SER. This is acceptable because it meets the guidance in NUREG-0800.

13.3C.17.9 Conclusions

The NRC staff concludes the Fermi 3 Emergency Plan adequately addresses the preparation and response to security-based events program. This is acceptable because it meets the guidance in NUREG-0800.

13.3C.18 Evacuation Time Estimate (ETE) Analysis

The Fermi 3 Combined License Application Emergency Response Plan (Fermi Emergency Plan) includes an analysis of the time required to evacuate the plume exposure pathway emergency planning zone (EPZ). The report titled "Fermi Nuclear Power Plant Development of Evacuation Time Estimates,” Rev. 2, dated April, 2010 (ETE Report) was provided as a separate document in the COL application. The report analyses and responses to requests for additional information (RAI) provide the basis for the NRC staff’s conclusions as to the adequacy of its content and conformity with Appendix 4 to NUREG-0654/FEMA REP-1, Revision 1.

13.3C.18.1 Regulatory Basis for the ETE Analysis

The staff considered the following regulatory requirements and guidance in the review of the evacuation time estimate analysis:

10 CFR 52.79(a)(21) refers to Appendix E to 10 CFR Part 50, Section IV, of which "Content of Emergency Plans," requires, in part, that the nuclear power reactor operating license applicant provide an analysis of the time required to evacuate various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations.
The staff evaluated the ETE Report against Appendix 4, "Evacuation Time Estimates within the Plume Exposure Pathway Emergency Planning Zone," to NUREG-0654/FEMA-REP-1, Revision 1. Appendix 4 contains detailed guidance that the staff used in determining whether the ETE analysis meets the applicable regulatory requirements in Appendix E to 10 CFR Part 50.

13.3C.18.2 Introductory Materials Related to the ETE Report

Technical Information in the ETE Report: [Section I of Appendix 4] Section 1.2, "The Fermi Nuclear Power Plant Location," describes the Fermi 3 site as located on the west bank of Lake Erie, approximately 24 miles northeast of Toledo, Ohio and 30 miles southwest of Detroit, Michigan. The EPZ consists of parts of Monroe and Wayne County. A vicinity map is provided as Figure 1-1, "Fermi Nuclear Power Plant Location Site Location," which shows the plant location, EPZ boundary, and topographical features, including Lake Erie to the east of the site, inland waterways, major interstate highways, state roadways, and railroad tracks within the EPZ. Appendix L, "Protective Action Area Boundaries," describes the boundaries of the five protective action areas, which are generally distinguished by roadways. In **RAI 13.03-1** the staff requested a map of the EPZ be provided that identifies political boundaries. In response, the applicant revised Figure 6-1, "Fermi Nuclear Power Plant Protective Action Areas," to include political boundaries and referenced the political boundaries in the text.

Section 1, "Introduction," describes the approach to developing information and analyzing the evacuation times. The applicant gathered demographic information, performed a field survey of the EPZ, estimated trip generation times, defined evacuation regions, applied the procedures specified in the 2000 Highway Capacity Manual, modeled the evacuation, and calculated the ETE. Section 1.3, "Preliminary Activities," describes that the IDYNEV system was used in the analysis and includes PC-DYNEV which is a macroscopic traffic simulation model used to calculate the ETE. Section 1 identifies NUREG/CR-4873, "Benchmark Study of the IDYNEV Evacuation Time Estimate Computer Code," and NUREG/CR-4874, "The Sensitivity of Evacuation Time Estimates to Changes in Input Parameters for the IDYNEV Computer Code," as references for additional detail regarding the model. Appendix B, "Traffic Assignment Model," describes the trip assignment and distribution model and provides the algorithm used to compute the link travel time. The algorithm was based on the Bureau of Public Roads formula. Appendix C, "Traffic Simulation Model: PC-DYNEV," describes the method and computer model used in analyzing the evacuation times. Appendix C includes a description of histograms developed and used in the analysis.

Section 2.1, "Data Estimates," describes how population estimates were developed and that roadway capacities were based on field surveys and application of the Highway Capacity Manual 2000 guidance (TRB, 2000).

Section 2.2, “Study Methodological Assumptions,” describes assumptions for data estimates, methodology, the planning basis, school evacuations, mobilization of the general population, percent of households with commuters, and staffing of traffic control. The ETE is assumed to be the time from advisory to evacuate until the time that Region is clear of the indicated percentile of people. Evacuation movements are assumed to be outbound with regard to the plant site. Assumptions regarding shadow evacuations are provided and are consistent with guidance in NUREG/CR 6863.

Section 2.3, “Study Assumptions,” provides assumptions for data estimates, methodology, planning basis, school evacuations, mobilization of the general population, percent of households with commuters, and staffing of traffic control. Section 2.3 describes roadway capacity and speed reduction percentages that are consistent with values provided in the Highway Capacity Manual (TRB, 2000) and the weather related technical publication (Agarwal, et. al., 2005) identified in the ETE Report. Section 2.3 describes a planning assumption that 64 percent of households with commuters wait for the return of a commuter before beginning their evacuation trip. In **RAI 13.03-2** the staff noted a discrepancy between 64 percent of households awaiting the return of a commuter and 55 percent waiting for a family member to return prior to evacuating. In response, the applicant stated the text for Assumption 3b would be revised to show the correct value of 62 percent. The applicant provided the revised text for Assumption 3b in Section 2.3. In **Supplemental RAI 13.03-01** the staff requested the applicant revise all applicable sections of the ETE Report to reflect the revised assumption that all households with commuters will await the return of the commuter prior to evacuating. In response, the applicant revised Section 8.1 and Table 8-1 to reflect that all commuters will return home. The applicant added additional text in Appendix F, “Telephone Survey,” stating:

> “This data was not used in this study. The findings of NUREG/CR-6953, Vol. 2 indicate that the family tends to evacuate together. Based on this information, it is assumed for this study that 100 percent of households with at least one commuter (62% of EPZ households according to Figure F-6) await the return of the commuter before beginning their evacuation trip.”

The applicant revised Table 6-4, “Vehicle Estimates by Scenario,” to reflect the changes in the buses and total vehicles as a result of the change regarding commuters.

In **Supplemental RAI 13.03-17** the staff requested the applicant explain why the distributions that include commuters in Section 5, “Estimation of Trip Generation Time,” such as Figure 5-3, “Comparison of Trip Generation Distributions,” and Table 5-1, “Trip Generation Histograms for the EPZ Population,” remain unchanged or revise the distributions and text references regarding commuters, as appropriate. In response to **Supplemental RAI 13.03-17** the applicant explained that because households with and without commuters exist within the EPZ, separate distributions for “households with commuters” and “households without commuters” are appropriate. Additionally, the applicant will remove all references to “households not awaiting commuters” within the ETE report. The applicant will revise Table 1-1, “ETE Study Comparisons,” Section 5, “Estimation of Trip Generation Time,” and to Table 6-3, “Percent of Population Groups Evacuating for Various Scenarios.”

Technical Evaluation: [Section I of Appendix 4] The ETE Report includes a map showing the proposed site and plume exposure pathway EPZ, as well as transportation networks, topographical features, and political boundaries. The boundaries of the EPZ, in addition to the evacuation subareas within the EPZ, are based on factors such as current and projected demography, topography, land characteristics, access routes, and jurisdictional boundaries.

The ETE Report describes the method of analyzing the evacuation times. A general description of the evacuation model was provided including the assumptions used in the evacuation time estimate analysis.

In response to **RAI 13.03-1,** the applicant revised Figure 6-1, "Fermi Nuclear Power Plant Protective Action Areas," to show PAAs, national, county, and township boundaries. The staff finds the additional information and textual revisions submitted in response to RAI 13.03-1 that clarified the textual information concerning plant location in relation to transportation networks, topographical features and political boundaries to be acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1 Appendix 4, Section I.A. The staff confirmed that Revision 1 of the Fermi Nuclear Power Plant (NPP) ETE incorporated the information and textual changes provided in the response to RAI 13.03-01

In response to **RAI 13.03-2** the applicant revised assumption 3b to state that all households in the EPZ with commuters will await the return of the commuter before beginning their evacuation. In response to **Supplemental RAI 13.03-01,** the applicant revised the number of transit-dependent persons and number of vehicles used in the evacuation. In response to **Supplemental RAI 13.03-17** the applicant removed references to "households not awaiting commuters," and revised Table 1-1, "ETE Study Comparisons," Section 5, "Estimation of Trip Generation Time," and Table 6-3, "Percent of Population Groups Evacuating for Various Scenarios." The staff finds the additional information and textual revisions submitted in response to **RAI 13.03-2, Supplemental RAIs 13.03-01 and 13.03-17** clarifying the textual information concerning assumptions used for households in the EPZ with commuters to be acceptable because it conforms with the guidance in NUREG-0654/FEMA-REP-1 Appendix 4, Section I.B.

13. 3C.18.3 Demand Estimation

Technical Information in the ETE Report: [Section II of Appendix 4] Population estimates in the ETE were based on data from the 2000 U.S. Census and projected to the year 2008 using census growth rate projections. For the new plant construction scenario, the permanent resident and shadow populations were projected to the year 2018. In Table 3-2, "EPZ Permanent Resident Population," the 2000 Population is 92,699 from which the 2008 population is projected. Table 3-2 of the ETE includes a footnote which explains that the 10 mile boundary, as opposed to the EPZ boundary, is used in other COLA locations which leads to deviations in population estimates. The year 2000 population in the Detroit Edison Energy Environmental Report (ER) Section 2.5.1, "Demography," and the FSAR Section 2.1.3.1.2.1, is 89,198 based on a 10 mile boundary rather than the EPZ boundary.

Section 3, "Demand Estimation," quantifies the permanent residents, transients, and employees within the EPZ and includes peak populations for the River Raisin Jazz Festival special event, peak construction workforce, visitors to parks, golf courses, marinas and major retail facilities. Table 3-3, "Permanent Resident Population and Vehicles by PAA," identifies a population of 103,343 and 47,113 vehicles which corresponds to an automobile occupancy factor of 2.2 people per vehicle (103,343/47,113). Table 8-1, "Transit Dependent Population Estimates," identifies 2,986 people as transit dependent. In **RAI 13.03-4** the staff asked for the number of transit dependent residents who may have special needs. In response, the applicant described the approach to estimating the number of transit dependent residents and demonstrated that the evacuation of this population group may be conducted within the ETE for the general public. The applicant added Section 8.5, "Evacuation of Homebound Special Needs Population," to the ETE Report. In **Supplemental RAI 13.03-02** the staff asked whether vans are used to

evacuate special needs individuals who are also transit dependent and if so, to provide the number and capacity of buses and vans available for the evacuation. In response, the applicant stated that based on discussions with emergency management personnel from Monroe and Wayne counties, regular buses and specially equipped buses will be used to service wheelchair bound residents within the EPZ. The applicant identified the number of buses in Monroe and Wayne Counties as well as in Toledo, Ohio. The applicant assumed that 50 percent of wheelchairs are rigid and 50 percent of wheelchairs are folding. Those wheelchair-bound persons using folding wheelchairs can be evacuated in a standard bus and their wheelchairs can be folded and placed elsewhere in the bus. Wheelchair-bound persons using rigid wheelchairs will be evacuated in specially equipped buses. The response describes regular buses having a capacity of 7 persons with folding wheelchairs and 7 caretakers, and specially equipped buses with a capacity of 4 persons in rigid wheelchairs and 4 caretakers.

Table 3-4, "Transient Population and Vehicles by PAA," lists a total of 13,458 transients in the EPZ and 6,405 vehicles which corresponds to a vehicle occupancy factor of 2.1 persons per vehicle (13,458/6,405). Appendix E, "Special Facility Data," includes a table entitled "Fermi EPZ: Major Employers," that identifies a total of 13,952 maximum shift employees within the EPZ, and 5,047 are identified as commuting employees. In **RAI 13.03-5 (A, B)** the staff asked about the differences in transient population values in Appendix E and Table 2.1-213 of the Fermi 3 FSAR. In response, the applicant provided an updated Table E-3, "Major Employers within the Fermi EPZ," which correctly identifies the percent and number of employees commuting into the EPZ, total employees, and the number of employees in the maximum shift. The applicant compared the updated totals with the FSAR values and explained the employee numbers in the ETE and FSAR are in good agreement. The automobile occupancy factor for employees who commute into the EPZ is developed separately and was estimated at one person per vehicle.

Section 8, "Transit Dependent and Special Facility Evacuation Time Estimates," describes the estimate of the special facility population which is provided on an institution by institution basis and the mobilization and manpower needed to support evacuation of special facilities. Weather conditions and current facility population are considered along with ambulatory and non-ambulatory needs. In **RAI 13.03-6 (A)** the staff asked for the number of transportation resources needed if peak populations at special facilities were used. In response, the applicant explained that no additional vehicle resources would be needed to support evacuation of special facilities at full capacity because reserve capacity in the planned vehicles can cover the difference in population.

A listing of the schools located within the EPZ, including the student population and number of bus runs required to support an evacuation, was provided in Table 8-2 (A and B) for Monroe and Wayne County Schools. Section 8.2, "School Population – Transit Demand," identifies the bus capacity for primary schools as 70 students. Section 8.4, "Evacuation time Estimates for Transit Dependent People," states that available bus resources are sufficient in each county to service the school evacuation demand in a single wave assuming drivers are available for all vehicles. Additional information was requested in **RAI 13.03-6 (B and C)** regarding the number of buses required to support evacuation of schools and the availability of drivers. In response to **RAI 13.03-6 (B)**, the applicant identified that 383 buses are needed to evacuate schools when considering a maximum of 70 students per bus. The applicant will revise Tables 8-2A, "Monroe County Schools," to show that 271 bus runs are needed and Table 8-2B "Wayne County Schools," to show that 112 bus runs are needed for a total of 383 bus runs. In response to **RAI 13.03-6 (C)**, the applicant stated that emergency plans were reviewed and county officials confirmed that 383 buses and drivers are available to support a single wave evacuation of

schools.

Figure 3-1, “FNPP Permanent Resident Population by PAA” describes the PAAs that cover the EPZ Table 7-2, “Description of Evacuation Regions,” identifies the PAAs that are included in each region for which an ETE is developed. Region R01 is the 2 mile ring, R02 is the 5 mile ring, and R03 is the full EPZ. Table 7-1D, “Time to Clear the Indicated Area of 100 Percent of the Evacuating Population,” provides ETEs for the 2 mile zone, 5 mile zone, the full EPZ, and for multiple wind directions around the plant.

Technical Evaluation: [Section II of Appendix 4] The ETE Report provides an estimate of the number of people who may need to evacuate. Three population segments are considered: permanent residents, transients, and persons in special facilities. The permanent population is adjusted for growth, and the population data is translated into two groups: those using automobiles and those without automobiles. The number of vehicles used by permanent residents is estimated using an appropriate automobile occupancy factor. In addition, evacuation time estimates for simultaneous evacuation of the entire plume exposure pathway EPZ were determined.

Estimates of transient populations are developed using local data including peak tourist volumes and employment data. Estimates for special facility populations are also provided.

The subareas, for which evacuation time estimates were determined, encompass the entire area within the plume exposure EPZ. The maps are adequate for the purpose, and the level of detail is approximately the same as United States Geological Survey (USGS) quadrant maps.

In response to **RAI 13.03-6 (A)** the applicant explained that no additional vehicle resources would be needed to support evacuation of special facilities at full capacity because reserve capacity in the planned vehicles can cover the potential difference in population. Staff finds the response provided by the applicant to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section II.C.

In response to **RAI 13.03-5 (A)** the applicant revised values entered for “Total Employees” and “Max Shift” in Table E-3, “Major Employers within the Fermi EPZ” to correct values. The staff finds the additional information and textual revisions submitted in response to **RAI 13.03-5 (A)** that corrected the textual information concerning estimates of transient populations in the EPZ to be acceptable because they conform to the guidance in Appendix 4 to NUREG-0654, Section II.B. The staff confirmed that the Revision 1 of the Fermi NPP ETE Report incorporated the information and textual changes provided in the response to RAI 13.3-5(A).

In response to **RAI 13.03-5 (B),** the applicant revised Table E-3, “Major Employers within the Fermi EPZ” to show 450 employees at Meijer Distribution Center and 232 employees at TWB Company, LLC. The staff finds the additional information and textual revisions submitted in response to RAI **13.03-5 (B)** that corrected the textual information concerning estimates of transient populations in the EPZ to be acceptable because they conform to the guidance in Appendix 4 to NUREG-0654, Section II.B. The staff confirmed that the Revision 1 of the Fermi NPP ETE Report incorporated the information and textual changes provided in the response to RAI 13.3-5(B).

In response to **RAI 13.03-6 (B),** the applicant revised school bus totals for the evacuation of North Elementary School, Raisinville Elementary School, Chapman Elementary School, David Oren Hunter Elementary School, John M. Barnes Elementary School, and Cantrick Middle School in Table 8.2A, “Monroe County Schools,” and Table 8.2B, “Wayne County Schools,” and supporting text. The staff finds the additional information and textual revisions submitted in

response to **RAI 13.03-6 (B)** that corrected the textual information concerning school bus totals needed for the evacuation to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654, Section II.C. The staff confirmed that Revision 1 of the Fermi NPP ETE Report incorporated the information and textual changes provided in the response to **RAI 13.03-6 (B)**

In response to **RAI 13.03-6 (C),** the applicant added information stating there is a sufficient number of school buses and drivers within the Monroe and Wayne Counties to evacuate schools in a single wave. The staff finds the additional information and textual revisions submitted in response to **RAI 13.03-6 (C)** that added information stating the number of bus drivers has been confirmed, and there are enough bus drivers to support a single wave evacuation is acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654, Section II.C. The staff confirmed that Revision 1 of the Fermi NPP ETE Report incorporated the information and textual changes provided in the response to **RAI 13.03-6 (C)**

In the response to **RAI 13.03-4,** the applicant described the use of both bus and van service for wheelchair bound residents. **Supplemental RAI 13.03-02** requested the applicant to clarify whether vans are used, and if so, identify the number and capacity of buses and vans for the evacuation of special needs individuals who are also transit dependent. The applicant revised the ETE to describe the number of standard buses and specially equipped buses for the use of evacuating special facilities as well as special needs persons who are also transit-dependent. The staff finds the additional information and textual revisions submitted in response to RAI 13.03-4 and **Supplemental RAI 13.03-02** that clarified the textual information concerning types of vehicles needed to evacuate special facility populations acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654, section II.C. The staff confirmed that that Revision 2 of the Fermi NPP ETE Report incorporated the information and textual changes provided in the response to RAI **13.03-6 (C).**

13. 3C.18.4 Traffic Capacity

Technical Information in the ETE Report: [Section III of Appendix 4] Figure 10-1, "Fermi Nuclear Power Plant Reception Centers and Host Schools," shows locations of host schools and reception centers. Figures 10-2, "Evacuation Routes for PAA 1, 3 and 5," and 10-3, "Evacuation Routes for PAA 2 and 4," shows the roadway network and evacuation routes used in the analysis. The evacuation routes are outbound and generally away from the plant. Appendix C, "Traffic Simulation Model: PC-DYNEV," describes the method and computer model used in analyzing the evacuation times. Appendix B, "Traffic Assignment Model," provides a discussion on the trip assignment and distribution model and provides the algorithm used to compute the link travel time. Section 4, "Estimation of Highway Capacity," describes the method for estimating highway capacity and provides the algorithm and equation used for the lane capacity for the approach to an intersection. Additional information was requested in **RAI 13.03-3 (A)** regarding how variables for the capacity of an approach to a signalized intersection were derived. In response, the applicant clarified that the saturation flow rate estimates were based upon observations made during the field survey and on principles in the 2000 Highway Capacity Manual. The applicant described that the mean queue discharge is specified by the analyst.

Section 1-4, "Comparison with Prior ETE Study," states that highway free flow speed was the variable used on all roadways rather than the maximum posted speed limit which was used in the previous analysis. Also, in Section 4, "Estimation of Highway Capacity – Capacity Estimation Along Sections of Highway," the capacity of highway sections is identified as a

function of, among other things, percent heavy trucks. Additional information was requested in **RAI 13.03-9 (B, C)** to describe the values of variables used in the equations. In response, the applicant explained that posted speeds may influence free flow speed (FFS) but posted speeds are not used in Highway Capacity Manual (HCM) procedures; the HCM uses free flow speed. In the response, the applicant explained that the ETE calculation did not utilize actual percentages for evaluating the effects of heavy trucks in the evacuation stream. The applicant further explained that heavy trucks traveling as "through" traffic would be diverted around the EPZ in the case of an evacuation. Section 4 references two technical publications that provide additional information on development of the algorithms used in the modeling.

Section 4 states that at-grade intersections are apt to become the first bottleneck locations, and traffic control is often used to supersede traffic control devices at these intersections. Additional information was requested in **RAI 13.03-3 (B)** regarding how the use of traffic control was included in the intersection analysis equation. In response the applicant stated that the PC-DYNEV simulation model only represents actual traffic signals and provided a discussion regarding how intersections are modeled. Appendix D, "Detailed Description of Study Procedure," identifies the steps to perform the evacuation time estimate calculations. Step 10 in Appendix D discusses that changing control treatment at critical intersections can improve service and expedite movement of traffic. Additional information was requested in **RAI 13.03-3 (C)** regarding the identification of any model treatments that were used to expedite the flow of traffic. In response the applicant clarified that the evacuation of the Fermi EPZ did not require any model treatments such as contra flow and none were used in the analysis.

The Appendix G, "Traffic Management," is different than the Monroe and Wayne County traffic control plans, and the ETE Report states the traffic management plan presented in the ETE does not supersede existing plans, but provides information that may be considered in updating the plan. Additional information was requested in **RAI 13.03-3 (D)** regarding the modeling of traffic control as a treatment to expedite movement of traffic. In response, the applicant stated that no allowance for reduction in the ETE due to traffic control was included in the analysis. The applicant also stated that if county traffic control points were manned in an evacuation, the ETE may be less than predicted in the study. **Supplemental RAI 13.03-03** requested that the applicant revise the text of the ETE report to clarify whether or not the current analysis approximates the use of traffic guides, based on the manner in which the analyst adjusts green time at intersections to represent movement of traffic under evacuation conditions. In response, the applicant explained that the ETE does not approximate the use of traffic guides at traffic control points based on the adjustment of green time at signalized intersections. The response further explained that the ETE modeling activity is intended to realistically represent the traffic environment during emergency evacuation conditions, and the signal splits input into the model are adjusted to represent realistic human behavior during emergency evacuation based on traffic conditions, but are not treated optimally as though there are expert traffic control personnel controlling the signal at all times.

Figure 8-2, "Proposed Transit Dependent Bus Routes," identifies the bus routes for individuals requiring public transit. Transit dependent individuals are assumed to access these routes during the mobilization period. Access Control Point #1 in Appendix G indicates that traffic barricades will be placed across Interstate 75 at S. Otter Creek Road which would prevent the buses on Route 4 from travel in the northbound direction as indicated on Figure 8-2. Additional information was requested in **RAI 13.03-13 (D)** to describe how buses will enter the EPZ at locations where traffic control barricades block the roadway. In response, the applicant stated that additional traffic control would be recommended at Access Control Point (ACP) #1.

Figure E-1, “Overview of Schools within the Fermi EPZ,” shows Jefferson Middle School, Sodt Elementary School and North Elementary School located about 7 miles or less from the EPZ boundary. Table 8-5A, “School Evacuation Time Estimates – Good Weather,” indicates that the evacuation distances from these schools to the EPZ boundary are 9.2, 9.0, and 12.3 miles respectively. Additional information was requested in **RAI 13.03-7 (A)** regarding how distances are developed from the schools to the EPZ boundary. In response, the applicant reduced the expected travel distances for Jefferson Middle School, Sodt Elementary School, and North Elementary School.

Appendix K, “Evacuation Roadway Network Characteristics,” defines each roadway network segment with a numbered upstream and downstream node. Figure 1-2, “Fermi Nuclear Power Plant Link-Node Analysis Network,” shows the node network used in the analysis. A legible map identifying nodes that correspond with the nodes described in Appendix K and discussion on the narrowest roadway section was requested in **RAI 13.03-8 (A)** and **RAI 13.03-9 (A).** In response, the applicant provided Figures K-1 through K-21, “Fermi Link-Node Analysis Network,” which contained legible nodes. The applicant also provided details regarding the survey of the roadway network and how this information was used in the analysis.

Technical Evaluation: [Section III of Appendix 4] The ETE Report provides a complete review of the evacuation road network. Analyses are made of travel times and potential locations for congestion. In addition, all evacuation route segments and their characteristics, including capacity, are described.

A traffic control and management strategy that is designed to expedite the movement of evacuating traffic is described. The traffic management strategy is based on a field survey of critical locations and consultation with emergency management and enforcement personnel. The applicant also analyzed travel times and potential locations for serious congestion along the evacuation routes.

The staff finds the responses provided by the applicant to **RAI 13.03-3 (A, C)** to be acceptable. In response to **RAI 13.03-9 (B)** the applicant revised the ETE report to explain the use of FFS in evacuation time calculations. The staff finds the additional information and textual revisions submitted in response to RAI 13.03-9(B) that clarified the textual information concerning the use of FFS in evacuation time calculations to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section III.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-9 (B)**.

In response to **RAI 13.03-9 (C)** the applicant revised the ETE report to explain that the presence of trucks in the traffic stream could be significant prior to the declaration of the advisory to evacuate. The staff finds the additional information and textual revisions submitted in response to RAI 13.03-9(C) that clarified the textual information concerning the significance of trucks in the traffic stream prior to an evacuation advisory to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section III.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-9 (C)**

In response to **RAI 13.03-3 (B)** the applicant revised the ETE to clarify that the traffic simulation model represented actual traffic signals, and not the implementation of traffic control guides. The staff finds the additional information and textual revisions submitted in response to RAI 13.03-3(B) that clarified the textual information explaining the use of TCPs not being

specifically used in the traffic simulation model to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654, Section III. The staff confirmed that Revision 1 of the Fermi ETE incorporated the information and textual changes provided in the response to **RAI 13.03-3 (B)**.

In the response to **RAI 13.03-13 (D)** the applicant revised the ETE to recommend a third traffic guide in order to facilitate the movement of inbound vehicles through ACP #1. The staff finds the additional information and textual revisions submitted in response to RAI 13.03-13(D) that adds the recommendation of third traffic guide to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section III. The staff confirmed that Revision 1 to Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-13 (D)**.

In response to **RAI 13.03-7 (A)** the applicant revised distances in Table 8-5A and B using the "calculate geometry" feature in GIS and added a new table (Table 8-9) that gave the routes of buses to the EPZ boundary. The staff finds the additional information and textual revisions submitted in response to RAI **13.03-7 (A)** that recalculates evacuation distances for EPZ risk schools to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section III. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-7 (A)**.

In response to **RAI 13.03-8 (A)** the applicant provided Figures K-1 through K-21 to illustrate the nodes given in Appendix K and supporting text to describe the figures. The staff finds the additional information and textual revisions submitted in response to RAI **13.03-8 (A)** that provides EPZ evacuation roadway node figures to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section III.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-8 (A)**.

In response to **RAI 13.03-9 (A)** the applicant revised the ETE to include an explanation of how roadway characteristics are input into the traffic model. The staff finds the additional information and textual revisions submitted explaining how roadway characteristics are inputted into traffic model to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section III.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-9 (A)**.

In response to **RAI 13.03-3 (D)** states that no credit is taken for expected improvements that are caused by the implementation of traffic guides. However, the response to **RAI 13.03-3(A)** states where the specified control policy is not commensurate with attendant evacuation traffic volumes," an adjustment [is] made to the allocation of green time so that it represents the competing traffic volumes and the movement of traffic under evacuation conditions." The response further states that no allowance is made for traffic control point operations. The applicant's response to **Supplemental RAI 13.03-03** provided a detailed description of the modeling approach to intersections. Therefore, the applicant's response to **Supplemental RAI 13.03-03** is acceptable because it meets the guidance in Appendix 4 to NUREG-0654, Section III.B.

13. 3C.18.5 Analysis of Evacuation Times

Technical Information in the ETE Report: [Section IV of Appendix 4]

Section 1.3, “Preliminary Activities,” describes that the IDYNEV system was used in the analysis and includes PC-DYNEV which is a macroscopic traffic simulation model used to calculate the ETE. The assumptions on evacuation are based on simultaneous evacuation of inner and outer sectors. Table 7-1D, “Time to Clear the Indicated Area of 100 Percent of the Evacuating Population,” summarizes the model results and is displayed in a format consistent with Table 2 of Appendix 4 in NUREG-0654. The ETEs provided an aggregate time for the population of each of the evacuation regions to completely evacuate from that region under the conditions of the specific scenario. Figure 7-3, “Congestion Patterns at 1 hour after the Advisory to Evacuate,” identifies traffic congestion areas as well as congestion areas at subsequent times in additional figures.

Section 5, “Estimation of Trip Generation Time,” describes the process of combining distribution functions to establish the time-dependent traffic loading. The data to support the loading distributions was obtained from a telephone survey conducted during development of the ETE. Additional information was requested in **RAI 13.03-10 (A, B)** to explain the differences between the data obtained from the telephone survey and the data used in the analyses. In response, the applicant described the method for truncating data and discussed the basis for not using outlier data points. Special facilities and schools are not included in the trip generation distributions and are quantified separately in Section 8, “Transit Dependent and Special Facility Evacuation Time Estimates.”

Figure 5-1, “Events and Activities Preceding the Evacuation Trip” show the distribution functions. The trip generation activities, including the timeline for households with commuters, are described in Section 5. The timeline for households without commuters indicates that residents are at home at the time they become aware of the emergency. In addition the timeline for transients indicates that transients do not return to their place of lodging prior to evacuating. Figure 5-3, “Comparison of Trip Generation Distributions” shows each trip generation distribution curve, comprised of individual mobilization activity times. Additional information was requested in **RAI 13.03-11 (A, B)** regarding the trip generation time elements for residents and transients. In response, the applicant agreed that residents may not be at home when an evacuation is ordered and described why this would not affect the ETE. In response to **RAI 13.03-11 (A)** the applicant replaced Figure 5-1, “Events and Activities Preceding the Evacuation Trip.”

In response to **RAI 13.03-11 (B)** the applicant explained that all lodging facilities in Figure E-6, “Lodging Facilities within the FERMI EPZ,” are within the 5 to 10 mile area of the EPZ and discussed the travel time from this area to the EPZ boundary would be less than mobilization time. The applicant replaced Figure 5-1 in response to **RAI 13.03-11 (B).**

Section 7.4, “Guidance on Using ETE Tables,” identifies the contents of Table 7-1D, “Time to Clear the Indicated Area of 100 Percent of the Evacuating Population,” as the elapsed time required for 100 percent of the population within a region to evacuate from that region and indicates the ETE for the R03 summer, midweek, midday, good weather is 4:05. Figure 5-3, “Comparison of Trip Generation Distributions,” indicates the trip generation distribution for residents with commuters may take up to 5 hours. Additional information was requested in **RAI 13.03-10 (C)** to clarify how the trip generation time may be longer than the total ETE. In response, the applicant stated that the trip generation time for residents with commuters is actually four hours as indicated in Figure 5-3, “Comparison of Trip Generation Times.”

Section 8.4, “Evacuation Time Estimates for Transit Dependent People,” describes a single wave evacuation of Monroe and Wayne County Schools which would require 377 buses as

identified in Table 8-2A and Table 8-2B. Additional information was requested in **RAI 13.03-6 (C)** to provide the source of information used to support availability of 377 buses and drivers. In response, the applicant confirmed that through the review of emergency plans and discussions with county officials that 383 buses were actually needed (271 buses in Table 8-2A and 112 buses Table 8-2B) and there are a sufficient number of buses and drivers to support a single wave evacuation of schools. Table 8-5A, "School Evacuation Time Estimates – Good Weather," indicates a 15 minute mobilization time for Airport Senior High School, Carleton Country Day, and Wager Junior High School and a 45 minute mobilization time for all other Monroe County schools and a 60 minute mobilization time for all Wayne County schools. Additional information was requested in **RAI 13.03-14 (D)** regarding the mobilization of resources for the evacuation of schools. In response, the applicant explained that bus mobilization times for certain schools were shorter than others because school buses were kept on these campuses. All schools listed in Table 8-5A indicate a bus loading time of 5 minutes. The "Wayne County Emergency Operations Plan," identifies the process for loading students as being conducted one classroom at a time with the teacher handing the student roster to the Principal when the bus is loaded. School enrollment is as high as 2,130 students. Additional information was requested in **RAI 13.03-14 (E)** to support the time needed to load each school bus. In response, the applicant described how students at Monroe Senior High School could be boarded onto school buses within five minutes.

In Section 8.4 the average speed output by the model at 1 hour (31.9 mph) is used for ambulatory persons from special facilities and for emergency medical services vehicles. Similarly, Section 8.4 states that the average school bus speed at 50 minutes is 36.4 mph for Monroe County. Figure 7-4, "Congestion Patterns at 1 Hour After the Advisory to Evacuate," indicates congestion on the primary evacuation routes at this time. In **RAI 13.03-12 (A)** the staff ask how the vehicles would travel at the identified speeds along these congested roadways. In response, the applicant stated that route-specific average speeds rather than network-wide average speeds would be used for special facility buses. The applicant explained average network-wide speeds are applicable for EMS vehicles since they have the right-of-way. The applicant assumed that EMS vehicles will be traveling at least the speed of general traffic. **Supplemental RAI 13.03-04** requested the applicant use route-specific speeds when calculating the ETE for the EMS vehicles. In response the applicant agreed that route specific-speeds should be used for ambulances rather than network-wide average speeds. In **Supplemental RAI 13.03-19**, the staff requested the applicant explain how average speeds in Table 8-13A, which range from 25.8 to 42.1 mph at 60 minutes, can be greater than the speeds for vehicles leaving both before and after 60 minutes, as identified in Tables 8-11.A and 8-13.A. In response, the applicant explained that the speeds are related to both the time of departure and the route of travel for the facilities. The applicant reviewed all of the special facility routes and found the speeds to be accurate. The difference in speeds for the specific facilities identified is due to the time of departure and the route of travel. The applicant explained that Table 5-1, "Trip Generation Histograms for the EPZ Population," shows that only 10 percent of residents with commuters begin their evacuation trip within 60 minutes after the advisory to evacuate. Thus, the roadways are still relatively uncongested at this time in the evacuation. The applicant explained that the route speed, over time, mimics the pattern of the average network speed for the entire system and travel speeds for a single facility, such as Medilodge II, can vary significantly within a 15-minute timeframe. Additionally, the applicant explained that buses evacuating school children are routed in the direction of their respective relocation school; whereas, medical facilities are evacuated to host medical facilities. This results in the evacuating vehicles traveling along different routes. The applicant explained that the congestion diagrams in Section 7, "General Population Evacuation Time Estimates," 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.

The Monroe County Emergency Management Plan indicates that school buses will be used to support evacuation of transit dependent residents after schools have been evacuated, and the Monroe County Intermediate School District will coordinate this provision of public transportation. Section 8.4 states that it will take 90 minutes to mobilize drivers, and Section 8-1, "Transit Dependent People - Demand Estimate," identifies the need for 100 bus runs to support evacuation of the transit dependent population. To complete 100 bus runs, Table 8-7A, "Transit Dependent Evacuation Time Estimates – Good Weather," and Table 8-7B, "Transit Dependent Evacuation Time Estimates – Rain," identify 7 bus routes for the evacuation of transit dependent residents with multiple buses serving each route. Additional information was requested in **RAI 13.03-13 (A, B)** regarding specialized transportation to support evacuation of the transit dependent population and the logistics and assumptions for deployment of buses. In response to **RAI 13.03-13 (A)**, the applicant clarified that each "set" of 20 buses assigned to Routes 1-4 in the first wave, is spread out over a 60 minute window, separated by a three minute time interval between each bus. **Supplemental RAI 13.03-05** requested the applicant add additional text for Tables 8.7A and 8.7B to better indicate the assumptions regarding single wave and second wave ETE values in the tables. In response the applicant explained that the second wave ETE only applies when schools are in session and there are not sufficient bus resources to evacuate school children and the transit dependent general population simultaneously. Regarding **RAI 13.03-13 (B)**, which requested information on the logistics and assumptions for deployment of buses, the applicant responded stating the single wave evacuation identified in Tables 8-7A and 8-7B applies only when school is not in session or when school is in session and there are sufficient resources to evacuate schools and transit dependent residents at the same time. The ETE includes the time for transit dependent residents to get to bus routes and pick up points. The applicant described the logistics of buses used for the evacuation of the transit dependent population. Table 8-7A and Table 8-7B have been revised to include a headway column to show the elapsed time between the first and last bus on a route. Table 8-7A provides timing for the second wave that would begin at 106 minutes (75+5+10+16). Additional information was requested in **RAI 13.03-13 (C)** regarding the logistics of the second wave of buses. In response, the applicant clarified that in the event of an overlap of buses, queuing would occur and explains why this would not affect the ETE.

Table 8-4, "Special Facility Transit Demand," provides facility capacities. Table 8-4 identifies each special facility by name and the specialized resources needed to support an evacuation, including 21 ambulance runs to evacuate non-ambulatory residents. The time for the 21 ambulances to mobilize is identified as 30 minutes. Additional information was requested in **RAI 13.03-14 (A, B)** regarding facility peak population data, resources required to support the evacuation of the facility at peak population and the ambulance response time of 30 minutes. In response, the applicant clarified that no additional vehicle or ambulance resources would be needed to support evacuation of special facilities at full capacity.

Appendix E, "Special Facility Data," identifies a total of 10 marinas within the EPZ having a total vehicle estimate of 912 and a total population of 1,784. Additional information was requested in **RAI 13.03-11 (C)** regarding the time necessary to evacuate boaters from the EPZ. In response, the applicant described the logistics and timing of boaters loading and evacuating from marinas. The response demonstrated that this time is within the total ETE for the evacuation of the public. Appendix E also identifies two jail facilities in Monroe County. Additional information was requested in **RAI 13.03-14 (C)** regarding the logistics and evacuation time for the jail facilities. In response, the applicant included a new Section 8.6, "Evacuation of Inmates from Correctional

Facilities," which includes an ETE and describes the resources needed to evacuate correctional facilities.

Technical Evaluation: [Section IV of Appendix 4] A total of 98 ETE are computed for the evacuation of the general public. Each ETE quantifies the aggregate time (warning, mobilization, and travel) estimated for the population within one of the 7 Evacuation Regions to completely evacuate from that Region, under the circumstances defined for one of 14 evacuation scenarios (7 x 14 = 98). Separate evacuation time estimates are calculated for transit-dependent evacuees, including school children.

Distribution functions for notification of the three population segments of evacuees were developed. The distribution functions for the action stages after notification predict what fraction of the population will complete a particular action within a given span of time. There are distributions for auto-owning households, school population, and transit-dependent populations. These action stages for each population segment make up the trip generation distributions which are an input into the evacuation analysis. The on-road travel and delay times are then calculated inclusive of the trip generation distributions. A separate estimate of the time required to evacuate the non-auto-owning population dependent upon public transportation is developed.

The staff finds the clarifications and additional information submitted in response to **RAIs 13.03-11 (C), 13.03-14 (A, B, D, E), 13.03-13 (C)** to be acceptable because they conform to the guidance in Appendix 4 of NUREG-0654/FEMA-REP-1, section IV**.**

In response to **RAI 13.03-10 (A, B, and C)** the applicant revised Figure 5-3 of the ETE Report and include an explanation of the process and method used to account for outlier data points. The staff finds the additional information and textual revisions submitted for Figure 5-3 and process and method used to account for outlier data points to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section IV.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-10 (A, B, and C)**.

In response to **RAI 13.03-11 (B)** the applicant provided a paragraph and revised Figure 5-1 that describes and illustrates that transients in hotels will either return to their place of lodging prior to evacuating or immediately evacuate from the EPZ. The staff finds the additional information and textual revisions submitted to clarify expected transient actions upon receiving an advisory to evacuate to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section IV.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-11 (B).**

In response to **RAI 13.03-6 (C),** the applicant revised the ETE to state there are enough school buses and drivers within the Monroe and Wayne Counties available to evacuate schools in a single wave. The staff finds the additional information and textual revisions submitted that confirm there are sufficient bus and drives to support a single wave EPZ school evacuation to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section IV.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-6 (C)**.

In response to **RAI 13.03-13 (B)** the applicant revised the text and tables within the ETE Report to reflect the staggering of transit buses. The staff finds the additional information and textual revisions submitted that explain and reflect the staggering of transit buses to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section IV.B. The staff

confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-13 (B)**.

In response to **RAI 13.03-14 (C)** the applicant added to the ETE Report, Section 8.6, "Evacuation of Inmates at Correctional Facilities," which includes an ETE and description of the resources needed to evacuate correctional facilities. The staff finds the additional information and textual additions of the resources needed to evacuate correctional to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654, Section IV.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **RAI 13.03-14 (C)**.

In response to **RAI 13.03-11 (A)** the applicant provided a revised Figure 5-1, "Events and Activities Preceding the Evacuation Trip," and the text describing the sequences of each population group. The revision was not consistent with the revised Assumption 3b which states all households in the EPZ with at least one commuter will await the return of the commuter before beginning their evacuation. The applicant's response to **Supplemental RAI 13.03-01** addressed the change in number of vehicles in the evacuation stream and the reduction in transit-dependent persons in Section 8; however, for consistency, changes in the text, tables and figures in Section 5, "Estimation of Trip Generation Time," regarding commuters who do not return home, or households that do not await the return of a commuter were needed. In response to **Supplemental RAI 13.03-17**, the applicant will revise all applicable sections of the ETE Report to reflect the revised assumption.

In the response to **RAI 13.03-12 (A)** the applicant stated that route-specific average speeds rather than network-wide average speeds are used for special facility buses. Average network-wide speeds of 31.9 mph and 36.4 mph were retained for EMS vehicles because these vehicles have the right-of-way in an emergency. The response did not address how EMS vehicles would traverse through congestion to achieve these speeds. 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 staff finds the additional information and textual revisions submitted to endorse the use of route specific-speeds for EMS vehicles to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654, Section IV.B. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **Supplemental RAI 13.03-04**.

In response to **Supplemental RAI 13.03-19**, the applicant reviewed all of the evacuation routes and confirmed the speeds used in the analysis were correct.

In the response to **RAI 13.03-13 (A)** the applicant implied the single wave evacuation identified in Tables 8-7A and 8-7B would be applicable when school is not in session, or when school is in session and there are sufficient resources to evacuate schools and transit dependent residents at the same time. In response to **Supplemental RAI 13.03-05** the applicant added text to Tables 8.7A and 8.7B to indicate the assumptions made for single wave and second wave ETE values in the tables. The staff finds the additional information and textual revisions submitted to explain single wave and second wave evacuation assumptions for transit-dependent populations to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section IV.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to **Supplemental RAI 13.03-05**.

13.3C.18.6 Other Requirements

Technical Information in the ETE Report: [Section V of Appendix 4] The process for confirming the evacuation is complete is described in Section 12, "Confirmation Time," which includes a time estimate for confirmation of the evacuation. Additional information was requested in RAI 13.03-15 (A, B) regarding the time required for confirmation of evacuation. In response to RAI 13.03-15 (A), the applicant described the confirmation time with respect to guidance within NUREG-0654 and stated that the counties had not committed to implementing the recommended approach. In response to RAI 13.03-15 (B), the applicant also clarified that the time to obtain telephone numbers of residents living within the EPZ was not included in the confirmation time estimate. Supplemental RAI 13.03-06 requested the applicant provide the time the counties estimate it would take to confirm the evacuation is complete. In response the applicant described confirmation options that range from surveying a statistically random sample of the telephones in the area to a full door-to-door validation. The applicant stated that County plans indicate confirmation of evacuation will be accomplished by monitoring traffic flow out of the EPZ, interviewing evacuees at reception centers, or by door-to-door confirmation. The applicant provided an estimate of 21.6 hours to complete a door-to-door confirmation. Additional information was requested in RAI 13.03-16 (A, B, C) to clarify whether State and local law enforcement have reviewed the traffic control plan. In response, the applicant clarified that state and local law enforcement received presentations which included the traffic management plan. The ETE was revised to state that the ETE had been reviewed by local offsite officials. The applicant clarified that the traffic management plan was developed to provide recommendations for measures to facilitate the evacuation of the EPZ. The applicant further states that the counties have not implemented the recommendations in the ETE Report. The applicant also stated that no comments were provided by state and local organizations.

Technical Evaluation: [Section V of Appendix 4] The time required for confirmation of evacuation was estimated. In addition, the development of the ETE Report was coordinated with emergency planners from the state of Michigan and Wayne and Monroe Counties who are involved in emergency response for the site. This is acceptable because it conforms to the guidance in Section V of Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1.

The staff finds the clarifications and additional information submitted in response to RAI 13.03-16 (C) to be acceptable because it conforms to the guidance in Section V of Appendix 4 to NUREG-0654/FEMA-REP-1 Revision 1.

In the response to RAI 13.03-15 (B) the applicant revised the ETE report to explain telephone numbers can be compiled in the timeframe for families to mobilize and evacuate. The staff finds the additional information and textual revisions submitted describing the time needed to compile telephone numbers to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section V. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to RAI 13.03-15 (B).

In response to RAI 13.03-16(A, B), the applicant revised Section 1.1 to state that local and state personnel have reviewed the ETE Report. The staff finds the additional information and textual revisions submitted describing the state and local reviews of the ETE Report to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654 Section V. The staff confirmed that Revision 1 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to RAI 13.03-16 (A, B).

In the response to RAI 13.03-15 (A) the applicant described the confirmation time with respect to guidance within NUREG-0654 and stated that the counties had not committed to

implementing the recommended approach. In response to Supplemental RAI 13.03-06 the applicant revised the ETE report to state the time to perform a door-to-door confirmation is the bounding confirmation time. The staff finds the additional information and textual revisions submitted describing the County plans to confirm EPZ evacuations to be acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654, Section V. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to Supplemental RAI 13.03-06.

13.3C.18.7 Conclusions

On the basis of its review of the analysis of the ETE Report as described above, the NRC staff concluded that the information provided in the ETE Report is consistent with those portions of Section 13.3 of NUREG-0800 related to the evacuation time estimate analysis and is consistent with the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1. Therefore, the ETE Report is acceptable and meets the applicable requirements of 10 CFR Part 50, Appendix E.IV.

References:

Agarwal, M., et. al. "Impacts of Weather on Urban Freeway Traffic Flow Characteristics and Facility Capacity." 2005 Mid-Continent Transportation Research Symposium. August 2005. (Agarwal, 2005).

Transportation Research Board (2000). "Highway Capacity Manual," National Research Council, Washington D.C. (TRB, 2000).

Applicant Response Letter: "Detroit Edison Company Response to NRC Request for Additional Information Letter No. 9," October 14, 2009. NRC3-09-033.

13.3C.19 Inspection, Test, Analysis, and Acceptance Criteria (EP ITAAC)

13.3C.19.1 Regulatory Basis

The staff considered the following regulatory requirement and guidance in the evaluation of the information in the COL application related to EP ITAAC:

10 CFR 52.80(a), requires that a COL application include the proposed inspections, tests, and analyses, including those applicable to EP, that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the COL, the provisions of the Atomic Energy Act, and the Commission's rules and regulations.

13.3C.19.2 Technical Information in the Application (52.80(a)) (NUREG-0800) The applicant addresses EP ITAAC in Part 10, section 2.3 "Emergency Planning ITAAC" of the Fermi 3 COL. Table 2.3-1 "ITAAC For Emergency Planning" contains the proposed Emergency Planning ITAAC for those elements of the emergency plan that cannot be completed during the COL application review phase. NUREG-0800 contains a generic set of acceptable emergency planning EP ITAAC. The generic EP ITAAC requires the COL applicant to provide acceptance criteria specific to the plant-specific design and site-specific emergency response plans and facilities.

The staff reviewed the Fermi 3 Table 2.3-1 against the generic set of EP ITAAC described in Table 14.3.10-1 of NUREG-0800. Inconsistencies were noted between the Fermi 3 proposed EP ITAAC in Table 2.3-1 and the NUREG-0800 Table 14.3-10-1. **RAIs 13.03-17-01** through **13.03-17-012, Supplemental RAIs** and **13.03-55** thru **13.03-80** were asked to address the inconsistencies. The staff reviewed the applicant's RAI responses and proposed revisions to Table 2.3-1 and found them to be acceptable with the exception of RAI 13.03-72 and 13.03-79. The staff identified additional inconsistencies and issued **Supplemental RAIs 13.03-57** through **64** as described below:

In Supplemental **RAI 13.03-57** the staff asked the applicant to provide a basis for including ITAAC 5.3 that demonstrates the siren system operability. Given that the Fermi 3 site will use the existing Fermi 2 siren system which is currently inspected under the Reactor Oversight Program and may be presumed adequate for the purposes of this COL. In response, the applicant stated ITAAC 5.3 will be revised to state "The capability of the Alert and Notification System (ANS) to operate properly is tested monthly by the Fermi 2 Reactor Oversight Program and may be presumed adequate for the purposes of the Fermi 3 EP as identified in NRC RAI Letter 52, ML1105906350 (RAI 13.03-57)."

In Supplemental **RAI 13.03-58** the staff asked the applicant to remove program element 10.4 that states "The means exists to register and monitor evacuees at relocation centers" in accordance with NUREG-0654 evaluation Criteria II.J.12. This Criteria II.J.12 is not applicable to licensees and therefore is not needed in the COL application. In response the applicant stated that Detroit Edison agrees that Evaluation Criteria II.J.12 of NUREG-0654 is not applicable to licensees and Table 2.3-1 will be revised to remove EP Program Element 10.4

In Supplemental **RAI 13.03-59** the staff asked the applicant, to revise the success criteria in ITAAC 14.1 .1.A.1 for declaring an emergency action level (EAL) to be from the time the information is available to the decision maker and not from when the information is noticed by the decision maker. In response the applicant stated that acceptance criteria 14.1.1.A.1.a will be revised to state "Determine the correct highest emergency classification level based on events which were in progress, considering past events and their impact on the current conditions, within 15 minutes of indications for an emergency event."

In Supplemental **RAI 13.03-60** the staff asked the applicant to revise the Acceptance Criteria for ITAAC 10.1 to match the corresponding written change made in Attachment 18 of letter #41. In response the applicant stated that the Acceptance Criteria for ITAAC 10.1 in Table 2.3-1 will be to change to address the specific capability to provide both warnings and instructions to individuals outside the protected area, but within the Owner Controlled Area in accordance with written change made in Attachment 18 of letter #41.

13.3C.19.3 Technical Evaluation (52.80(a)) (NUREG-0800) The staff finds the additional information and textual revisions to Part 10 of the Fermi 3 FSAR submitted in response to **RAIs 13.03-17-01** thru **13.03-17-012, Supplemental RAIs 13.03-55** thru **13.03-71, 13.03-73 thru 13.03-78 and 13.03-80** to be acceptable because they conforms to the guidance in NUREG-0800. The staff confirmed Revision 2 of the Fermi 3 FSAR, Part 10, incorporated the information and textual changes provided in the response to **RAIs 13.03-17-01** through **13.03-17-012, Supplemental RAIs 13.03-55** thru **13.03-71, 13.03-73 thru 13.03-78 and 13.03-80** in the proposed markup to Table 2.3-1 of the Fermi 3 COLA Part 10.

The staff created **Confirmatory Action 13.03-68** to track the revision of EP ITAAC 5.3 to state "The capability of the Alert and Notification System (ANS) to operate properly is tested monthly

by the Fermi 2 Reactor Oversight Program and may be presumed adequate for the purposes of the Fermi 3 EP as identified in NRC RAI Letter 52, ML1105906350 (RAI 13.03-57)."

The staff created **Confirmatory Action 13.03-69** to track the Table 2.3-1 revision to remove EP Program Element 10.4 (RAI 13.03-58).

The staff created **Confirmatory Action 13.03-70** to track the revision of acceptance Criteria 14.1.1.A.1.a to state "Determine the correct highest emergency classification level based on events which were in progress, considering past events and their impact on the current conditions, within 15 minutes of indications for an emergency event." (RAI 13.03-59).

The staff created **Confirmatory Action 13.03-71** to track the revision to Table 2.3-1 to specifically address the capability to provide both warnings and instructions to individuals outside the protected area, but within the Owner Controlled Area (RAI 13.03-60)

13.3C.19.4 Conclusions

The NRC staff reviewed the application and checked the referenced DCD. The NRC staff's review confirmed that the applicant addressed the required information relating to EP ITAAC, the generic EP ITAAC provided in Table 14.3.10-1, "Emergency Planning Generic Inspections, Tests, Analyses, & Acceptance Criteria (EP ITAAC)," 10 CFR 52.80(a) and Section 14.3.10 of NUREG-0800. The staff found that the applicant adequately addressed the applicable EP ITAAC needed to provide reasonable assurance that, upon successful completion, the facility will be constructed and operated in conformity with the COL, the provisions of the Atomic Energy Act, and the Commission's rules and regulations and there is no outstanding information expected to be addressed in the Fermi 3 COL application related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the Fermi 3 COL application are documented in NUREG–1966 and its supplements. Verification that proposed revisions to the EP ITAAC are incorporated in the next FSAR revision is being tracked through Confirmatory Items.

13.4 Operational Program Implementation

13.4.1 Introduction

This section of the FSAR addresses the operational programs described in NRC guidance SECY-05-0197. The section includes a description of the programs and the proposed implementation milestones for each program.

Section 13.4 of the Fermi 3 COL FSAR provides a description of and the proposed implementation milestones for each operational program, in compliance with the guidance of RG 1.206, Section C.I.13.4. The applicant provides this information in FSAR Table 13.4-201 "Operational Programs Required by NRC Regulations," which lists each operational program, the regulatory requirement for the program, the associated implementation milestone(s), and the section of the FSAR that describes the operational program.

13.4.2 Summary of Application

Section 13.4 of the Fermi 3 COL FSAR, Revision 3, incorporates by reference Section 13.4 of the certified ESBWR DCD, Revision 9.

In addition, in FSAR Section 13.4, the applicant provides the following:

COL Items

- STD COL 13.4-1-A Operational Programs

  Table 13.4-201 lists each operational program, the regulatory source for the program, the associated implementation milestone(s), and the section of the FSAR in which the operational program is fully described as required by RG 1.206, Combined License Applications for Nuclear Power Plants (LWR edition).

- STD COL 13.4-2-A Implementation Milestones

  This COL item is addressed in Section 13.4.

The applicant provided the information applicable to both COL items in FSAR Table 13.4-201, which lists each operational program, the regulatory requirement for the program, the associated implementation milestone(s), and the section of the FSAR in which the operational program is fully described consistent with the guidance in RG 1.206.

13.4.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1966, the FSER related to the ESBWR DCD.

In addition, in the Staff Requirements Memorandum on SECY-05-0197, the Commission provided the directions regarding operational programs:

- Include license conditions for operational programs in the COL, where implementation requirements are not specified in the regulations.

- Identify the list of operational programs required to be included in a COL application.

- Use the proposed generic emergency planning/emergency preparedness (EP) Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) as a model for EP ITAAC to be included in COL applications.

- SRP Section 13.4, “Operational Programs,” provides guidance for staff review. For a COL application, the staff reviews the applicable table in FSAR Section 13.4 to ensure that all required operational programs are included. The staff’s review of the operational program description and the proposed implementation milestones is performed within the identified SRP section reviews.

13.4.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 13.4 of the certified ESBWR DCD. The staff reviewed Section 13.4 of the Fermi 3 COL FSAR, Revision 3, and checked the referenced ESBWR DCD to ensure that the combination of the information in the ESBWR DCD and the information in the COL FSAR appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information contained in the application and the information incorporated by reference address the relevant information related to this section.

The staff reviewed the information in the Fermi 3 COL FSAR as follows:

COL Items

- STD COL 13.4-1-A Operational Programs
- STD COL 13.4-2-A Implementation Milestones

NRC staff reviewed FSAR Table 13.4-201 and determined that the applicant had identified the operational programs required by NRC regulations and had provided a description of the proposed implementation milestones for each program. The technical evaluation of the operational programs to ensure that the applicant has fully described the programs and their associated implementation milestones is provided in the respective section of this SER.

Operational Program Implementation Schedule License Condition:

> No later than 12 months after issuance of the COL, SNC shall submit to the Director of NRO, or the Director's designee, a schedule for implementation of the operational programs listed in FSAR Table 13.4-201, including the associated estimated date for initial loading of fuel.
>
> The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until all the operational programs listed in FSAR Table 13.4-201 have been fully implemented.

13.4.5 Post Combined License Activities

In FSAR Table 13.4-201, the applicant identified the implementation milestones for each operational program. These implementation milestones, the schedule for which is required to be submitted and updated in accordance with the license condition described above, specify activities to be completed following issuance of the COL. Implementation of each operational program will be evaluated by the staff according to the respective implementation milestone.

13.4.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding

[1] See "*Finality of Referenced NRC Approvals*," in SER Section 1.2.2, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix [X], Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional COL supplemental information in the application to the relevant NRC regulations, the guidance in Subsection 5.2.1.1 of NUREG–0800, and other NRC RGs. The staff's review concluded that the applicant has presented adequate information in the Fermi 3 COL FSAR to meet the requirements of the Codes and Standards Rule (10 CFR 50.55a). COL Information Items STD COL 13.4-1-A and 2-A are adequately addressed by the applicant in FSAR Table 13.4-201.

13.5 Plant Procedures

This section of the FSAR addresses the administrative and operating procedures that the operating organization (plant staff) uses to ensure that routine operating, off-normal, and emergency activities are conducted in a safe manner. This section is divided into two subsections that are described below—Administrative Procedures and Operating and Emergency Operating Procedures. The Inspection of procedures will occur as part of the construction inspection program.

13.5.1 Administrative Procedures

13.5.1.1 Introduction

The administrative procedures the applicant uses to ensure that routine operating, off-normal, and emergency activities are conducted in a safe manner are provided. In plant procedures, the applicant provides a brief description of the nature and content of the procedures and a schedule for the preparation of appropriate written administrative and operating procedures. The applicant delineates in the description of the procedures the functional position for procedural revisions and approval before implementation.

13.5.1.2 Summary of Application

Subsection 13.5.1 of the Fermi 3 COL FSAR incorporates by reference Subsection 13.5.1 of the ESBWR DCD Revision 9, referenced in 10 CFR Part 52, Appendix [E].

In addition, in FSAR Subsection 13.5.1, the applicant provides the following information:

COL Item

- STD COL 13.5-1-A Administrative Procedures Development Plan

Industry guidance for the appropriate format, content, and typical activities delineated in written procedures is implemented, as appropriate. Guidance is based on ASME NQA-1, "Quality Assurance Requirements for Nuclear Facility Applications" (Reference 13.5-202).

The applicant identified the following commitment:

Supplemental Information

- STD SUP 13.5-1 Plant Procedure

This section describes the administrative and operating procedures that the operating organization (plant staff) uses to conduct routine operating, abnormal, and emergency activities in a safe manner.

- STD SUP 13.5-2

The QAPD describes procedural document control, record retention, adherence, assignment of responsibilities, and changes.

- STD SUP 13.5-3

Procedures are identified in this section by topic, type, or classification in lieu of the specific title, and represent general areas of procedural coverage.

- STD SUP 13.5-4

Procedures are developed prior to fuel load to allow sufficient time for plant staff familiarization and to allow NRC staff adequate time to review the procedures and to develop operator licensing examinations. [COM 13.5-001]

- EF3 COL 13.5-4-A

Industry guidance for the appropriate format, content, and typical activities delineated in written procedures is implemented, as appropriate. Guidance is based on ASME NQA-1, “Quality Assurance Requirements for Nuclear Facility Applications”

- STD SUP 13.5-5 Control of Procedure Format and Content

The format and content of procedures are controlled by administrative procedure(s). Procedures are organized to include the following components, as necessary:

- Title Page
- Table of Contents
- Scope and Applicability
- Responsibilities
- Prerequisites
- Precautions and Limitations
- Main Body
- Acceptance Criteria
- Check-off Lists
- References
- Attachments and Data Sheets

- STD SUP 13.5-6 Procedure Detail

Each procedure is sufficiently detailed for an individual to perform the required function without direct supervision, but does not provide a complete description of the system or plant process. The level of detail contained in the procedure is commensurate with the qualifications of the individual normally performing the function.

- STD SUP 13.5-7 Procedure Development

Procedures are developed consistent with guidance described in DCD Section 18.9, Procedure Development, and with input from the human factors engineering process and evaluations.

The bases for procedure development include:

- Plant design bases
- System-based technical requirements and specifications
- Task analyses results
- Risk-important human actions identified in the HRA/PRA
- Initiating events considered in the Emergency Operating Procedures (EOPs), including those events in the design bases
- Generic Technical Guidelines (GTGs) for EOPs

Procedure verification and validation includes the following activities, as appropriate:

- A review to verify they are correct and can be carried out.
- A final validation in a simulation of the integrated system as part of the verification and validation activities as described in DCD Section 18.11, Human Factors Verification and Validation.
- A verification of modified procedures for adequate content, format, and integration. The procedures are assessed through validation if a modification substantially changes personnel tasks that are significant to plant safety. The validation verifies that the procedures correctly reflect the characteristics of the modified plant and can be performed effectively to restore the plant.

- STD SUP 13.5-8 Shutdown Management Procedures

Procedures for shutdown management are developed consistent with the guidance described in NUMARC 91-06, “Guidelines for Industry Actions to Assess Shutdown Management,” to reduce the potential for loss of reactor coolant system (RCS) boundary and inventory during shutdown conditions.

- STD SUP 13.5-9 Administrative Procedures for Activities that Are Important to Safety

This section describes administrative procedures that provide administrative controls over activities that are important to safety for the operation of the facility.

- EF3 SUP 13.5-10 Administrative Procedures Described in ASME NQA-1

This supplemental information defines where the essential elements of the administrative programs and controls are described in ASME NQA-1 and FSAR Section 17.5.

- EF3 SUP 13.5-11 Procedure Control as Discussed in the QAPD

The applicant states that the procedural control is discussed in the quality assurance program description (QAPD), and the types and content of procedures are discussed in FSAR Section 13.5.

- STD SUP 13.5-12 Procedure Style (Writer) Guide

The applicant defines the procedure writer’s guide.

- STD SUP 13.5-13 Procedures for Maintenance and Control of Procedural Updates

The applicant states that updates to maintenance and control procedures are performed according to the QAPD.

- STD SUP 13.5-14 Pre-COL Administrative Programs and Procedures

The applicant states that pre-COL administrative programs and procedures are described in Table 13.5-201.

- STD SUP 13.5-15 Administrative Procedures for Control of Operation Activities

The applicant describes procedures that provide administrative controls on procedures for operational activities.

- STD SUP 13.5-16 Plant Administrative Procedures

The applicant provides a list of plant administrative procedures.

13.5.1.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1966, the FSER related to the ESBWR DCD.

The relevant regulatory provisions for the plant procedures and the associated acceptance criteria are described in Subsection 13.5.1, "Administrative Procedures," and Subsection 13.5.2.1, "Operating and Emergency Operating Procedures," of NUREG–0800.

The relevant provisions for reviewing plant procedures are based on (1) meeting the methods and criteria described in 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34), and in TMI Action Plan Items I.C.1 and I.C.9; and (2) meeting the guidance of NUREG–0800, Subsections 13.5.1.1 and 13.5.2.1. The review of FSAR information related to the development of emergency procedures is based on meeting the requirements of 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34), and the guidance of NUREG–0800, Subsection 13.5.2.1.

The provisions for reviewing COL License Information Item 13.5-1-A, related to implementation of the plan, are based on the following:

- Meeting the requirements of 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34)
- Meeting the TMI Action Plan requirements described in NUREG–0737 and Supplement 1 to NUREG–0737
- The elements described in ANSI 18.7/ANS-3.2 or a subsequent NRC-approved version of ANSI/ANS-3.2
- The procedures specified in the Human Factors Verification and Validation (V&V) Implementation Plan described in Article VII of Table 18E-1
- The plant procedures in accordance with the provisions of TMI Action Plan item I.C.5
- The guidance of NUREG–0800, Subsections 13.5.1.1 and 13.5.2.1

The relevant provisions for reviewing FSAR information related to the procedures included in the scope of the plan are based on (1) meeting the requirements of the procedures in Sections A3, A5, and A10 of ANSI/ANS-3.2; and (2) meeting the guidance of NUREG-0800, Subsections 13.5.1.1 and 13.5.2.1.

13.5.1.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 13.5.1 of the certified ESBWR DCD. The staff reviewed Section 13.5.1 of the Fermi 3 COL FSAR and checked the referenced ESBWR DCD to ensure that the combination of the information in the ESBWR DCD and the information in the COL FSAR appropriately represents the complete scope of information relating to this review topic. [1] The staff's review confirmed that the

[1] See *"Finality of Referenced NRC Approvals"* in SER Section 1.2.2, for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

information in the application and the information incorporated by reference address the required information relating to administrative procedures.
The staff reviewed the information in the Fermi 3 COL FSAR as follows:

COL Item

- STD COL 13.5-1-A Administrative Procedures Development Plan

Industry guidance for the appropriate format, content, and typical activities delineated in written procedures is implemented, as appropriate. Guidance is based on ASME NQA-1, "Quality Assurance Requirements for Nuclear Facility Applications" (Reference 13.5-202).

ESBWR DCD Section 13.5.1 states that the applicant shall develop the administrative procedures. In Fermi 3 COL FSAR, the applicant adds a new Section 13.5.1. The applicant states that the purpose of the new information is to address the development of administrative procedures in accordance with the nominal schedule in Table 13.5-202. The staff reviewed Section 13.5.1 and Table 13.5-202 and determined that they address the development of the administrative procedures within the timeline specified in NUREG–0800, Subsection 13.5.1.1. The staff concluded that the new paragraph meets the criteria in NUREG–0800, Subsection 13.5.1.1.

Supplemental Information

STD SUP items 13-5-1 through13.5.8, in addition to the supplemental items in sections 13.5.1 and 13.5.2 of the FSAR, further describe the applicant's process for developing all the Fermi 3 procedures listed in FSAR Section 13.5.

- STD SUP 13.5-1 Plant Procedure

This section describes the administrative and operating procedures that the operating organization (plant staff) uses to conduct routine operating, abnormal, and emergency activities in a safe manner.

The staff reviewed STD SUP 13.5-1, which describes the administrative and operating procedures used to conduct routine operating, abnormal and emergency operating activities. The staff determined that this section of the applicant's FSAR meets the criteria in NUREG-0800, Subsection 13.5.1.1, and is therefore acceptable.

- STD SUP 13.5-2

The QAPD describes procedural document control, record retention, adherence, assignment of responsibilities, and changes. The QAPD is evaluated in Chapter 17, "Quality Assurance."

- STD SUP 13.5-3

Procedures are identified in this section by topic, type, or classification in lieu of the specific title, and represent general areas of procedural coverage.

The staff reviewed STD SUP 13.5-3, which states that plant procedures are identified by topic, type, or classification. The staff determined that this section of the applicant's FSAR meets the criteria in NUREG-0800, Subsection 13.5.1.1, and is therefore acceptable.

- STD SUP 13.5-4

  Procedures are developed prior to fuel load to allow sufficient time for plant staff familiarization and to allow NRC staff adequate time to review the procedures and to develop operator licensing examinations. [COM 13.5-001]

The staff reviewed STD SUP 13.5-4, which includes a commitment to develop plant procedures prior to fuel load. The staff determined that this section of the applicant's FSAR meets the criteria in NUREG-0800, Subsection 13.5.1.1, and is therefore acceptable.

- EF3 COL 13.5-4-A

Industry guidance for the appropriate format, content, and typical activities delineated in written procedures is implemented, as appropriate. Guidance is based on ASME NQA-1, "Quality Assurance Requirements for Nuclear Facility Applications"

The staff reviewed EF3 COL 13.5-4-A, which states that industry guidance based on ASME NQA-1 is implemented as appropriate for the format, content, and activities delineated in written provedures. The staff determined that this section of the applicant's FSAR meets the criteria in NUREG-0800, Section 13.5.1.1, and is therefore appropriate.

- STD SUP 13.5-5 Control of Procedure Format and Content

The format and content of procedures are controlled by administrative procedure(s). Procedures are organized to include the following components, as necessary:

- Title Page
- Table of Contents
- Scope and Applicability
- Responsibilities
- Prerequisites
- Precautions and Limitations
- Main Body
- Acceptance Criteria
- Check-off Lists
- References
- Attachments and Data Sheets

The staff reviewed STD SUP 13.5-5, which states the format and content of plant procedures used to conduct routine operating, abnormal and emergency operating activities. The staff determined that this section of the applicant's FSAR meets the criteria in NUREG-0800, Subsection 13.5.1.1, and is therefore acceptable.

- STD SUP 13.5-6 Procedure Detail

Each procedure is sufficiently detailed for an individual to perform the required function without direct supervision, but does not provide a complete description of the system or plant process. The level of detail contained in the procedure is commensurate with the qualifications of the individual normally performing the function.

The staff reviewed STD SUP 13.5-6, which states that the plant procedures used to conduct routine operating, abnormal and emergency operating activities have the level of detail commensurate with the qualifications of the individual performing the required functions. The staff determined that this section of the applicant's FSAR meets the criteria in NUREG-0800, Subsection 13.5.1.1, and is therefore acceptable.

- STD SUP 13.5-7 Procedure Development

Procedures are developed consistent with guidance described in DCD Section 18.9, Procedure Development, and with input from the human factors engineering process and evaluations. The bases for procedure development include:

- Plant design bases
- System-based technical requirements and specifications
- Task analyses results
- Risk-important human actions identified in the HRA/PRA
- Initiating events considered in the Emergency Operating Procedures (EOPs), including those events in the design bases
- Generic Technical Guidelines (GTGs) for EOPs

Procedure verification and validation includes the following activities, as appropriate:

- A review to verify they are correct and can be carried out.
- A final validation in a simulation of the integrated system as part of the verification and validation activities as described in DCD Section 18.11, Human Factors Verification and Validation.
- A verification of modified procedures for adequate content, format, and integration. The procedures are assessed through validation if a modification substantially changes personnel tasks that are significant to plant safety. The validation verifies that the procedures correctly reflect the characteristics of the modified plant and can be performed effectively to restore the plant.

The staff reviewed STD SUP 13.5-7, which states that plant procedures used to conduct routine operating, abnormal and emergency operating activities are developed consistent with guidance described in DCD Section 18.9. The staff determined that this section of the applicant's FSAR is consistent with the guidance in DCD Section 18.9 and meets the criteria in NUREG-0800, Subsection 13.5.1.1, and is therefore acceptable.

- STD SUP 13.5-8 Shutdown Management Procedures

Procedures for shutdown management are developed consistent with the guidance described in NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," to reduce the potential for loss of reactor coolant system (RCS) boundary and inventory during shutdown conditions.

The staff reviewed STD SUP 13.5-08, which provides that procedures for shutdown management are developed consistent with the guidance described in NUMARC 91-06. The staff determined that this section of the applicant's FSAR is consistent with the guidance in

NUMARC 91-06 and meets the criteria in NUREG-0800, Section 13.5.1.1, and is therefore acceptable.

- STD SUP 13.5-09 Administrative Procedures for Activities that Are Important to Safety

  This section describes administrative procedures that provide administrative control over activities that are important to safety for the operation of the facility.

NUREG–0800, Subsection 13.5.1.1 states that the applicant should describe the procedures that provide for administrative controls over safety-related activities for the operation of the facility. In FSAR Subsection 13.5.1.1, the applicant replaces the first sentence of the paragraph to supplement the DCD with an applicant-specific description of facility administrative controls. The staff concluded that the applicant-provided descriptions of system administrative procedures meet the criteria in NUREG–0800, Subsection 13.5.1.1, and are therefore acceptable.

- EF3 SUP 13.5-10 Administrative Procedures Described in ASME NQA-1

  Procedures outline the essential elements of the administrative programs and controls as described in ASME NQA-1 and Section 17.5. These procedures are organized such that the program elements are prescribed in documents normally referred to as administrative procedures.

  Administrative procedures contain adequate programmatic controls to provide an effective interface between organizational elements. This includes contractor and owner organizations that provide support to the station operating organization.

NUREG–0800 Subsection 13.5.1.1 states that the applicant should describe the procedures that provide for administrative controls over safety-related activities for the operation of the facility, but applicants are not required to include detailed written procedures in the FSAR. In FSAR Subsection 13.5.1.1, the applicant lists the Category (A) Controls and Category (B) Specific Procedures as described in NUREG–0800, Subsection 13.5.1.1. The staff determined that this information meets the criteria of NUREG–0800, Subsection 13.5.1.1, and is therefore acceptable.

- EF3 SUP 13.5-11 Procedure Control as Discussed in the QAPD

NUREG–0800, Subsection 13.5.1.1 states that the applicant should describe the procedures that provide for administrative controls over safety-related activities for the operation of the facility, but applicants are not required to include detailed written procedures in the FSAR. In FSAR Subsection 13.5.1.1, the applicant lists the Category (A) Controls and Category (B) Specific Procedures as stated in NUREG–0800, Subsection 13.5.1.1. The EF3 SUP 13.5-11 refers to the QAPD and FSAR Section 13.5. The staff's review of these sections concluded that the applicant has provided an adequate and acceptable procedure-control description in the Fermi 3 COL FSAR that meets the criteria in NUREG–0800, Subsection 13.5.1.1.

- STD SUP 13.5-12 Procedure Style (Writer) Guide

  A procedure style (writer's) guide promotes the standardization and application of HFE principles to procedures. The writer's guide establishes the process for

developing procedures that are complete, accurate, consistent, and easy to understand and follow. The guide provides objective criteria so that procedures are consistent in organization, style, and content. The writer's guide includes criteria for procedure content and format including the writing of action steps and the specification of acceptable acronym lists and acceptable terms to be used.

In NUREG–0800, Subsection 13.5.1.1, "Category (A) Controls" states that the applicant should describe the procedure review and approval process; inherent in this is the use of a procedure writer's guide. In FSAR Subsection 13.5.1.1, the applicant adds a new paragraph (STD SUP 13.5-12) that describes the writer's guide to promote the standardization of procedures, including human factors applications and consistent organization, style, and content. The staff concluded that the applicant has provided acceptable general operating procedure descriptions that meet the criteria in NUREG–0800, Subsection 13.5.2.1.

- STD SUP 13.5-13 Procedures for Maintenance and Control of Procedural Updates

  Procedure maintenance and control of procedure updates are performed in accordance with the QAPD.

NUREG–0800, Subsection 13.5.1.1 states that the applicant should describe the procedures that provide for administrative control over safety-related activities for the operation of the facility, but the applicant is not required to include detailed written procedures in the FSAR. In FSAR Subsection 13.5.1.1, the applicant lists the Category (A) Controls and Category (B) Specific Procedures as stated in NUREG–0800, Subsection 13.5.1.1. In STD SUP 13.5-13, the applicant states that the control of procedure maintenance and procedure updates is performed in accordance with the QAPD. The staff determined that this information meets the criteria of NUREG–0800, Subsection 13.5.1.1, and is therefore acceptable.

- STD SUP 13.5-14 Pre-COL Administrative Programs and Procedures

  The administrative programs and associated procedures developed in the pre-COL phase are described in Table 13.5-201 (for future designation as historical information).

NUREG–0800, Subsection 13.5.1.1 states that the applicant should describe the procedures that provide for administrative control over safety-related activities for the operation of the facility, but the applicant is not required to include detailed written procedures in the FSAR. In FSAR Subsection 13.5.1.1, the applicant lists the Category (A) Controls and Category (B) Specific Procedures as stated in NUREG–0800, Subsection 13.5.1.1. In FSAR Section 13.5.1, STD SUP 13.5-14 refers to Table 13.5-201. The staff's review of these sections concluded that the applicant has provided an adequate description of procedure control in the FSAR that meets the criteria found in NUREG–0800, Subsection 13.5.1.1. The staff determined that this information meets the criteria of NUREG–0800, Subsection 13.5.1.1, and is therefore acceptable.

- STD SUP 13.5-15 Administrative Procedures for Control of Operation Activities

  Section 13.5.1.1, "Administrative Procedures-General," describes those procedures that provide administrative controls with respect to procedures, including those that define and provide controls for operational activities of the plant staff.

NUREG–0800, Subsection 13.5.1.1 states that the applicant should describe the procedures that provide for administrative controls over safety-related activities for the operation of the facility, but the applicant is not required to include detailed written procedures in the FSAR. In FSAR Subsection 13.5.1.1, the applicant lists the Category (A) Controls and Category (B) Specific Procedures as stated in NUREG–0800, Subsection 13.5.1.1. The staff reviewed these listed procedures, regulatory requirements, and proposed completion times per Table 13.5-202 in the COL FSAR. The staff concluded that the applicant has provided an acceptable and adequate description of procedural controls in the FSAR that meets the criteria in NUREG-0800, Subsection 13.5.1.1.

- STD SUP 13.5-16 Plant Administrative Procedures

  Plant administrative procedures provide procedural instructions for the following:

  - Procedures review and approval
  - Procedure adherence
  - Scheduling for surveillance tests and calibration
  - Log entries
  - Record retention
  - Containment access
  - Bypass of safety function and jumper control
  - Communication systems
  - Equipment control procedures—These procedures provide for control of equipment, as necessary, to maintain personnel and reactor safety, and to avoid the unauthorized operation of equipment
  - Control of maintenance and modifications
  - Fire Protection Program procedures
  - Crane Operation Procedures—Crane operators who operate cranes over fuel pools are qualified and conduct themselves in accordance with ANSI B30.2 (Chapter 2-3), “Overhead and Gantry Cranes” (Reference 13.5-201)
  - Temporary changes to procedures
  - Temporary procedure issuance and control
  - Special orders of a temporary or self-canceling nature
  - Standing orders to shift personnel including the authority and responsibility of the shift manager, senior reactor operator in the control room, control room operator, and shift technical advisor
  - Manipulation of controls and assignment of shift personnel to duty stations per the requirements of 10 CFR 50.54 (i), (j), (k), (l), and (m), including delineation of the space designated for the “At the Controls” area of the Control Room
  - Shift relief and turnover procedures

- Fitness for duty (FFD)
- Control Room access
- Working hour limitations
- Feedback of design, construction, and applicable important industry and operating experience
- Shift Manager administrative duties
- Verification of correct performance of operational activities
- A vendor interface program that provides vendor information for safety-related components is incorporated into plant documentation

NUREG–0800,Subsection 13.5.1.1 states that the applicant should describe the procedures that provide for administrative control over safety-related activities for the operation of the facility, but the applicant is not required to include detailed written procedures in the FSAR. In FSAR Subsection 13.5.1.1, the applicant lists the Category (A) Controls and Category (B) Specific Procedures as stated in NUREG–0800, Subsection 13.5.1.1. The staff's review of these listed procedures, regulatory requirements, and proposed completion times per COL FSAR Table 13.5-202 concluded that the applicant has provided acceptable and adequate descriptions of procedural controls in the COL FSAR that meet the criteria in NUREG–0800, Subsection 13.5.1.1.

13.5.1.5 Post Combined License Activities

The applicant identified the following commitment:

- STD SUP 13.5-4

  Procedures are developed prior to fuel load to allow sufficient time for plant staff familiarization and to allow NRC staff adequate time to review the procedures and to develop operator licensing examinations. [COM 13.5-001]

13.5.1.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix [X], Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional COL supplemental information in the application to the relevant NRC regulations, the guidance in Subsections 13.5.1, 13.5.1.1 and 13.5.2.1 of NUREG-0800, and other NRC RGs. The staff's review concluded that the applicant has presented adequate information in the Fermi 3 FSAR to meet the requirements of the Codes and Standards Rule (10 CFR 50.55a). The applicant has adequately addressed COL Item STD COL 13.5-1-A and Supplemental Information Items STD SUP 13.5-1 through 13.5-16, and EF3 COL 13.5-4-A, relating to administrative procedures.

13.5.2 Operating and Maintenance Procedures

13.5.2.1 Introduction

This section of the FSAR provides the administrative and operating procedures that the plant staff uses to ensure that routine operating, off-normal, and emergency activities are conducted in a safe manner. The plant procedures provide a brief description of the nature and content of the procedures and a schedule for the preparation of appropriate written administrative procedures. It delineates in the description of administrative procedures the functional position for a procedural revision and approval before implementation.

13.5.2.2 Summary of Application

Section 13.5.2 of the Fermi 3 COL FSAR incorporates by reference Section 13.5.2 of the certified ESBWR DCD, Revision 9, referenced in 10 CFR Part 52, Appendix [E].

In addition, in COL FSAR Section 13.2, the applicant provides the following.

COL Items

- STD COL 13.5-1-A Administrative Procedures Development Plan

Administrative procedures will be developed in accordance with DCD Section 13.5.2.

- STD COL 13.5-2-A Plant Operating Procedures Development Plan

Operating and maintenance procedures will be developed in accordance with DCD Section 13.5.2.

- STD COL 13.5-3-A Emergency Procedures Development

Emergency procedures will be developed in accordance with DCD Section 13.5.2.

- EF3 COL 13.5-4-A Implementation of the Plant Procedures Plan

A Plant Operating Procedures Development Plan will be established in accordance with DCD Section 13.5.2.

- STD COL 13.5-5-A Procedures Included in Scope of Plan

The scope of the procedures in the Plant Operating Procedures Development Plan will be addressed in DCD Section 13.5.2.

- STD COL 13.5-6-A Procedures for Calibration, Inspection, and Testing

The applicant states that the calibration, inspection, and testing procedures are included in the Plant Operating Procedures Development Plan.

Supplemental Information

- STD SUP 13.5-18 Classification of Procedures
- STD SUP 13.5-19 System Operating Procedures
- STD SUP 13.5-20 General Operating Procedures

- STD SUP 13.5-21 Abnormal Operating Procedures
- EF3 SUP 13.5-22 Emergency Operating Procedures
- STD SUP 13.5-23 Alarm Response Procedures
- EF3 SUP 13.5-24 Temporary Procedures
- STD SUP 13.5-25 Fuel Handling Procedures
- STD SUP 13.5-26 Maintenance and Other Operating Procedures
- STD SUP 13.5-27 Plant Radiation Protection Procedures
- STD SUP 13.5-28 Emergency Preparedness Procedures
- STD SUP 13.5-29 Instrument Calibration and Test Procedures
- STD SUP 13.5-30 Chemistry Procedures
- STD SUP 13.5-31 Radioactive Waste Management Procedures
- STD SUP 13.5-33 Inspection Procedures
- STD SUP 13.5-34 Modification Procedures
- STD SUP 13.5-35 Heavy Load Handling Procedures
- STD SUP 13.5-36 Material Control Procedures
- STD SUP 13.5-37 Security Procedures
- STD SUP 13.5-38 Refueling and Outage Planning Procedures

Each standard or site-specific supplement defines the procedure of interest.

13.5.2.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1966, the FSER related to the ESBWR DCD.

The relevant provisions for the plant operating and maintenance procedures and the associated acceptance criteria are described in Subsection 13.5.2.1, “Operating and Emergency Operating Procedures,” of NUREG–0800.

The relevant provisions for reviewing plant procedures are based on (1) meeting the requirements of methods and criteria described in 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34), and in TMI Action Plan Items I.C.1 and I.C.9; and (2) meeting the guidance of NUREG–0800, Subsection 13.5.2.1. The review of FSAR information related to the development of emergency procedures is based on meeting the requirements of 10 CFR 52.79(a)(14), (26), (29)(i), (29)(ii), (33), and (34), and the guidance of NUREG–0800, Subsection 13.5.2.1.

13.5.2.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 13.5.2 of the certified ESBWR DCD. The staff reviewed Section 13.5.2 of the Fermi 3 COL FSAR and checked the referenced ESBWR DCD to ensure that the combination of the information in the ESBWR DCD and the information in the COL FSAR appropriately represent the complete scope of information relating to this review topic.[1] The staff’s review confirmed that the information in

[1] See *“Finality of Referenced NRC Approvals”* in SER Section 1.2.2, for a discussion on the staff’s review related to verification of the scope of information to be included in a COL application that references a design certification.

the application and the information incorporated by reference address the required information relating to Operating and Maintenance Procedures.

In addition, the staff reviewed the resolution to the following COL and supplemental information items included under Section 13.5.2 of the COL FSAR. In this review, the staff used the applicable sections of NUREG–0800 as guidance.

COL Items

- STD COL 13.5-2-A Plant Operating Procedures Development Plan

The third paragraph of Section 13.5.2 in the DCD is replaced with the following:

> Operating Procedures are developed in accordance with Subsection 13.5.2.1 and Maintenance Procedures are developed in accordance with Subsection 13.5.2.2.6.1.

ESBWR DCD Section 13.5.2 states that the development of operating and maintenance procedures is the responsibility of the applicant. In Fermi 3 COL FSAR Section 13.5.2, the applicant states that new Subsection 13.5.2.1 was added to address the development of operating procedures, and the new Subsection 13.5.2.2.6.1 was added to address the development of maintenance procedures. In FSAR Subsection 13.5.2.2.6.1, the applicant provides Commitment (COM 13.5-004), which states the following:

> An initial program based on service conditions, experience with comparable equipment and vendor recommendations is developed prior to fuel loading.

The staff reviewed Subsection 13.5.2.1 and determined that it addresses the development of operating procedures, which will be developed at least 6 months before fuel load. The staff reviewed Subsection 13.5.2.2.6.1 and determined that it addressed the development of maintenance procedures. The staff concluded that these new paragraphs meet the criteria in NUREG–0800, Subsection 13.5.2.1.

- STD COL 13.5-3-A Emergency Procedures Development

The last sentence of Section 13.5.2 in the ESBWR DCD is replaced with the following:

> Emergency Procedures are developed in accordance with Section 13.5.2.1.4.

ESBWR DCD, Section 13.5.2, states that the applicant will develop emergency procedures. In COL FSAR Section 13.5.2, the applicant states that new Subsection 13.5.2.1.4 was added to address the development of emergency procedures. The staff reviewed Subsection 13.5.2.1.4 and determined that it addresses the development of emergency procedures. The staff concluded that this new subsection meets the criteria in NUREG–0800, Subsection 13.5.2.1.

In FSAR Subsection 13.5.2.1.4, the applicant provides Commitment (COM 13.5-003), which states the following:

> The procedure development program, as described in the PGP [procedures generation package] for EOPs [emergency operating procedures], is submitted to

the NRC at least three months prior to the planned date to begin formal operator training on the EOPs. [COM 13.5-003]

- EF3 COL 13.5-4-A Implementation of the Plant Procedures Plan

EF3 COL 13.5-4-A replaces the fifth paragraph to supplement the ESBWR DCD with the following:

> A Plant Operations Procedures Development Plan is established in accordance with Section 13.5.2.1.

ESBWR DCD Section 13.5.2 states that the applicant will develop a Plant Operating Procedures Development Plan. In Fermi 3 COL FSAR Section 13.5.2, the applicant states that new Subsection 13.5.2.1 was added to address the establishment of a Plant Operating Procedures Development Plan. The staff reviewed paragraph 13.5.2.1 and determined that it addresses the establishment of a Plant Operating Procedures Development Plan. The staff concluded that this new paragraph meets the criteria in NUREG–0800, Subsection 13.5.2.1.

- STD COL 13.5-5-A Procedures Included in Scope of Plan

STD COL 13.5-5-A replaces the second paragraph of the subsection "Procedures for Handling of Heavy Loads" in the DCD with the following:

> The scope of procedures in the Plant Operating Procedures Development Plan is addressed in Subsection 13.5.2.1.

ESBWR DCD Section 13.5.2 states that the applicant will include procedures for handling heavy loads in the scope of the Plant Operating Procedures Development Plan. In Fermi 3 COL FSAR Section 13.5.2, the applicant states that new Subsection 13.5.2.1 was added to address the scope of the Plant Operating Procedures Development Plan. The staff reviewed Subsection 13.5.2.1 and determined that it included procedures for handling heavy loads within the scope of the Plant Operating Procedures Development Plan. The staff concluded that this new subsection meets the criteria in NUREG–0800, Subsection 13.5.2.1.

- STD COL 13.5-6-A Procedures for Calibration, Inspection, and Testing

STD COL 13.5-6-A replaces the second sentence of the subsection "Procedures for Calibration, Inspection and Testing" to the DCD with the following:

> Surveillance procedures that cover safety-related logic circuitry are addressed in Subsection 13.5.2.2.6.3.

ESBWR DCD Subsection 13.5.2.1 states that the applicant will ensure that all portions of the safety-related logic circuitry are adequately covered in surveillance procedures, as described in GL 96-01, "Testing of Safety Related Logic Circuits." In Fermi 3 COL FSAR Section 13.5.2, the applicant states that new Subsection 13.5.2.2.6.3 was added to address surveillance procedures that cover safety-related logic circuitry. The staff reviewed Subsection 13.5.2.2.6.3 and determined that it required surveillance testing procedures to be written in a manner that adequately tests all portions of safety-related logic circuitry, as described in GL 96-01. The staff concluded that this new subsection meets the criteria in NUREG–0800, Subsection 13.5.2.1.

In addition, In FSAR Subsection 13.5.2.1, the applicant provides Commitment (COM 13.5-002), which states the following:

> Operating procedures are developed at least six months prior to fuel load to allow sufficient time for plant staff familiarization and to allow NRC staff adequate time to review the procedures and to develop operator licensing examinations.

Supplemental Information

- STD SUP 13.5-18 Classification of Procedures

STD SUP 13.5-18 states the following:

> The classifications of operating procedures are:
>
> - System Operating Procedures
> - General Operating Procedures
> - Abnormal (Off-Normal) Operating Procedures
> - Emergency Operating Procedures
> - Alarm Response Procedures.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should identify the different classifications of procedures (e.g., system procedures, general plant procedures, abnormal procedures, emergency operating procedures, and alarm procedures) that the operators will use in the control room and locally in the plant for plant operations. In FSAR Section 13.5.2, the applicant states that the classifications of operating procedures are system operating procedures, general operating procedures, abnormal (off-normal) operating procedures, emergency operating procedures, and alarm response procedures. The staff concluded that the applicant-has provided acceptable procedure classification information that meets the criteria in NUREG–0800, Subsection 13.5.2.1.

- STD SUP 13.5-19 System Operating Procedures

In FSAR Subsection 13.5.2.1.1, STD SUP 13.5-19 states the following:

> Instructions for energizing, filling, venting, draining, starting up, shutting down, changing modes of operation, returning to service following testing or maintenance (if not contained in the applicable procedure), and other instructions appropriate for operation of systems are delineated in system procedures. System procedures contain check-off lists, where appropriate, which are prepared in sufficient detail to provide an adequate verification of the status of the system.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.1.1 that describes system operating procedures and their general format and content. The staff concluded that the applicant has provided descriptions of the system operating procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1.

- STD SUP 13.5-20 General Operating Procedures

In FSAR Subsection 13.5.2.1.2, STD SUP 13.5-20 states the following:

> General operating procedures provide instructions for performing integrated plant operations involving multiple systems, such as plant startup and shutdown. These procedures provide a coordinated means of integrating procedures together to change the mode of plant operation or to achieve a major plant evolution. Check-off lists are used for the purpose of confirming completion of major steps in proper sequence.
>
> Typical types of general operating procedures are described as follows:
>
> - Startup procedures provide instruction for starting the reactor from cold or hot conditions, establishing power operation, and recovering from reactor trips
>
> - Shutdown procedures guide operations during and following controlled shutdown or reactor trips, and include instructions for establishing or maintaining hot standby and safe or cold shutdown conditions, as applicable
>
> - Power operation and load changing procedures provide instruction for steady-state power operation and load changing.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., general plant procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.1.2 that describes general operating procedures and their general format and content. The staff concluded that the applicant has provided descriptions of general operating procedures that are acceptable and meet the criteria in NUREG–0800, Subsection 13.5.2.1.

- STD SUP 13.5-21 Abnormal Operating Procedures

In FSAR Subsection 13.5.2.1.3, STD SUP 13.5-21 states the following:

> Abnormal operating procedures for correcting abnormal conditions are developed for those events where system complexity might lead to operator uncertainty. Abnormal operating procedures describe actions to be taken during other than routine operations, which, if continued, could lead to either material failure, personnel harm, or other unsafe conditions.
>
> Abnormal procedures are written so that a trained operator knows in advance the expected course of events or indications that identify an abnormal situation and the immediate action to be taken.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., abnormal operating procedures) and the general format and

content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.1.3 that describes abnormal (off-normal) procedures and their general format and content. The staff concluded that the applicant has provided descriptions of abnormal procedures that are acceptable and meet the criteria in NUREG–0800, Subsection 13.5.2.1.

- EF3 SUP 13.5-22 Emergency Operating Procedures

In FSAR Subsection 13.5.2.1.4, EF3 SUP 13.5-22 states the following:

> EOPs are procedures that direct actions necessary for the operators to mitigate the consequences of transients and accidents that cause plant parameters to exceed reactor protection system or ESF actuation setpoints.
>
> Emergency operating procedures include appropriate guidance for the operation of plant post-72-hour equipment, and are developed as appropriate per the guidance of:
>
> - NUREG-0737, "Clarification of TMI Action Plan Requirements," Items I.C.1 and I.C.9
> - The QAPD

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., emergency operating procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.1.4 that describes emergency operating procedures and their general format and content. The staff concluded that the applicant has provided descriptions of emergency operating procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1.

- STD SUP 13.5-23 Alarm Response Procedures

In FSAR Subsection 13.5.2.1.5, STD SUP 13.5-23 states the following:

> Procedures are provided for annunciators (alarm signals) identifying the proper operator response actions to be taken. Each of these procedures normally contains: a) the meaning of the annunciator or alarm, b) the source of the signal, c) any automatic plant responses, d) any immediate operator action, and e) the long range actions. When corrective actions are very detailed and/or lengthy, the alarm response may refer to another procedure.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., alarm response procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.1.5 that describes alarm response procedures and their general format and content. The staff concluded that the applicant has provided descriptions of alarm response procedures that are acceptable and meet the criteria in NUREG–0800, Subsection 13.5.2.1.

- EF3 SUP 13.5-24 Temporary Procedures

In FSAR Subsection 13.5.2.1.6, EF3 SUP 13.5-24 states the following:

> Temporary procedures are issued during the operational phase only when permanent procedures do not exist for the following activities: to direct operations during testing, refueling, maintenance, and modifications; to provide guidance in unusual situations not within the scope of the normal procedures; and to provide orderly and uniform operations for short periods when the plant, a system, or a component of a system is performing in a manner not covered by existing detailed procedures, or has been modified or extended in such a manner that portions of existing procedures do not apply.
>
> Temporary operating procedures are developed under established administrative guidelines. They include designation of the period of time during which they may be used and adhere to the QAPD and Technical Specifications, as applicable.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., temporary procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.1.6 that describes temporary procedures and their general format and content. The staff concluded that the applicant has provided descriptions of temporary procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1, and they are therefore acceptable.

- STD SUP 13.5-25 Fuel Handling Procedures

In FSAR Subsection 13.5.2.1.7, STD SUP 13.5-25 states the following:

> Fuel handling operations, including fuel receipt, identification, movement, storage, and shipment, are performed in accordance with written procedures. Fuel handling procedures address, for example, the status of plant systems required for refueling; inspection of replacement fuel and control rods; designation of proper tools; proper conditions for spent fuel movement and storage; proper conditions to prevent inadvertent criticality; proper conditions for fuel cask loading and movement; and status of interlocks, reactor trip circuits, and mode switches. These procedures provide instructions for use of refueling equipment, actions for core alterations, monitoring core criticality status, accountability of fuel, and partial or complete refueling operations.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., fuel handling procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.1.7 that describes fuel handling procedures and their general format and content. The staff concluded that the applicant has provided descriptions of fuel handling procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1, and they are therefore acceptable.

- STD SUP 13.5-26 Maintenance and Other Operating Procedures

In FSAR Subsection 13.5.2.2, STD SUP 13.5-26 states the following:

The QAPD provides guidance for procedural adherence.

The technical review for STD SUP 13.5-26 is in SER Section 17.5.

- STD SUP 13.5-27 Plant Radiation Protection Procedures

In FSAR Subsection 13.5.2.2.1, STD SUP 13.5-27 states the following:

> The plant radiation protection program is contained in procedures. Procedures are developed and implemented for such things as: maintaining personnel exposures, plant contamination levels, and plant effluents ALARA; monitoring both external and internal exposures of workers, considering industry-accepted techniques; performing routine radiation surveys; performing environmental monitoring in the vicinity of the plant; monitoring radiation levels during maintenance and special work activities; evaluating radiation protection implications of proposed modifications; management of radioactive wastes for offsite shipment, disposal, and treatment; and maintaining radiation exposure records of workers and others.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., plant radiation protection procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.2.1 that describes plant radiation protection procedures and their general format and content. The staff concluded that the applicant has provided plant radiation protection procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1, and are therefore acceptable.

- STD SUP 13.5-28 Emergency Preparedness Procedures

In FSAR Subsection 13.5.2.2.2, STD SUP 13.5-28 states the following:

> A discussion of emergency preparedness procedures can be found in the Emergency Plan. A list of implementing procedures is maintained in the Emergency Plan.

The technical review for STD SUP 13.5-28 is in Section 13.3 of this SER.

- STD SUP 13.5-29 Instrument Calibration and Test Procedures

In FSAR Subsection 13.5.2.2.3, STD SUP 13.5-29 states the following:

> The QAPD provides a description of procedural requirements for instrumentation calibration and testing.

The technical review for STD SUP 13.5-29 is in SER Section 17.5.

- STD SUP 13.5-30 Chemistry Procedures

In FSAR Subsection 13.5.2.2.4, STD SUP 13.5-30 states the following:

> Procedures provided for chemical and radiochemical control activities include the nature and frequency of sampling and analyses; instructions for maintaining fluid quality within prescribed limits; the use of control and diagnostic parameters; and limitations on concentrations of agents that could cause corrosive attack, foul heat transfer surfaces or become sources of radiation hazards due to activation.
>
> Procedures are also provided for the control, treatment, and management of radioactive wastes and control of radioactive calibration sources.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., chemistry procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds a new subsection that describes chemistry procedures and their general format and content. The staff concluded that the applicant has provided chemistry procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1, and are therefore acceptable.

- STD SUP 13.5-31 Radioactive Waste Management Procedures

In FSAR Subsection 13.5.2.2.5, STD SUP 13.5-31 states the following:

> Procedures for the operation of the radwaste processing systems provide for the control, treatment, and management of onsite radioactive wastes. These procedures are addressed in Section 13.5.2.1.1, System Operating Procedures.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., radioactive waste management procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds a new subsection that describes radioactive waste management procedures and their general format and content. The staff concluded that the applicant has provided radioactive waste management procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1, and are therefore acceptable.

- STD SUP 13.5-33 Inspection Procedures

In FSAR Subsection 13.5.2.2.6.2, STD SUP 13.5-33 states the following:

> The QAPD provides a description of procedural requirements for inspections.

In FSAR Subsection 13.5.2.2.6.3, STD SUP 13.5-33 states the following:

> The QAPD provides a description of procedural requirements for surveillance testing. Surveillance testing procedures are written in a manner that adequately tests all portions of safety-related logic circuitry as described in Generic Letter 96-01, “Testing of Safety Related Logic Circuits.”

The technical review for STD SUP 13.5-33 is in Section 17.5 of this SER.

- STD SUP 13.5-34 Modification Procedures

In FSAR Subsection 13.5.2.2.6.4, STD SUP 13.5-34 states the following:

Plant modifications and changes to setpoints are developed in accordance with approved procedures. These procedures control necessary activities associated with the modifications such that they are carried out in a planned, controlled, and orderly manner. For each modification, design documents such as drawings, equipment and material specifications, and appropriate design analyses are developed, or the as-built design documents are utilized. Separate reviews are conducted by individuals knowledgeable in both technical and QA requirements to verify the adequacy of the design effort.

Proposed modifications that involve a license amendment or a change to Technical Specifications are processed as proposed license amendment request.

Plant procedures impacted by modifications are changed to reflect revised plant conditions prior to declaring the system operable and cognizant personnel who are responsible for operating and maintaining the modified equipment are adequately trained.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., modification procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds a new subsection that describes modification procedures and their general format and content. The staff concluded that the applicant has provided modification procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1, and are therefore acceptable.

- STD SUP 13.5-35 Heavy Load Handling Procedures

In FSAR Subsection 13.5.2.2.6.5, STD SUP 13.5-35 states the following:

This topic is discussed in Subsection 9.1.5.8.

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., heavy-load handling procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds a new subsection that describes heavy-load handling procedures and their general format and content. The staff concluded that the applicant has provided heavy-load handling procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1, and are therefore acceptable.

- STD SUP 13.5-36 Material Control Procedures

In FSAR Subsection 13.5.2.2.7, STD SUP 13.5-36 states the following:

The QAPD provides a description of procedural requirements for material control.

The technical review for STD SUP 13.5-33 is in Section 17.5 of this SER.

- STD SUP 13.5-37 Security Procedures

In FSAR Subsection 13.5.2.2.8, STD SUP 13.5-37 states the following:

A discussion of security procedures is provided in the Security Plan.

The technical review for STD SUP 13.5-37 is in Section 13.6 of this SER.

- STD SUP 13.5-38 Refueling and Outage Planning Procedures

In FSAR Subsection 13.5.2.2.9, STD SUP 13.5-38 states the following:

> Procedures provide guidance for the development of refueling and outage plans, and as a minimum address the following elements:
>
> - An outage philosophy which includes safety as a primary consideration in outage planning and implementation
> - Separate organizations responsible for scheduling and overseeing the outage and provisions for an independent safety review team that would be assigned to perform final review and grant approval for outage activities
> - Control procedures, which address both the initial outage plan and safety-significant changes to schedule
> - Provisions that activities receive adequate resources
> - Provisions that defense-in-depth during shutdown and margins are not reduced or provisions that an alternate or backup system must be available if a safety system or a defense-in-depth system is removed from service
> - Provisions that personnel involved in outage activities are adequately trained including operator simulator training to the extent practicable, and training of other plant personnel, including temporary personnel, commensurate with the outage tasks they are to perform
> - The guidance described in NUMARC 91-06, “Guidelines for Industry Actions to Assess Shutdown Management,” to reduce the potential for loss of reactor coolant system boundary and inventory during shutdown conditions

NUREG–0800, Subsection 13.5.2.1 states that the applicant should describe the different classifications of procedures (e.g., refueling and outage planning procedures) and the general format and content of the different classifications of procedures. In FSAR Section 13.5.2, the applicant adds new Subsection 13.5.2.2.9 that describes refueling and outage planning procedures and their general format and content. The staff concluded that the applicant has provided refueling and outage planning procedures that meet the criteria in NUREG–0800, Subsection 13.5.2.1, and are therefore acceptable.

- STD SUP 13.5-40 Procedure related to Refueling Cavity Integrity

In FSAR Subsection 13.5.2.2.10, STD SUP 13.5-40 states the following:

Procedures will be established and implemented for:

- Monitoring refueling cavity seal leakage,
- Responding to refueling cavity and buffer pool drain down events, and
- Performing periodic maintenance and inspection of the refueling cavity seal and the Main Steam and Isolation Condenser System plugs in accordance with vendor recommendations.

13.5.2.5 Post Combined License Activities

The applicant identifies the following commitments:

STD SUP 13.5-4 Plant Procedure

Procedures are developed prior to fuel load to allow sufficient time for plant staff familiarization and to allow NRC staff adequate time to review the procedures and to develop operator licensing examinations. [COM 13.5-001]

STD COL 13.5-6-A Operating Procedures

Operating procedures are developed at least six months prior to fuel load to allow sufficient time for plant staff familiarization and to allow NRC staff adequate time to review the procedures and to develop operator licensing examinations. [COM 13.5-002]

STD COL 13.5-3-A Emergency Operating Procedures

The procedure development program, as described in the PGP for EOPs, is submitted to the NRC at least three months prior to the planned date to begin formal operator training on the EOPs. [COM 13.5-003]

STD COL 13.5-2-A Maintenance Procedures

An initial program based on service conditions, experience with comparable equipment and vendor recommendations is developed prior to fuel loading. [COM 13.5-004]

13.5.2.6 Conclusions

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix [X], Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference have been resolved.

In addition, the staff compared the additional COL and Supplemental information items in the COL application to the relevant NRC regulations, the guidance in Section 13.5 of NUREG-0800, and other NRC RGs. The staff's review concluded that the applicant has provided sufficient information to satisfy the requirements of the NRC regulations. The applicant has adequately addressed COL Items STD COL 13.5-2-A, 13.5-3-A, 13.5-5-A, and 13.5-6-A; Supplemental Items STD SUP 13.5-18, 13.5-19, 13.5-20, 13.5-21, 13.5-23, 13.5-25, 13.5-26, 13.5-27, 13.5-28, 13.5-29, 13.5-30, 13.5-31, 13.5-33, 13.5-34, 13.5-35, 13.5-36, 13.5-37, and 13.5-38; and site-specific COL and Supplemental Items EF3 STD 13.5-4-A, EF3 SUP 13.5-22, and EF3 SUP 13.5-24, relating to plant procedures. These items can be considered closed.

13.7 Fitness for Duty

13.7.1 Introduction

Pursuant to 10 CFR 52.79(a)(44), COL applications must include a description of the Fitness for Duty (FFD) Program required by 10 CFR Part 26. The FFD Program is designed to provide reasonable assurance that (1) individuals are trustworthy and reliable as demonstrated by the avoidance of substance abuse; (2) individuals are not under the influence of any substance, legal or illegal, or mentally or physically impaired from any cause that in any way adversely affects their ability to safely and competently perform their duties; (3) measures are established and implemented for the early detection of individuals who are not fit to perform their duties; (4) the construction site is free from the presence and effects of illegal drugs and alcohol; (5) the work places are free from the presence and effects of illegal drugs and alcohol; and, (6) the effects of fatigue and degraded alertness on an individual's ability to safely and competently perform their duties are managed commensurate with maintaining public health and safety.

13.7.2 Summary of Application

This section of the FSAR describes the Fermi 3 FFD Program for construction and operating phases.

Supplemental Information

- STD SUP 13.7-1 Fitness for Duty

The Fitness for Duty (FFD) Program is implemented and maintained in multiple and progressive phases dependent on the activities, duties, or access afforded to certain individuals at the construction site. In general, two different FFD programs will be implemented: a construction phase FFD program and an operating phase FFD program. The construction and operating phase programs are implemented as identified in Table 13.4-201.

The construction phase FFD program is consistent with NEI 06-06 (Reference 13.7-201). NEI 06-06 applies to persons constructing or directing the construction of safety- and security-related structures, systems, or components performed onsite where the new reactor will be installed and operated. Management and oversight personnel, as further described in NEI 06-06, and security personnel prior to the receipt of special nuclear material in the form of fuel assemblies (with certain exceptions) will be subject to the operating phase FFD program that meets the requirements of 10 CFR Part 26, Subparts A through H, N, and O. Following the receipt of special nuclear material onsite in the form of fuel assemblies, security personnel as described in 10 CFR 26.4(a)(5) will meet the requirements of an operating phase FFD program.

The applicant identified the following commitment:

Prior to the issuance of a Combined License for Fermi 3, Detroit Edison will review and revise, as necessary, the Fermi 3 construction phase FFD program, should substantial revisions occur to either NEI 06-06 following NRC endorsement, or to the requirements of 10 CFR Part 26, [COM 13.7-001].

License Conditions

There are no license conditions applicable to the Fermi 3 COL application.

13.7.3 Regulatory Basis

The applicable regulatory requirements for Section 13.7 are as follows:

- 10 CFR Part 26
- 10 CFR 52.79(a)(44)

Regulatory guidance for FFD Programs is included in RG 1.206.

Pending the issuance of an NRC RG for NEI 06–06, applicants may cite NEI 06-06, Revision 5, as a reference in the development of site-specific applications.

13.7.4 Technical Evaluation

The staff reviewed the following information in the COL FSAR:

Supplemental Information

- STD SUP 13.7-1 Fitness for Duty

The applicant provides a new Section 13.7 in the response to RAIs 13.07-1 through 13.07-4 in a letter dated December 16, 2010 (ML103540126). The staff reviewed the new Section 13.7 and focused on the following areas:

(1) The adequacy of the FFD Program for the construction phase.

(2) The adequacy of the FFD Program for the operations phase.

(3) The implementation schedule proposed by the applicant for both the construction phase and operations phase FFD programs.

In RAI 13.07-1, the staff asked the applicant:

> Under 10 CFR 52.79(a)(44), the Applicant's FSAR must contain a description of the fitness for duty (FFD) program required by 10 CFR Part 26 and its implementation. How does the Applicant intend to update its FFD program for the construction phase? NEI 06-06 provides examples of FFD programs and, if this guidance is endorsed by the NRC, will provide an acceptable method of

> complying with the NRC's regulations. If the NRC endorses NEI 06-06, does the Applicant intend to update its FFD program for the construction phase to comply with NEI 06-06? If future revisions to NEI 06-06 are endorsed by the NRC, does the Applicant intend to update its FFD program for the construction phase to comply with certain clarifications, additions, and exceptions in these future, endorsed revisions, as necessary?

The applicant's response dated December 16, 2010 (ML103350126), states the following:

> Detroit Edison will implement a construction phase Fitness for Duty (FFD) program that follows the guidance in the NRC-endorsed revision of NEI 06-06. The Fermi 3 FSAR, Section 13.7 does not commit to a specific revision of NEI 06-06, but will be updated to commit to Revision 5 of NEI 06-06. Detroit Edison will evaluate changes in subsequent revisions of NEI 06-06 and modify the construction phase FFD program to incorporate substantial changes determined to be appropriate.

The applicant proposes to modify COL FSAR Table 1.6-201 and Section 13.7, as described above. An attachment to the RAI responses dated December 16, 2010 (ML103350126), provides adequate details in Table 1.6-201 of how Detroit Edison will implement NEI 06-06 and provides a sufficient level of detail that addresses all of the milestones established by 10 CFR Part 26, Sections 26.3 and 26.4. The attachment lists FFD Program elements such as the title, source, section, milestone, and requirements that are listed in COL FSAR Table 13.4-201. The attachment also provides new text for COL FSAR Section 13.7 that contains a thorough program description and site-specific information. The staff found this response acceptable because it meets the requirements of 10 CFR Part 26, set forth in 10 CFR 52.79(a)(44). The staff verified that the applicant has included the proposed changes in FSAR Revision 3. Therefore, this RAI is closed.

In Section 3.7, the applicant identifies Commitment (COM13.7-001), which states the following:

> Prior to the issuance of a Combined License for Fermi 3, Detroit Edison will review and revise, as necessary, the Fermi 3 construction phase FFD program, should substantial revisions occur to either NEI 06-06 following NRC endorsement, or to the requirements of 10 CFR Part 26.

In RAI 13.07-2, the staff asked the applicant the following:

> Under 10 CFR 52. 79(a)(44), the Applicant's FSAR must contain a description of the fitness for duty (FFD) program required by 10 CFR Part 26 and its implementation. Describe how the COL Application, FSAR, Part 2, Table 13.4-201, (Sheet 13-43), comports with 10 CFR 26, Sections 26.3 and 26.4, and guidance in NRC's letter to the NEI dated December 2, 2009, entitled "Status of U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 06-06, 'Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites'" In particular, provide site specific information to clearly and sufficiently describe your operational FFD program, in terms of the scope and level of detail to allow as reasonable assurance of finding of acceptability. For example, will Fermi 3 base its Section 26.4(a) and (b) FFD program for Behavioral Observation Program and drug and alcohol testing on an operational unit program or develop its own specific program? Please describe substantial differences, if any.

The applicant's response to this RAI dated December 16, 2010 (ML103350126), states the following:

> The guidance contained in the NRC's letter to the NEI dated December 2, 2009 was reviewed. Information will be incorporated into Table 13.4-201 and Section 13.7 of the Fermi 3 FSAR consistent with the guidance.

The applicant's proposed revision of the FSAR markup is included in the response to RAI 13.07-1. The staff found that the response provides a sufficient level of detail and addresses all of the milestones established by 10 CFR Part 26, Sections 26.3 and 26.4.

The staff verified that the applicant has included the proposed changes in FSAR Revision 3. Therefore, this RAI is closed.

In RAI 13.07-3, the staff asked the applicant the following:

> Under 10 CFR 52.79(a)(44), the Applicant's FSAR must contain a description of the fitness for duty (FFD) program required by 10 CFR Part 26 and its implementation. In the COL Application, FSAR, Part 2, STD SUP 13.7-1, the Applicant states that the operations phase FFD program is consistent with NEI 03-01. Considering the recent amendment to 10 CFR Part 26, published on March 31, 2008, does the Applicant still intend to reference NEI 03-01 for the operations FFD program, instead of 10 CFR Part 26, which the Applicant referenced in the FSAR, Part 2, Table 13.4-201?

The applicant's response to this RAI dated December 16, 2010 (ML103350126), states that the basis for the Fermi 3 FFD Program is in 10 CFR Part 26, and the reference to NEI 03-01 will be removed from Section 13.7 of the Fermi 3 COL FSAR. The applicant's proposed COL revision is included in the response to RAI 13.07-1. The staff found that the response to RAI 13.07-3 provides a sufficient level of detail and addresses all of the milestones established by 10 CFR Part 26, Sections 26.3 and 26.4.

The staff verified that the applicant has included the proposed changes in FSAR Revision 3. Therefore, this RAI is closed.

In RAI 13.07-4, the staff asked the applicant the following:

> Under 10 CFR 52.79(a)(44), the Applicant's FSAR must contain a description of the fitness for duty (FFD) program required by 10 CFR Part 26 and its implementation. Describe why the licensee is proposing license conditions for FFD when Part 26 provides explicit implementation requirements.

The applicant's response to this RAI dated December 16, 2010 (ML103350126), states that the basis for the Fermi 3 FFD Program is in 10 CFR Part 26, and the reference to a license condition will be removed from FSAR Table 13.4-201. The FSAR markup is included in the response to RAI 13.07-1. The staff found that the response to RAI 13.07-4 provides a sufficient level of detail and addresses all of the milestones established by 10 CFR Part 26, Sections 26.3 and 26.4.

The staff verified that the applicant has included the proposed changes in FSAR Revision 3. Therefore, this RAI is closed.

13.7.5 Post Combined License Activities

The applicant identified the following commitment:

Prior to the issuance of a Combined License for Fermi 3, Detroit Edison will review and revise, as necessary, the Fermi 3 construction phase FFD program, should substantial revisions occur to either NEI 06-06 following NRC endorsement, or to the requirements of 10 CFR Part 26, [COM 13.7-001].

13.7.6 Conclusion

NRC staff reviewed FSAR Section 13.7 and the applicant's proposed revision to this section. The staff's review confirmed that the applicant has addressed the required information relating to the FFD Program, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

The staff compared the information in the proposed FSAR markup changes to the relevant NRC regulations and the guidance in NEI 06-06. The staff concluded that the information in the Fermi 3 COL FSAR is acceptable because it meets the regulatory requirements in 10 CFR Part 26 and 10 CFR 52.79(a)(44). The staff based this conclusion on the following:

STD SUP 13.7-1, which relates to the FFD Program, is acceptable because it conforms to 10 CFR Part 26 and 10 CFR 52.79(a)(44), as clarified in the NRC letter to NEI dated December 2, 2009 (ML ML092881085).

13.8 Cyber Security

13.8.1 Introduction

This section of the FSAR provides information relating to the preparations and plans for the cyber security program for Fermi 3. The purpose of this section is to demonstrate that the COL applicant will establish and maintain a cyber security program to provide high assurance that digital systems, networks, and communication systems are protected from cyber attacks.

13.8.2 Summary of Application

In a letter to the NRC, dated June 25, 2010, Detroit Edison Company (DTE) submitted a cyber security plan (CSP) for Fermi 3. The CSP applies to all critical digital assets (CDAs) required for Fermi 3 operation. In the submittal, Detroit Edison describes how it establishes, implements, and maintains a cyber security program that protects digital computer and communication systems and networks associated with safety-related and important-to-safety functions; security functions; emergency preparedness functions, including offsite communications; and support systems and equipment which, if compromised, would adversely impact safety, security, or emergency preparedness functions. The NRC staff provided the applicant RAI to address the staff's concerns with the CSP. The applicant submitted its responses to these RAI in a letter dated September 21, 2010.

DTE did not provide a glossary in the CSP. In the responses to RAI 13.06.06-1, DTE clarified the intent is to incorporate the NEI 08-09, Revision 6 Appendix B, "Glossary" by reference with one deviation. The deviation from NEI 08-09, Revision 6 Appendix B, "Glossary" was identified in the transmittal letter for Revision 1 of the Fermi 3 Cyber Security Plan) NRC3-10-0024 dated

June 25, 2010) and was related to the definition of "Cyber Attack." The revised "Cyber Attack" definition was accepted by the NRC in a letter from NRC to NEI dated June 7, 2010.

13.8.3 Regulatory Basis

The following NRC regulations include the relevant requirements for the CSP:

- 10 CFR 73.54, "Protection of Digital Computer and Communication Systems and Networks"
- 10 CFR 73.55(a)(1), 10 CFR 73.55(b)(8), and 10 CFR 73.55(m)
- Appendix G, "Reportable Safeguards Events," to 10 CFR Part 73, "Physical Protection of Plants and Materials"

10 CFR 73.54 requires each applicant to build and operate a nuclear power plant under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to submit, a CSP that satisfies the requirements of 10 CFR 73.54 for Commission review and approval.

The NRC staff stated in a letter (Subject: NEI 08-09, "Cyber Security Plan Template, Rev. 6), dated May 5, 2010 (ML101190371), that an applicant may use the template in NEI 08-09, Revision 6, to prepare an acceptable CSP. DTE submitted a CSP for Fermi 3 that was based on the template provided in NEI 08-09, Revision 6. The submitted CSP was reviewed against the template in NEI 08-09, Revision 6, which has been found acceptable for use by NRC staff. NEI 08-09, Revision 6 is comparable to RG 5.71, which is approved NRC guidance.

13.8.4 Technical Evaluation

The NRC staff performed a technical evaluation of the licensee's applicant's submittal. The applicant's licensee's submittal conformed to the guidance in NEI 08-09, Revision 6, which was found to be acceptable by the NRC staff (ML101190371) and comparable to RG 5.71 to satisfy the requirements contained in 10 CFR 73.54. The staff reviewed the applicant's licensee's submittal against the requirements of 10 CFR 73.54 following the guidance contained in RG 5.71. The staff's evaluation of each section of the applicant's licensee's submittal is discussed below.

13.8.4.1 Scope and Purpose

This CSP describes how Fermi 3 established a cyber security program to achieve high assurance that Fermi 3 digital computer and communication systems and networks associated with Safety, Security and Emergency Planning (SSEP) functions (hereafter defined as CDAs) are adequately protected against cyber attacks up to and including the Design Basis Threat (DBT).

The CSP states:

> Within the scope of NRC's cyber security rule at 10 CFR 73.54, systems or equipment that perform important to safety functions include structures, systems, and components (SSCs) in the balance of plant that could directly or indirectly affect reactivity at a nuclear power plant and could result in an unplanned reactor shutdown or transient. Additionally,

these SSCs are under the licensee's control and include electrical distribution equipment out to the first inter-tie with the offsite distribution system.

The following actions, described in the CSP, provide high assurance of adequate protection of systems associated with the SSEP functions from cyber attacks:

- Implementing and documenting the "baseline" security controls described in Regulatory Position C.3.3 of RG 5.71, and

- Implementing and documenting a cyber security program to maintain the established cyber security controls through a comprehensive life cycle approach, as described in Section 1.4 of the CSP.

The NRC staff finds that the applicant established adequate measures to implement and document the Cyber Security Program, including baseline security controls. Based on the review, the NRC staff finds that the CSP adequately establishes the Cyber Security Program, including baseline security controls.

13.8.4.2 Analyzing Digital Computer Systems and Networks and Applying Cyber Security Controls

The CSP describes that the Cyber Security Program is established, implemented, and maintained as described in Section 3.1 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3 described in RG 5.71 to:

- analyze digital computer and communications systems and networks

- identify those assets that must be protected against cyber attacks to satisfy 10 CFR 73.54(a)

The submitted CSP states that the cyber security controls in Appendices D and E of NEI 08-09, Revision 6, which are comparable to Appendices B and C in RG 5.71, are implemented to protect CDAs from cyber attacks.

Based on the above, the NRC staff finds that the CSP adequately addresses security controls.

13.8.4.3 Cyber Security Assessment and Authorization

The CSP provided information addressing the creation of a formal, documented, cyber security assessment and authorization policy. This included a description concerning the creation of a formal, documented procedure comparable to Section 3.1.1 of NEI 08-09, Revision 6.

The NRC staff finds that the applicant established adequate measures to define and address the purpose, scope, roles, responsibilities, management commitment, and coordination, and facilitates the implementation of the cyber security assessment and authorization policy.

Based on the review, the NRC staff finds that the CSP adequately established controls to develop disseminate and periodically update the cyber security assessment and authorization policy and implementing procedure.

13.8.4.4 Cyber Security Assessment Team

The Cyber Security Assessment Team (CSAT) responsibilities include conducting the cyber security assessment, documenting key findings during the assessment, and evaluating assumptions and conclusions about cyber security threats. The submitted CSP outlines the requirements, roles and responsibilities of the CSAT comparable to Section 3.1.2 of NEI 08-09, Revision 6. It also describes that the CSAT has the authority to conduct an independent assessment.

The submitted CSP describes that the CSAT will consist of individuals with knowledge about information and digital systems technology; nuclear power plant operations, engineering, and plant technical specifications; and physical security and emergency preparedness systems and programs. The CSAT description in the CSP is comparable to Regulatory Position C.3.1.2 in RG 5.71.

The submitted CSP lists the roles and responsibilities for the CSAT which included performing and overseeing the cyber security assessment process; documenting key observations; evaluating information about cyber security threats and vulnerabilities; confirming information obtained during tabletop reviews, walk-downs, or electronic validation of CDAs; and identifying potential new cyber security controls.

Based on the above, the NRC staff finds that the CSP adequately establishes the requirements, roles and responsibilities of the CSAT.

13.8.4.5 Identification of Critical Digital Assets

The submitted CSP describes that the licensee applicant will identify and document CDA and critical systems, including a general description, the overall function, the overall consequences if a compromise were to occur, and the security functional requirements or specifications as described in Section 3.1.3 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.1.3 of RG 5.71.

Based on the above, the NRC staff finds that the CSP adequately describes the process to identify CDAs.

13.8.4.6 Examination of Cyber Security Practices

The submitted CSP describes how the CSAT will examine, and document the existing cyber security policies, procedures, and practices; existing cyber security controls; detailed descriptions of network and communication architectures (or network/communication architecture drawings); information on security devices; and any other information that may be helpful during the cyber security assessment process as described in Section 3.1.4 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.1.2 of RG 5.71. The examinations will include an analysis of the effectiveness of the existing Cyber Security Program and cyber security controls. The CSAT will document the collected cyber security information and the results of their examination of the collected information.

Based on the above, the NRC staff finds that the CSP adequately describes the examination of cyber security practices.

13.8.4.7 Reviews and Validation Testing

The submitted CSP describes tabletop reviews and validation testing, which confirm the direct and indirect connectivity of each CDA and identify direct and indirect pathways to CDAs. The CSP states that validation testing will be performed electronically or by physical walkdowns. The licensee's applicant's plan for tabletop reviews and validation testing is comparable to Section 3.1.5 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.1.4 of RG 5.71.

Based on the above, the NRC staff finds that the CSP adequately describes tabletop reviews and validation testing.

13.8.4.8 Mitigation of Vulnerabilities and Application of Cyber Security Controls

As per Section 3.1.6 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.3 and Appendix A.3.1.6 to RG 5.71, the submitted CSP describes the use of information collected from Section 3.1.4 of the CSP to address cyber security controls.

The submitted CSP notes that before Fermi 3 can implement security controls on a CDA, it must assess the potential for adverse impact as per Section 3.1.6 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.3 of RG 5.71.

Based on the above, the NRC staff finds that the CSP adequately describes mitigation of vulnerabilities and application of security controls.

13.8.4.9 Incorporating the Cyber Security Program into the Physical Protection Program

The submitted CSP states that the Cyber Security Program will be reviewed as a component of the Physical Security Program in accordance with the requirements of 10 CFR 73.55(m). This is comparable to Section 4.1 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.4 of RG 5.71.

Based on the above, the NRC staff finds that the CSP adequately describes review of the CSP as a component of the physical security program.

13.8.4.10 Cyber Security Controls

The submitted CSP describes how the technical, operational and management cyber security controls contained in Appendices D and E of NEI 08-09, Revision 6, that are comparable to Appendices B and C in RG 5.71, are evaluated and dispositioned based on site specific conditions during all phases of the Cyber Security Program. The CSP describes that many security controls have actions that are required to be performed on specific frequencies and that the frequency of a security control is satisfied if the action is performed within 1.25 times the frequency specified in the control, as applied, and as measured from the previous performance of the action as described in Section 4.2 of NEI 08-09, Revision 6.

Based on the above, the NRC staff finds that the CSP adequately describes implementation of cyber security controls.

13.8.4.11 Defense-in-Depth Protective Strategies

The submitted CSP describes the implementation of defensive strategies that ensure the capability to detect, respond to, and recover from a cyber attack. The CSP specifies that the defensive strategies consist of security controls, defense-in-depth measures, and the defensive architecture. The submitted CSP notes that the defensive architecture establishes the logical and physical boundaries to control the data transfer between these boundaries. The defensive architecture is consistent with the security model in NEI 08-09, Revision 6.

Based on the above review, the NRC staff finds that the "Defense-in-Depth Protective Strategies" described in Section 4.3 of the CSP is acceptable.

13.9.4.12 Ongoing Monitoring and Assessment

The submitted CSP describes how ongoing monitoring of cyber security controls to support CDAs is implemented comparable to Appendix E of NEI 08-09, Revision 6, which is comparable to Regulatory Positions C.4.1 and C.4.2 of RG 5.71. The ongoing monitoring program includes configuration management and change control; cyber security impact analysis of changes and changed environments; ongoing assessments of cyber security controls; effectiveness analysis (to monitor and confirm that the cyber security controls are implemented correctly, operating as intended, and achieving the desired outcome) and vulnerability scans to identify new vulnerabilities that could affect the security posture of CDAs.

Based on the above, the NRC staff finds that the CSP adequately describes ongoing monitoring and assessment.

13.8.4.13 Modification of Digital Assets

The submitted CSP describes how cyber security controls are established, implemented, and maintained to protect CDAs. These security controls ensure that modifications to CDAs are evaluated before implementation that the cyber security performance objectives are maintained, and that acquired CDAs have cyber security requirements in place to achieve the site's Cyber Security Program objectives. This is comparable to Section 4.5 of NEI 08-09, Revision 6, which is comparable to Appendices A.4.2.5 and A.4.2.6 of RG 5.71.

Based on the above, the NRC staff finds that the CSP adequately describes modification of digital assets.

13.8.4.14 Attack Mitigation and Incident Response

The submitted CSP describes the process to ensure that SSEP functions are not adversely impacted due to cyber attacks in accordance with Section 4.6 of NEI 08-09, Revision 6, which is comparable to Appendix C, Section C.8 of RG 5.71. The CSP includes a discussion about creating incident response policy and procedures, and addresses training, testing and drills, incident handling, incident monitoring, and incident response assistance. It also describes identification, detection, response, containment, eradication, and recovery activities comparable to Section 4.6 of NEI 08-09, Revision 6.

Based on the above, the NRC staff finds that the CSP adequately describes attack mitigation and incident response.

13.8.4.15 Cyber Security Contingency Plan

The submitted CSP describes creation of a Cyber Security Contingency Plan and policy that protects CDAs from the adverse impacts of a cyber attack described in Section 4.7 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.3.2.7 and Appendix C.9 of RG 5.71. The applicant licensee describes the Cyber Security Contingency Plan that would include the response to events. The plan includes procedures for operating CDAs in a contingency, roles and responsibilities of responders, processes and procedures for backup and storage of information, logical diagrams of network connectivity, current configuration information, and personnel lists for authorized access to CDAs.

Based on the above, the NRC staff finds that the CSP adequately describes the cyber security contingency plan.

13.8.4.16 Cyber Security Training

The submitted CSP describes a program that establishes the training requirements necessary for the applicant's licensee's personnel and contractors to perform their assigned duties and responsibilities in implementing the Program in accordance with Section 4.8 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.3.2.8 of RG 5.71.

The CSP states that individuals will be trained with a level of cyber security knowledge commensurate with their assigned responsibilities in order to provide high assurance that individuals are able to perform their job functions in accordance with Appendix E of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.3.2.8 of RG 5.71 and describes three levels of training: awareness training, technical training, and specialized cyber security training.

Based on the above, the NRC staff finds that the CSP adequately describes the cyber security training and awareness.

13.8.4.17 Evaluate and Manage Cyber Risk

The submitted CSP describes how cyber risk is evaluated and managed utilizing site programs and procedures comparable to Section 4.9 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.4 and Appendix C, Section C.13 of RG 5.71. The CSP describes the Threat and Vulnerability Management program, Risk Mitigation, Operational Experience Program; and the Corrective Action Program and how each will be used to evaluate and manage risk.

Based on the above, the NRC staff finds that the CSP adequately describes evaluation and management of cyber risk.

13.8.4.18 Policies and Procedures

The CSP describes development and implementation of policies and procedures to meet security control objectives in accordance with Section 4.10 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.5 and Appendix A, Section A.3.3 of RG 5.71. This

includes the process to document, review, approve, issue, use, and revise policies and procedures.

The CSP also describes the applicant's licensee's procedures to establish specific responsibilities for positions described in Section 4.11 of NEI 08-09, Revision 6, which is comparable to Appendix C, Section C.10.10 of RG 5.71.

Based on the above, the NRC staff finds that the CSP adequately describes cyber security policies and implementing procedures.

13.8.4.19 Roles and Responsibilities

The submitted CSP describes the roles and responsibilities for the qualified and experienced personnel, including the Cyber Security Program Sponsor, the Cyber Security Program Manager, Cyber Security Specialists, the Cyber Security Incident Response Team (CSIRT), and other positions as needed. The CSIRT initiates in accordance with the Incident Response Plan and initiates emergency action when required to safeguard CDAs from cyber security compromise and to assist with the eventual recovery of compromised systems. Implementing procedures establish roles and responsibilities for each of the cyber security roles in accordance with Section 4.11 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3.1.2, Appendix A, Section A.3.1.2, and Appendix C, Section C.10.10 of RG 5.71.

Based on the above, the NRC staff finds that the CSP adequately describes cyber security roles and responsibilities.

13.8.4.20 Security Program Review

The submitted CSP describes how the Cyber Security Program establishes the necessary procedures to implement reviews of applicable program elements in accordance with Section 4.12 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.4.3 and Appendix A, Section A.4.3 of RG 5.71.

Based on the above, the NRC staff finds that the CSP adequately describes Cyber Security Program review.

13.8.4.21 Document Control and Records Retention and Handling

The submitted CSP describes that the applicant has established the necessary measures and governing procedures to ensure that sufficient records of items and activities affecting cyber security are developed, reviewed, approved, issued, used, and revised to reflect completed work.

The NRC staff was concerned that the Fermi 3 discussion of records retention did not comply with 10 CFR 73.54(h) and issued RAI 4920 for clarification. The applicant responded that the CSP would be modified to follow a revision to NEI 08-09, Revision 6, which describes cyber security records retention procedures satisfactory to the NRC staff. **This is Confirmatory Item 13.6.6-1**.

Based on the above, the NRC staff finds that the CSP adequately describes cyber security document control and records retention and handling.

13.8.4.22 Implementation Milestone

FSAR Table 13.4-201 contains the implementation milestone (COM 13.4-032) for the cyber security program. The milestone is “prior to fuel on-site.” The NRC staff’s review of the implementation milestone finds that it is satisfactory since it complies with 10 CFR 73.55(a)(4).

Based on the above review, the NRC staff finds that the “Implementation Milestone” described in Table 13.4-201 of Fermi 3 FSAR is acceptable.

13.8.5 Post Combined License Activities

The CSP will be implemented prior to fuel on-site (Protected Area). [COM 13.5-032]

13.8.6 Conclusion

The NRC staff compared Table 13.4.-201 of the FSAR and the CSP for Fermi Unit 3 to the relevant NRC regulations and the criteria in RG 5.71 via NEI 08-09, Rev. 6. The NRC staff concluded that the applicant is in compliance with the NRC regulations.

On the basis of its review, the staff finds that the information in the Fermi CSP adequately addresses the relevant requirements and guidance of 10 CFR 73.54 and RG 5.71, respectively. Therefore, the staff finds the information contained in this section acceptable.

The staff’s review confirmed that the applicant addressed the relevant information to satisfy the requirements of 10 CFR 73.54, 10 CFR 73.55(a)(1), 10 CFR 73.55(b)(8), 10 CFR 73.55(m), and Appendix G to 10 CFR Part 73, as applicable. Thus, the staff concludes that no outstanding information is expected to be addressed in the COL FSAR related to this section.