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), Revision 7 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. In addition, the applicant 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).”

13.1.2 Summary of Application

Section 13.1 of the Fermi 3 COL FSAR, Revision 7, incorporates by reference Section 13.1 of the certified Economic Simplified Boiling-Water Reactor (ESBWR) Design Control Document (DCD), Revision 10. In addition, in FSAR Section 13.1, the applicant provided the following:

COL Items

- 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 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, which requires the COL applicant to provide a milestone for implementing in all plant areas manual firefighting capability provisions.

13.1.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is addressed in NUREG-1966, "Final Safety Evaluation Report Related to the Certification of the Economic Simplified Boiling-Water Reactor Standard Design," (the FSER related to the ESBWR DCD). In addition, the relevant requirements of the Commission regulations for the applicant's organizational structure, and the associated acceptance criteria, are 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 Standard Review Plan (SRP).

The applicable regulatory guidance for the applicant's organizational structure 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:

- Title 10 of the *Code of Federal Regulations* (10 CFR) 50.40(b), "Common standards"
- 10 CFR 50.54 "Conditions of licenses" items (j) through (m)
- RG 1.33, Revision 2, "Quality Assurance Program Requirements (Operation)"

13.1.4 Technical Evaluation

As documented in NUREG–1966, U.S. Nuclear Regulatory Commission (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 7, and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD represents the scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application and the information incorporated by reference address the required information relating to the applicant's organizational structure.

[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 staff reviewed the information in the COL FSAR:

COL Items

- 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. This COL item describes organizational positions and associated functions and responsibilities at a nuclear power plant and in the corporations of the owner/applicant.

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

The applicant adds new sections and tables 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 titles are as follows:

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 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, “Transfer of licenses,” 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 described plans for managing the project in addition to the role and function of the architect-engineer and the nuclear steam supply system vendor during both the design and construction phases. 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. These plans thus 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. Résumés 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. Based on the preceding information and experience in nuclear power plant design, construction, and operation, the applicant is technically qualified as specified and as applicable in 10 CFR 50.40(b) and 10 CFR 50.80.

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(m).

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 satisfied the requirements that a designated organization be responsible for the testing program and for plans to utilize the plant operating and technical staff to develop and conduct the testing program and to review the 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, SRP Acceptance Criterion 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.

As part of the guidance in NUREG–0800, Areas of Review Item 1.B.vii in Section 13.1.1 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 has added new FSAR Subsection 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 notes that corporate policy sets the qualification and experience requirements of the corporate staff, which 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 résumés and other documentation of qualifications and experience will be available for review after vacant positions 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 that 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 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 confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, 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 concludes 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 9.5.1-10-A as it relates to the implementation of the Fermi 3 Fire Protection Program, including the Fire Brigade. In conclusion, the staff determined that the applicant has provided sufficient information to satisfy 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 Revision 7 includes a description of and schedule for the program to train ROs and SROs (i.e., licensed operators). The discussion addresses the scope of the licensing examinations as well as training requirements. The licensed operator training program also incorporates the requalification programs required in 10 CFR 50.54(i)(i-1) and 10 CFR 55.59, "Requalification."

In addition, this section provides a description of and schedule for the program to train non-licensed plant staff.

13.2.2 Summary of Application

Section 13.2 of the Fermi 3 COL FSAR, Revision 7 incorporates by reference Section 13.2 of the certified ESBWR DCD, Revision 10. In addition, in FSAR Section 13.2, the applicant provides the following:

COL Items

- STD COL 13.2-1-A Reactor Operator Training

In FSAR Section 13.2.1, "Reactor Operator Training," the applicant 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 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

In FSAR Section 13.2.2, "Training for Non-Licensed Plant Staff," the applicant states:

> 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

In FSAR Section 13.2 the applicant states:

> 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 in NUREG–1966. In addition, the relevant requirements of the Commission regulations for 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 Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigation"; Part 26, "Fitness for Duty Programs"; Part 50, "Domestic Licensing of Production and Utilization Facilities"; Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants"; and Part 55, "Operator's Licenses"; Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," of 10 CFR Part 50; the guidance of RG 1.8 and RG 1.149, Revision 3, "Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations"; NUREG–1021, "Operator Licensing Examination Standards for Power Reactors"; and NUREG–1220, "Training Review Criteria and Procedures." The COL and supplemental information items are 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, "Training and qualification of nuclear power plant personnel," and 10 CFR 52.79(a)(33).

The Operational Program for the Reactor Operator Training Program is in 10 CFR 55.13, "General exemption"; 10 CFR 55.31, "How to apply"; 10 CFR 55.41, "Written examinations: Operators"; 10 CFR 55.43, "Written examinations: Senior operators"; and 10 CFR 55.45, "Operating tests."

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 items—which relate to the incorporation of operating experience—are based on meeting the provisions of Three Mile Island Action Item I.C.5, Appendix 1A, "Feedback of Operating Experience"; and 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 7, and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD 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.

In 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 the 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.

[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.

Section 13.2.1 of NUREG–0800 states that the application should describe the schedule for the RO and SRO training program. 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's licensed operator training program schedule contains sufficient information to satisfy the guidance of NUREG-0800, Section 13.2.1 and is therefore acceptable.

Section 13.2.1 of NUREG–0800 states that the application should describe the requalification program for ROs and SROs. NEI 06-13A, Section 1 addresses the requalification program descriptions. In FSAR Section 13.4, "Operational Program Implementation," the applicant describes the licensed operator requalification program. The staff concluded that the applicant's 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 to address STD COL 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.

In 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 FSAR Section 13.2, 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. However, the applicant does not identify the appropriate NEI 06–13A revision to be used. For example, Revision 0 to NEI 06-13A does not address a cold license training program. Thus, Appendix 13BB does not address provisions for a cold license training plan. Revision 1 to

NEI 06-13A addresses a cold license training program and has been endorsed by the NRC. Therefore, the staff issued Request for Additional Information (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 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML093130117), clarifies the use of Revision 1 to NEI 06–13A as indicated in FSAR Table 1.6-201, "Referenced Topical Reports." The staff found this response acceptable, and therefore, this RAI 13.02.01-1 is closed.

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

Section 13.2.1 of NUREG–0800 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 Systematic Approach to Training (SAT) as defined in 10 CFR 55.4, "Definitions." 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.

Section 13.2.1 of NUREG–0800 also 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. Section 1.1 of NEI 06-13A states that the licensed operator training program content and schedule should comply with 10 CFR 55.59. This section also states that training programs are developed, established, implemented, and maintained using the SAT, as defined by 10 CFR 55.4. The staff found this information 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.

In addition, Section 13.2.1 of NUREG–0800 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, "Simulation facilities," 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 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 does conform to the guidance of RG 1.149, Revision 3. The staff determined that this information 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.

Section 13.2.1 of NUREG–0800 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 information is acceptable and sufficient 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.

Section 13.2.1 of NUREG–0800 states that applicants are to provide implementation milestones for the RO training program. NEI 06-13A includes implementation milestones. The staff determined that this information 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 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 confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, 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 concludes that the applicant has adequately addressed COL Items STD COL 13.2-1-A and 13.2-2-A and Supplemental Information STD SUP 13.2-1 relating to training, in accordance with NRC regulations. These items are thus acceptable.

13.3 <u>Emergency Planning</u>

13.3.1 Introduction

This FSAR 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 for adequacy and a reasonable assurance that they can be implemented. The plans shall be an expression of the overall concept of operations, 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 7, incorporates by reference Section 13.3 of the certified ESBWR DCD, Revision 10. 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 FSAR Section 13.3 to address COL Item 13.3-1-A of the ESBWR DCD, which states:

> The COL applicant is responsible for identifying the [operational support center] OSC and the communication interfaces or inclusion in the detailed design of the control room and [technical support center] 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 FSAR Section 13.3.2 to address COL Item 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 Section 13.3.2 to address COL Item 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, Revision 4, “Emergency Plan,” 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, Revision 4, "ITAAC," inspections, tests, analyses, and acceptance criteria (ITAAC) 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 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, "Methodology for Development of Emergency Action Levels Advanced Passive Light Water Reactors," 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 4, of the Fermi 3 COL application, the applicant proposes a license condition to execute formal Letters of Agreement with State and local agencies with responsibilities prior to fuel load.

In Part 10, Revision 4, of the Fermi 3 COL application the applicant proposed a license condition to submit a detailed analysis of on-shift staffing, in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, and the licensee shall incorporate any changes to the Emergency Plan needed to bring staff to the required levels, prior to or concurrent with completion of Emergency Plan ITAAC 2.0 of Emergency Plan ITAAC Table 2.3.1, and no less than 180 days prior to initial fuel load.

13.3.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG-1966. In addition, the relevant requirements of the Commission regulations for EP, and the associated acceptance criteria, are in Section 13.3 of NUREG-0800.

The applicable regulatory requirements and guidance for the Emergency Plan are as follows:

- 10 CFR 52.79(a)(21) and 10 CFR 52.79(a)(22)(i) require the FSAR to include emergency plans that comply with the requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50, in addition to certifications from State and local governmental agencies with Emergency Plan 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 demonstrate reasonable assurance that they can be implemented and on the NRC assessment as to whether the applicant's onsite emergency plans are adequate and demonstrate reasonable assurance that they can be implemented.

- 10 CFR 52.77, "Contents of applications; general information," 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, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," and other related guidance. The related acceptance criteria are identified in NUREG-0800 Section 13.3.II, "Acceptance Criteria." 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 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 REP and response. NUREG-0654/FEMA-REP-1, Revision 1, includes guidance that provides a basis for State and local governments to develop REP.

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 7, and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirms 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:

[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.

COL Items

- STD COL 13.3-1-A — Identification of OSC and Communication Interfaces with Control Room and TSC
- STD COL 13.3-2-A — Identification of EOF and Communication Interfaces with Control Room and TSC
- STD COL 13.3-3-A — Decontamination Facilities

The staff's review of STD COL13.3-1-A, 13.3-2-A, and 13.3-3-A are in Attachment 13.3A of this SER. Additional detailed evaluations of STD COL 13.3-1-A and 13.3-2-A can be found in Attachment 13.3C, "Onsite Emergency Plan," Section 13.3C.8, and the evaluations of STD COL 13.3-3-A are in Section 13.3C.11 of this SER.

Supplemental Information

The staff's review of the information provided in the application that is not part of the Fermi 3 Emergency Plan is 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 is in Attachment 13.3C of this SER. The staff finds 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 that the proposed revisions to the Onsite Emergency Plan are incorporated into 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 the Wayne County Emergency Operations Plan (June 2007). FEMA's Interim Findings Report (IFR) dated May 6, 2009 (see ADAMS Accession No. ML092360251), concluded that 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 EP.

ITAAC

- STD SUP 14.3-1-A

The COL applicant shall provide EP-ITAAC based on industry guidance.

The staff's evaluation of the proposed site-specific EP-ITAAC against the generic EP-ITAAC in NUREG–0800, Section 14.3.10, Table 14.3.10-1, "Emergency Planning Generic Inspections, Tests, Analyses, and Acceptance Criteria (EP-ITAAC)," and 10 CFR 52.80(a), located in Section 13.3C.19 of this SER, finds that the applicant has 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 into the next FSAR revision was being tracked as confirmatory items. The staff verified that Fermi 3 COL Part 10, Revision 4 included the proposed site-specific EP-ITAAC in Table 2.3-1. Therefore, this confirmatory item is resolved.

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, 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.

The staff revised the proposed license condition as follows:

> 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, Revision 0, with no deviations. The EAL scheme shall have been discussed and agreed upon with State and local officials. The fully developed site-specific EAL scheme shall be submitted to the NRC at least 180 days before the date scheduled for initial fuel load as set forth in the notification submitted in accordance with 10 CFR 52.103(a).

With this modification, the staff finds this license condition acceptable. The 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 Section 2.3 of Part 10, "Emergency Planning ITAAC," Table 2.3-1, "ITAAC For Emergency Planning," of the Fermi 3 COL application. This table adequately addresses requirements of 10 CFR 52.80(a) for site-specific EP-ITAAC in a COL application and is therefore acceptable. The 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 Attachment 13.3C Section 13.3C.19 of this SER.

- Part 10, License Condition

The applicant has proposed a license condition to execute formal Letters of Agreement with State and local agencies with Emergency Plan 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 staff's evaluation of the LOA is documented in Attachment 13.3C, Section 13.3C.1.7, "Written Agreements," of this SER.

- Part 10, License Condition

The applicant proposed a license condition to submit a detailed analysis of on-shift staffing, in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, and the licensee shall incorporate any changes to the Emergency Plan needed to bring staff to the required levels, prior to or concurrent with completion of Emergency Plan ITAAC 2.0 of Emergency Plan ITAAC Table 2.3.1, and no less than 180 days prior to initial fuel load.

The staff finds that the proposed DTE license condition adequately addresses the required detailed analysis of on-shift staffing. This is acceptable because it conforms to the guidance in the Nuclear Security and Incident Response/Division of Preparedness and Response-Interim Staff Guidance (NSIR/DPR-ISG)-01, "Interim Staff Guidance on Emergency Planning for Nuclear Power Plants." Verification that a future revision of the COL application incorporates a license condition concerning on-shift staffing, in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," is being tracked as Confirmatory Item 13.03 77. The staff verified that Fermi 3 COL Part 10, Revision 6 included the proposed license condition. Therefore, Confirmatory Item 13.03 77 is resolved. The staff revised the applicants proposed license condition to align the timing of the completion of the license condition with regulatory requirements associated with ITAAC schedules.

The staff revised the proposed license condition as follows:

The licensee shall conduct a detailed analysis of on-shift staffing, in accordance with the NRC endorsed version of NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, and the licensee shall incorporate any changes to the Emergency Plan needed to bring staffing to the required levels, prior to or concurrent with completion of Emergency Plan ITAAC 2.0 of Emergency Plan ITAAC Table 2.3.1.

With this modification, the staff finds this license condition acceptable. The staff's evaluation of the license condition to perform the required detailed analysis of on-shift staffing is documented in Section 13.3C.2.7 of the 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.

  - License Condition (13.3-1) 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, Revision 0, with no deviations. The EAL scheme shall have been discussed and agreed upon with State and local officials. The fully developed site-specific EAL scheme shall be submitted to the NRC at least 180 days before the date scheduled for initial fuel load as set forth in the notification submitted in accordance with 10 CFR 52.103(a).

- License Condition (13.3-2) License Condition COL application Part 10 – The applicant shall execute formal Letters of Agreement with State and local agencies with Emergency Plan 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.

- License Condition (13.3-3) The licensee shall conduct a detailed analysis of on-shift staffing, in accordance with the NRC endorsed version of NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, and the licensee shall incorporate any changes to the Emergency Plan needed to bring staffing to the required levels, prior to or concurrent with completion of Emergency Plan ITAAC 2.0 of Emergency Plan ITAAC Table 2.3.1.

13.3.6 Conclusion

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. The NRC staff reviewed the application and checked the referenced DCD. The staff's review confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, 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 concludes 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.

Based on FEMA's IFR and its evaluation of the Fermi 3 Emergency Response Plan, the staff concludes there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore, the staff concludes 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, Appendix E to 10 CFR Part 50, 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) and subject to the license conditions noted above and the satisfactory completion of the EP-ITAAC, the staff concludes 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. The staff also finds that emergency preparedness for Fermi 3 is adequate to support full-power operations.

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

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

13.3A.1 Regulatory Basis

The regulatory basis for accepting the resolution of COL Item STD COL 13.3-1-A requiring the identification of OSC and communication interfaces with the control room (CR) 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, (including the March 2002 addenda) and NUREG-0696, “Functional Criteria for Emergency Response Facilities.”

The regulatory basis for accepting the resolution of the COL Item STD COL 13.3-2-A requiring the identification of the EOF and communication interfaces with the CR 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 (including the March 2002 addenda), and NUREG-0696.

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

The regulatory basis for accepting the resolution of COL Item STD COL 14.3-1-A, “EP-ITAAC,” is based on industry guidance and is in 10 CFR 52.80(a). This item requires a COL application to include the proposed ITAAC that the licensee shall perform—including those applicable to EP—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 to conform with the COL, the provisions of the Atomic Energy Act, the Commission's rules and regulations, and the guidance in Section 14.3.10 of NUREG-0800.

13.3A.2 COL Information Items

Technical Information in the Application:

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

Section 13.3 of the Fermi 3 COL FSAR replaces the fifth through the 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 — Identification of EOF and Communication Interfaces with Control Room and TSC

Section 13.3 of the Fermi 3 COL FSAR replaces the fifth through the ninth paragraphs of the ESBWR DCD Tier 2 with the same information described for COL Item STD COL 13.3-1-A listed above.

- STD COL 13.3-3-A — Decontamination Facilities

Section 13.3 of the Fermi 3 COL FSAR replaces 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:

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

The staff's review of the information in the application that addresses COL Item STD COL13.3-1-A concludes that it meets the requirements in 10 CFR 50.47(b) and 10 CFR 50.34(f)(2)(xxv) and the guidance in Revision 1 to NUREG-0654/FEMA-REP-1 (including the March 2002 addenda) and NUREG-0696. The details of this review are in Section 13.3C.8 of this SER.

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

The staff's review of the applicant's information that addresses COL Item STD COL 13.3-2-A concludes that 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 Revision 1 to NUREG-0654/FEMA-REP-1 (including the March 2002 addenda) and NUREG-0696. The details of this review are in Section 13.3C.8 of this SER.

- STD COL 13.3-3-A Decontamination Facilities

The staff's review of the applicant's information that addresses COL Item STD COL 13.3-3-A concludes that it meets the requirements in 10 CFR 50.47(b), 10 CFR Part 52, and Appendix E to 10 CFR Part 50. The details of this review are in Section 13.3C.11 of this SER.

13.3A.3 Supplemental Information Items

- STD COL 14.3-1-A Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)

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 COL 14.3-1-A Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)

The COL applicant states that 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 COL application Part 10. The resolution of this COL item is addressed in Section 13.3C.19 of this SER.

13.3A.4 Departures

There are no departures that affect emergency preparedness.

13.3A.5 Conclusion

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

In addition, NRC staff compared the COL items and the supplemental information item in the Fermi 3 COL application to the applicable NRC regulations and other NRC RGs. Therefore the staff concludes that the applicant has provided sufficient information to comply 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); and the applicable guidance in NUREG-0654/FEMA-REP-1, NUREG-0696, and NUREG-0800.

Attachment 13.3B Emergency Planning Information in the Application

This attachment of the SER includes the NRC staff's evaluation of Emergency Plan information that the applicant is required to provide in the COL application. However, the attachment does not address the applicant's plans for responding to a radiological emergency, which are evaluated in Attachment 13.3C of this SER.

13.3B.1 Regulatory Basis[2]

The applicable regulatory requirements for Emergency Plan information are as follows:

- Appendix E to 10 CFR Part 50, Section I, "Introduction," describes the emergency planning zone (EPZ.)

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

- 10 CFR 52.79(a)(21) and 10 CFR 50.34(b)(6)(v), "Contents of applications; technical information," also require the FSAR to include an onsite emergency plan that meets the requirements in 10 CFR 50.47 and Appendix E to 10 CFR Part 50.

- 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 that the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 16 kilometers [km] (10 miles [mi]) in radius and the ingestion pathway EPZ shall consist of an area about 80 km (50 mi) 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 conditions such as demography, topography, land characteristics, access routes, and jurisdictional boundaries. The plans for the ingestion pathway shall focus on actions that are appropriate to protect the food ingestion pathway.

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

[2] 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.

acceptable method for complying with the Commission regulations. Where differences exist, the evaluation should discuss how the proposed alternative provides an acceptable method for complying with the Commission 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) requires certifications from State and local governmental agencies with Emergency Plan responsibilities stating 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 Part 50 and Part 100, "Reactor Site Criteria." Therefore, the requirements of 10 CFR Part 100, 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 applications for site approval to 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) contains the requirements regarding the emergency plan implementation prior to possessing radioactive materials in an unsealed form on foils or plated sources or sealed in glass in excess of the quantities in 10 CFR 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 (j)(1) contains the requirements regarding the emergency plan implementation prior to possessing uranium hexafluoride in excess of 50 kilograms in a single container or 1,000 kilograms total.

- 10 CFR 70.22 (i)(1) contains the requirements regarding the emergency plan implementation prior to possessing enriched uranium or plutonium, which in turn requires a criticality accident alarm system for uranium hexafluoride in excess of 50

kilograms in a single container or 1,000 kilograms total; or in excess of 2 curies of plutonium in an 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)) Section 13.3 of the COL FSAR states that the emergency plan should be 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. In Part 5, Section I.B, "Scope," states that the plan should describe 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 was developed to address the applicable provisions of RG 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," and is also based on the guidance in Revision 1 to NUREG-0654/FEMA-REP-1. 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's review finds that the Fermi 3 COL FSAR includes an emergency plan for coping with emergencies at the Fermi 3 site that 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 Plan documents are included as Supplemental Information. The list of State and local Emergency Plan documents includes:

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

The applicant has 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 the 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 plan was not included in the application. In RAI 13.03-35, the staff requested the applicant to provide

the Ohio State REP and letter of certification consistent with 10 CFR 50.33(g). In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant provided the ingestion pathway portion of the State of Ohio Emergency Operations Plan and the certification letter from the State of Ohio. The applicant's response also included a proposed revision of Appendix 2 to the Fermi 3 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 it included both the Ohio State Emergency Response Plan and the requested letter of certification. 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 submittals are acceptable because they meet 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 16 km (10 mi) in radius around the site. Figure I-1, "Fermi 3 Plume Exposure Pathway EPZ," of the Emergency Plan illustrates the EPZ.

The ingestion pathway EPZ is described as an area approximately 80 km (50 mi) in radius around the site. Figure I-2, "Fermi 3 Ingestion Exposure Pathway EPZ," of the Emergency Plan illustrates the EPZ.

Technical Evaluation: FEMA and the staff reviewed the applicant's description of the EPZ and finds the size acceptable because it 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. In RAI 13.03-01-05, the staff requested the applicant to 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. The applicant's response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), proposed a license condition to execute formal Letters of Agreement (LOAs) 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 the arrangements supporting the Fermi 3 Emergency Plan.

Technical Evaluation: The staff finds the applicant's response to RAI 13.03-01-05 acceptable because it meets the requirements of 10 CFR 52.79(a)(22)(i). The staff confirmed that Revision 4 to Part 10 "ITAAC" of the Fermi 3 COL application incorporates the information and textual changes in the response to RAI 13.03-01-05. The staff finds that the revision to Section 3.1 ("Emergency Planning Actions") of Part 10 to the Fermi 3 COL application provides

an adequate license condition to ensure that the requirements of 10 CFR 52.79(a)(22)(i) will be met 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 Section 1.9 "Conformance with Standard Review Plan and Applicability of Codes and Standards," of Part 2 in the Fermi 3 COL application, the applicant provided Table 1.9-201, "Conformance with Standard Review Plan," to document that the application conforms to the SRP acceptance criteria. Table 1.9-201 indicates that Section 13.3, "Emergency Planning," conforms to the SRP acceptance criteria and is therefore acceptable.

The applicant uses 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. Also, the term "Not applicable" means that the SRP acceptance criteria do not apply to the ESBWR or to Fermi 3. Any differences with the SRP acceptance criteria are identified and justified, with references to the applicable FSAR sections 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 and identified the differences between the SRP acceptance criteria in Section 13.3 and application Table 1.9-201 to be adequately described. Therefore, the staff's review finds that 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, of the COL FSAR states that Section 13.3 of the ESBWR DCD is incorporated by reference with departures and/or supplements as noted.

Technical Evaluation: The staff's review finds that the ESBWR DCD is incorporated by reference into the Fermi 3 COL FSAR and the evaluation of the departures and supplements is in Attachment 13.3A of this SER. This information 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 ETE report, "Fermi Nuclear Plant Development of Evacuation Time Estimates," dated August 2010 describes the analyses undertaken and the results obtained by the study. On the basis of the information in the ETE Report, Appendix 5 of the Fermi 3 Emergency Plan, the staff concludes that there are no unique physical characteristics on the NPP site that pose 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 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," of the Fermi 3 FSAR, the applicant requests applicable licenses under 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material"; Part 40, "Domestic Licensing of Source Material"; and Part 70, "Domestic Licensing of Special Nuclear Material," prior to the initial receipt of by-product sources or special nuclear materials (excluding Exempt Quantities as described in 10 CFR 30.18). In RAI 13.03-88 the staff requested additional information regarding the requirements of 10 CFR 30.32(i)(1). Specifically, the staff asked whether the request for a Part 30 license involves authorization to receive or possess by-product material(s) "in unsealed form, on foils, plated sources, or sealed in glass," in excess of the quantities in 10 CFR 30.72, Schedule C. The applicant's response to RAI 13.03-88 dated December 6, 2013 (ADAMS Accession No. ML13344B028), states that no by-product material in an 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. Because 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 by-product material will be removed from FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations." In RAI 13.03-89, the staff requested additional information regarding the requirements of 10 CFR 40.31(j)(1). Specifically, whether the request for a Part 40 license involves authorization to receive, possess, or use uranium hexafluoride in excess of 50 kilograms (kg) (110 pounds [lb]) in a single container or 1,000 kg (about 2,200 lb) total. The applicant's response to RAI 13.03-89 dated December 6, 2013 (ADAMS Accession No. ML13344B028), states that the Part 40 license would not involve authorization to receive, possess, or use uranium hexafluoride in excess of 50 kg (110 lb) in a single container or 1,000 kg (2,200 lb) total. Because the quantities would not exceed the 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 before the implementation of the Emergency Plan (before the initial fuel loading and following the finding that the acceptance criteria in the COL has been met as stated in 10 CFR 52.103(g)). In RAI 13.03-90, the staff requested additional information regarding the requirements of 10 CFR 70.22(i)(1) and whether the request for a Part 70 license involves authorization to possess enriched uranium for which a criticality accident alarm system is required. The applicant's response to RAI 13.03-90 dated December 6, 2013 (ADAMS Accession No. ML13344B028), states that 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 kg (110 lb) in a single container or 1,000 kg (2,200 lb) total, or in excess of 2 curies of plutonium in an 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 before the receipt of special nuclear materials will be

removed from FSAR Table 13.4-201, "Operational Programs Required by NRC Regulations." Also, 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 and following the finding that the acceptance criteria in the COL has been met as required 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 that the additional information and textual revisions to the Fermi 3 FSAR that the applicant submitted in response to RAIs 13.03-88, 13.03-89, and 13.03-90 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 confirmed that Revision 7 of the Fermi 3 FSAR incorporated the proposed revisions to (1) remove a reference to implement the Emergency Plan prior to initial receipt of by-product sources or special nuclear materials from FSAR Table 13.4-201; and (2) 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 implementing the Emergency Plan to Subsection 12.2.1.5 of Chapter 12 of the Fermi 3 FSAR as described in the responses to RAIs 13.03-88, 13.03-89, and 13.03-90.

The staff created Confirmatory Items 13.03-73 through 13.03-75 to track the proposed revisions to (1) remove a reference to implement the Emergency Plan prior to initial receipt of by-product sources or special nuclear materials from FSAR Table 13.4-201; and (2) 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 implementing the Emergency Plan to Subsection 12.2.1.5 of Chapter 12 of the Fermi 3 FSAR. The staff finds that the 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. This item also tracks 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 COL has been met as required in 10 CFR 52.103(g). The staff verified that FSAR Revision 7 includes the references in FSAR Table 13.4-201. Therefore, Confirmatory Item 13.03-73 is resolved.

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 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 COL has been met as required in 10 CFR 52.103(g)). The staff verified that FSAR Revision 7 includes the references in FSAR Table 13.4-201. Therefore, Confirmatory Item 13.03-74 is resolved.

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 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 and following the finding that the acceptance criteria in the COL has been met as required in 10 CFR 52.103(g)). The staff verified that FSAR Revision 7 includes the references in FSAR Table 13.4-201. Therefore, Confirmatory Item 13.03-75 is resolved.

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

13.3B.11 Conclusion

NRC staff reviewed the Emergency Plan information required by regulations to be included in the application but not required to be part of the Fermi 3 Emergency Plan. The staff concludes that the information 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.

Attachment 13.3C <u>Onsite Emergency Plan</u>

The NRC evaluates emergency plans for nuclear power reactors to determine that 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 onsite emergency plan review for the proposed new Fermi 3 Nuclear Power Plant site.

The Fermi 3 FSAR Section 13.3 states 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 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).

By a letter dated December 18, 2012 (ADAMS Accession No. ML12355A032), the applicant provided additional information concerning the incorporation of the "Enhancements to Emergency Preparedness Regulations" (76FR72560) rule change to 10 CFR 50.47, 50.54(q);

10 CFR Part 50, Appendix E; and 10 CFR 52.79. The staff's evaluation of the additional information in this letter is discussed below.

13.3C.1 Assignment of Responsibility (Organizational Control)

13.3C.1.1 *Regulatory Basis*

In determining whether the proposed Fermi 3 Emergency Plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(1), the staff evaluated the plan against the detailed evaluation criteria[1] 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 "Assignment of Responsibility (Organization Control)," in Appendix E to 10 CFR Part 50.[2]

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 and their descriptions include State agencies, county governments, local governments, and Federal emergency response agencies. 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, the United States Department of Energy (DOE), FEMA, United States Coast Guard (USCG), and the United States Environmental Protection Agency (EPA).

In Section II.A.1.b, "Concept of Operations," the Michigan Department of Community Health (MDCH) is identified as a participating government agency with 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. The applicant's response to RAI 13.03-01-02 dated December 7, 2009 (ADAMS Accession No. ML093440828), describes 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 emergency drills and exercises. The applicant states that the 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 with MDEQ for coordinating medical support for a nuclear accident.

{Appendix E, Section IV.A.8} Section II.A.1.b 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 responsible for general planning, command and control, and overall direction and coordination. This responsibility includes

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[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.

[2] 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.

coordinating the implementation of protective actions to evacuate and/or shelter the public. The MDEQ is responsible for advising State and local officials on the 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 the local government officials responsible for protective actions.

Technical Evaluation: [A.1.a] The staff finds the additional information and textual revision to the Fermi 3 Emergency Plan submitted in response to RAI 13.03-01-02 to be acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

{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 information 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 carry out the Emergency Plan. Section II.A.1.b describes the applicant's responsibilities beginning with an assessment of plant conditions, the classification of emergencies, notifications, protective action recommendations (PAR), communications, and ending with a termination of emergency conditions. Section II.A.1.b identifies the Shift Manager as the responsible official for directing the activities of the plant staff in the initial assessment and in corrective and protective functions. The CR is the initial center for the coordination of emergency response actions. Once activated, the TSC provides supportive command and control functions of the CR. Following the activation of the emergency response facilities, a qualified senior manager assumes the Emergency Director position.

{Appendix E, Section III} FSAR Section 13.3.2, "Emergency Plan," states that the Emergency Plan is in Part 5 of the COL application. Section II.A of the Fermi 3 Emergency Plan describes the participating emergency response organizations and provides an overall concept of the operations. These include actions beginning with an assessment of plant conditions and ending with a termination of emergency conditions. The Plan describes the emergency response roles of supporting organizations and offsite agencies 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 information is acceptable because it conforms to the guidance in Revision 1 to 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 emergency operations center (EOC). Section II.A.1.b 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. The applicant's response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), provided a revised Figure II.A-1 of the Fermi 3 Emergency Plan showing multiple county EOCs. Section II.A.1.a.1 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 Plan submitted in response to RAI 13.03-01-04 to be acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the response to RAI 13.03-01-04. The staff finds that the Fermi 3 Emergency Plan adequately illustrates the interrelationships among the participating organizations in an emergency response in a block diagram and in the text. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 whether an emergency exists and the appropriate and applicable emergency classification. Upon the 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 who shall be in charge of the emergency response. This information 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, "24 Hour Emergency Response Capability," explains that the applicant maintains the capability for a 24-hour response, which includes the manning of communications links. This capability is maintained through the training of multiple responders for key emergency response positions, the assignment of emergency response personnel to extended shifts when needed to support emergency response operations, the procurement of external resources to supplement the assigned staff, and the availability of basic necessities such as food and sleeping facilities to accommodate emergency response personnel.

Technical Evaluation: [A.1.e.] The staff finds that the Fermi 3 Emergency Plan adequately describes provisions for a 24-hour per day emergency response, including around-the-clock staffing of communication links. These provisions are acceptable because they conform 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," which documents 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 also 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 the Oakwood Southshore Medical Center. In RAI 13.03-01-05, the staff requested the applicant to revise the Emergency Plan to include copies of existing agreements with the organizations identified in Appendix 2. The applicant's response to RAI 13.03-01-05 dated December 7, 2009 (ADAMS Accession No. ML093440828), states that LOAs supporting the proposed Fermi 3 Emergency Plan have not yet been specifically executed. The applicant stated that these letters will be individually executed before operation as verified by the ITAAC for Emergency Plan in Table 2.3-1, Item 1.0, and the letters will be similar to those executed for the existing Fermi 2. In Supplemental RAI 13.03-07, the staff requested the applicant to provide in the copies of the Emergency Plan LOAs for Fermi 3. The applicant's response to Supplemental RAI 13.03-07 dated June 25, 2010 (ADAMS Accession No. ML101790463), further clarified that there are certification letters from the support agencies, and the LOAs will be executed 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 Plan that the applicant 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, Revision 1. The staff confirmed that Revision 7 of the Fermi 3 FSAR contains a license condition stating that LOAs for Fermi 3 will be executed prior to operation. This response is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 (1) ensuring a continuity of technical, administrative, and material resources during emergency operations; (2) procuring external resources as needed; and (3) establishing arrangements for 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 the continuity of resources during a protracted period. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.1.9 *Conclusion*

The staff reviewed the onsite emergency plan as described above for the 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, Revision 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 order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(2), the staff evaluated the plan 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 "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 the minimum staffing needed to conduct routine and emergency operations will be maintained under guidelines that are consistent with 10 CFR 50.54(m). This section also details the responsibilities of on-shift personnel. In addition, Table II.B-1 describes the minimum on-shift staffing requirements and augmented staffing according to functional areas, Emergency Response Facility (ERF), and emergency classification. Details of the normal plant organization are in plant administrative procedures. In RAI 13.03-02-01, the staff requested the title and description of the plant administrative procedures. The applicant's response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), states that details of the normal plant organization are in Section 13.1 of the Fermi 3 FSAR. The response also includes text for Section II.B.1 of the Fermi 3 Emergency Plan that references Section 13.1 of the FSAR. Plant administrative procedures describe the normal plan organization, including the reporting relationships. On-shift personnel are considered immediately available to respond to an emergency. In RAI 13.03-02-06, the staff 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 information in the emergency response plan (i.e., 10 CFR 50.54(q) commitment for the changes). The applicant's response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), includes a revision to Section II.B that details the ERO position, responsibilities, major tasks regarding ERO staffing required for initial emergency response actions, and provisions for the timely augmentation of on-shift personnel. The revision describes 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
5) Joint Information Center Activation and Operation

The applicant also provided a revision to Section II.P.6 stated that the changes to the EPIPs are in accordance with the requirements of 10 CFR 50.54(q).

Technical Evaluation: {Appendix E, Section IV.A.1} The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporates the information and textual changes in the responses to RAIs 13.03-02-01 and 13.03-06. The staff finds the additional information and revisions to the Fermi 3 Emergency Plan submitted in response to RAIs 13.03-02-01 and 13.03-06 acceptable, because the information conforms to the regulatory requirements of Appendix E to 10 CFR Part 50, Section IV.A.1 and the guidance in Revision 1 to NUREG-0654/FEMA-REP-1.

The staff finds that the Fermi 3 Emergency Plan adequately describes the normal plant organization and appropriately describes changes to the EPIPs in accordance with the requirements of 10 CFR 50.54(q).

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 explains that the Shift Manager assumes responsibility as the Emergency Director upon declaration of an emergency and describes the assignment of plant staff for the emergency response. The full ERO is activated at the declaration of an Alert, Site Area Emergency, or General Emergency and includes the CR, OSC, TSC, and the 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 ERO 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 the positions, titles, and major tasks to be performed by persons assigned to functional areas of an emergency, which are all identified in the EPIPs. These assignments cover the functions listed in Table II.B-1, "Minimum Staffing Requirements for Emergencies," which describes minimum on-shift staffing by functional areas and augmented staffing during an Alert or higher. Table II.B-2 describes key positions and functional responsibilities for the overall ERO.

Table II.B-2 includes the responsibilities of the Radiation Protection Advisor in the TSC, who provides direction for radiation protection; Dose Assessors in the TSC, who perform onsite and offsite dose assessment and projections; Chemistry Technicians in the CR and TSC who perform dose assessments for potential and actual releases; Radiation Protection Coordinator in the EOF, who directs the Radiological Emergency Team (RET) Coordinator and Dose Assessors; and the Dose Assessor/Meteorological Assessor in the EOF, who performs dose assessments 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 ERO with a detailed discussion of the plant staff emergency assignments. This information 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 states that the Shift Manager assumes responsibility as the Emergency Director upon a declaration of an emergency. This position 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 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. This person 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 information 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 that if the Shift Manager is rendered unable to fulfill the duties and responsibilities of the Emergency Director (e.g., due to personal illness or injury); the on-shift Unit Supervisor (a position that is also staffed at all times) assumes the Emergency Director position until relieved by the Plant Manager or a designated alternate. The normal line of succession would be from the Shift Manager to the Plant Manager or an 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 the specific conditions for higher level utility officials to assume this function. This information 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 these responsibilities that include implementing immediate onsite corrective and protective actions and initiating offsite notifications and PARs. Some Emergency Director responsibilities cannot be delegated, such as directly notifying and making PAR to governmental authorities; authorizing plant and emergency workers to receive radiation doses in excess of the 10 CFR Part 20 "Standards for Protection Against Radiation"; and limiting and authorizing the distribution and use of potassium iodide (KI). Section II.B.1 states that when the EOF is activated, the Emergency Officer is responsible for the overall direction and control of the entire activated ERO and for coordinating with offsite agencies. The position of Emergency Officer is to be filled by a qualified senior manager who will have the non-delegable responsibility to directly notify and make PARs to governmental authorities responsible for implementing offsite emergency response actions.

{Appendix E, Section IV.A.2.a} Section II.B.1 states that the Shift Manager will assume responsibility for and the position as Emergency Director upon the declaration of an emergency. This position has the responsibility and authority to initiate any required emergency response actions and is responsible for coordinating the onsite emergency response. Table II.B-2 summarizes these 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 information 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 ERO with a detailed discussion of the authority, responsibilities, and duties of the individual(s) who will take charge during an emergency. This information 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.] {Appendix E, Section IV.A.9}
Section II.B, "Emergency Response Organization," describes the Fermi 3 ERO positions and associated responsibilities. It outlines the staffing responsible for providing initial emergency response actions and the timely augmentation of on-shift personnel. EPIPs provide the details of (1) ERO position descriptions, responsibilities, and major tasks to support initial emergency response actions; (2) the timely augmentation of notifications and communications; and (3) the activation and operation of the TSC, OSC, EOC, and JIC. In RAI 13.03-02-12, the staff requested the applicant to revise the Emergency Plan to include a description of the staffing for maintenance personnel that reflects Figure II.B-1. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), explains that on-shift maintenance personnel are assigned to the Damage Control and Rescue Team. In Supplemental RAI 13.03-11, the staff requested the applicant to describe the staffing of on-shift maintenance personnel to match the Figure II.B-1 position block diagram. The applicant's response to this RAI dated June 25, 2010 (ADAMS Accession No. ML101790463), 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 instrumentation and control (I&C) maintenance support will respond within 30 minutes to 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 will respond within 60 minutes to 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 the applicant to include in the Emergency Plan a description of the CR Communicator shown in Figure II.B-1. The applicant's response to these RAIs dated December 7, 2009 (ADAMS Accession No. ML093440828), states that Table II.B-1 of the Fermi 3 Emergency Plan describes the major tasks and organizational title associated with the CR Communicator position. The applicant also states in the response that the CR Communicator, at the direction of the CR Emergency Director, completes initial notification of and communications with Detroit Edison and State, local, and NRC EROs. 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. The applicant's responses to these RAIs dated December 7, 2009 (ADAMS Accession No. ML093440828), included a revised Table II.B-2 with the Emergency Officer's responsibility to direct the notification of governmental authorities and make PARs to these authorities.

Section II.B.1 states that the designated minimum staffing required to conduct routine and immediate emergency operations is maintained in accordance with 10 CFR 50.54(m) and the Fermi 3 technical specifications. Section 13.1 of the FSAR provides further details of the 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, Revision 1, and in Supplement 1 to NUREG-0737, "Clarification of TMI Action Plan Requirements." On-shift personnel are considered to be immediately available to respond to the emergency situation and to initiate emergency response actions. The normal complement of on-shift personnel is augmented according to the emergency classification.

Section II.C.2, “Offsite Organization Representation in the EOF,” describes the Detroit Edison personnel assignment as liaisons to the State, Monroe County, and Wayne County EOCs, upon their activation. These representatives act as technical liaisons providing plant status and emergency activity information updates to the offsite agencies. In RAI 13.03-02-17, the staff requested the applicant to revise Table II.B-2 of the Emergency Plan to include the Emergency Director’s responsibilities described in Section II.A.1.b, such as the activation of the ERO and the direction of initial notifications of PARs. In the response to RAI 13.03-02-17 dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant revised Table II.B-2 to show the responsibilities of the Shift Manager/Emergency Director to direct initial notifications of PARs and to activate the ERO. In RAI 13.03-02-19, the staff requested an explanation as to how a position in the augmenting ERO will perform the call-in of the team. In the response to RAI 13.03-02-19 dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant revised Table II.B-2 of the Fermi 3 Emergency Plan to show how the responsibilities of the CR Emergency Director will ensure that Detroit Edison personnel are called out as conditions warrant.

Section II.B.4, “Fermi 3 Emergency Response Organization Staff,” states that Detroit Edison will provide for minimum staffing of the Fermi 3 ERO that is consistent with Table II.B-1 of this Emergency Plan (based on Table B-1 of NUREG-0654). Table II.B-2 describes the key Fermi 3 ERO positions and their functional responsibilities. In RAI 13.03-02-07, the staff requested the applicant to revise the notification/communication functions in Table II.B.1 to be consistent with Table B-1 of NUREG-0654. In the response to RAI 13.03-02-07 dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant explained that Non-Licensed Operators are assigned the notification/communication functions and as Non-Licensed Operators, these individuals are also assigned other functions. In Supplemental RAI 13.03-08, the staff requested the applicant to revise Table II.B.1 of the Fermi 3 Emergency Plan to designate one of the excess Non-Licensed Operators as dedicated to the notification/communication functions, with no additional assigned functions. The applicant’s response to RAI 13.03-08 dated June 25, 2010 (ADAMS Accession No. ML101790463), states that Table II.B-1 and Figure II.B-1 will be revised to indicate that one on-shift, Non-Licensed Operator will be designated to perform only the notification/communication functions.

In RAI 13.03-02-09, the staff requested the applicant to revise the areas of expertise list in the Table II.B.1 “Plant System Engineering, Repair, and Corrective Actions” section to be consistent with the NUREG-0654 Table B-1 listing. The applicant’s response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), states that Non-Licensed Operators are qualified to perform radwaste operations during emergencies, which is reflected in a revision to Table II.B-1 that identifies core/thermal hydraulics and electrical and mechanical engineering analyses as technical support. These technical support and maintenance personnel will be 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 the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant revised Table II.B-1 of the Emergency Plan to include “firefighting communications.” In RAI 13.03-02-11, the staff requested the applicant to describe who the shift personnel are and their qualifications that allow them to fill the designated position in Table II.B-1. The applicant’s response dated December 7, 2009 (ADAMS Accession No. ML093440828), explains that the Table II.B-1 footnote indicates that the corresponding staff

numbers are not included in the stated total number in the table, and the individuals filling the asterisked emergency response positions in the table may be assigned multiple tasks. The applicant also notes that on-shift Operations and Maintenance personnel fulfill the primary functions assigned to the Damage Control and Rescue Teams, with support from Radiation Protection Technicians. In addition, on-shift Maintenance personnel are also assigned to complete the "Repair and Corrective Actions" tasks. In Supplemental RAI 13.03-10.b, the staff requested the applicant to clarify the inconsistency between Table II.B-1 data and Footnote 3. In the response to this RAI dated June 25, 2010 (ADAMS Accession No. ML101790463), 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 will respond within 30 minutes of 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 will respond within 60 minutes to an Alert or higher.

Section II.B describes the key Fermi 3 ERO positions and associated responsibilities. This section outlines the staffing needed to provide initial emergency response actions and the timely augmentation of on-shift personnel, when required. The EPIPs provide ERO position descriptions, responsibilities, and major tasks of the ERO staffing required for initial emergency response actions, in addition to provisions for the timely augmentation of notifications/communications and ERF activation and operation

{Appendix E, Section IV.A.9} The applicant's proposed license condition to be incorporated into the Fermi 3 COL application, Part 10, states the following;

> The licensee shall submit a detailed analysis of on-shift staffing, in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities" Revision 0, and the licensee shall incorporate any changes to the Emergency Plan needed to bring staff to the required levels, prior to or concurrent with completion of Emergency Plan ITAAC 2.0 of Emergency Plan ITAAC Table 2.3. 1, and no less than 180 days prior to initial fuel load.

The staff revised the proposed license condition as follows:

> The licensee shall conduct a detailed analysis of on-shift staffing, in accordance with the NRC endorsed version of NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, and the licensee shall incorporate any changes to the Emergency Plan needed to bring staffing to the required levels, prior to or concurrent with completion of Emergency Plan ITAAC 2.0 of Emergency Plan ITAAC Table 2.3.1.

Technical Evaluation: [B.5] The staff finds the additional information and textual revisions to the Fermi 3 Emergency Plan submitted in response to RAI 13.03-02-07, RAIs 13.03-02-09 through 13.03-02-13, RAI 13.03-02-17, RAIs 13.03-02-19 through 13.03-02-21, Supplemental RAI 13.03-08, RAI 13.03-10.b, and RAI 13.03-11 acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the responses to the RAIs listed above. The staff finds that the revisions to Table II.B-1, Table II-B-2, and Figure II.B-1 in the Fermi 3 Emergency Plan adequately describe the ERO positions and

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

Technical Evaluation: {Appendix E, Section IV.A.9} The staff finds that the applicant's proposed license condition adequately addresses the required detailed analysis of on-shift staffing. This change is acceptable because it conforms to the guidance in NSIR/DPR-ISG-01. Verification that a future revision of the COL application incorporates this license condition was tracked as Confirmatory Item 13.03-77. The staff verified that the proposed license condition is included in Section 3.7 of Part 10 to the COL application Revision 7. Therefore, Confirmatory Item 13.03-77 is resolved.

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 activities, Corporate Headquarters, State of Michigan, Monroe and Wayne Counties, Province of Ontario (Canada), and Federal agencies. In RAI 13.03-01-01, the staff requested a description of the interactions with the Province of Ontario. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant described the interactions with the Province of Ontario that include (1) notifications; (2) interactions at the EOF; and (3) interactions at the 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 identifying a liaison to the Province of Ontario. Additionally, the applicant's revised text to Section II.E.1.b.3 of the Emergency Plan specifies an initial notification to the Province of Ontario. In RAI 13.03-02-05 the staff requested the applicant to include in the block diagram interfaces between and among the onsite functional areas of emergency activities; licensee headquarters support; local services support; and State and local government response organization, including the TSC, OSC, and EOF. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant stated that Figure II.A-1 will be revised to show interfaces with the TSC and OSC in a revision to the Emergency Plan.

Roles of the State Police, MDEQ, and MDCH are described in Section II.A.1.b, "Concept of Operations." In RAI 13.03-01-03, the staff requested the applicant to include the roles of the State Police, MDEQ, MDCH, DOE, EPA, and USCG in Figure II.A-1. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), stated that the Michigan State Police, MDEQ, and MDCH are included in Figure II.A-1 under the listing for "Emergency Support Functions," as shown in the "State Emergency Operations Center" box of Figure II.A-1. The applicant stated that because the DOE manages the Federal Radiological Monitoring and Assessment Center (FRMAC), DOE is included in the "Federal Radiological Monitoring and Assessment Center (FRMAC)" box in Figure II.A-1. The applicant also notes 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 identifies the Province of Ontario 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 Plan submitted in response to RAIs 13.03-01-01, 13.03-01-03, and RAI 13.03-02-05 acceptable because they conform to the guidance in

NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the responses to the RAIs listed above. The staff also finds that the Fermi 3 Emergency Plan adequately specifies the interfaces between and among the onsite functional areas of emergency activities, licensee headquarters support, local services support, and State and local government response organization; in addition to illustrating them in a block diagram that includes the onsite TSC, OSC, and EOF. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 to 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 illustrates the interfaces of site functional areas of emergency response activities and the Corporate Headquarters. In RAI 13.03-02-02, the staff requested additional information regarding the applicant's Corporate Headquarters personnel interface with other functional areas. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant revises 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, Revision 1. The staff confirmed that Revision 4 of 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 among the corporate management, administrative, and technical support personnel will augment plant staffing during emergency events. This information 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, Revision 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 contractors and private organizations: Institute of Nuclear Power Operations (INPO), General Electric-Hitachi (GEH), the DOE Radiation Emergency Assistance Training Center/Training Site, and other private sector medical service agencies including Mercy Memorial Hospital; Oakwood Southshore Medical Center; a local ambulance services; Entergy Nuclear Palisades LLC; Indiana Michigan Power; and American Nuclear Insurers.

In RAI 13.03-02-04, the staff requested the identification of employees and non-employees by position and title who have special qualifications for coping with emergency situations. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant stated 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 LOAs or other legal instruments consistent with the requirements of 10 CFR 50.33(g). The applicant

states that the list of public and private sector organizations 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 states 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 contractors and private organizations that may be requested to provide technical assistance to and augmentation of the ERO. This information 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 that include law enforcement, fire protection, and ambulance and hospital support. Section II.L, "Medical and Public Health Support," describes hospital and medical support, onsite first aid capabilities, and medical transportation.

Appendix 2 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 will be 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 from organizations identified in Appendix 2 to show that these agreements delineate authorities, responsibilities, and action limits. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant stated that Letters of Agreement (LOAs) supporting the proposed Fermi 3 COL application Emergency Plan have not yet been executed. In Supplemental RAI 13.03-07, the staff requested the applicant to include in the Emergency Plan copies of the LOAs. In the response to Supplemental RAI 13.03-07 dated June 25, 2010 (ADAMS Accession No. ML101790463), the applicant stated that certification letters have been obtained from the support agencies, and formal LOAs will be executed prior to loading fuel at Fermi 3. The response also proposed a license condition to address the inclusion of LOAs in the Emergency Plan prior to the initial fuel load.

Technical Evaluation: [B.9] {Appendix E, Section IV.A.6} The staff finds the additional information and textual revision to the Fermi 3 Emergency Plan submitted in response to RAI 13.03-01-05 and Supplemental RAI 13.03-07 acceptable, because the information conforms to the requirements of Appendix E, Section IV.A.6 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 7 of the Fermi 3 FSAR and Part 10 of the COL application incorporate the information and textual changes in the responses to the RAIs listed above. The staff finds that the Fermi 3 Emergency Plan and the EP-ITAAC in the COL application, Part 10, adequately identify the services that may be needed during an emergency and commit to establishing LOAs with agencies that will provide those

services. This information is acceptable because it conforms to the requirements of Appendix E, Section IV.A.6 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.2.12 *Conclusion*

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

To determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(3), the staff evaluated the plan 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 states that 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 information 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.B.8 states that the Fermi 3 EPIPs, or LOAs with offsite response organizations (OROs), identify ORO resource availability and their applicable integration into site activities during an emergency event; including hostile action-based (HAB) events at the Fermi site. The procedures or LOAs identify ORO resources and coordination for potential simultaneous onsite and offsite ORO support, including coordination between security and EP resources that may be called upon during a radiological emergency scenario involving HAB events at the Fermi site. In RAI 13.03-95, the staff asked that the title of the EPIP containing the described information and what actions would be taken if shortfalls in ORO resources were found. In the response to this RAI dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant stated that the EPIP titled “Maintaining Emergency Preparedness” identifies and describes the requirements for the annual review of LOAs; as well as actions to be taken if shortfalls are noted. In addition, Section II.P.3 of the Fermi 3 Emergency Plan will also be revised to capture this information.

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 the Oak Ridge DOE under the DOE Radiological Assistance Program; 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 an alternate State EOC in Northville, Michigan, and the Wayne Count EOC in Romulus, Michigan, as available sites that will 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 to (1) perform radiological dose calculations; (2) determine offsite PARs; and (3) coordinate field monitoring team activities.

Technical Evaluation: [C.1.b] {Appendix E, Section IV.A.7} The staff finds that the additional information and the textual revision to the Fermi 3 Emergency Plan submitted in the response to RAI 13.03-95 are acceptable. The applicant described the requirements for the annual review of LOAs, as well as actions to be taken if shortfalls are noted. This information is thus acceptable because it conforms to the guidance in NSIR/DPR-ISG-01, Section IV.D. The staff also 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 information 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, and NSIR/DPR-ISG-01. Verification that a future revision of the COL application incorporates the acceptable changes in RAI 13.03-69 was tracked as Confirmatory Item 13.03-78. The staff verified that the proposed changes in the RAI response are included in Part 5 to the COL application Revision 7. Therefore, Confirmatory Item 13.03-78 is resolved.

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 two helicopter pads on the site. Additional provisions for incorporating the Federal response capability include the need for the applicant to provide facilities and resources to support the Federal response through the EOF. Office space and communications equipment are available for NRC personnel in the TSC, EOF, and JIC. State and local command centers that may be available to support the Federal response include the State EOC, the Monroe County EOC, and the Wayne County EOC. Section II.B states that 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 available office space for Federal, State, and local emergency personnel. In the response, to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant stated that Section II.C.1.d of the Emergency Plan indicates the facilities and resources that are available at the EOF to support the Federal response, in addition to office space and communications equipment for NRC personnel in the TSC, EOF, and JIC, as described in Section II.H.1. The applicant also stated that Section II.H.1.c of the Emergency Plan specifies that the TSC provides work space for five 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 Plan submitted in response to RAI 13.03-03-01 acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information 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 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 representatives to principal offsite governmental EOCs. This information 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 identifies fixed and mobile radiological laboratories, their radiation monitoring and analytical capabilities, and the advance time needed to respond following notification. This section also 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 analytical services that can be used in an emergency. This information 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 states that the applicant has made arrangements to obtain additional emergency response support from the INPO Fixed Nuclear Facility Voluntary Assistance Agreement signatories. This section also states that GEH has an emergency support program in place to provide design engineering expertise, specialized equipment, and other services. Appendix 2 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 the 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 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 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 to include copies of the LOAs in the Emergency Plan. In the response to Supplemental RAI 13.03-07 dated June 25, 2010 (ADAMS Accession No. ML101790463), the applicant proposed a license condition stating that the LOA will be obtained before 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 the role of the State of Michigan to perform radiological dose calculations and generate PARs. Section II.C.4, "Other Supporting Organizations," identifies the roles of the INPO Fixed Nuclear Facility Voluntary Assistance Agreement signatories and GEH, 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 that the proposed DTE license condition adequately addresses the required detailed analysis of on-shift staffing submitted in response to RAI 13.03-01-05 and Supplemental RAI 13.03-07. The staff thus finds the proposed change acceptable because it conforms to the guidance in NSIR/DPR-ISG-01. The staff confirmed that the Fermi 3 COL application, Part 10 Revision 4, incorporates the license condition described above.

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

13.3C.3.8 *Conclusion*

NRC staff reviewed the onsite emergency plan as described above, for the emergency response support and resources. NRC staff concludes that the information in the Fermi 3 Emergency Plan is acceptable because it meets the requirements of 10 CFR 50.47(b)(3); complies with the guidance in Planning Standard C of NUREG-0654/FEMA-REP-1, Revision 1; and complies with the applicable portions of Appendix E to 10 CFR Part 50, as described above.

13.3C.4 Emergency Classification System

13.3C.4.1 *Regulatory Basis*

In order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(4), the staff evaluated the plan against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed plan against applicable regulatory requirements related to the "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 3 Emergency Plan describes the standard emergency classification and action level schemes based on system and effluent parameters that affected State and local response organizations may rely on for

determining initial offsite response measures. The Fermi 3 EPIP for emergency classifications will provide the parameter values and equipment status that are indicative of each emergency class. Changes to this EPIP will be in accordance with the requirements of 10 CFR 50.54(q) and the guidance in Regulatory Issue Summary (RIS) 2005-02, "Clarifying the Process for Making Emergency Plan Changes." Section II.I, "Accident Assessment," further describes the availability and location of initial and continuing information for an accident assessment throughout the course of an event. This information includes plant parameter display systems, a 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 in use, including the four emergency classes described in Appendix E to 10 CFR 50: Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency. Each classification in the system is characterized by Emergency Action Levels (EALs) or initiating conditions that address emergencies of increasing severity. In RAI 13.03-17, the staff requested the applicant to address plans to finalize the Fermi 3 Emergency Classification and Action Level Scheme and provided them with two options. In the response to this RAI dated September 24, 2009 (ADAMS Accession No. ML092720656), the applicant selects Option 2 for the Fermi 3 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 that emergency classifications are characterized by EALs that are consistent with the general class descriptions in accordance with RG 1.101. The EALs, where possible, are related to plant instrumentation readings and are classified by determining which EAL-initiating conditions have been met.

Technical Evaluation: [D.1 and D.2] {Appendix E, Section IV.B and IV.C} The staff reviewed the proposed license condition (COM 13.4-031) to be added to the Fermi 3 FSAR, Chapter 13, Table 13.4-201, which states that "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, 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."

The staff finds the additional information and textual revisions to the Fermi 3 Emergency Plan in the response to RAI 13.03-17 acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan 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 acceptable because they conform to the requirements of Appendix E to 10 CFR Part 50, Sections IV.B and IV.C, and the guidance in NUREG-0654/FEMA-REP-1, Revision 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 that Detroit Edison is coordinating with the State of Michigan and Monroe and Wayne Counties to ensure consistency between the classification schemes. State, county, and provincial authorities review the content of the EALs on an annual basis. Detroit Edison informs the offsite governmental agencies of any EAL changes that significantly impact the initial conditions 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 describe how the initial EAL schemes will be discussed with and agreed to by the State, county, and provincial authorities, who will hold an annual EAL review meeting to discuss any changes in the scheme. This information is acceptable because it conforms to the requirements of 10 CFR Part 50, Appendix E, Section IV.B, for licensees to annually review their EAL schemes with offsite stakeholders.

13.3C.4.4 *Conclusion*

NRC staff reviewed 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 order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(5), the staff evaluated the plan against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the proposed plan against applicable regulatory requirements related to "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 states that the Emergency Director in the CR or TSC—or the Emergency Officer in the EOF—is responsible for notifying State, county, and Federal agencies in accordance with the EPIPs. Section II.E also explains that specific requirements for notifications to the NRC about classified emergency events are detailed in 10 CFR 50.72, and guidance can be found in the EPIPs. Appendix 6, "Emergency Plan Implementing and Supporting Procedures (Typical List) and Procedure Cross-Reference to Plan," identifies a procedure for notifications/communications.

Section II.E states that 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 II.E also states that an event will be reported to the NRC Operations Center immediately after notifying the appropriate State and county agencies, but no

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 the applicant 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 the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant describes interactions with the Province of Ontario, including an initial notification within one hour of the specified initiating conditions. The applicant states that for the existing Fermi 2 facility, requirements for notifying Federal, State, and local officials—including the Province of Ontario—are established in the EPIP, "Emergency Notifications." Appendix 6 of the Fermi 3 Emergency Plan lists an EPIP entitled, "Notifications/Communications."

Section II.E states that the applicant will notify the State of Michigan and 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 16-km (10-mi) Plume Exposure Pathway EPZ. Section II.E also states that 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 for disseminating information to the public includes releasing prescribed messages through appropriate broadcast media, such as the emergency alert system (EAS). In addition, the counties will activate the alert and notification system (ANS) upon direction from State or local authorities. The ANS can be activated within 15 minutes of a determination to notify the public.

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 Plan submitted in response to RAI 13.03-05-01 acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 basis for notification and means of verification. This information 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, Sections 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 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 describes the Plant Announcement (Page)/Party Line (PA/PL) System as the primary means for notifying onsite personnel. The CR will make an announcement that an emergency has been declared and what actions should be taken. ERO members will be instructed to respond to their designated ERF. The CR will also notify onsite and offsite personnel assigned to the ERO using an automatic callout system or a commercial telephone as a backup. Appendix 6, “Emergency Plan Implementing and Supporting Procedures (Typical List) and Procedure Cross-Reference to Plan,” identifies a notification/communication procedure.

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 information 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 of the Fermi 3 Emergency Plan lists the content of initial notification messages established between the applicant and the State and county agencies for a classified emergency. The initial notification message will contain plant contact information (location, date, and time); current classification of emergency and circumstances; whether a release is taking place; basic meteorological data; any recommended PARs; and potentially affected populations or areas. In RAI 13.03-05-01, the staff requested the applicant to provide additional information and revise the plan's described timing for the notification of the Province of Ontario, or provide a justification for why and how this meets the intent for early notification of the public.

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 Plan submitted in response to RAI 13.03-05-01, dated December 7, 2009 (ADAMS Accession No. ML093440828) acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the response to RAI 13.03-05-01. The staff finds that the Fermi 3 Emergency Plan adequately describes the message authentication scheme. This information is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Sections 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 states that for all emergency classifications, follow-up messages will be issued from the plant to affected State and local authorities to provide further details about the emergency. Available and appropriate information will be supplied including plant contact information (location, date, time); meteorological data (wind speed and direction, stability class, and precipitation); reactor information; plant status and updates; offsite release dose data; calculated and projected dose rates; and measured offsite radiation levels.

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] {Appendix E, Section IV.D.3} Section II.E states that the siren system is designed to be operationally segregated by the 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" provided as "Supplemental Information" to the Fermi 3 Emergency Plan identifies the sections within the State of Michigan Emergency Management Plan and the Monroe and Wayne County emergency plans where information is provided on an administrative means for notification.

Section II.E.5, "Instructions to the Public in the Plume Exposure EPZ," states that the capability exists for the prompt notification of the general public within the 10-mile Plume Exposure EPZ around the Fermi 3 site. This notification capability consists of two (2) principal elements: 1) the alert and notification system (ANS), and 2) the EAS radio and television stations. The locations of the sirens were determined by a comprehensive engineering study that addressed population density, geographical features, siren output, and the mounting heights of sirens to ensure coverage of the EPZ. The siren system is designed to be operationally segregated by the county boundary within the 16-km (10-mi) radius. In RAI 13.03-99, the NRC staff requested a description of the applicant's backup ANS capability as required by 10 CFR Part 50, Appendix E, Section IV.D.3. In the response to this RAI dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant provided a description of an intranet-based mass notification service that can send emergency messages to geo-coded (by address) telephones throughout the Michigan portion of the Fermi 16-km (10-mi) EPZ. The State of Michigan provided the system's design to FEMA for review and received FEMA's approval, which is contingent upon the completion of an initial testing program.

Section II.E.5 also describes that the operational state of readiness for the ANS is maintained under an 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 and 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 the plant procedures.

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

Technical Evaluation: {Appendix E, Section IV.D.3} The staff finds the additional information submitted in the response to RAI 13.03-99 to be acceptable because it conforms to the guidance in NSIR/DPR-ISG-01, Section IV.J. The staff also finds that the Fermi 3 Emergency Plan adequately describes the backup public alert and notification capability to be used if the primary ANS becomes unavailable. This information is thus acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.D.3, and conforms to the guidance in NSIR/DPR-ISG-01. Verification that a future revision of the COL application incorporates the applicant's proposed changes in RAI 13.03-99 was tracked as Confirmatory Item 13.03-79. The

staff verified that the proposed changes in the RAI response are included in Part 5 to the COL application Revision 7. Therefore, Confirmatory Item 13.03-79 is resolved.

13.3C.5.7 *Written Messages to the Public*

Technical Information in the Emergency Plan: [E.7] Section II.E of the Fermi 3 Emergency Plan states that the State of Michigan has developed EAS messages for the public that 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 the affected areas. Detroit Edison will provide offsite authorities with supporting information for messages to the public. Messages may include instructions such as to 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 that the Fermi 3 Emergency Plan adequately discusses written messages intended for the public developed by the State of Michigan. In particular, draft messages were prepared giving instructions to the public with regard to specific protective actions to be taken by occupants of the affected areas. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 no later than one (1) hour after the initial classification, escalation, termination, or entry into the recovery phase. Section II.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 the applicant to add a description to the Fermi 3 Emergency Response Plan of an accelerated notification to the NRC of a security-related attack within approximately 15 minutes of its discovery, as described in RIS 2006-12, “Endorsement of Nuclear Energy Institute Guidance ‘Enhancements to Emergency Preparedness Programs For Hostile Action.” The applicant’s response dated December 7, 2009 (ADAMS Accession No. ML093440828), provided a revision to Section II.EI.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 the EPIPs.

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 Plan submitted in response to RAI 13.03-34 acceptable because they conform to the requirements in 10 CFR Part 50, Appendix E, Section IV.A.4, and 10 CFR 50.72(a)(3). The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the response to RAI 13.03-34. The staff finds that the Fermi 3 Emergency Plan provides adequate details for

notifying the NRC immediately after notifying the appropriate State or local agencies and no later than one hour after the time the licensee declares one of the Emergency Classes, in addition to an abbreviated notification within 15 minutes of a security-related event. This information 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 under 10 CFR 50.73(a) and (b), in addition to the required initial notification. There are adequate provisions that upon the request of the NRC, an open and continuous communication channel with the NRC will be maintained. This information is acceptable because it conforms to the requirements in 10 CFR 50.72(c)(3).

13.3C.5.9 *Conclusion*

The staff concludes that the information in the Fermi 3 Emergency Plan regarding notification methods and procedures are acceptable, because they conform to and meet the requirements of 10 CFR 50.47(b)(5), 10 CFR 50.72(a)(3), 10 CFR 50.72(c)(3), and Appendix E to 10 CFR Part 50, 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, Revision 1.

13.3C.6 Emergency Communications

13.3C.6.1 *Regulatory Basis*

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

13.3C.6.2 *Content of the Emergency Communications Plan*

Technical Information in the Emergency Plan: [F.1.a] Section II.F.1, “Description of Communications Links,” states that 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 to EOCs from the CR, TSC, and EOF. Backup methods include commercial telephone lines, radios, and facsimiles. State and county warning points are continuously staffed. Figure II.F-1 depicts the emergency communications telephone network; and Figure II.F-2 depicts the communications 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 the communications links. Section II.F.1 states that Fermi 3 maintains the capability of making 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 details describing the intra- and offsite plant communications are in Section 9.5.2, “Communications Systems,” of this SER.

Technical Evaluation: [F.1.a] The staff finds that the Fermi 3 Emergency Plan adequately addresses communication plans for emergencies provide for 24-hour per day notifications to and activation of the State/local emergency response network. At a minimum, this network provides a telephone link and an alternate that include around-the-clock staffing at communication links that initiate emergency response actions. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Additional technical staff reviews of information regarding emergency communications are in Section 9.5.2 of this SER.

Technical Information in the Emergency 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, a microwave system, JIC phones, and radio communications systems as backup communication options.

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

Technical Information in the Emergency 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 ENS, the Health Physics Network (HPN), the Reactor Safety Counterpart Link (RSCL), the Protective Measures Counterpart Link (PMCL), the ERDS Channel, and 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 EROs. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Emergency Plan: [F.1.d.] Section II.F.1 describes communications systems used between the CR, TSC, EOF, the nuclear facility, the principal State and local EOCs, and the field assessment teams. These communication systems include PABX lines, a sound-powered telephone system, a ring-down phone system, an automatic callout system, a microwave system, telephones in the JIC, radio communications, facsimile transmissions, the PA/PL system, and the owner-controlled area notification system (OCANS).

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

Technical Information in the Emergency 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 backup 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 that activate several radio transmitters that, 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 information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Emergency Plan: [F.1.f.] Section II.F.1 describes communications systems used between the applicant and NRC Headquarters, the NRC Regional Office Operations Center, the EOF, and the radiological monitoring team assembly areas. These systems include the ENS, HPN, RSCL, PMCL, the ERDS Channel, MCL, local area network (LAN), and the nuclear security system. Offsite RET vehicles are equipped with a radio to provide mobile communications that are carried over Detroit Edison ultra-high frequency (UHF) service frequencies assigned to Western Wayne County. The radio control console for directing actions of the offsite RET 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, NRC Regional Office Emergency Operations Centers, and the EOF and radiological monitoring team assembly area. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

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

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

Technical Information in the Emergency 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 RETs are tested annually.

Technical Information in the Emergency Plan: {Appendix E, Section IV.E.9(d)}
Section II.N.2.a states that communication systems between the CR, 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 a backup power source for each system. This information 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 that include titles and alternates for those in charge at both ends of the communication links and primary and backup means of communication. Consistent with the function of the governmental agency, these arrangements include:

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 CR, onsite TSC, and EOF; 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 between the licensee and NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor CR, onsite TSC, and EOF. 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 Emergency Plan: (GL 91-14) Section II.F.1.a.5 of the Fermi 3 Emergency Plan describes that the ENS, HPN, RSCL, PMCL, ERDS, MCL, and the LAN are separate dedicated telephone lines 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 the response dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant described the emergency telecommunications system (ETS) and refers to ESBWR DCD Section 9.5.2, and FSAR Subsection 9.5.2.2 regarding the guaranteed power to the communications equipment. The applicant states that ESBWR DCD Subsection 9.5.2.1 provides the following power generation design bases for the plant communications systems:

- Communication subsystems are independent of one another, so 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).
- The communication subsystems are functional during a loss of offsite power.

The applicant stated that FSAR Subsection 9.5.2.2 provides additional details regarding power supplies to the ENS:

> 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.

In Supplemental RAI 13.03-12, the staff requested the applicant to revise Section II.F.1.a.5 of the Emergency Plan to include a reference to the sections of the ESBWR DCD and the FSAR that describe guaranteed power to the communication systems. In the response to Supplemental RAI 13.03-12 dated June 25, 2010 (ADAMS Accession No. ML101790463), the applicant provided revisions to be included in Section F.1 that state, "Subsection 9.5.2.2 of the Fermi 3 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 acceptable, because they conform to the guidance in GL 91-14. The staff confirmed that Revision 7 of Fermi 3 FSAR Subsection 9.5.2.2 incorporate the additional information and textual revisions 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 information is acceptable because it meets the guidance in GL 91-14.

13.3C.6.3 *Communications with Medical Facilities*

Technical Information in the Emergency 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. Backup communications systems include radio or other mobile services. Communication between ambulances and hospitals is the responsibility of the 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 services. This information 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 Emergency Plan: [F.3] Section II.F.3, "Communication System Tests," of the Fermi 3 Emergency Plan states that 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:

- Communications between the CR, 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 RETs are tested

annually.

- Communications between the CR, TSC, 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 periodic testing of the entire emergency communications system. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.6.5 *Conclusion*

NRC staff concludes that the information in the Fermi 3 Emergency Plan regarding emergency communications is acceptable and conforms to the requirements of 10 CFR 50.47(b)(6); Appendix E to 10 CFR Part 50; Sections IV.E.9(a), (b), (c), and (d); the guidance in Planning Standard F of NUREG-0654/FEMA-REP-1, Revision 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 order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(7), the staff evaluated the plan against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the plan against applicable regulatory requirements related to "Public Education and Information" in Appendix E to 10 CFR Part 50.

13.3C.7.2 *Content of Public Information*

Technical Information in the Emergency 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 within the 16-km (10-mi) 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 the EPIPs. Section II.G.1, “Public Information Program,” states that 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 the actions affected individuals should take in an emergency. This information includes but is not limited to educational information on radiation; who to contact for additional information; protective measures (shelters, 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 that Detroit Edison distributes a safety information publication on an annual basis to residents and transients in the 16-km (10-mi) EPZ. The information is distributed by mail to each residence and to appropriate locations where transient populations 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 the Fermi 3 plant. These tours include exhibits, lectures, and the opportunity to ask questions about all aspects of plant operations. The public information program provides permanent as well as

transient populations with an adequate opportunity to become aware of the information that is available. Public information materials instruct affected individuals to go indoors and turn on their radios or televisions when they hear the ANS sirens operating. The publications identify which local radio and television stations provide information related to a plant 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 affected areas and populations will be notified and what actions they should take in an emergency and the means for accomplishing the dissemination of the information. This information 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 Emergency Plan: [G.2] {Appendix E, Section IV.D.2} Section II.G.2 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 affected individuals to go indoors and turn on their radios and televisions at the sound of the sirens. Educational information on radiation and which radio and television stations provide information relevant to 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 annually provides permanent and transient populations within the plume exposure EPZ an adequate opportunity to become aware of the information. The program includes provisions for written materials that are available in a residence during an emergency. This information 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 Emergency Plan: [G.3.a] Section II.G.3, “News Media Coordination,” identifies the location of the JIC at the Monroe County Community College, 19.2 km (12 mi) west-southwest of Fermi 3, with an Onsite News Center briefing area for the media when appropriate. The Onsite News Center is located in the Nuclear Operations Center (NOC) Auditorium, 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 in the Onsite News Center during non-radiological releases. If the 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. According to Section II.G.3, the JIC is located 19.2 km (12 mi) west-southwest of Fermi 3 at the Monroe County Community College and can accommodate approximately 500 members of the news media. In RAI 13.03-07.01, the staff requested the applicant to provide the news media contacts. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant stated that Section II.G of the Emergency Plan describes multiple activities that address interactions with the news media, including the publication and distribution of public educational information that discusses public information sources and an annual News Media Acquaintance Program. The applicant further stated that carrying out these

activities requires the 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 that Fermi 2 and 3 will use a common public emergency information publication similar to the one currently used by Fermi 2. Section II.G states that details regarding the types of information provided to the public and coordination with the news media are in the EPIPs.

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 acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the additional information and textual revisions 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 the news media during an emergency. This information 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 Emergency Plan: [G.3.b] Section II.G.3 identifies the location of the JIC at the Monroe County Community College. The JIC can accommodate approximately 500 members of the news media, and an Onsite News Center that serves as a briefing area for the media (when appropriate) can 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 the space designated for use by a limited number of news media at the EOF during a declared emergency at the Fermi 3 site. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.7.6 *Designated Spokesperson*

Technical Information in the Emergency Plan: [G.4.a] Section II.G.4 of the Fermi 3 Emergency Plan states that 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. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant explains that the designated Federal, State, local, and Canadian spokespersons are specified in their respective plans and Section II.G.4 describes the process for the Corporate Utility Spokesperson and other designated spokespersons to obtain access to and execute a 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 acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan 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 who has access to all necessary information. This information 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 Emergency Plan: [G.4.b] Section II.G.4 states that there will be a timely exchange of information between spokespersons. In RAI 13.03-07.04, the staff requested additional information regarding descriptions by title/position of the plant's points of contacts for releasing public information. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant identified news media training to include information regarding points of contact for releasing public information during 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 acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan 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 a timely exchange of information among designated spokespersons. This information 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 Emergency Plan: [G.4.c] Section II.G.4 addresses rumors. If members of the public need to obtain information, they can request a clarification of any questions they may have by calling a publicized number for the Monroe County Emergency Management Division (EMD). Telephones at the Monroe County EMD will be staffed by local government representatives. Utility personnel at the JIC will coordinate rumor control with personnel at the Monroe County EMD before media briefings, so that rumors can be refuted or confirmed. This communication with the public will aid in dispelling rumors. Annex D to Appendix I, "Nuclear Accident Procedures Public Information," of the Monroe County Emergency Management Plan states that Public Inquiry Personnel will staff phones, but an automatic answering service may be utilized. Section II.G.4 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 information 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 Emergency 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 Plan and procedures. These programs cover radiation and radiological effects of nuclear power plants and provide information regarding points of contact for releasing information under emergency conditions. These programs also 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 that is conducted at least annually to acquaint the news media with the emergency plans, information concerning radiation, and points of contact for releasing

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

13.3C.7.10 *Conclusion*

NRC staff concludes that the information 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), Appendix E to 10 CFR Part 50, and Section IV.D.2 and conforms to the guidance in Planning Standard G of NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.8 Emergency Facilities and Equipment

13.3C.8.1 *Regulatory Basis*

In order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(8), the staff evaluated the plan against the detailed evaluation criteria in NUREG-0654/FEMA-REP-1, Revision 1. The staff also evaluated the plan against applicable regulatory requirements related to "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.

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 of NUREG-0737, Supplement 1) Section II.H.1.b, "Technical Support Center," states that the TSC is activated for Alert and higher emergencies and provides support to the CR for plant status assessments, potential offsite impacts, and emergency action implementation. The TSC is able 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 CR staff, relieves RO 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 information is acceptable because it conforms to the requirements of Appendix E to 10 CFR Part 50, Section IV.E, the guidance in NUREG-0654/FEMA-REP-1, Revision 1, and Supplement 1 to NUREG-0737.

13.3C.8.3 *TSC Location*

Technical Information in the Emergency Plan: (8.2.1.b of NUREG-0737, Supplement 1) (50.34(f)(2)(xxv)) Section H.1.b identifies the location of the TSCs in the electrical building within the Protected Area; they meet all of the ESBWR Standard Plant TSC design requirements.

Technical Evaluation: (8.2.1.b of NUREG-0737, Supplement 1) (50.34(f)(2)(xxv)) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC location. This information 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 of NUREG–-0737, Supplement 1) Table II.B-1, "Minimum Staffing Requirements for Emergencies," lists the TSC staffing within 30 minutes of a declared emergency. The list includes the Emergency Director, Communicator, and the Radiation Protection Advisor. Within 60 minutes, the list also includes the Technical Engineer or Nuclear Safety Advisor and the Support Engineer. In RAI 13.03-08.02, the staff requested additional information regarding how the TSC staffing meets the requirements in NUREG-0737, Supplement 1. The RAI is particularly concerned about core/thermal hydraulics and electrical and mechanical technical support. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant included a revised Table II.B-1, which identified core/thermal hydraulics and electrical and mechanical engineering analyses as the technical support provided by on-shift personnel. In RAI 13.03-02-09, the staff requested additional information on why Table II.B-1 did not describe core/thermal hydraulics, maintenance expertise for electrical, I&C, and Mechanical and Radwaste Operator expertise, or individuals to fill these functions. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828) stated that the staffing identified in Table II.B-1 is based on enhancements gained after years of experience from operating the existing Fermi 2, and the effectiveness of the proposed emergency response organizational staffing has been tested and proven through the organization's response to multiple drills, exercises, and emergency events. 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 the response to Supplemental RAI 13.03-09 dated June 25, 2010 (ADAMS Accession No. ML101790463), the applicant referred the staff to the Table II.B-1 revision included in the response to RAI 13.03-02-12 dated December 7, 2009 (ADAMS Accession No. ML093440828), which shows that 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 the response to RAI 13.03-02-09 and not in the response to RAI 13.03-02-12. The applicant further stated that as indicated in FSAR Table 13.1-202, the Radwaste Operator is not a member of the minimum shift organization for the ESBWR. The applicant stated that Non-Licensed Operators are qualified to perform radwaste operations during emergencies. The applicant also states that a footnote to Table II.B-1 will be added to clarify that one Non-Licensed Operator may be assigned Radwaste Operator duties to support the emergency response or recovery activities, as needed. The applicant provided a revised Table II.B-1 with a footnote explaining that one Non-Licensed Operator may be assigned Radwaste Operator duties.

In RAI 13.03-08.03, the staff requested additional information regarding how TSC staffing meets the NUREG-0696 requirement of full and functional operation within 30 minutes. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), states that the staffing identified in Table II.B-1 is based on NUREG-0654/FEMA-REP-1, Revision 1 and Revisions 2 and 3 of RG 1.101. The applicant added that similar staffing designations used for the existing Fermi 2 have successfully responded to drills, exercises, and emergency events.

Technical Evaluation: (8.2.1.c and j of NUREG-0737, Supplement 1) The staff finds the additional information and textual revisions to the Fermi 3 Emergency Plan submitted in responses to RAIs 13.03-08.03, 13.03-02-09, and Supplemental RAI 13.03-09 acceptable because they conform to the guidance in Supplement 1 to NUREG-0737, Sections 8.2.1.c and j. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan 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 of NUREG–0737, Supplement 1) Section II.H.1.b states that the TSC design is in accordance with the ESBWR Standard Plant that complies with all TSC requirements. The applicant has incorporated the TSC structure described in the ESBWR DCD with no departures or deviations and states that 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 that the Seismic Category NS structures and equipment are designed for seismic requirements that are in accordance with the 2003 revision of the International Building Code (IBC).

Technical Evaluation: (8.2.1.d of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC structure. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.b 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 using two redundant air filtration units (AFUs) with fans, high efficiency particulate air (HEPA) filters, charcoal filters for radioactive material removal when needed. The TSCVS maintains the TSC at a slight, positive pressure. Redundant air handling units with filters, heating and cooling coils, and a humidifier provide conditioned air to the TSC.

Technical Evaluation: (8.2.1.e of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC environmental controls. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.b states that the TSC room is equipped with radiological protection and

monitoring for personnel radiation exposure to maintain doses of less than 0.05 Sieverts (Sv) (5 roentgen equivalent man [rem]) total effective dose equivalent (TEDE) as defined in 10 CFR 50.2 for the duration of the accident, and the level of protection is similar to that of the CR. Subsection 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 TSCVS air intake. Subsection 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.

Subsection 7.5.2.2, "Containment Monitoring System," of DCD Tier 2, 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 states that the TSC is equipped with radiological protection and monitoring for personnel radiation exposure to maintain doses of less than 0.05 Sv (5 rem) TEDE for the duration of the accident, and the level of protection is similar to that of the CR.

Technical Evaluation: (8.2.1.f of NUREG–0737, Supplement 1) {Appendix E, Section IV.E.1} The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC radiological protection. This information 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.

Subsection 15.4.5.3.2.5, "Technical Support Center Radiological Consequence Analysis," of the NUREG–1966 (ESBWR DCD FSER) contains additional evaluation details concerning the habitability of the TSC and concludes that the analysis of the TSC radiological consequence in the ESBWR DCD, which is incorporated by reference into the Fermi 3 COL FSAR, is acceptable.

13.3C.8.8 *TSC Communications*

Technical Information in the Emergency Plan: (8.2.1.g of NUREG–0737, Supplement 1) Section II.H.1.b states that the TSC has reliable voice and data communications to the CR, OSC, EOF, NRC Operations Center, and other offsite agencies. Section II.F.1 describes the communications available in the TSC. The PABX system connects the CR, TSC, OSC, and EOF. A microwave system provides primary functions for emergency telephones and backup emergency telephone communications using administrative lines that can access offsite locations. A ring-down phone system that is programmed for automatic dialing provides communications to state and county warning points and EOCs from the CR, TSC, and EOF. In addition, facsimile machines are available in the CR, TSC, EOF and JIC. A PA/PL system with handsets and speakers is also available in the TSC.

Technical Evaluation: (8.2.1.g of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC communications. This information 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 of NUREG–0737, Supplement 1) 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 safety parameter display system (SPDS). Section 7.1.5 of the ESBWR DCD Tier 2 describes the SPDS. Subsection 7.1.5.1.2, "N-DCIS [Nonsafety-related distributed control and information system] Non safety-Related Design Bases," of the ESBWR DCD Tier 2 states N-DCIS collects and archives data for display on the SPDS. Section II.H.4, "Onsite Monitoring Systems," also states that key radiological monitoring system (RMS) data are linked to the plant computer that is available in the TSC and EOF. The RMS provides the needed radiation and activity levels to determine source terms for dose projection procedures.

Chapter 7, "Instrumentation and Control Systems," of the ESBWR DCD describes additional technical details relating to the TSC data collection, storage, and analytical capabilities.

Technical Evaluation: (8.2.1.h of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the TSC data collection, storage, and analytical capabilities. This information 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 of NUREG–0737, Supplement 1) Section 18.1, "Human Factors Engineering, Overview," of the ESBWR DCD Tier 2 states that the human factors engineering (HFE) program addresses the main CR, remote shutdown system, TSC, EOF displays, and local control stations that have safety-related functions or are defined by a task analysis. Section 18.2.1, "HFE Program and MMIS [man-machine interface system] and HFE Implementation Plan," states that the HFE design team will establish the HFE Program and the MMIS and HFE Implementation Plan, which provides the direction and integration of HFE-related design implementation and evaluation activities. Additional details about 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 of NUREG–0737, Supplement 1) Section II.H.1.b 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, onsite and offsite emergency plans, offsite population data, evacuation plans, EPIPs, and the FSAR. In RAI 13.03-08.04, the staff requested additional information clarifying whether plant operating records are included in the records available to TSC personnel. In the response dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant states that the TSC staff has access to plant operating records.

Technical Evaluation: (8.2.1.i of NUREG–0737, Supplement 1) The staff finds the additional information and textual revision to the Fermi 3 Emergency Plan submitted in response to RAI 13.03-08.04 acceptable because they conform to the guidance in Supplement 1 to NUREG-0737, Section 8.2.1.i. The staff confirmed that Revision 4 of the Fermi 3 Emergency

Plan incorporated the additional information and textual revision in the response to RAI 13.03-0804. The staff finds that the Fermi 3 Emergency Plan adequately describes the availability of the TSC plant records. This information 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 that the TSC is staffed and activated for Alert and higher declarations. The TSC is staffed and activated using the EPIPs and Table II.B-1 position staffing and times.

Technical Evaluation: [H.4] The staff finds that the Fermi 3 Emergency Plan adequately provides for the activation and staffing of the TSC. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.c, "Operational Support Center (OSC)," states that the OSC provides an area for the coordination of shift personnel supporting emergency response operations without causing congestion in the CR. The OSC is not designed to be habitable under all emergency conditions, and the EPIPs have provisions for relocating the OSC as needed and as directed by the Emergency Director. The survey, repair, and operations teams are sent from the OSC into the plant areas; the OSC 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 of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the OSC functions. This information 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 of NUREG–0737, Supplement 1) (50.34(f)(2)(xxv)) Section II.H.1.c describes the location of the OSC in the service building within the Protected Area, which is separate from the CR and provides an area for coordinating shift personnel to support emergency response operations without causing congestion in the CR.

Technical Evaluation: (8.3.1.b of NUREG–0737, Supplement 1) (50.34(f)(2)(xxv)) The staff finds that the Fermi 3 Emergency Plan adequately describes the location of the OSC. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.c describes the OSC as an area for coordinating shift personnel supporting emergency response operations without causing congestion in the CR. The OSC is the staging area for personnel who may be assigned to first aid, search and rescue, damage control, and emergency repair activities. Survey, repair, and operation teams are sent from the OSC into the plant areas. The OSC Coordinator manages OSC activities and dispatches emergency personnel to assignments as directed by the Emergency Director. Operating personnel (not assigned to the CR); Radiation Protection personnel; Chemistry personnel; and Maintenance personnel including mechanical, electrical, and I&C are some of the disciplines that report to the OSC. Responsibilities of the OSC Coordinator also include accountability for anyone dispatched to the OSC and the control of radiological exposure to personnel in the OSC and TSC.

Technical Evaluation: (8.3.1.a of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the functions of the OSC Coordination Activities. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.c explains that the OSC communications system shall have at least one dedicated telephone line to the CR, one dedicated telephone line to the TSC, and a telephone line that can reach onsite and offsite, as a minimum requirement. Section II.F.1 states that the OSC communications system shall have at least one dedicated telephone extension to the CR, one dedicated telephone extension to the TSC, and one telephone capable of reaching onsite and offsite locations, as a minimum requirement. Section II.F of the Emergency Plan provides additional information about the onsite communications systems.

Technical Evaluation: (8.3.1.c of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the OSC communications. This information 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 states the OSC is staffed and activated for Alert and higher declarations. The OSC is staffed and activated using EPIPs and Table II.B-1 position staffing and times.

Technical Evaluation: [H.4] The staff finds that the Fermi 3 Emergency Plan adequately provides for the activation and staffing of the OSC. This information 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 states that the OSC provides an area for coordinating shift personnel supporting emergency response operations,

without causing congestion in the CR. OSC equipment and supplies include protective clothing, dosimetry, and sampling and survey equipment that the OSC teams use.

Technical Evaluation: [H.9] The staff finds that the Fermi 3 Emergency Plan adequately describes the OSC capacity and supplies. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.d, "Emergency Operations Facility (EOF)," states that Fermi 2 and 3 share the EOF, which is the location where the Emergency Officer will direct staff in overall company activities involved with an emergency. The EOF is activated upon declarations of the Alert level and higher and provides for overall management of the emergency response; the performance of non-delegable functions when in command and control; offsite protective actions and radiological monitoring; environmental sampling analyses; public information; communications to State and county officials; the determination of recommended public protective actions; and the 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 Section 7.1.5 of the ESBWR DCD Tier 2. 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. In RAI 13.03-101, the staff requested additional information as to whether the space available in the EOF was evaluated for an event (such as a security event) that would activate both the Fermi 2 and 3 EROs, to ensure that there is sufficient space to accommodate the additional personnel required by both EROs. The staff requested the applicant to provide documentation for the EOF's available space evaluation and to revise the emergency plan EOF description to include the capability of supporting both Fermi 2 and 3 ERO teams in a site event that activates the EROs for both units. In the applicant's response to a letter dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant provided an adequate description of the evaluation that was performed to demonstrate that the EOF would have adequate space to support the activation and staffing of both the Fermi 2 and 3 EROs.

Technical Evaluation: [H.2] {Appendix E, Section IV.E.8} (8.4.1.a) The staff finds that the additional information submitted in the response to RAI 13.03-101 is acceptable because it conforms to the guidance in NSIR/DPR-ISG-01, Section IV.D. The staff also finds that the Fermi 3 Emergency Plan adequately describes the EOF functions. This information is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.E.8 and the guidance in NUREG-0654/FEMA-REP-1, Revision 1, NSIR/DPR-ISG-01 and Supplement 1 to NUREG-0737, Section 8.4.1.a. Verification that a future revision of the COL application incorporates the applicant's proposed changes in RAI 13.03-101 was tracked as Confirmatory Item 13.03-80. The staff verified that the proposed changes in the RAI response are included in Part 5 and Part 10 to the COL application Revision 7. Therefore, Confirmatory Item 13.03-80 is resolved.

13.3C.8.20 *EOF Location*

Technical Information in the Emergency Plan: (8.4.1.b of NUREG–0737, Supplement 1) (50.34(f)(2)(xxv)) Section II.H.1.d describes the EOF as about 1,524 meters (m) (5,000 feet [ft]) 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 (with a protection factor of 20), an 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 the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant states that the EOF is located approximately 1,829 m (6,000 ft) southwest of Fermi 2 and approximately 1,524 m (5,000 ft) southwest of the Fermi 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. The applicant's response dated December 7, 2009, states that the EOF is located in the NOC, which is located on "owner-controlled property" but is not within the owner-controlled area.

Technical Evaluation: (8.4.1 of NUREG–0737, Supplement 1b) (50.34(f)(2)(xxv)) The staff finds the additional information and textual revisions to the Fermi 3 Emergency Plan submitted in responses to RAIs 13.03-08.07 and 13.03-08.08 acceptable, because they conform to the guidance in Supplement 1 to NUREG–0737, Section 8.4.1.b. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the additional information and textual revisions in the responses to RAIs 13.03-08.07 and 13.03-08.08. The staff finds that the Fermi 3 Emergency Plan adequately describes the EOF location. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.d states that the size of the EOF is intended to serve as a workspace that accommodates about 40 people, including 25 Detroit Edison personnel and nine NRC representatives. The EOF also has 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 244 square meters (m^2) (2,625 square feet [ft^2]) for the EOF meets NUREG-0696 parameters for 40 persons. In the response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant stated that the description of the EOF floor area in Section II.H.1.d, is inaccurate; the floor area exceeds 279 m^2 (3,000 ft^2) and thus meets the NUREG–0696 criterion.

Technical Evaluation: (8.4.1.c of NUREG–0737, Supplement 1) The staff finds the additional information and textual revisions to the Fermi 3 Emergency Plan submitted in response to RAI 13.03-08.06 acceptable, because they conform to the guidance in Supplement 1 to NUREG-0737, Section 8.2.1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan the additional information and textual revisions provided in the response to RAI 13.03-08.06. The staff finds that the Fermi 3 Emergency Plan adequately describes the

size of the EOF. This information 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 of NUREG–0737, Supplement 1) In SRP Section 13.3.III, "Review Procedure," Item 9 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 of NUREG–0737, Supplement 1) The staff finds the Fermi 3 Emergency Plan adequately describes the EOF structural capabilities. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.d states that the EOF design is intended to accommodate habitability in the event of a postulated radioactive release from an accident. The design 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 ensure that personnel exposures do not exceed the 10 CFR Part 20 radiation limits.

Technical Evaluation: (8.4.1.e of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the environmental habitability of the EOF. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.d states that the EOF has extensive communications extending to the TSC, offsite Radiological Teams, the NRC, offsite EOCs, and intra-facilities. Section II.F.1 describes these communications systems that also include facsimiles, computer transmissions, and electronic transfer capabilities, in addition to several radio networks that support communications with radiological monitoring teams, maintenance teams, Nuclear Security personnel, and others and provide backup to offsite government and support agencies. Each offsite RET vehicle has a radio with the radio control console for directing their actions; the radio is 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 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 a direct current battery.

Technical Evaluation: (8.4.1.f of NUREG–0737, Supplement 1) The staff finds the Fermi 3 Emergency Plan adequately describes the EOF voice and data communications and information collection capabilities. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.d states that the display capability in the EOF includes a workstation that is capable of displaying the parameters required for an SPDS. Section II.H.1.d also states that the EOF technical data system receives, stores, processes, and displays information that is sufficient for assessing 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 that may be used to assess the operation status in the CR, TSC, and EOF; to promote the exchange of information between these facilities; and to assist in the decision making process. Subsection 7.1.5.1.2 of the ESBWR DCD Tier 2 states that this system collects and archives data to display the SPDS in the main CR.

Technical Evaluation: (8.4.1.g of NUREG–0737, Supplement 1) The staff finds the Fermi 3 Emergency Plan adequately describes the EOF information storage and analytical capabilities. This information 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 of NUREG–0737, Supplement 1) Section II.H.1.d 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, FSAR, state and local emergency management plan, offsite population data, evacuation plans, and EPIPs either as hard copies or electronically.

Technical Evaluation: (8.4.1.h of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan adequately describes the availability of plant records in the EOF. This information 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 of NUREG–0737, Supplement 1) In SRP Section 13.3.III, "Review Procedure," Item 9 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 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 of NUREG–0737, Supplement 1) The staff finds the Fermi 3 Emergency Plan adequately describes the industrial security provided for the EOF. This information 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 of NUREG–0737, Supplement 1) Section 18.1 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 analyses. Section 18.2.1 states that the HFE design team will establish the HFE Program and the MMIS and HFE Implementation Plan, which provide the 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 of NUREG–0737, Supplement 1) The staff finds that the Fermi 3 Emergency Plan and Chapter 18 of the ESBWR DCD Tier 2 EOF HFE, to adequately describe the EOF HFE functions. This information 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 of NUREG–0737, Supplement 1) Section II.H.3 states that the EOF is staffed and activated for Alert and higher declarations using EPIPs and Table II.B-1 position staffing and times. Table II.B-1 lists the EOF staffing that includes the Communicator, Emergency Officer, Radiation Protection Coordinator, and RET Sampler or Radiation Protection Technician, all with 60-minute augmentation times. Section II.H.1.d 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; Table 2 in Supplement 1 to NUREG–0737 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 the EOF staffing meets the goal of 30 and 60 minutes in Table 2 of Supplement 1 to NUREG–0737. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), states that Table II.B-1 is based on NRC guidance in NUREG-0654/FEMA-REP-1, Revision 1 (Table 2 in NUREG–0737, Supplement 1) and Revisions 2 and 3 of RG1.101. The applicant stated that Table II.B-1 includes enhancements resulting from multiple years of experience gained through operating the existing Fermi 2. In

addition, the proposed ERO staffing requirements can look to the proven effectiveness of the existing Fermi 2 ERO's response to multiple drills, exercises, and emergency events.

Technical Evaluation: [H.4] (8.4.1.i of NUREG–0737, Supplement 1) The staff finds the additional information and textual revision to the Fermi 3 Emergency Plan submitted in response to RAI 13.03-08.05 acceptable because they conform to the guidance in Supplement 1 to NUREG-0737, Section 8.4.1.i. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan included the additional information and textual revision provided in the response to RAI 13.03-08.05. The staff finds that the Fermi 3 Emergency Plan adequately addresses the EOF activation and staffing. This information 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 are essential for initiating emergency measures and performing accident assessments. The systems monitor for geophysical phenomena, radiological conditions, plant processes, and fire hazards. The seismic monitoring system measures and records the 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 RMS data are linked to the plant computer, which 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 that directly measure in-plant exposure rates and also include portable continuous air monitors that measure airborne particulates and iodine at various locations. Process monitors are used to measure radioactive noble gas, iodine, and particulates in effluent, gaseous, and liquid streams. High-range accident RMS measure radiation levels at selected locations, including the containment. The process monitoring system provides real-time meteorological data for calculating offsite radiological dose assessments. The emergency response portion of the system interfaces with the meteorological data acquisition system to provide and store data used to project offsite doses. There is a system terminal access in the CR, OSC, TSC, and EOF. 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 other 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 a system of continuous air samplers and environmental monitoring dosimeters surrounding the site monitors offsite environmental radiation, and the Fermi 3 offsite dose calculation manual (ODCM) includes a description of the system.

Technical Evaluation: [H.5] The staff finds that the Fermi 3 Emergency Plan adequately describes the onsite monitoring systems. This information 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 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 that surround the facility. The Fermi 3 ODCM describes these monitoring systems. The EOF laboratory is the designated facility for receiving and analyzing environmental samples during emergencies, as are the in-plant Chemistry and Radiation Protection Laboratories. 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 analytical support from offsite organizations. Section II.A of the Emergency Plan describes these arrangements and the capabilities of the facilities. Appendix 2 of the Emergency Plan includes pertinent agreements from these support organizations. Section II.C.3 of the Emergency Plan also provides information concerning available laboratory facilities.

Technical Evaluation: [H.6] The staff finds that the Fermi 3 Emergency Plan adequately describes data acquisition from or emergency access to offsite monitoring and analytical equipment. This information 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 the RETs to assess offsite radiological consequences. Section II.H.6 states that the types of radiological monitoring equipment are described in the EPIPs and the 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 information 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 Fermi 3 shares its meteorological monitoring system with Fermi 2 and thus 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 elevations of 10 and 60 meters, respectively. These sensors monitor wind speed and direction, temperature, delta temperature, Pasquill stability class, and sigma theta. Only the primary system also monitors the dew point and precipitation. Instantaneous

and various averaged data are available from dial-up terminals in the CR, TSC, and EOF. If any parameter is unavailable, supplementary data are available from the corporate computer system. In addition, there is a contract with a vendor to provide weather and forecast data; and NWS data are 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 are available from gauging stations at Gibraltar, Michigan, about 16 km (10 mi) north-northeast of the plant on the Detroit River; and at Toledo, Ohio, about 35 km (22 mi) south-southwest of the plant on Lake Erie. These 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 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 for obtaining representative current meteorological data from other sources. This information is acceptable because it conforms to the guidance in NUREG–0654/FEMA-REP-1, Revision 1. Additional details on the staff's review of the Fermi 3 meteorological systems and equipment are in Section 2.3.3 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. There are quarterly inventories of all emergency equipment and supplies as well as 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 also include an operational check of instruments and equipment, which have a shelf life that 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 provisions for inspecting inventory and operationally checking emergency equipment and instruments at least once each calendar quarter and after each use. The staff also finds that sufficient reserves of instruments and equipment to replace any that are removed from the inventory for calibration or repair. This information 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 provides a list of general categories of emergency equipment including communications equipment, protective clothing, respiratory protection equipment, 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 information 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 the 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 information 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 CR or OSC, 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 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 information 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} As stated in Subsection 13.3C.8.34 of this attachment, Section II.H.9 of the Fermi 3 Emergency Plan describes and evaluates the emergency response facilities, equipment inspections, and inventory programs and administrative procedures. Section II.P.3, "Plan Reviews and Updates," states that the Supervisor of Emergency Planning is responsible for an annual review of the

Emergency Plan to ensure that the plan and its supporting agreements are current. The Supervisor of Emergency Planning also identifies topics for consideration and possible changes to the plan. Section II.P.4, "Distribution of Revised Plans," states that the Supervisor of Emergency Preparedness determines which recommended changes are incorporated into the Emergency Plan, including changes to implementation or administrative procedures. Any revisions should be in accordance with the plant review and approval processes. The EPIPs are distributed on a controlled basis to the ERFs and other agencies in accordance with the plant's document control distribution process.

Technical Evaluation: {Appendix E, Section IV.G} The staff finds that the Fermi 3 Emergency Plan adequately describes the provisions for ensuring that the plan remains current—such as maintaining up-to-date implementation procedures and emergency equipment and supplies. The staff finds the plan 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 II.E.1.b, "Offsite Emergency Response Organizations," states that the ERDS will be initialized within 1 hour of the declaration of an Alert or higher. Section II.H.1.b, "Technical Support Center," states that CR communications with the NRC include the transmission of information using the ERDS.

Subsection 9.5.2.5-4-A, "Offsite Interfaces (2)," of the ESBWR DCD Tier 2 states that the applicant will describe the methods of communications from the CR, TSC, and EOF to the NRC, including the establishment of the ERDS in accordance with NUREG–0696. Subsection 7.1.4.2, "N-DCIS Nonsafety-Related Design Bases Summary," of the ESBWR DCD Tier 2 states that the design bases for the N-DCIS includes providing secure data communications to authorized external systems including the TSC, EOF, and ERDS. Subsection 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 communications to the TSC, EOF and ERDS. Subsection 7.5.1.2, "System Description," of the ESBWR DCD Tier 2 states that the nonsafety part of post-accident monitoring (PAM) includes the SPDS, the emergency response facilities information systems, and the ERDS. Subsection 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 describes the ERDS as a communication system from the utility to the NRC. Section II.N.2, "Drills," states that communications between the CR, TSC, and EOF to NRC Headquarters and Regional Operations Centers shall be tested monthly.

(10 CFR 50.72(a)(4)) Section II.E.1.b states that the ERDS will be initialized within 1 hour of the declaration of an Alert or higher.

Technical Evaluation: {Appendix E, Section VI} (10 CFR 50.72(a)(4)) The staff finds that the Fermi 3 Emergency Plan adequately describes the ERDS as a direct near real-time electronic data link between the licensee's onsite computer system and the NRC Operations Center that provides automated transmission of a limited data set of selected parameters and an established testing frequency. This information 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 the ERDS and the regulatory requirements in 10 CFR 50.72(a)(4).

13.3C.8.40 *ERO Augmentation at Alternative Facility*

Technical Information in the Emergency Plan: {Appendix E, Section VI.E.8.b, c & d} Section II.H.1.d in the Fermi 3 Emergency Plan describes an Alternate EOF (AEOF) located at the Western Wayne Center, approximately 35 km (22 mi) northwest of Fermi 3. The facility has adequate communications equipment and sufficient space to accommodate the additional personnel required for the continued capability of dose projection and decision making, including the coordination of the offsite teams. Personnel will be provided with portable equipment to enable them to perform their assigned functions. Activation and support functions of the AEOF are described in the EPIPs. The Fermi 2 Emergency Response Plan (Revision 40, page H-4) identifies the same AEOF located at the Western Wayne Center. In RAI 13.03-94, the staff requested additional information as to whether the space available in the Western Wayne Center was evaluated for an event (such as a security event) that would activate both the Fermi 2 and 3 EROs, to ensure that there is sufficient space to accommodate the additional personnel required by both EROs. The staff requested the applicant to provide documentation for the available space evaluation of the AEOF and to revise the AEOF description in the Emergency Plan to include the capability to support both Fermi 2 and 3 ERO teams in a site event that activates the EROs for both units. In the response to this RAI dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant provided an adequate description of the evaluation performed to demonstrate that the AEOF would have adequate space to support the activation and staffing of both the Fermi 2 and 3 EROs.

Technical Evaluation: {Appendix E, Section VI.E.8.b, c & d } The staff finds the additional information submitted in the response to RAI 13.03-94 to be acceptable because it conforms to the guidance in NSIR/DPR-ISG-01, Section IV.D. The staff also finds that the Fermi 3 Emergency Plan adequately describes the AEOF. The description includes the activation, support functions, location, communications equipment, space to accommodate the additional personnel required for the continued capability of dose projection, decision making capability, coordination of the offsite teams, and portable equipment of the AEOF. This information is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Sections IV.E.8 (c) and (d), and conforms to the guidance in NSIR/DPR-ISG-01. Verification that a future revision of the COL application incorporates the applicant's proposed changes in RAI 13.03-94 is being tracked as Confirmatory Item 13.03-81. The staff verified that the proposed changes in the RAI response are included in Part 5 to the COL application Revision 7. Therefore, Confirmatory Item 13.03-81 is resolved.

13.3C.8.41 *Conclusion*

The staff reviewed the Fermi 3 Emergency Plan and its provisions for emergency facilities and equipment. The staff finds that the plan is acceptable and meets the requirements of 10 CFR 50.34; 10 CFR 50.47(b)(8); 10 CFR 5072(a)(4); 10 CFR Part 50, Appendix E, Sections IV.E, G, and VI; and the guidance in NUREG-0654/FEMA-REP-1, Planning Standard H; and NUREG-0737, Supplement 1.

13.3C.9 Accident Assessment

13.3C.9.1 *Regulatory Basis*

In order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(9), the staff evaluated the plan 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 that plant system and effluent parameter values are utilized to determine accident severity and subsequent emergency classification, as described in Section II.D of this Emergency Plan. Environmental and meteorological events are also determining factors in emergency classifications. EPIP “Emergency Classification” identifies plant systems and effluent parameters that are indicative of off-normal or accident conditions and includes the various indications that correspond to the emergency initiating conditions. Section II.H describes the instrumentation and equipment capabilities available for each ERF.

Evaluation of plant conditions is accomplished through the monitoring of plant parameters from indications both in the CR and within the plant. Some of the more important plant parameters to be monitored in the CR are assembled into a single display location (i.e., the SPDS). As indicated earlier, the SPDS monitors parameters relative to the plant design such as the 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 Subsection 13.3C.4.2 of this SER. Therefore, the staff finds this information 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 states that the resources available to provide initial and continuing information for an accident assessment throughout the course of an event include plant parameter display systems, a liquid and gaseous sampling system, area and process radiation monitoring systems, and the accident radiation monitoring system (which includes the high-range containment radiation monitors). Section II.I.2, “Plant Monitoring Systems,“ states that the initial values and continuing assessments 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 that Detroit Edison equips RETs with portable air samplers, appropriate sample media, and analytical equipment capable of detecting radioiodine concentrations at or below 1E-7 microcuries per cubic centimeter (µCi/cc) under field conditions. Appendix 4, “Radiological Monitoring and Assessment,” of the Emergency Plan provides additional information regarding plant monitoring systems that are significant to ongoing and continuous radiological assessments.

In RAI 13.03-09-02, the staff requested information regarding post-accident sampling capabilities. The applicant’s response dated December 7, 2009 (ADAMS Accession

No. ML093440828), states that post-accident sampling capabilities are addressed in FSAR Section 9.3. In addition, the applicant provided a revised Section II.I.1 that includes a reference to Section 9.3 of the FSAR.

Subsection 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 Tier 2 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 the DCD Tier, 2 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. Subsection 7.5.2.2, "Containment Monitoring System," of the DCD Tier 2 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, Revision 1. The staff confirmed that the Revision 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, Revision 1.

Additional technical details on the staff's review of the Post-Accident Sampling Program is in Section 9.3.2 of this SER, which concludes that the Program meets the guidance in SRP Subsection 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) damage states (i.e., no damage, clad failure, 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 (i.e., coolable or uncoolable) for prioritization of mitigating activities; 3) determine the potential quality (type) and/or quantity (percent) of source terms available for release in support of projected offsite doses and 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 dose 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," of the Emergency Plan states that the typically available monitors used to aid in determining an event's potential source term include 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 terms (i.e., releases of radioactive materials) 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 describes Raddose-V, the offsite dose 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 that the EPIPs 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 dose 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 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 CR, 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 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 that EPIPs 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 CR, 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 MDEQ 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 that the 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, Revision 3, and the emergency preparedness training requirements described in Section II.O of the Emergency Plan. EPIPs 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 states that the 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 the Emergency 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 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 describes the EAL-based PARs that 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 the Emergency 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 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 *Conclusion*

The staff reviewed the Fermi 3 Emergency Plan in regards to Planning Standard I, "Accident Assessment" of NUREG–654/FEMA-REP-1 Revision 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, 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 order to determine whether the proposed emergency plan meets 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. The staff also evaluated the proposed emergency plan against Appendix E, Section IV.3 to 10 CFR 50.

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 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 on why the audible warnings from the warning systems and from the activities of the security force may not successfully notify individuals outside of the Protected Area but inside the owner-controlled area. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), states that the individuals located within the owner-controlled area but outside of the Protected Area are notified of emergency conditions through audible warnings from the warning systems and from 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 in the content of audible messages. Escorts provide response instructions to visitors. All individuals in 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 of the Protected Area but within owner-controlled areas. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), describes the ability to notify all individuals in 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 13.03-10.02 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the response to RAIs 13.03-10.01 and 13.03-10.02. The staff finds that the Fermi 3 Emergency Plan adequately establishes the means and the amount of time required to warn or advise onsite individuals and those who may be in areas controlled by the operator, including employees who do not have emergency assignments; visitors; contractor and construction personnel; and other persons who may be in or passing through the onsite public access areas; or persons who are within the owner-controlled area. This clarification is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 that Nuclear Security is responsible for directing traffic and controlling personnel as they leave Fermi 3 in an emergency, including special provisions for a coordinated evacuation under severe conditions such as inclement weather; large groups of personnel who need to be evacuated; or a high-level radioactive release. If an onsite evacuation is inadvisable due to adverse conditions such as weather-related, radiological, or traffic density conditions,

affected individuals will be directed to a safe onsite area determined by the Emergency Director for accountability. If necessary, there will be contamination monitoring and decontamination. Individuals will be informed of the evacuation routes with appropriate instructions via plant training programs, visitor orientation, escort instructions, posted instructions, or in 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 they will be sent home. In RAI 13.03-10.03, the staff requested the applicant to provide a letter of agreement from the Newport Service Center, Dixie Warehouse, and Trenton Channel Power Plant. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), stated that the Newport Service Center, Dixie Warehouse, and Trenton Channel Power Plant are owned and operated by Detroit Edison. Therefore, no LOAs are necessary for the use of these facilities. Pre-planned evacuation routes are established and maintained to be consistent with the EPIPs. There is a secondary route for site evacuation in the event that the primary route is rendered impassable because of radiological or meteorological conditions or other impediments to evacuation. The Emergency Director determines the travel directions and offsite assembly area(s) based on current meteorological and emergency conditions. Affected individuals will evacuate the site via their 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. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), provided a revised Section II.J.2 of the Emergency Plan that directs the security force to arrange for transportation from the site for any individual who is unable to arrange for transportation.

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 acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi Emergency Plan incorporated the information and textual changes in the response to RAIs 13.03-10.03 and 13.03-10.04. The staff finds that the Fermi 3 Emergency Plan adequately describes provisions for evacuation routes and for transporting onsite individuals to a suitable offsite location, including alternatives for inclement weather; high traffic density; and specific radiological conditions. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 that the Emergency Director is responsible for monitoring the contamination of personnel, vehicles, and personal property when there is a 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 as they exit the Protected Area by the portal monitors or will be sent to offsite assembly areas and monitored by portable friskers. Based on the status of the release of radioactive materials from the plant, monitoring may be limited to speed up 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 information 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 that in the event of a site area or a general emergency, nonessential personnel will be evacuated. The facility will have the appropriate equipment and supplies 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 nonessential personnel in the event of a "site area emergency" or "general emergency" and provides a decontamination capability. These provisions are acceptable because they conform 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 that a capability is in place to account for all individuals in the Protected Area and to determine the identities of any missing individuals within 30 minutes following the declaration of a site area emergency or a 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 will report the results of the accountability process 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. EPIPs 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, to ascertain the names of missing individuals within 30 minutes of the start of an emergency, and to account for all onsite individuals continuously thereafter. The Emergency Plan is therefore 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 that adequate supplies of radiation protection equipment are maintained for personnel remaining in or entering the Protected Area or ERFs, including respiratory protection equipment; protective clothing; and radioactive protective drugs (i.e., potassium iodide [KI]). This emergency equipment is listed, maintained, and inspected in accordance with radiation protection procedures. The onsite medical facility maintains adequate amounts of 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 supplies provided by offsite 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, the use of protective clothing, and radioactive protective drugs (i.e., KI). These provisions are therefore acceptable because they conform 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] {Appendix E, Section IV.3}
Section II.J.6 states the Emergency Director makes decisions regarding appropriate protective measures based on an evaluation of conditions on the site, including input from the Nuclear Security. If the Emergency Director determined that personnel assembly, accountability, and evacuation could result in undue hazards to site personnel, the Emergency Director may issue other protective measures.

In Section II.J.7, "Protective Action Recommendations and Bases," descriptions of public PARs show that they are based on plant conditions, estimated offsite doses, or some combination of both. Government officials in affected states and counties promptly receive PARs; offsite agencies receive PARs within 15 minutes of a general emergency declaration and within 15 minutes of a change in status of a 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, to the NRC, and to other appropriate governmental entities. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828), states that the Emergency Director or Emergency Officer is responsible for communicating offsite dose projections to Federal, State, and local authorities. The response also includes revisions to Table II.B-2 identifying that the Emergency Director has these responsibilities and added text to Section II.J.7 of the Emergency Plan that specifically discusses these responsibilities.

There are PARs based on offsite dose projections, in addition to the EAL-based PARs. The Radiation Protection staff is responsible for measuring offsite dose projections periodically during any emergency, when there is an actual or potential release of an amount of radioactive material that is likely to result in offsite consequences. Emergency plan implementation procedures establish the requirements for performing required dose 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, Revision 1. Table II.J-1 identifies specified dose limits governing evacuation (or shelter). In RAI 13.03-10.05, the staff requested information regarding the use of sheltering for the public as a potential protective action recommendation. In the response dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant stated that Section II.J.7 of the Emergency Plan refers to Table II.J-1, which provides for both evacuation and sheltering. The applicant provided new tables including Table II.J-2, "Exposure Pathways, Incident Phases, and Protective Actions"; and Table II.J-3, "Representative Shielding Factors from Gamma Cloud Source," which describe potential PAR actions. In Supplemental RAI 13.03-14, the staff requested the applicant revise the Emergency 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, "Consideration of Sheltering in Licensee's Range of Protective Action Recommendations," and NUREG–0654, Supplement 3. The applicant's response to Supplemental RAI 13.03-14 dated June 25, 2010 (ADAMS Accession No. ML101790463), stated that, Section II.J.7 will be revised to clarify that an 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, which contains representative shielding factors provided by typical structures against direct exposure from the plume. In RAI 13.03-87, the staff asked the applicant to revise the Fermi 3 Emergency Plan description of the Emergency Directors expected PAR actions to be taken for a general emergency declaration. The revision should consider the use of KI to be consistent with 10 CFR 50.47 (b)(10). The applicant's response to RAI 13.03-87 dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant stated that the Fermi 3 Emergency Plan discussion of the Emergency Director's process for developing PARs will be revised to consider administering stable iodine after a general emergency declaration. In RAI 13.03-103, the staff requested the applicant to revise the emergency response plan to include the use of NRC-approved evacuation time estimates (ETEs) and updates to the ETEs in formulating the PARs. In the response to this RAI dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant provided a revision to the Fermi 3 Emergency Plan that included the use of the ETEs in the development of the PARs.

Technical Evaluation: [J.7] The staff finds that 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, 13.03-87 and Supplemental RAI 13.03-14 are acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the response to RAIs 13.03-02-03, 13.03-10.05, 13.03-87, and Supplemental RAIs 13.03-14. 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 information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

The staff created Confirmatory Item 13.03-72 to track the revision in the Emergency Plan regarding the Emergency Director's process for developing PARs and for administering stable iodine (i.e., potassium iodide) as a consideration. The staff verified that Emergency Plan Revision 4 includes the PARs and the proper administration of iodine. Therefore, Confirmatory Item 13.03-72 is resolved.

Technical Evaluation: {Appendix E, Section IV.3} The staff finds that the additional information submitted in the response to RAI 13.03-103 is acceptable because it meets the requirements in 10 CFR 50.47(b)(10) and 10 CFR Part 50, Appendix E, Section IV.1. The staff also finds that the Fermi 3 Emergency Plan adequately establishes a mechanism for recommending protective actions to the appropriate State and local authorities. Verification that a future revision of the COL application incorporates the applicant's proposed changes was tracked as Confirmatory Item 13.03-82. The staff verified that the proposed changes in the RAI response are included in Part 5 to the COL application Revision 7. Therefore, Confirmatory Item 13.03-82 is resolved.

13.3C.10.9 *Evacuation Time Estimates*

Technical Information in the Emergency Plan: [J.8] Section II.J.8, "Evacuation Time Estimates," states that the 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, Revision 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.

Section 13.3C.18 of this SER includes details of the staff's review of the Fermi 3 ETE, which the staff finds acceptable because it meets the guidance in NUREG-0654/FEMA-REP-1, Revision 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," which provides 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 the response to RAI 13.03-10.06.1 dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant provides Figure 10-2, "Evacuation Routes for PAA 1, 3 and 5"; and Figure 10-3, "Evacuation Routes for PAA 2 and 4." These figures show the evacuation routes from the EPZ. In the response to RAI 13.03-10-06.2 dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant stated that the protocol for the offsite dose assessment does not include pre-selected radiological sampling and monitoring points. In lieu of those points, the protocol relies on atmospheric transport and diffusion plume projections 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, and RET Coordinator. As indicated in Table II.B-2, the Radiation Protection Coordinator determines survey areas for offsite RETs, and the RET Coordinator coordinates the efforts of the offsite RETs. Section II.I.7 of the plan provides additional information regarding RET activities. RETs are equipped with maps and global positioning system (GPS) devices to assure that there will be proper sampling locations consistent with the stated directions. According to the applicant's description, these activities are conducted in accordance with the requirements of the EPIPs "Dose Assessment Methodology" and "Onsite/Offsite Radiological Monitoring," which are listed in Appendix 6 of the Fermi 3 Emergency Plan. The applicant stated that following this protocol eliminates the need for a map that identifies pre-selected radiological sampling and monitoring points. In Supplemental RAI 13.03-15, the staff requested the applicant to revise the plan to include a description of how radiological offsite survey data are communicated in a uniform, understandable, and useable manner to offsite stakeholders in accordance with the NUREG-0654 evaluation Criterion II.J.10.a. In the response to Supplemental RAI 13.03-15 dated June 25, 2010 (ADAMS Accession No. ML101790463), the applicant stated 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 also be corrected to indicate that the RETs rely on GPS devices to determine the location of their survey. The applicant described the process that field teams follow to communicate to users of this information in the EOF. The applicant stated how field information is communicated to the ERO and to the State representatives in the EOF.

In the response to RAI 13.03-10-06.3 dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant provided Figure 10-1, "Fermi Nuclear Power Plant Reception Centers and Host Schools," which shows the relocation centers in the 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 acceptable because they conform to the

guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the response to RAIs 13.03-10.06.1, 13.03-10-06.2, 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 information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Emergency Plan: [J.10.b.] Appendix 5 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 according to evacuation area. Appendix 5 of the Emergency Plan summarizes population distributions and contains population by PAA. In RAI 13.03-10-07, the staff requested the applicant to revise the plan to include population information in a sector format consistent with NUREG–0654, Criterion J.10.b. In the response to RAI 13.03-10-07 dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant provided Figure A5-2, "Permanent Residents by Sector," which indicates the 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 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan provided 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, Revision 1.

Technical Information in the Emergency Plan: [J.10.c] Section II.J.1 states that individuals located outside of the Protected Area but inside the owner-controlled area are informed through audible warnings emanating from warning systems; the security force; and if needed, from local law enforcement personnel. In RAI 13.03-10.01, the staff requested the applicant to discuss why the audible warnings emitted from warning systems and the activities of the security force may not successfully notify individuals outside of the Protected Area but within the owner-controlled area. The applicant's response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828) recognizes that Section II.J.1 of the plan did not accurately describe local law enforcement responsibilities under emergency conditions. The applicant provided a revised Section II.J.1 to clarify that individuals located in the owner-controlled area but outside of the Protected Area are informed of emergency conditions through audible warnings emanating from warning systems and from the activities of the security force.

Section II.J.10.c states that the Fermi 3 ANS sirens are the primary method of warning the public. The Directors of Monroe and Wayne County Emergency Management are responsible for activating the portion of the system in their respective jurisdictions. Other warning methods may include communications via the telephone; television and radio EAS stations; public address systems; bull horns from patrol cars; and personal contacts. In RAI 13.03-10-08, the staff asked why the description of implementation of PARs did not include the Province of Ontario. The applicant's response to RAI 13.03-10-08 dated December 7, 2009 (ADAMS Accession No. ML093440828), provided a revision to Section II.J.10 that includes the Province of Ontario in the implementation of Fermi 3 PARs.

Technical Evaluation: [J.10.c] The staff finds the additional information and textual revision to the Fermi 3 Emergency Plan in the response to RAIs 13.03-10.01 and 13.03-10-08 acceptable, because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes in the response to RAIs 13.03-10.01 and 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 information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

Technical Information in the Emergency Plan: [J.10.m] Section II.J.7 discusses PARs and bases. In addition to the EAL-based PAR, Detroit Edison has PARs based on offsite dose projections. Table II.J-1 compares the projected doses to the PAGs, which are derived from the *Manual of Protective Action Guides and Protective Actions for Nuclear Incidents* (EPA 400-R-92-001) 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 that will 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. The EPIP "Protective Action Recommendations" is listed in Appendix 6 and provides details regarding the development of PARs.

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

13.3C.10.11 *Conclusion*

The staff concludes that the information in the Fermi 3 Emergency Plan regarding the protective response is acceptable because it meets the requirements of 10 CFR 50.47(b)(10), Appendix E, Section IV.3 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 order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(11), the staff evaluated the plan 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 exposures to emergency personnel for rescue, first aid, decontamination, ambulance, medical treatment, and 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 removing injured persons, undertaking corrective actions, performing assessment actions, providing first aid, performing personnel decontamination, providing ambulance services, and providing medical treatment. This information 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 nondelegable 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 states that the Radiation Protection Advisor is responsible for implementing radiation protective actions in an emergency. Chapter 12 of the FSAR incorporates by reference NEI 07-03A, "Generic FSAR Template Guidance for Radiation Protection Program Description."

Section II.K.2 provides exposure guidelines for volunteers if exposures are greater than the normal limits. This section states that the Radiation Protection Program and the EPIPs 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 information is acceptable because it conforms to the guidance of NUREG–0654/FEMA-REP-1, Revision 1.

13.3C.11.4 *Capability to Determine the 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 locations. The dosimeter ranges are sufficient to measure both routine and accident doses, and these dose assessment capabilities are available on a 24-hour basis. EPIPs 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 a 24-hour-per-day capability to determine the doses to emergency personnel involved in any nuclear accident and the distribution of dosimeters, both self-reading and permanent record devices. This information is acceptable because it meets the requirements in 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 states that the external dosimetry program has provisions and requirements for using the permanent record and self-reading dosimeters. The EPIPs establish requirements for distributing dosimeters to emergency responders, including those individuals responding to the site from offsite locations. Table II.B-2

states that the Radiation Protection Advisor ensures that personnel exposure records will be maintained.

Technical Evaluation: [K.3.b] The staff finds that the Fermi 3 Emergency Plan adequately describes the use and distribution of dosimeters and the provisions for maintaining dose records for emergency workers involved in a nuclear accident. This information 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 information 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 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. This section states that the emergency plan administrative procedures and radiation protection procedures describe the equipment, supplies, and locations. 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. This section also states that supplies, instruments, equipment, and vehicles will be monitored before being removed 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 before 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 the decontamination of emergency personnel, wounds, supplies, instruments, and equipment as well as the location of the decontamination equipment. This information 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 states that contaminated areas will be designated and identified to minimize the contamination of personnel or the spread of contamination within the plant, and access to these areas will be controlled. Personnel will take required precautionary measures, use protective clothing and equipment and be monitored before leaving contaminated areas.

[K.6.b] Section II.K.6 states that if an uncontrolled release of activity occurs, 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 returned to acceptable levels, on the basis of the criteria 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, food supplies, and the criteria for permitting the return of areas and items to normal use. These measures are acceptable because they conform 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. There are provisions for extra clothing, and suitable decontaminates are available for the expected type of contaminations—particularly with regard to skin contaminations. If it is not possible to do so locally, personnel can be sent to designated locations for monitoring and decontamination. Sections II.J.3 and II.J.4 include additional details describing the facilities used for monitoring and decontamination, in accordance with radiation protection procedures and emergency plan implementation procedures and EPIPs.

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

13.3C.11.10 *Conclusion*

The staff concludes that the information 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 order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(12), the staff evaluated the plan 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 qualified first aid 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's first responder will perform these duties during off hours. Additional first aid support is available from operations personnel, from personnel in the CR or OSC, and from 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 before the arrival of offsite medical support. The emergency plan administrative procedures describe the supplies and equipment maintained at the onsite medical facility. Section II.L.1, "Hospital and Medical Support," states that written procedures regarding radiological medical emergencies detail the actions to be taken onsite. These actions include 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 Emergency 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 for the services of medical personnel qualified to handle onsite radiation emergencies. These arrangements are acceptable because they meet the requirements in 10 CFR Part 50, Appendix E, Section IV.E.5 and conform 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 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 treating injured, contaminated, or overexposed Fermi 3 personnel. Both hospitals maintain emergency cabinets containing contamination control supplies and dosimeters and are adequately supplied and equipped to receive and treat contaminated patients. Activities are coordinated to ensure that these facilities maintain the support capabilities.

Technical Evaluation: [L.1] {Appendix E, Section IV.E.7} The staff finds that the Fermi 3 Emergency Plan adequately describes the arrangements for the services of physicians and other medical personnel qualified to handle onsite radiation emergencies. These arrangements are acceptable because they meet the requirements in 10 CFR Part 50, Appendix E, Section IV.E.7 and conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 (i.e., Monroe Community Ambulance) has agreed to provide transportation for injured and/or contaminated individuals from Fermi 3 on a 24-hour basis to an offsite medical facility. This commitment to provide transportation services 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 the arrangements to transport injured and/or

contaminated individuals from the Fermi 3 site to an offsite medical facility on a 24-hour basis is acceptable because the plan 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 *Conclusion*

The staff concludes that the information 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) and 10 CFR Part 50, Appendix E, Sections IV.E.5, 6, and 7 and complies with the guidance in NUREG-0654/FEMA-REP-1, Revision 1, Planning Standard L.

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

13.3C.13.1 *Regulatory Basis*

In order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(13), the staff evaluated the plan 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 the EPIPs include detailed information describing the reentry and recovery activities. Section II.M.1.a, "Evaluating Reentry Conditions," states that 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 the 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. The applicant's response to RAI 13.03-13.01 dated December 7, 2009 (ADAMS Accession No. ML093440828), provides 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 that a plan will be developed and coordinated with Federal, State, county, and provincial government officials. The recovery plan will include provisions for protecting public health and safety. Public officials will be kept aware of any impact the recovery plan may have on the responsibilities to the offsite public. There will also be periodic press briefings to inform the public of the progress regarding an emergency and periodic status reports to Detroit Edison employees and government and industry representatives. As low as is reasonably achievable (ALARA) principals will be used to manage radiation exposures to workers, and the size and make-up of the Recovery Organization will be adjusted as necessary. Section II.M.2, "Recovery Organization," states that before terminating an emergency and entering recovery, the following items at a minimum are to be considered:

- conditions that initiated the emergency classification are no longer applicable
- the potential for uncontrolled releases into 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 the deposition only is required
- in-plant radiation levels are stable or are decreasing and are acceptable for existing plant conditions
- the reactor is shut down and stable
- long-term core cooling is available
- the containment pressure is within the technical specification limits
- the integrity of the primary containment was established
- all required offsite notifications were made
- discussions were held with Federal, State, county, and provincial government agencies
- an agreement was reached to terminate the emergency

Section II.M.1.a, "Evaluating Reentry Conditions," states that all reentry activities conducted during an emergency are authorized by the Emergency Coordinator and are coordinated with OSC personnel. In RAI 13.03-13.03, the staff requested the applicant to revise the Fermi 3 Emergency Plan to include a description of the Emergency Coordinator position and to revise Figure II.M-1, "Recovery Organization (Basic Frame Work)," to include the Emergency Coordinator position. The applicant's response to RAI 13.03-13.03 dated December 7, 2009 (ADAMS Accession No. ML093440828), the applicant provided a revised Section II.M.1 that correctly refers to the Emergency Officer position. The applicant stated that the Emergency Coordinator title is incorrect, and the title should refer to the Emergency Officer 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 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 RAI 13.03-13.01 and 13.03-13.03 acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan the information and textual changes provided in the response to RAI 13.03-13.01 and 13.03-13.03. The staff finds that the Fermi 3 Emergency Plan adequately describes general plans and procedures for reentry and recovery. The plan also describes how decisions are reached to relax protective measures (e.g., allow reentry into an evacuated area). This information 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, Revision 1.

13.3C.13.3 *Recovery Organization*

Technical Information in the Emergency Plan: [M.2] Section II.M.2 describes the recovery organization positions and responsibilities for the four key positions identified in Figure II.M-1. This section also briefly discusses 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 of Nuclear Protection or a designated Alternate) develops the implementation and operating procedures to support the recovery efforts and authorizes the start of plant reentry activities. The Offsite Activities Coordinator is the liaison with offsite agencies and coordinates assistance for offsite recovery activities. A Public Information Coordinator is responsible for disseminating information about the recovery to the media and for coordinating with all public information groups. In RAI 13.03-13.02, the staff requested the applicant to clarify whether the JIC is the Public Information Coordinator. The applicant's response to RAI 13.03-13.02 dated December 7, 2009 (ADAMS Accession No. ML093440828), provided a revised Figure II.M-1 of the Emergency Plan that includes the position of "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 acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.13.4 *Recovery Operations Initiation*

Technical Information in the Emergency Plan: [M.3] Section II.M.1.b 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 provisions for necessary adjustments in the size and makeup of the Recovery Organization, as needed. Section II.M.2 describes the Recovery Manager as responsible for notifying offsite authorities in a timely manner that a recovery operation will be initiated. The Recovery Manager will also 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 that the Fermi 3 Emergency Plan adequately addresses the means for informing members of the response organizations that a recovery operation is going to be initiated and of any changes in the organizational structure that may occur. This information 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 describes a method that was developed to estimate the total population exposure due to an accident from data collected in cooperation with State and Federal agencies. Total population exposure is determined through a variety of procedures that include an examination of pre-positioned

environmental monitoring thermo luminescent dosimeters (TLDs); a bioassay; estimates based on release rates and meteorology; and estimates based on the environmental monitoring of food, water, and ambient dose rates. The State is the lead agency in collecting and analyzing environmental samples, and Fermi 3 environmental sampling activities will be coordinated with those of the State. The Fermi 3 Emergency Response Plan Supplemental Information document (Part 5, Revision 4 of the Fermi 3 COL application) titled, "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 the total population exposure. This information is acceptable because it conforms to the guidance in NUREG–0654/FEMA-REP-1, Revision 1.

13.3C.13.6 *Conclusion*

The staff concludes that the information 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) and 10 CFR Part 50, Appendix E, Section IV.H and complies with the guidance in NUREG-0654/FEMA-REP-1, Revision 1, Planning Standard M.

13.3C.14 Exercises and Drills

13.3C.14.1 *Regulatory Basis*

In order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(14), the staff evaluated the plan 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 in emergency preparedness plans and organizations. This section states that exercises are conducted in accordance with the NRC and FEMA rules in 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 emergency plans and the preparedness program. In addition, the exercises will be conducted in accordance with the NRC and FEMA rules. This information 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 that a full participation exercise will include appropriate State, county, and 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," states that the

exercises vary so that all major elements of the plan and of the emergency organizations are tested within a 8-year period. One exercise shall start between 6:00 p.m. and 4:00 a.m. within a 8-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 describes a full participation exercise that includes the appropriate State, county, and provincial authorities and Fermi 3 personnel to test the integrated capability to adequately assess and respond to a declared emergency; and to vary the scenarios to ensure that all major elements of the plans and emergency organizations are tested within a 8-year period. In addition, 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. and will be unannounced and conducted under various weather conditions. In all required biennial exercise evaluations the officials from Federal, State, or local governments will be able to observe, evaluate, and critique the performance. This information 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 states that 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 emergency preparedness exercises that will test the adequacy of implementing procedures and methods of timing and content, emergency equipment and communications networks, and the public notification system and will ensure that emergency organization personnel are familiar with their duties. This description 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 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 the facilities, equipment, procedures, communication links, actions of ERO personnel, and the coordination between Fermi 3 and offsite emergency response organizations. Section II.N.1.b states that full participation exercises will include the 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 participation of exercises that will test as much of the licensee, State, and local emergency plans as is reasonably achievable, without mandatory public participation. This description 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 of the Fermi 3 Emergency Plan states that an emergency (biennial) exercise will be conducted at least every 2 years and will vary so that all major elements of the plan and the emergency organizations will be tested within a 8-year period. Section II.N.1.b states that 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 intended to test, develop, and maintain skills in a particular operation. Drills are conducted to ensure that adequate emergency response capabilities are maintained during the interval between the 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 the principal areas of onsite emergency response capabilities. These areas include the management and coordination of emergency response, accident assessment, protective action decision making, and the repair and corrective action of plant systems.

Technical Evaluation: {Appendix E, Section IV.F.2.b} The staff finds that the Fermi 3 Emergency Plan adequately describes a drill and exercise program conducted to perform a Federally evaluated exercise every 2 years with additional drills and exercises to practice, test, and evaluate the adequacy of the Emergency Preparedness Program. The Program includes facilities, equipment, procedures, communication links, actions of ERO personnel, and coordination between Fermi 3 and offsite emergency response organizations to evaluate and correct deficiencies in any identified drill or exercise. 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 the management and coordination of emergency response, accident assessment, protective action decision making, and plant system repair and corrective action. This description 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 of the Fermi 3 Emergency Plan states that the MEMP delineates the frequency of State participation 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. These exercise scenarios provide opportunities for offsite authorities to have a role under the Fermi 3 Emergency Plan to exercise their plans. This information 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 of the Fermi 3 Emergency Plan states 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 will coordinate with the State of Michigan on Ingestion Pathway Exercises. This information 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 of the Fermi 3 Emergency Plan describes the types and frequencies of drills and when 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 the licensee's off-year drills. This information 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 that follows the exercises and drills The Supervisor of Emergency Preparedness is responsible for evaluating the recommendations and comments from the critique to ensure that corrective actions are implemented. In RAI 13.03-14.01, the staff requested the applicant to include details regarding remedial exercises in the Fermi 3 Emergency Plan. The applicant's response to RAI 13.03-14.01 dated December 7, 2009 (ADAMS Accession No. ML093440828), provided a revised Section II.N.5 of the Emergency Plan stating 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 a textual revision to the Fermi 3 Emergency Plan submitted in response to RAI 13.03-14.01 acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.F.2.f. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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, so that the NRC and FEMA can finds reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. This information 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] {Appendix E, Section IV.E.8.c} Section II.N.2 of the Fermi 3 Emergency Plan states that drills are a supervised instruction period intended to test, develop, and maintain 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 states that as soon as possible following the conclusion of each drill or exercise, a critique will be 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 Emergency Plan, procedures, equipment, facilities, or other components of the Emergency Preparedness Program. In RAI 13.03-98, the staff requested the applicant to revise the emergency response plan to perform consolidated EOF functions. In the response to RAI 13.3-98 dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant committed to revise the Emergency Plan to state:

> Prior to initial operation of the Fermi Emergency Operations Facility (EOF) and at least once each subsequent 8-year exercise cycle, a drill or exercise will be conducted that demonstrates the Fermi 2 and 3 Emergency Response Organizations (EROs) can perform the consolidated Fermi 2 and 3 EOF functions described in the emergency plans.

Technical Evaluation: [N.2] {Appendix E, Section IV.E.8.c} The staff finds that the additional information submitted in the response to RAI 13.03-98 is acceptable because it conforms to the guidance in NSIR/DPR-ISG-01, Section IV.I. The staff also finds that the Fermi 3 Emergency Plan adequately describes the drills as supervised instruction periods aimed at testing, developing, and maintaining skills in a particular operation and how each drill is evaluated. This change is acceptable because it meets the requirements in 10 CFR Part 50, Appendix E, Section IV.E.8.c and conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1, and NSIR/DPR-ISG-01. Verification that a future revision of the COL application incorporates the applicant's proposed changes in RAI 13.03-98 was tracked as Confirmatory Item 13.03-83. The staff verified that the proposed changes in the RAI response are included in Part 5 to the COL application Revision 7. Therefore, Confirmatory Item 13.03-79 is resolved.

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 communications with the CR, TSC, EOF, Michigan State Police, Monroe County Central Dispatch, and Wayne County Central Communications—as well as communications between the CR, TSC, and EOF and the NRC Headquarters Operations Center—will be tested monthly. Communications with the plant, State, and local emergency operation centers and the offsite RETs—as well as communication with the CR, TSC, OSC, EOF, and JPIC—will be tested annually. Annual drills conducted between the ERFs and participating organizations will include a confirmation of understanding of the content in the message. In RAI 13.03-14.02, the staff requested the applicant to verify that communications with Federal EROs and States within the ingestion pathway will be tested quarterly. The applicant's response to RAI 13.03-14.02 dated December 7, 2009 (ADAMS Accession No. ML093440828), states that testing the

communications from the CR, TSC, and EOF to NRC Headquarters and the NRC Region III Office Operations Center are conducted on a monthly basis. The applicant stated that because the NRC is the lead Federal agency for responding to emergencies at Fermi 3, NRC is therefore the only Federal agency with which communications are tested. The applicant also stated that under the conditions that require the implementation of the Fermi 3 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 EPZ. Communications with the State of Ohio are established and tested in accordance with the plans of affected Federal and State authorities. In Supplemental RAI 13.03-16, the staff requested the applicant to describe the testing of communications with the State of Ohio, which is within the ingestion pathway and is consistent with NUREG–0654, Criterion N.2.a. The applicant's response to Supplemental RAI 13.03-16 dated June 25, 2010 (ADAMS Accession No. ML101790463) notes that the following will be added as item 6 to Section II.N.2.a:

> 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 state 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 acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan 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 information 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, Revision 1.

13.3C.14.12 *Fire Drills*

Technical Information in the Emergency Plan: [N.2.b] Section II.N.2.b, "Fire Drills," states that fire drills shall be conducted in accordance with Section 13.1 of the Fermi 3 FSAR and plant procedures. ESBWR DCD Tier 2, Subsection 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 that 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 information 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 a medical emergency drill will be conducted annually involving a simulated contaminated individual and provisions for participation by the local support service agencies (i.e., ambulance and offsite medical treatment facility). In addition, the Emergency Plan 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 a simulation of contaminated individuals and provisions for participation by local support organizations. This information 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 collecting and analyzing 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 local organizations are routinely offered the opportunity to participate. This information 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 states that the simulated elevated radioactive liquid and airborne samples will be used in the drill. Information is needed regarding the analysis of in-plant liquid samples with actual elevated radiation levels in Health Physics drills, including the use of the post-accident sampling system. In RAI 13.03-14.03, the staff requested the applicant to provide details regarding the use of the post-accident sampling system. The applicant's response to RAI 13.03-14.03 dated December 7, 2009 (ADAMS Accession No. ML093440828) stated that the ESBWR design does not require a dedicated post-accident sampling system and the provided reference to the Topical Report NEDO-32991, "Regulatory Relaxation for BWR Post Accident Sampling Stations (PASS)," dated October 2000. The applicant also stated that processes for classifying fuel damage events utilize installed post-accident radiation monitoring instrumentation described in DCD Tier 2 Section 7.5, and the plant procedures contain instructions for obtaining grab samples using installed systems as addressed in FSAR Section 9.3. The applicant further stated that post-accident monitoring is adequate to implement the Emergency Plan without relying on the post-accident sampling capability. The applicant provides a revised Section II.N that omits Section II.N.2.e. The staff requested

additional information in RAI 13.03-81 regarding the frequency and content of the Health Physics drills. In the response to RAI 13.03-81 dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant provides a markup revision to the Fermi 3 Emergency Plan Section II.N to clarify radiation protection drills.

Technical Evaluation: [N.2.e] The staff finds the additional information and textual revision to the Fermi 3 Emergency Plan that were submitted in response to RAI 13.03-14.03 and RAI 13.03-81 acceptable because they conform to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporates the information and textual changes in the response to RAI 13.03-14.03 and RAI 13.03-81. The staff finds that the Fermi 3 Emergency Plan adequately describes how the health physics drills will be conducted semi-annually and will involve a response to an 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 how drills and exercises will be carried out. Advance knowledge will be kept to a minimum to allow for "free play" decision making and to ensure realistic participation. Drill and exercise scenarios will include the basic objectives of each drill and exercise and appropriate evaluation criteria; date(s), time period, place(s), and participating organizations; the simulated events; and a time schedule of real and simulated initiating events. These scenarios also include a narrative summary describing the conduct of the exercises or drills to include elements such as simulated casualties, offsite fire department assistance, the rescue of personnel, the use of protective clothing, the deployment of emergency teams, public information activities; descriptions of assignments for qualified controllers/evaluators; and appropriate provisions for observers from Federal, State, and local organizations.

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 information 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 officials 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 that a critique will be 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 officials from Federal, State, or local governments to observe, evaluate, and critique the required exercises. The licensee will also critique the required drills or exercises as soon as possible following their completions. This information 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 states that the critique and evaluation process following an exercise or drill will be 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 of Emergency Preparedness is responsible for evaluating recommendations and comments to ensure that corrective actions are implemented and to determine which items will be scheduled and tracked; the resolution will then be 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 in need of improvement, emergency plan procedural changes, assigning responsibility, implementing corrective actions, and establishing management controls to ensure that corrective actions are implemented. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1.

13.3C.14.19 *Conclusion*

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

13.3C.15 Radiological Emergency Training

13.3C.15.1 *Regulatory Basis*

In order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(15), the staff evaluated the plan 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 will be implemented that provides for initial training and retraining for individuals with emergency response duties, including offsite support agencies that may be called on to assist in an emergency. Section II.O.1, "Offsite Emergency Response Training," states that the applicant will conduct or support site-specific training for offsite personnel who provide assistance during an emergency including local fire departments, law enforcement, ambulance, and hospital personnel. Additional training for offsite personnel is described in their respective radiological emergency plans with support provided by Fermi 3, when requested. Training topics include Radiological Emergency Response Plan orientation, communications interfaces, transporting and treating contaminated patients, basic health physics, and radiation protection. The applicant, the Michigan State Police, and the local counties will also develop a four-part training program to be presented annually to the local offsite ERO. This section also provides a list of participating organizations.

Technical Evaluation: [O.1.a] The staff finds that the Fermi 3 Emergency Plan adequately describes the site-specific emergency response training provided to offsite emergency organizations that may be called upon to provide assistance in the event of an emergency. This information 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 Part 50, Appendix E and on position-specific responsibilities. The training program includes practical drills where individuals demonstrate the ability to perform their responsibilities and tasks. The instructor/evaluator immediately corrects any errors noted during the practical drills and demonstrates the correct practice. Section II.O.4, "Onsite Emergency Response Organization Training Program," states that knowledge-based training may be provided in a classroom or other setting described in the emergency plan administrative procedures. In addition, performance-based training and evaluations are conducted for most ERO members during drills, walk-throughs, or table-tops. The completion of training activities and evaluations is documented in the 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 classroom training and practical drills that demonstrate the ability to perform assigned emergency functions. This information 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 responsible for providing 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. The applicant's response to RAI 13.03-15.01 dated December 7, 2009 (ADAMS Accession No. ML093440828), provides a revised Section II.O of the Fermi 3 Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining provided to ERO personnel including first aid and rescue team personnel. This training is consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization."

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 acceptable because the information conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information 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 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR Part 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 or other setting as described in the emergency plan administrative procedures. Performance-based training and evaluations are conducted for most ERO members through drills, walk-throughs, or table-tops. The completion of training activities and evaluations are documented in ERO qualification guides. The lesson plans, study guides, and written exams are in the ERO training program. The initial and requalification training requirements are described in the emergency plan administrative procedures. Appendix 6 identifies the procedure for Radiological Emergency Response Training. Knowledge-based training may also be provided in a classroom setting.

In RAI 13.03-15.01, the staff requested additional information regarding the scope, nature, and frequency of the training specific to each of the following categories: personnel responsible for accident assessment; radiological monitoring teams and radiological analytical personnel; police, security, and firefighting 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 the transmission of emergency information and instructions. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828) provided a revised Section II.O of the Fermi 3 Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining for ERO personnel. The training is consistent with existing Nuclear Generation Selection, Training, and Qualification Program Description QP-ER-665, "Emergency Response Organization." The applicant also described the scope, nature, and frequency of specialized initial training and retraining for the specific categories of personnel including ERO directors and coordinators; accident assessment personnel; radiological monitoring and analytical personnel; security and firefighting personnel; repair and damage control/corrective action team personnel; first aid and rescue team personnel; medical support personnel; Detroit Edison Headquarters support personnel; and personnel responsible for the 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 acceptable because the information conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information is acceptable because it conforms to the requirements in 10 CFR Part 50, Appendix E, Section IV.F.1, and 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 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR Part 50, Appendix E and position-specific responsibilities. ERO personnel are trained to the extent appropriate to their duties and responsibilities. A program will be 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 on training specifically for ERO Directors. The applicant's response to RAI 13.03-15.01 dated December 7, 2009 (ADAMS Accession No. ML093440828), provides a revised Section II.O of the emergency plan that describes the scope, nature, and frequency of specialized initial training and retraining for ERO personnel. The training is 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 acceptable because the information conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information 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 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR Part 50, Appendix E and position-specific responsibilities. A program will be 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 the training specifically for accident assessment personnel. The applicant's response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828) provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining for ERO personnel. The training is 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 acceptable because the information conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 accident assessment, including CR shift personnel. This information 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 Part 50, Appendix E and position-specific responsibilities. A program will be implemented to provide facility position-specific emergency response training for designated members of the ERO that 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 the training specifically for radiological monitoring and analytical personnel. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828) provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining for ERO personnel. The training is 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 acceptable because the information it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 analytical personnel. This information 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 Part 50, Appendix E and position-specific responsibilities. A program will be implemented to provide facility position-specific emergency response training for designated members of the ERO that may include security access control and the site evacuation process. In RAI 13.03-15.01, the staff requested additional information regarding the scope, nature, and frequency of the training specifically for firefighting teams. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828) provided a revised Section II.O of the Emergency Plan that describes the scope, nature, and frequency of specialized initial training and retraining for ERO personnel. The training is 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 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes provided in the response to RAI 13.03-15-01. The staff concludes that the Fermi 3 Emergency Plan adequately describes

the specialized initial and periodic retraining for firefighting personnel. This information 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 Part 50, Appendix E and position-specific responsibilities. A program will be implemented to provide facility position-specific emergency response training for designated members of the ERO that may include emergency response facilities. In RAI 13.03-15.01, the staff requested additional information regarding the scope, nature, and frequency of the repair and damage control teams training. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828) applicant provided a revised 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 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information 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 states that the applicant conducts or supports site-specific training for offsite personnel who provide assistance during an emergency. This section also states that the applicant conducts an annual seminar for offsite support personnel involved with the onsite/offsite emergency response facilities, EALs, emergency classification, meteorology, dose assessment, field surveys, and PARs. This section also provides a list of participating organizations.

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 information 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 states that personnel assigned to emergency teams who provide first aid will complete a training course equivalent to the Red Cross Multi-Media Program 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 the training specifically for medical

support personnel. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828) 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 for the ERO medical support personnel. The training is 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 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information 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 states that all ERO personnel are initially trained and receive periodic retraining based on the requirements of 10 CFR Part 50, Appendix E and position-specific responsibilities. In RAI 13.03-15.01, the staff requested additional information regarding training for headquarters support personnel. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828) provided Section II.O.4, "Onsite Emergency Response Organization Training Program," stating that training is provided to Detroit Edison Headquarters support personnel. The content of the training program is appropriate for the duties and responsibilities of the assigned positions.

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 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information 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 will be implemented to provide facility position-specific emergency response training for designated members of the ERO that may include emergency response facilities. In RAI 13.03-15.01, the staff requested additional information regarding the scope, nature, and frequency of the training for the personnel responsible for the transmission of emergency information and instructions. The applicant's response to this RAI dated December 7, 2009 (ADAMS Accession No. ML093440828) provided Section II.O.4 that identifies the training provided to personnel responsible for the 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 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 the transmission of emergency information and instructions. This information 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 Part 50, Appendix E and position-specific responsibilities. A program will be implemented to provide facility position-specific emergency response training for designated members of the ERO that may include emergency response facilities. In RAI 13.03-15.01, the staff requested additional information regarding the scope, nature, and frequency of the security personnel training. The applicant's response dated December 7, 2009 (ADAMS Accession No. ML093440828) provides a revised Section II.O.4, "Onsite Emergency Response Organization Training Program," that identifies training provided to security 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 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information 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 Part 50, Appendix E and position-specific responsibilities. A program will be implemented to provide facility position-specific emergency response training for designated members of the ERO that 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 personnel with emergency response responsibilities. This information 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 *Conclusion*

The staff concludes that the information 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 IV.F.1, IV.F1.b(i) through IV.F.1.b(ix) and complies with the guidance in NUREG-0654/FEMA-REP-1, Revision 1, Planning Standard O.

13.3C.16 Responsibility for the Planning Effort

13.3C.16.1 *Regulatory Basis*

In order to determine whether the proposed emergency plan meets the applicable regulatory requirements in 10 CFR 50.47(b)(16), the staff evaluated the plan 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 that Detroit Edison provides training for the Emergency Preparedness staff that is 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 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 information 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 issuing and controlling the Fermi 3 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 information 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 that the Supervisor reports to the Licensing Manager and is designated as the Emergency Planning Coordinator. Responsibilities include developing and updating the Emergency Plan and implementing and administering procedures that support the Emergency Plan. The Emergency Preparedness Supervisor also coordinates the development and revision of the Emergency Plan and procedures with other response organizations. The Licensing Manager is responsible for issuing and controlling 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 developing and updating emergency plans and for coordinating these plans with other response organizations. This information 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 that an annual review of the Emergency Plan is performed to ensure that the Emergency 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 and reviewing and certifying it to be current on an annual basis. In addition, the applicant described updating provisions take into account changes identified by drills and exercises. This information is acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1 and meets the applicable requirements in 10 CFR Part 50, Appendix E.

13.3C.16.6 *Distribution of Emergency Plans*

Technical Information in the Emergency Plan: [P.5] Section II.P.4, "Distribution of Revised Plans," states that revisions to the Emergency Plan are completed in accordance with the plant's review and approval processes. Revisions to the Emergency Plan are reviewed by affected organizations and then routed to the onsite review organization for review and approval. The plan and its 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 how the emergency response plans and approved changes will be forwarded to all organizations and appropriate individuals with responsibility for implementation of the Emergency Plan. This information 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 information 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 and maintain the Emergency Plan. Appendix 6 also includes sections of the Emergency 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 Emergency Plan and their corresponding sections of the Emergency Plan that they implement. This Appendix 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, Revision 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 Part 50, the evaluation criteria of NUREG–0654/FEMA-REP-1, and the State and local emergency plans.

Technical Evaluation: [P.8] The staff finds 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 that in order 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 Part 50, Appendix E. The Nuclear Quality Assurance organization will perform or oversee the independent audit and will coordinate with the Supervisor of Emergency Preparedness to ensure that audit findings and recommendations for improvement are subject to management controls that are consistent with the plant's corrective action program. The frequency of periodic audits is established and maintained based on an assessment of performance compared to performance indicators. However, the frequency of an audit may not be less than once every 24 months. In addition, program audits are conducted as soon as it is reasonably practicable after a change occurs in personnel, procedures, equipment, or facilities that has the potential to adversely affect emergency preparedness—but no longer than 12 months after the change.

In RAI 13.03-16-01, the staff requested the applicant to revise the emergency plan audit frequency description to be consistent with 10 CFR 50.54(t) (1) (ii) and not to exceed 24 months. The applicant's response to RAI 13.03-16-01 dated December 7, 2009 (ADAMS Accession No. ML093440828), 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 acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 1. The staff confirmed that Revision 4 of the Fermi 3 Emergency Plan incorporated the information and textual changes 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 information 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 that 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 information is acceptable because it conforms to the guidance in NUREG–0654/FEMA-REP-1, Revision 1.

13.3C.16.12 *Conclusion*

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

13.3C.17 Security-Based Event Considerations

13.3C.17.1 *Regulatory Basis*

NUREG-0800, Section 13.3, "Emergency Planning," specifies that applicants for a COL address the Commission Orders issued on February 25, 2002, as well as any subsequent NRC guidance, to determine what security-related aspects 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 EPIPs:

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 safeguard events immediately after notification of local law enforcement agencies (LLEAs), 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, CR 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 a hostile action based on event information are 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 Subsection 13.3C.5.8 of this SER.

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

13.3C.17.4 *Onsite Protective Measures*

Technical Information in the Emergency Plan: (NUREG-0800) Section II.J.6 of the Fermi 3 Emergency Plan addresses security measures for a hostile action event at the site. This section 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 coordinates with Nuclear Security to make 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 the restoration of safe conditions
- Implementation of accountability measures following the restoration of safe conditions

Technical Evaluation: (NUREG-0800) The staff finds the Fermi 3 Emergency Plan adequately describes onsite protective measures necessary to respond to a security event. This information 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." This section states that in the event that emergencies are declared simultaneously at Fermi 2 and 3, a single Emergency Director is designated from onsite shift management in accordance with the EPIPs. The Emergency Director performs those duties described in the Fermi 3 Emergency Plan, as well as those described in the Fermi 2 Emergency Plan, and coordinates activities between the TSCs and OSCs. Section II.B.1, Tables II.B-1, II.B-2 and II.B-4 address ERO command and control, ERO minimum staffing, and position functions/tasks. Section II.E.1 describes the processes and procedures for ERO notification and mobilization. Section II.J.5 states that personnel accountability is performed in accordance with EPIPs consistent with the requirements of the Fermi 3 Security Plan. Section II.J.6 states that during a security event, conditions may dictate the initiation of protective measures other than personnel evacuation, assembly, and accountability. The Emergency Director makes decisions regarding appropriate protective measures based on an evaluation of site conditions, including input from security. The Emergency Director 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 the ERO augmentation necessary to respond to a security event. This information 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 COL FSAR Section 2.2, "Nearby Industrial, Transportation, and Military Facilities." FSAR Section 2.2.1, "Locations and Routes," states that 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, Revision 1, "Evaluations of Explosions Postulated to Occur at Transportation Routes Near Nuclear Power Plants."

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 information 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 of the Fermi 3 Emergency Plan addresses the performance of security-based drills and exercises. This section states that the applicant will demonstrate emergency response capability to a security-based threat at least once within a 8-year period.

Technical Evaluation: (NUREG-0800) The staff finds the Fermi 3 Emergency Plan adequately describes the security-based drill and exercise program. This information 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 to 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, 13.3C.8, and 13.3C.10 of this SER.

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 information is acceptable because it meets the guidance in NUREG–0800.

13.3C.17.9 *Conclusion*

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

13.3C.18 Evacuation Time Estimate (ETE) Analysis

The Fermi 3 Emergency Plan includes an analysis of the time required to evacuate the plume exposure pathway EPZ. The report titled, "Fermi Nuclear Power Plant Development of Evacuation Time Estimates," Revision 2, dated April 2010 (ETE Report) was provided as a separate document in the COL application. The report includes analyses of and responses to RAIs dated October 14, 2009 (ADAMS Accession No. ML092931167), which provided the basis for the NRC staff's conclusions as to the adequacy of its content and conformity with Appendix 4, "Evacuation Time Estimates within the Plume Exposure Pathway Emergency Planning Zone," 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 10 CFR Part 50, Appendix E, Section IV, which requires, in part, that the nuclear power reactor operating license applicant provide an analysis of the time required to evacuate various sectors and the distances within the plume exposure pathway EPZ for transient and permanent populations.

The staff evaluated the ETE Report against Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1. Appendix 4 contains detailed guidance that the staff used to determine 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," of the ETE Report describes the Fermi 3 site as located on the west bank of Lake Erie, approximately 38 km (24 mi) northeast of Toledo, Ohio, and 48 km (30 mi) southwest of Detroit, Michigan. The EPZ consists of parts of Monroe and Wayne Counties. 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 the applicant to provide a map of the EPZ that identifies political boundaries. In the response to RAI 13.03-1 dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised Figure 6-1, "Fermi Nuclear Power Plant Protective Action Areas," to include political boundaries and to reference the political boundaries in the text.

Section 1, "Introduction," describes the approach used to develop information and analyze 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 Transportation Research Board 2000 Highway Capacity Manual (TRB 2000), modeled the evacuation, and calculated the ETE. Section 1.3, "Preliminary Activities," states 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 to analyze 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 states that roadway capacities were based on field surveys and the application of the 2000 Highway Capacity Manual 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, percentage of households with commuters, and staffing the traffic control. The ETE is assumed to be the time from the advisory to evacuate until the time that the 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 the 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, percentage of households with commuters, and staffing the traffic control. Section 2.3 describes roadway capacity and speed reduction percentages that are consistent with the values in the Highway Capacity Manual (TRB, 2000) and in the weather-related technical publication "Impacts of Weather on Urban Freeway Traffic Flow Characteristics and Facility Capacity," (Agarwal et al., 2005), which is identified in the ETE Report. Section 2.3 describes a planning assumption that 64 percent of households with commuters will wait for the return of a commuter before beginning their evacuation trip. In RAI 13.03-2, the staff noted a discrepancy between the 64 percent of households awaiting the return of a commuter and the 55 percent waiting for a family member to return before evacuating. In the response to RAI 13.03-2 dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that the text for Assumption 3b would be revised to show the correct value of 62 percent. The applicant revised text for Assumption 3b in Section 2.3. In RAI 13.03-36 the staff requested the applicant to 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 the response to RAI 13.03-36 dated April 16, 2010 (ADAMS Accession No. ML101190369), the applicant revised Section 8.1 and Table 8-1 to reflect that all commuters will return home. The applicant's additional text in Appendix F, "Telephone Survey," states the following:

> This data was not used in this study. The findings of NUREG/CR-6953, Volume 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.

In the response 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 RAI 13.03-52, the staff requested the applicant to 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, and if they require change, revise the distributions and text references regarding commuters, as appropriate. In the response to RAI 13.03-52 dated August 13, 2010 (ADAMS Accession No. ML102290043), the applicant stated 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" in the ETE report. The applicant will revise Table 1-1, "ETE Study Comparisons," Section 5 and 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 used to analyze the evacuation times. A general description of the evacuation model was provided, including the assumptions used in the evacuation time estimate analysis.

In the response to RAI 13.03-1 dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised Figure 6-1, "Fermi Nuclear Power Plant Protective Action Areas," to show PAAs and 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 the plant location in relation to transportation networks, topographical features, and political boundaries acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 the response to RAI 13.03-2 dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 the response to RAI 13.03-36 dated April 16, 2010 (ADAMS Accession No. ML101190369) the applicant revised the number of transit-dependent persons and the number of vehicles used in the evacuation. In the response to RAI 13.03-52 dated August 13, 2010 (ADAMS Accession No. ML102290043), the applicant removed references to "households not awaiting commuters" and revised Table 1-1, Section 5, and Table 6-3. The staff finds the additional information and textual revisions submitted in response to RAI 13.03-2 and RAIs 13.03-36 and 13.03-52 clarifying the

textual information concerning assumptions used for households in the EPZ with commuters acceptable because it conforms to the guidance in NUREG-0654/FEMA-REP-1, Revision 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 explaining that the 16-km (10-mi) boundary, as opposed to the EPZ boundary, is used in other COL application locations that lead to deviations in population estimates. The year 2000 population in the Detroit Edison Energy Environmental Report (ER) Section 2.5.1, "Demography," and FSAR Subsection 2.1.3.1.2.1, "Transient Population," is 89,198 based on a 16-km (10-mi) 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; and 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 that 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 the response to RAI 13.03-4 dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant describes the approach for estimating the number of transit-dependent residents and demonstrates 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 RAI 13.03-37, 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 the response to RAI 13.03-37 dated April 16, 2010 (ADAMS Accession No. ML101190369), 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 also provided the number of available 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 that have 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 that 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; 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 the response to RAI 13.03-5 (A, B) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant provided an updated Table E-3, "Major Employers within the Fermi EPZ," which correctly identifies the percentage 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 stated that 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 is estimated at one person per vehicle.

Section 8, "Transit Dependent and Special Facility Evacuation Time Estimates," describes the estimate of the special facility population that is provided on an institution-by-institution basis and the mobilization and manpower needed to support an evacuation of special facilities. Weather conditions and current facility populations 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 the response to RAI 13.03-6 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that no additional vehicle resources will be needed to support the evacuation of special facilities at full capacity, because reserve capacity in the planned vehicles can cover the difference in the population.

A listing of the schools located within the EPZ, including the student population and the number of bus runs required to support an evacuation, is 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 that 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 an evacuation of schools and the availability of drivers. In the response to RAI 13.03-6 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant identified that 383 buses are needed to evacuate schools when considering a maximum of 70 students per bus. The applicant will revise Table 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 the response to RAI 13.03-6 (C) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 3.2-km (2-mi) ring, R02 is the 8-km (5-mi) 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 3.2-km (2-mi) zone, 8-km (5-mi) 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 are 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 the 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 that purpose, and the level of detail is approximately the same as the USGS quadrant maps contain.

In the response to RAI 13.03-6 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that no additional vehicle resources will be needed to support an evacuation of special facilities at full capacity, because reserve capacity in the planned vehicles can cover the potential difference in population. The staff finds the applicant's response acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section II.C.

In the response to RAI 13.03-5 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised values entered for "Total Employees" and "Max Shift" in Table E-3 to correct the 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 acceptable, because they conform to the guidance in Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1, Section II.B. The staff confirmed that Revision 1 of the ETE Report incorporated the information and textual changes in the response to RAI 13.03-5(A).

In the response to RAI 13.03-5 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised Table E-3 to show 450 employees at the 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 acceptable, because they conform to the guidance in Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1, Section II.B. The staff confirmed that Revision 1 of the ETE Report incorporated the information and textual changes in the response to RAI 13.03-5(B).

In the response to RAI 13.03-6 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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," Table 8-2B, "Wayne County Schools," and in the 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 acceptable, because it conforms to the guidance in Appendix 4 to NUREG-0654, Section II.C. The staff confirmed that Revision 2 of the Fermi NPP ETE Report incorporated the information and textual changes in the response to RAI 13.03-6 (B).

In the response to RAI 13.03-6 (C) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant added information stating that there are a sufficient number of school buses and drivers in 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 that the number of bus drivers is 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/FEMA-REP-1, Revision 1, Section II.C. The staff confirmed that Revision 2 of the Fermi NPP ETE Report incorporated the information and textual changes in the response to RAI 13.03-6 (C).

In the response to RAI 13.03-4 dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant described the use of both bus and van service for wheelchair-bound residents. In RAI 13.03-37, the staff requested the applicant to clarify whether vans are used and if so, to identify the number and capacity of buses and vans for the evacuation of special needs individuals who are also transit dependent. In the response to RAI 13.03-37 dated April 16, 2010 (ADAMS Accession No. ML101190369) the applicant revised the ETE to describe the number of standard buses and specially equipped buses for 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 RAI 13.03-37 that clarified the textual information concerning the types of vehicles needed to evacuate special facility populations acceptable, because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section II.C. The staff confirmed that Revision 2 of the Fermi NPP ETE Report incorporates the information and textual changes 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 the 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," identifies the roadway network and evacuation routes used in the analysis. The evacuation routes are outbound and are generally away from the plant.

Appendix C describes the method and computer model used to analyze the evacuation times. Appendix B 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 and 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 the response to RAI 13.03-3 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant clarified that the saturation flow rate estimates were based on 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 the 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, the capacity of highway sections is identified as a function of, among other things, the percentage of heavy trucks. Additional information was requested in RAI 13.03-9 (B, C) to describe the values of variables used in the equations. In the response to RAI 13.03-9 dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that posted speeds may influence free-flow speed (FFS) but posted speeds are

not used in the Highway Capacity Manual (HCM) procedures. The HCM uses the free-flow speed. In the response to RAI 13.03-9 (B, C) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that the ETE calculation did not utilize actual percentages for evaluating the effects of heavy trucks in the evacuation stream. The applicant also stated 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 the 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 is included in the equation in the intersection analysis. In the response to RAI 13.03-3 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 how changing the control treatment at critical intersections can improve service and expedite the movement of traffic. Additional information was requested in RAI 13.03-3 (C) dated October 14, 2009 (ADAMS Accession No. ML092931167), regarding the identification of any model treatments that were used to expedite the flow of traffic. The applicant's response the applicant clarified that the evacuation of the Fermi EPZ does not require any model treatments such as contra flow, and none were used in the analysis.

Appendix G, "Traffic Management," is different from the Monroe and Wayne County traffic control plans, and the ETE Report states that the traffic management plan 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 the movement of traffic. In the response to RAI 13.03-3 (D) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 (TCPs) were manned in an evacuation, the ETE may be less than predicted in the study. In RAI 13.03-38, the staff 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 the green time at intersections to represent movement of traffic under evacuation conditions. In the response to RAI 13.03-38 dated April 16, 2010 (ADAMS Accession No. ML101190369), the applicant stated that the ETE does not approximate the use of traffic guides at TCPs based on the adjustment of green time at signalized intersections. The response further stated explains 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 behaviors during an emergency evacuation based on traffic conditions, but they 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 (ACP) #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 traveling 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 the response to RAI 13.03-13 (D) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that additional traffic controls will be recommended at 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 11 km (7 mi) 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 14.7, 14.4, and 19.7 km (9.2, 9.0, and 12.3 mi), respectively. Additional information was requested in RAI 13.03-7 (A) regarding how distances are developed from the schools to the EPZ boundary. In the response to RAI 13.03-7 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 a discussion on the narrowest roadway section was requested in RAI 13.03-8 (A) and RAI 13.03-9 (A). In the responses to these RAIs dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant provided Figures K-1 through K-21, "Fermi Link-Node Analysis Network," which contain legible nodes. The applicant also provided details regarding the survey of the roadway network and how this information is 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 consultations with emergency management and law enforcement personnel. The applicant also analyzes travel times and potential locations for serious congestion along the evacuation routes.

The staff finds the applicant's responses to RAI 13.03-3 (A, C) acceptable.

In the response to RAI 13.03-9 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 acceptable, because it conforms to the guidance in Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1, Section III.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-9 (B).

In the response to RAI 13.03-9 (C) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised the ETE report to explain that the presence of trucks in the traffic stream could be significant before 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 before an evacuation advisory acceptable, because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section III.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to RAI 13.03-9 (C).

In the response to RAI 13.03-3 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 the TCPs not being specifically used in the traffic simulation model acceptable because it conforms to the guidance in Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1, Section III. The staff confirmed that Revision 1 of the Fermi ETE incorporated the information and textual changes in the response to RAI 13.03-3 (B).

In the response to RAI 13.03-13 (D) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 acceptable, because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section III. The staff confirmed that Revision 2 to Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-13 (D).

In the response to RAI 13.03-7 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised distances in Tables 8-5A and 8-5B using the "calculate geometry" feature in geographic information system (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 acceptable, because it conforms to the guidance in Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1, Section III. The staff confirmed that Revision 2 of the Fermi NPP ETE the information and textual changes provided in the response to RAI 13.03-7 (A).

In the response to RAI 13.03-8 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 acceptable, because it conforms to the guidance in Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1, Section III.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes provided in the response to RAI 13.03-8 (A).

In the response to RAI 13.03-9 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised the ETE to include an explanation of how roadway characteristics are input into the traffic model. The staff finds the submitted additional information and textual revisions acceptable because it conforms to the guidance in Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1, Section III.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-9 (A).

In the response to RAI 13.03-3 (D) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated 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 TCP operations. The applicant's response to RAI 13.03-38 dated April 16, 2010 (ADAMS Accession No. ML101190369) provided a detailed description of the modeling approach to intersections. Therefore, the applicant's response to RAI 13.03-38 is acceptable because it meets the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, 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, states that the IDYNEV system is 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, summarizes the model results and is displayed in a format consistent with Table 2 of Appendix 4 in NUREG–0654/FEMA-REP-1, Revision 1. 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 describes the process of combining distribution functions to establish the time-dependent traffic loading. The data to support the loading distributions were 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 the response to RAI 13.03-10 (A, B) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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.

Figure 5-1, "Events and Activities Preceding the Evacuation Trip" shows 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 the response dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant agreed that residents may not be at home when an evacuation is ordered and described why this would not affect the ETE. Furthermore, in the response to RAI 13.03-11 (A), dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant replaced Figure 5-1.

In the response to RAI 13.03-11 (B) dated October 14, 2009, the applicant stated that all lodging facilities in Figure E-6, "Lodging Facilities within the FERMI EPZ," are within the 8- to 16-km (5- to 10- mi) area of the EPZ and states that the travel time from this area to the EPZ boundary would be less than the 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 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 (4 hours and 5 minutes). Figure 5-3 indicates that 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 the response to this RAI dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that the trip generation time for residents with commuters is actually 4 hours, as indicated in Figure 5-3.

Section 8.4 describes a single-wave evacuation of Monroe and Wayne County Schools that 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 the response to this RAI dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant confirmed that through the review of emergency plans and discussions with county officials, 383 buses are 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 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 the response to RAI 13.03-14 (D) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that bus mobilization times for certain schools are 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 the response dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant described how students at Monroe Senior High School could be boarded onto school buses within 5 minutes.

In Section 8.4 the average speed output by the model at 1 hour (51.3 kilometers per hour [kph] [31.9 mile per hour (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 58.6 kph (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 requested how the vehicles would travel at the identified speeds along these congested roadways. In the response to RAI 13.03-12 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant stated that route-specific average speeds rather than network-wide average speeds would be used for special facility buses. The applicant stated that the average network-wide speeds are applicable for emergency medical service (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. In RAI 13.03-39, the staff requested the applicant to use route-specific speeds when calculating the ETE for the EMS vehicles. In the response to RAI 13.03-39 dated April 16, 2010 (ADAMS Accession No. ML101190369), the applicant agreed that route specific-speeds should be used for ambulances rather than network-wide average speeds. In RAI 13.03-53, the staff requested the applicant to explain how average speeds in Table 8-13A, which range from 41.5 to 67.7 kph (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 the response to RAI 13.03-53 dated August 13, 2010 (ADAMS Accession No. ML102290043), the applicant stated 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 stated that Table 5-1 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 stated 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 stated 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 stated 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 seven 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 the response to RAI 13.03-13 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant clarified that each “set” of 20 buses assigned to Routes 1 through 4 in the first wave, is spread out over a-60 minute window, separated by a 3-minute time interval between each bus. In RAI 13.03-40, the staff requested that 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 the response to RAI 13.03-40 dated April 16, 2010 (ADAMS Accession No. ML101190369), the applicant stated 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 that 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 the response to RAI 13.03-13 (C) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 the response to RAI 13.03-14 (A, B) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant clarified that no additional vehicle or ambulance resources would be needed to support evacuation of special facilities at full capacity.

Appendix E 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 the response to this RAI dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 the response to this RAI dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 evacuation scenarios were 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) acceptable because it conforms to the guidance in Appendix 4 of NUREG-0654/FEMA-REP-1, Revision 1, Section IV.

In the response to RAI 13.03-10 (A, B, and C) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised Figure 5-3 of the ETE Report and included 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 acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section IV.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-10 (A, B, and C).

In the response to RAI 13.03-11 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section IV.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-11 (B).

In the response to RAI 13.03-6 (C) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised the ETE to state that 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 acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, 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 RAI 13.03-6 (C).

In the response to RAI 13.03-13 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 to explain and reflect the staggering of transit buses acceptable because it conforms to the guidance in Appendix 4 to NUREG–0654/FEMA-REP-1, Revision 1, 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 RAI 13.03-13 (B).

In the response to RAI 13.03-14 (C) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant added to the ETE Report a new Section 8.6, which includes an ETE and a 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 acceptable because conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section IV.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporate the information and textual changes in the response to RAI 13.03-14 (C).

In the response to RAI 13.03-11 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant provided a revised Figure 5-1 and the text describing the sequences of each population group. The revision was not consistent with the revised Assumption 3b, which states that 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 RAI 13.03-36 dated April 16, 2010 (ADAMS Accession No. ML101190369), provides the change in the 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 regarding commuters who do not return home or households that do not await the return of a commuter were needed. In the response to RAI 13.03-52 dated August 13, 2010 (ADAMS Accession No. ML102290043), the applicant stated that all applicable sections of the ETE Report will be revised to reflect the revised assumption.

In the response to RAI 13.03-12 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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 51.3 and 58.3 kph (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 the response to RAI 13.03-39 dated April 16, 2010 (ADAMS Accession No. ML101190369), 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 acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section IV.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-39.

In the response to RAI 13.03-53 dated August 13, 2010 (ADAMS Accession No. ML102290043), 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) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant implied that 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 the response to RAI 13.03-40 dated April 16, 2010 (ADAMS Accession No. ML101190369), 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 acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section IV.B. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-40.

13.3C.18.6 *Other Requirements*

Technical Information in the ETE Report: [Section V of Appendix 4] The process for confirming that an evacuation is complete is in Section 12, "Confirmation Time," which includes a time estimate for confirming the evacuation. Additional information was requested in RAI 13.03-15 (A, B) regarding the time required to confirm the evacuation. In the response to

RAI 13.03-15 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant described the confirmation time with respect to guidance in NUREG–0654/FEMA-REP-1, Revision 1, and stated that the counties had not committed to implementing the recommended approach. In the response to RAI 13.03-15 (B) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant also clarified that the time to obtain telephone numbers of residents living within the EPZ is not included in the confirmation time estimate. In RAI 13.03-41 requested the applicant to provide the amount of time the counties estimate it would take to confirm that the evacuation is complete. In the response to RAI 13.03-41 dated April 16, 2010 (ADAMS Accession No. ML101190369), 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 that a confirmation of the 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 officials have reviewed the traffic control plan. In the response to this RAI dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant clarified that State and local law enforcement officials received presentations that 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. Furthermore, the applicant further stated 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 to confirm an 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 the emergency response for the site. This information is acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section V.

The staff finds the clarifications and additional information submitted in response to RAI 13.03-16 (C) 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) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant revised the ETE report to explain that telephone numbers can be compiled in the timeframe for families to mobilize and evacuate. The staff finds the additional information and textual revisions submitted to describe the time needed to compile telephone numbers acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section V. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-15 (B).

In the response to RAI 13.03-16 (A, B) dated October 14, 2009 (ADAMS Accession No. ML092931167), 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/FEMA-REP-1, Revision 1, Section V.

The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-16 (A, B).

In the response to RAI 13.03-15 (A) dated October 14, 2009 (ADAMS Accession No. ML092931167), the applicant described the confirmation time with respect to guidance in NUREG–0654/FEMA-REP-1, Revision 1, and stated that the counties had not committed to implementing the recommended approach. In the response to RAI 13.03-41 dated April 16, 2010 (ADAMS Accession No. ML101190369), 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 acceptable because it conforms to the guidance in Appendix 4 to NUREG-0654/FEMA-REP-1, Revision 1, Section V. The staff confirmed that Revision 2 of the Fermi NPP ETE incorporated the information and textual changes in the response to RAI 13.03-41.

13.3C.18.7 *Conclusion*

NRC staff reviewed the analysis of the ETE Report as described above and concludes that the information 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, Revision 1. Therefore, the ETE Report is acceptable and meets the applicable requirements of 10 CFR Part 50, Appendix E.IV.

13.3C.19 Emergency Planning - Inspections, Tests, Analyses, 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 the 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 *EP-ITAAC*

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 application. Table 2.3-1, “ITAAC For Emergency Planning,” in Part 10 contains the proposed EP-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 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 Table 2.3-1 against the generic set of EP-ITAAC in Table 14.3.10-1 of NUREG-0800. The staff’s review noted inconsistencies between the Fermi 3 proposed EP-

ITAAC in Table 2.3-1 and NUREG-0800, Table 14.3-10-1. The staff issued RAIs 13.03-017-01 through 13.03-017-12 and RAIs 13.03-55 through 13.03-80 requesting the applicant to address the inconsistencies in the applicant's documentation concerning staffing, EALs, and acceptance criteria associated with Emergency Planning. The staff reviewed the applicant's responses to RAIs 13.03-017-01 through 13.03-017-12 dated September 30, 2009 (ADAMS Accession No. ML092750405) and responses to RAIs 13.03-55 through 13.03-80 dated October 6, 2010 (ADAMS Accession No. ML102810222), along with 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 RAIs 13.03-83 through 13.03-90 as described below.

In RAI 13.03-83, the staff asked the applicant to provide a basis for including ITAAC 5.3 that demonstrates the operability of the siren system. Given that the Fermi 3 site will use the existing Fermi 2 siren system that is currently inspected under the Reactor Oversight Program and may be presumed adequate for the purposes of this COL. In the response to this RAI dated December 6, 2013 (ADAMS Accession No. ML13344B028) the applicant stated that 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 Emergency Plan as identified in NRC RAI Letter 52 dated March 29, 2011 (ADAMS Accession No. ML110590635), (RAI 13.03-83)."

In RAI 13.03-84, 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 Criterion II.J.12 is not applicable to licensees and therefore is not needed in the COL application. In the response to this RAI dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant stated that Detroit Edison agrees that Evaluation Criterion II.J.12 of NUREG–0654 is not applicable to licensees, and Table 2.3-1 will be revised to remove Emergency Plan Program Element 10.4.

In RAI 13.03-85, the staff asked the applicant, to revise the acceptance criteria in ITAAC 14.1.1.A.1 for declaring an 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 the response to this RAI dated December 6, 2013 (ADAMS Accession No. ML13344B028), the applicant stated that Acceptance Criterion 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 RAI 13.03-86, the staff asked the applicant to revise the acceptance criteria for ITAAC 10.1 to match the corresponding written change in response to RAI 13.03-72 dated October 6, 2010 (ADAMS Accession No. ML102810222). In the response to this RAI dated December 6, 2013 (ADAMS Accession No. ML13344B028) the applicant stated that the Acceptance Criterion 10.1 in Table 2.3-1 will be changed 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 the response to RAI 13.03-72.

Technical Evaluation: (52.80(a)) (NUREG-0800) The staff finds the additional information and textual revisions to Part 10 of the Fermi 3 application submitted in response to RAIs 13.03-17-01 through 13.03-17-012, RAIs 13.03-55 through 13.03-71, RAIs 13.03-73 through 13.03-78, and RAI 13.03-80 acceptable because they conform to the guidance in NUREG-0800. The staff confirmed that Revision 7 of the Fermi 3 FSAR, Part 10, Table 2.3-1,

incorporated the information and textual changes in the responses to the aforementioned RAIs and the proposed markup to Table 2.3-1.

The staff created Confirmatory Item 13.03-68 to track the revision of EP-ITAAC 5.3 (RAI 13.03-83). The staff verified that FSAR Revision 7 of the Fermi 3 COL includes the corrections to EP-ITAAC 5.2. Therefore, Confirmatory Item 13.03-68 is resolved.

The staff created Confirmatory Item 13.03-69 to track the Table 2.3-1 revision removing Emergency Plan Program Element 10.4 (RAI 13.03-84). The staff verified that FSAR Revision 7 of the Fermi 3 COL includes the removal of Emergency Plan program element 10.4 from Table 2.3-1. Therefore, Confirmatory Item 13.03-69 is resolved.

The staff created Confirmatory Item 13.03-70 to track the revision of Acceptance Criterion 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 13.03-85). The staff verified that FSAR Revision 7 of the Fermi 3 COL includes the revision of Acceptance Criterion 14.1.1.A.1.a. Therefore, Confirmatory Item 13.03-70 is resolved.

The staff created Confirmatory Item 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 13.03-86). The staff verified that FSAR Revision 7 of the Fermi 3 COL includes the revision to Table 2.3-1 to address warning and instruction capability outside the protected area. Therefore, Confirmatory Item 13.03-71 is resolved.

13.3C.19.3 *Conclusion*

The NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant has addressed the required information relating to the EP-ITAAC, the generic EP-ITAAC in Table 14.3.10-1 of NUREG–0800, 10 CFR 52.80(a), and Section 14.3.10 of NUREG-0800. The staff finds that the applicant has adequately addressed the applicable EP-ITAAC needed to provide reasonable assurance that upon the successful completion, the facility will be constructed and operated to conform with the COL, the provisions of the Atomic Energy Act, and the Commission rules and regulations. No outstanding information is 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 into the Fermi 3 COL application are documented in NUREG–1966.

13.4 <u>Operational Program Implementation</u>

13.4.1 Introduction

This section of the FSAR addresses the operational programs described in NRC guidance SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria." The section includes a description of the programs and the proposed implementation milestones for each program.

This section describes the proposed implementation milestones for each operational program in compliance with the guidance of RG 1.206, Regulatory Position 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 7, incorporates by reference Section 13.4 of the certified ESBWR DCD, Revision 10. 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 that fully describes the operational program, as required by RG 1.206.

- STD COL 13.4-2-A Implementation Milestones

The applicant provided the information in FSAR Table 13.4-201, which lists each operational program, the regulatory requirement for each program, the associated implementation milestone(s), and the section of the FSAR that fully describes the operational program consistent with the guidance in RG 1.206.

13.4.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG-1966. In addition, in the Staff Requirements Memorandum on SECY-05-0197, the Commission provided the following 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 EP-ITAAC as a model for EP-ITAAC to be included in COL applications.
- SRP Section 13.4 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 7, and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information 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, Detroit Edison 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

License Condition (13.4-1) In FSAR Table 13.4-201, the applicant identifies 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

[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.

confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, 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 information in the application to the relevant NRC regulations, the guidance in Subsection 13.4 of NUREG–0800, and other NRC RGs. The staff's review concludes that the applicant has presented adequate information on COL Items STD COL 13.4-1-A and 13.4-2-A in Table 13.4-201 of the COL FSAR.

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 the 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*

Section 13.5.1 of the Fermi 3 COL FSAR, Revision 7, incorporates by reference Section 13.5.1 of the certified ESBWR DCD Revision 10. In addition, in FSAR Section 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."

The applicant identified the following commitment:

Supplemental Information

- STD SUP 13.5-1 Plant Procedure

In FSAR Section 13.5, the applicant states that 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 quality assurance program description (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

The applicant states that through Commitment (COM13.5-001), procedures are developed before fuel loading 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.

- EF3 COL 13.5-4-A

The applicant states that industry guidance in ASME NQA-1 for the appropriate format, content, and typical activities delineated in written procedures is implemented, as 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

- 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 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 to be consistent with the guidance described in DCD Section 18.9, "Procedure Development," and with input from the HFE 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 human reliability analysis (HRA)/probabilistic risk assessment (PRA)
- Initiating events considered in the EOPs, including those events in the design bases
- Generic Technical Guidelines (GTGs) for EOPs

Procedure verification and validation (V&V) 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 V&V 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 to be consistent with the guidance in NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," to reduce

the potential for the 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 QAPD, and the types and content of the 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 in NUREG-1966. In addition, the relevant requirements of the Commission regulations for the administrative and

plant procedures, and the associated acceptance criteria, are in Section 13.5.1 and Subsection 13.5.2.1 of NUREG–0800.

In particular, 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 Item STD COL 13.5-1-A related to the 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 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, Revision 7 and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the 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:

<u>*COL Item*</u>

- STD COL 13.5-1-A Administrative Procedures Development Plan

The applicant states that industry guidance ASME NQA-1 for the appropriate format, content, and typical activities delineated in written procedures is implemented, as appropriate.

ESBWR DCD Tier 2, 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

[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.

procedures in accordance with the nominal schedule in Table 13.5-202. The staff reviewed FSAR 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 of the Fermi 3 procedures listed in FSAR Section 13.5.

- STD SUP 13.5-1 Plant Procedure

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," of this SER.

- STD SUP 13.5-3

This section identifies procedures by topic, type, or classification in lieu of the specific title, and represents 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

The applicant states that:

> 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 (COM 13.5-001) to develop plant procedures before initial fuel loading. 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

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 procedures. 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 13.5-5 Control of Procedure Format and Content

Administrative procedures control the format and content of procedures, which 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 that 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

The staff reviewed STD SUP 13.5-6, which states that the plant procedures used to conduct routine operations and abnormal and emergency operating activities should 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 should be developed consistent with the guidance described in DCD Tier 2, Section 18.9, and with input from the human factors engineering process and evaluations.

The bases for procedural 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 EOPs, including those events in the design bases
- GTGs for EOPs

Procedure V&V includes the following activities, as appropriate:

- A review to verify that they are correct and can be carried out
- A final validation in a simulation of the integrated system as part of the V&V activities as described in DCD Tier 2, Section 18.11.
- Verification that modified procedures have 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 operation and abnormal and emergency operating activities should be consistent with the guidance described in DCD Tier 2, Section 18.9. The staff determined that this section of the applicant's FSAR is consistent with the guidance in DCD Tier 2, 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

The staff reviewed STD SUP 13.5-08, which states that procedures for managing a shutdown should be consistent with the guidance 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, Subsection 13.5.1.1. This information is therefore acceptable.

- STD SUP 13.5-9 Administrative Procedures for Activities that Are Important to Safety

NUREG–0800, Subsection 13.5.1.1 states that the applicant should describe the procedures that provide 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 plant 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

The applicant states that:

> Procedures outline the essential elements of the administrative programs and controls described in ASME NQA-1 and Section 17.5. These procedures are organized to prescribe the programmatic elements in documents normally referred to as administrative procedures.
>
> Administrative procedures contain adequate programmatic controls to provide an effective interface between organizational elements, including contractor and owner organizations that support the station operating organization.

NUREG–0800, Subsection 13.5.1.1 states that the applicant should describe the procedures that provide 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 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 described in NUREG–0800, Subsection 13.5.1.1. The Supplemental Information 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 description of procedural controls 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

The applicant states that:

> 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 provides criteria for the content and format of procedures, including written action steps and specific acceptable acronym lists and terms to be used.

In NUREG–0800, Subsection 13.5.1.1, Area of Review Item 1.A, "Category (A) Controls," states that the applicant should describe the procedural review and approval process. Inherent in this discussion is the use of a procedure writer's guide. In FSAR Subsection 13.5.1.1, the applicant adds a new paragraph under STD SUP 13.5-12 that describes the writer's guide and promotes the standardization of procedures that include human factor applications and consistent organization, style, and content. The staff concluded that the applicant has provided acceptable general operating descriptions of procedures 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

The applicant states that:

> 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 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 described in NUREG–0800, Subsection 13.5.1.1. In STD SUP 13.5-13, the applicant states that the control over the maintenance and updates of procedures 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 applicant states:

> 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 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 described 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 procedural controls in the FSAR that meets the criteria in NUREG–0800, Subsection 13.5.1.1. This information is therefore acceptable.

- STD SUP 13.5-15 Administrative Procedures for Control of Operational Activities

The applicant states:

> Subsection 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 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 described 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

The applicant states that:

> 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"
> - 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 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 described 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 identifies the following commitment under the Supplemental Information 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 confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, 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 item and supplemental information in the application to the relevant NRC regulations, the guidance in Section 13.5.1 and Subsections 13.5.1.1 and 13.5.2.1 of NUREG-0800; and other NRC RGs. The staff's review concludes that the applicant has presented adequate information in the Fermi 3 FSAR to meet the guidance in NUREG–0800. Thus, the applicant has adequately addressed COL Item STD COL 13.5-1-A, 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 operating and maintenance 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 preparing appropriate written operating and maintenance procedures. This FSAR section also delineates in the description of operating and maintenance procedures the functional position for a procedural revision and approval process before implementation.

13.5.2.2 *Summary of Application*

Section 13.5.2 of the Fermi 3 COL FSAR, Revision 7, incorporates by reference Section 13.5.2 of the certified ESBWR DCD, Revision 10. In addition, in COL FSAR Section 13.2, the applicant provides the following.

COL Items

- 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
- STD SUP 13.5-40 Procedure related to Refueling Cavity Integrity

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 in NUREG-1966. In addition, the relevant requirements of the Commission regulations for the plant operating and maintenance procedures, and the associated acceptance criteria, are in Subsection 13.5.2.1 of NUREG–0800.

In particular, 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 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 COL FSAR and the information in the ESBWR DCD appropriately represents the complete scope of information relating to this review topic.[1] The staff's review confirmed that the information in the application and the information incorporated by reference address the required information relating to operating and maintenance procedures.

[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.

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 DCD Tier 2 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 Tier 2, 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 the 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 Tier 2 is replaced with the following:

> Emergency Procedures are developed in accordance with Subsection 13.5.2.1.4.

ESBWR DCD Tier 2, Section 13.5.2 states that the applicant will develop emergency procedures. In COL FSAR Section 13.5.2, the applicant states that the 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.

- EF3 COL 13.5-4-A Implementation of the Plant Procedures Plan

The COL Item EF3 COL 13.5-4-A replaces the fifth paragraph to supplement the ESBWR DCD Tier 2 with the following:

> A Plant Operations Procedures Development Plan is established in accordance with Subsection 13.5.2.1.

ESBWR DCD Tier 2, 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 the 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

The COL Item STD COL 13.5-5-A replaces the second paragraph of the subsection "Procedures for Handling of Heavy Loads" in the DCD Tier 2 with the following:

> The scope of procedures in the Plant Operating Procedures Development Plan is addressed in Subsection 13.5.2.1.

ESBWR DCD Tier 2, 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 the 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 Tier 2 with the following:

> Surveillance procedures that cover safety-related logic circuitry are addressed in Subsection 13.5.2.2.6.3.

ESBWR DCD Tier 2, 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 described in GL 96-01, "Testing of Safety Related Logic Circuits." In Fermi 3 COL FSAR Section 13.5.2, the applicant states that the 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 requires 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 CR 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 the 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 the 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 the 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 the 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 the 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 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 the 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 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 the 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 the new Subsection 13.5.2.2.4 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 the new Subsection 13.5.2.1.1 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 the new Subsection 13.5.2.2.6.4 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 refers to the revised Subsection 9.1.5.8 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 the 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:

- Commitment (COM 13.5-001) – Develop procedures are developed prior to fuel loading 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.

- Commitment (COM 13.5-002) – Develop operating procedures at least six months prior to fuel loading 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.

- Commitment (COM 13.5-003) –Submit the procedure development program, as described in the PGP for EOPs, to the NRC at least three months prior to the planned date to begin formal operator training on the EOPs.

- Commitment (COM 13.5-004) – Develop an initial program based on service conditions, experience with comparable equipment and vendor recommendations is developed prior to fuel loading.

13.5.2.6 *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 confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, 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 concludes 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.

13.6 Physical Security

13.6.1 Introduction

The Fermi 3 COL application describes the applicant's physical protection program, which is intended to meet the NRC regulations for the use of the design basis threat (DBT) to design safeguards systems to protect against acts of radiological sabotage as stated in 10 CFR 73.1 "Purpose and Scope." The overall purpose of the applicant's physical protection program is to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

The physical protection program includes the design of a physical protection system that ensures the capabilities to detect, assess, interdict, and neutralize threats of radiological sabotage are maintained at all times. The applicant incorporates by reference the standard ESBWR design, which includes design of physical protection systems within the design of the vital island and vital structures, as described in the ESBWR DCD including topical report, NEDE-33389, "ESBWR Security Enhancements Report," NEDE-33390, "ESBWR Interim Compensatory Measures Assessment Report," and NEDE-33391, "The ESBWR Safeguards Assessment Report." Part 8 of the COL application, consisting of the Fermi Physical Security Plan (PSP), Training and Qualification Plan (T&QP), and Safeguards Contingency Plan (SCP), is referenced in Section 13.6 of the Fermi COL FSAR to describe the physical protection program and physical protection systems that are not addressed within the scope of the standard ESBWR design for meeting NRC performance and prescriptive requirements for physical protection stated in 10 CFR Part 73, "Physical Protection of Plants and Materials." The NRC staff evaluation of the physical protection program is provided in detail in the SGI version of the Fermi COL application Section 13.6 SER, and includes a complete set of the staff bases for its findings regarding the program. Due to security constraints, the NRC staff evaluation of the physical security protection program presented in this publicly-available SER does not include the same level of detail as the version. Those persons with the correct access authorization and need-to-know may view the safeguards information (SGI) version of the Fermi COL application Section 13.6 SER, which is located in the NRC's Secure LAN.

13.6.2 Summary of Application

Section 13.6 of the Fermi 3 COL FSAR, Revision 7, incorporates by reference Section 13.6 of the ESBWR DCD, Revision 10.

Part 8 – Safeguards/Security Plans

In a letter dated September 18, 2008, Detroit Edison submitted a PSP to the NRC as part of the COL application for proposed Fermi 3. In a letter dated October 1, 2009, Detroit Edison submitted Revision 1 to the PSP. In a letter dated June 30, 2010, Detroit Edison submitted Revision 2 to the PSP. In a letter dated February 14, 2011, Detroit Edison submitted Revision 3 to the PSP. In a letter dated May 24, 2011, Detroit Edison submitted Revision 4 to the PSP. In a letter dated September 23, 2011, Detroit Edison submitted Revision 5 to the PSP.

Additionally, in the Fermi COL FSAR Section 13.6, the applicant stated as follows:

COL Information Items

- STD COL 13.6-6-A

Site key control was addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.5. A key control program will be developed and implemented prior to the milestone for PSP implementation (Table 13.4-201).

- STD COL 13.6-7-A

Redundancy and equivalency of the central alarm station (CAS) and secondary alarm station (SAS) was addressed by the applicant through the Fermi PSP, Section 15.4.

- EF3 COL 13.6-8-A

The no single act requirement for the CAS and SAS was addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2. A description of the design of the CAS and SAS and analysis of single act security events is contained in the Fermi COL FSAR, Part 8, Appendix 8C.

- STD COL 13.6-9-A

The requirement for operational alarm response procedures was addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.3. Operating alarm response procedures will be developed and implemented in accordance with milestone defined in Subsection 13.5.2.1.

- STD COL 13.6-10-A

The requirement for operational surveillance test procedures was addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.8. The establishment of these surveillance test procedures and frequencies will be completed in accordance with the milestone for PSP implementation (Table 13.4-201).

- STD COL 13.6-11-A

Maintenance test procedures were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.8. The establishment of these testing and maintenance milestones will be completed in accordance with the milestone for PSP implementation (Table 13.4-201).

- STD COL 13.6-12-A

Operational response procedures to security events were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2. As part of the Security Plan, the applicant will develop an integrated response strategy to a confirmed security event that provides for manual actuation of plant systems by the operators to an evolving scenario necessitating escalating operator response. This action will be completed prior to the milestone for PSP implementation (Table 13.4-201).

- STD COL 13.6-13-A

Operational alarm response procedures were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.3. This action will be completed prior to the milestone for PSP implementation (Table 13.4-201).

- STD COL 13.6-14-A

Administrative controls to sensitive cabinets were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.5. Administrative procedures will be developed prior to the milestone for PSP implementation (Table 13.4-201) to control work being performed in cabinets containing the control circuitry for systems listed in Table 4-1 of NEDE-33391.

- STD COL 13.6-15-A

Administrative controls to sensitive equipment were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.5. Administrative procedures will be developed prior to the milestone for PSP implementation (Table 13.4-201) that will require two persons, each of whom are qualified to perform the intended work, to be present during the performance of any work on systems listed in Table 4-1 of NEDE-33391.

- EF3 COL 13.6-16-A

External bullet resisting enclosures (BREs) were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2. The applicant provided site arrangement drawings, which show the location of the external BREs and indicate the fields of fire from these locations. The applicant also described the level of protection provided to security personnel in the BREs from the effects of the equipment available to the adversaries utilizing the DBT toolkit. These items are contained in the PSP.

- EF3 COL 13.6-17-A

Site-specific locations of security barriers were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2. The applicant provided site arrangement drawings showing the site-specific locations of security barriers that are not part of the ESBWR Design, in the PSP. Additionally, prior to the milestone for PSP implementation (Table 13.4-201) the applicant will demonstrate that the security strategy described in the ESBWR Safeguards Assessment Report (NEDE-33391) remains valid.

- STD COL 13.6-18-A

Ammunition for armed responders was addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2. Prior to the milestone for PSP implementation (Table 13.4-201), the applicant will update the security plan with an analysis to determine if armed responders require ammunition greater than the amount normally carried.

- STD COL 13.6-19-A

Site-specific update of the ESBWR Safeguards Assessment Report was addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2. Prior to the milestone for PSP

implementation (Table 13.4-201), the applicant will analyze the ESBWR Safeguards Assessment Report to reflect site-specific location of engagement positions including fields of fire, to demonstrate that the security strategy can be implemented as described and the effectiveness of neutralization in the report can be achieved. The PSP will be updated based on this revised analysis.

- STD COL 13.6-20-A

Physical security ITAAC is covered in part by the ESBWR standard ITAAC that addresses the physical plant security systems and those features that are part of the standard design. The ESBWR standard ITAAC were addressed by the applicant through the ESBWR DCD Tier 1, which was incorporated by reference. The plant and site-specific physical security ITAAC not covered by the ESBWR standard design, are contained in the Fermi COL FSAR, Part 10, Section 2.2.1, "Site-Specific Physical Security ITAAC."

Supplemental Information

- STD SUP 13.6-1

In Subsection 13.6.2 of the Fermi 3 COL FSAR, the applicant provides supplemental information addressing the security plans which are submitted as separate licensing documents to fulfill the requirements of 10 CFR 52.79(a)(35) and (36). The applicant also states that the security plans meet the requirements of 10 CFR Part 73 and will be maintained in accordance with the requirements of 10 CFR 52.98 and protected in accordance with 10 CFR 73.21. The security plans are categorized as security safeguards information. The safeguards version of the Fermi COL application Section 13.6 SER, which included the evaluation of STD SUP 13.6-1, is located in the NRC's Secure Local Area Network.

- STD SUP 13.6-2

In Subsection 13.6.2 of the Fermi 3 COL FSAR, the applicant provides supplemental information addressing a commitment that has been added to administrative procedures to meet the requirements of 10 CFR 73.58 for managing the safety/security interface.

License Conditions

- Part 10, Section 3.6

The applicant proposed a license condition in Part 10 of the Fermi COL application, which provides milestones for implementing applicable portions of the Security Program.

13.6.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG–1966 related to the ESBWR DCD. In addition, the relevant requirements of the Commission regulations for the physical security, and the associated acceptance criteria, are summarized in Subsection 13.6.1 of NUREG-0800.

The applicable regulatory requirements for physical protection are as follows:

- The provisions of 10 CFR 52.79(a)(35)(i) and (ii) require that information submitted for a COL describe how the applicant will meet the requirements of 10 CFR Part 73 and provide a description of the implementation of the PSP. The provisions of 10 CFR 52.79(a)(36)(i) through (v) require that the application include an SCP in accordance with the criteria set forth in Appendix C, "Nuclear Power Plant Safeguards Contingency Plans," to 10 CFR Part 73, and a T&QP in accordance with Appendix B of 10 CFR Part 73. The provisions also require that the applicant provide a description of the implementation of the SCP and the T&QP; and that the applicant protect the PSP, T&QP and SCP, and other related SGI in accordance with the requirements of 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

- The provisions of 10 CFR Part 73 include performance-based and prescriptive regulatory requirements that, when adequately met and implemented, provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety. A COL applicant must describe how it will meet the regulatory requirements of 10 CFR Part 73 that are applicable to nuclear power plants.

- The provisions of 10 CFR 52.79(a)(41) require an evaluation of the facility against the SRP in effect 6 months before the docket date of the application. The evaluation required by this section shall include an identification and description of all differences in design features, analytical techniques, and procedural measures proposed for a facility and those corresponding features, techniques, and measures given in the SRP acceptance criteria. Where a difference exists, the evaluation shall discuss how the proposed alternative provides an acceptable method of complying with the Commission's regulations, or portions thereof, that underlie the corresponding SRP acceptance criteria. The SRP is not a substitute for the regulations, and compliance is not a requirement.

The NRC staff used NUREG-0800, Subsection 13.6.1, Revision 1, dated June 15, 2010, to complete the physical security COL review.

Regulatory guidance documents, technical reports (TRs), accepted industry codes and standards that an applicant may apply to meet regulatory requirements include, but are not limited to the following:

- RG 5.7, Revision 1, "Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas," May 1980.

- RG 5.12, "General Use of Locks in the Protection and Control of Facilities and Special Nuclear Materials," November 1973.

- RG 5.44, Revision 3, "Perimeter Intrusion Alarm Systems," October 1997.

- RG 5.62, Revision 1 "Reporting of Safeguards Events," November 1987.

- RG 5.65, "Vital Area Access Controls, Protection of Physical Protection System Equipment and Key and Lock Controls," September 1986.

- RG 5.66, Revision 1, "Access Authorization Program for Nuclear Power Plant," July 2009.

- RG 5.68, "Protection Against Malevolent Use of Vehicles at Nuclear Power Plants," August 1994.

- RG 5.74, "Managing the Safety/Security Interface," March 2009.

- RG 5.75, "Training and Qualification of Security Personnel at Nuclear Power Reactor Facilities," June 2009.

- NRC letter dated April 9, 2009, NRC Staff Review of NEI 03-12 "Template for Security Plan, Training and Qualification, Safeguards Contingency Plan, [and Independent Spent Fuel Storage Installation Security Program]" (Revision 6) (ADAMS Accession No. ML090920528)

- SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria" October 28, 2005 (ADAMS Accession No. ML052770257)

The following documents include security-related or SGI and are not publically available:

- RG 5.69, "Guidance for the Application of Radiological Sabotage Design Basis Threat in the Design, Development, and Implementation of a Physical Security Protection Program that Meets 10 CFR 73.55 Requirements," June 2006.

- RG 5.76, "Physical Protection Programs at Nuclear Power Reactors," July 2009.

- RG 5.77, "Insider Mitigation Program." July 2009.

- NEI 03-12, Revision 6, "Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Independent Spent Fuel Installation Security Program"

- NUREG/CR-6190, "Update of NUREG/CR-6190 Material to Reflect Postulated Threat Requirements," March 27, 2003.

13.6.4 Technical Evaluation

The NRC staff reviewed Section 13.6 of the Fermi 3 COL FSAR and checked the referenced DCD to ensure that the combination of the DCD and the COL application represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to physical security. The results of the NRC staff's evaluation of the information incorporated by reference in the Fermi COL application are documented in NUREG-1966.

[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 staff reviewed the information in the COL application:

COL Information Items

- STD COL 13.6-9-A

Operational alarm response procedures were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.3.

> Operating alarm response procedures will be developed and implemented in accordance with milestone defined in Subsection 13.5.2.1.

The staff reviewed STD COL 13.6-9-A and determined that it adequately references that the operational alarm response procedures were addressed and will be developed and implemented in accordance with the milestone defined in Subsection 13.5.2.1. The site protective strategy is in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

- STD COL 13.6-10-A

Operational surveillance test procedures were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.8.

> The establishment of these surveillance test procedures and frequencies will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201).

The staff reviewed STD COL 13.6-10-A and determined that it adequately references that the operational surveillance test procedures and frequencies were addressed and will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201). The site protective strategy is in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

- STD COL 13.6-11-A

Maintenance test procedures were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.8

> The establishment of these testing and maintenance milestones will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201).

The staff reviewed STD COL 13.6-11-A and determined that it adequately references that the maintenance test procedures were addressed and will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201). The site protective strategy is in the facility implementing procedures, which were not subject to NRC staff review

as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

- STD COL 13.6-12-A

Operational response procedures to security events were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2.

> As part of the Security Plan, the applicant will develop an integrated response strategy to a confirmed security event that provides for manual actuation of plant systems by the operators to an evolving scenario necessitating escalating operator response. This action will be completed prior to the milestone for PSP implementation (Table 13.4-201).

The staff reviewed STD COL 13.6-12-A and determined that it adequately references that the operational response procedures to security events were addressed and will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201). The site protective strategy is in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

- STD COL 13.6-13-A

Operational alarm response procedures were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.3.

> This action will be completed prior to the milestone for Physical Security Plan implementation (Table 13.4-201).

The staff reviewed STD COL 13.6-13-A and determined that it adequately references that the alarm response procedures were addressed and will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201). The site protective strategy is in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

- STD COL 13.6-14-A

Administrative controls to sensitive cabinets were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.5.

> Administrative procedures will be developed prior to the milestone for Physical Security Plan implementation (Table 13.4-201) to control work being performed in cabinets containing the control circuitry (contact elements) for the systems listed in Table 4-1 of NEDE–33391 (DCD Reference 13.6-6).

The staff reviewed STD COL 13.6-14-A and determined that it adequately references that the administrative controls to sensitive cabinets were addressed and will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201). The site protective strategy is in the facility implementing procedures, which were not subject to NRC

staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

- STD COL 13.6-15-A

Administrative controls to sensitive equipment were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.1.1.5.

> Administrative procedures will be developed prior to the milestone for Physical Security Plan implementation (Table 13.4-201) that will require two persons, each of whom are qualified to perform the intended work, to be present during the performance of any work on systems listed in Table 4-1 of NEDE-33391.

The staff reviewed STD COL 13.6-15-A and determined that it adequately references that the administrative controls to sensitive equipment procedures were addressed and will be completed in accordance with the milestone for Physical Security Plan implementation (Table 13.4-201). The site protective strategy is in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

- EF3 COL 13.6-16-A

External BREs were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2.

> A site arrangement drawing that shows the location of the external Bullet Resisting Enclosures and indicates the fields of fire from these locations is provided in the Physical Security Plan.
>
> A description of the level of protection provided to security personnel stationed in Bullet Resisting Enclosures (BREs) from the effects of the equipment available to the adversaries utilizing the Design Basis Threat (DBT) toolkit (defined in DCD Reference 13.6-8) is contained in the Physical Security Plan.

In RAI 13.06.01-21, the NRC staff asked the applicant how COL Information Item 13.6-16-A will be addressed. In its response dated August 30, 2010 (ADAMS Accession No. ML102440652), the applicant provided site arrangement drawings, which show the location of the external BREs and indicate the fields of fire from these locations. The applicant also described the level of protection provided to security personnel in the BREs from the effects of the equipment available to the adversaries utilizing the DBT toolkit. The applicant stated that Part 2 and Part 8 of the Fermi COL FSAR will be revised to incorporate this information.

The response to RAI 13.06.01-21, in regard to COL Information Item 13.6-16-A, was incomplete and the staff needed additional information from the applicant to reach a licensing decision. In RAI 13.06.01-52, the NRC staff asked follow up questions regarding locations of BREs. In its response dated November 19, 2010, the applicant provided clarifying information and stated that revised figures will be provided in the next Fermi combined license application (COLA) revision.

The response to RAI 13.06.01-52, in regard to COL Information Item 13.6-16-A, was incomplete and the staff needed additional information from the applicant to reach a licensing decision. In RAI 13.06.01-53, the staff requested additional information to evaluate and assess the proposed defensive strategy. In its response dated May 24, 2011, the applicant provided site arrangement drawings and information in its revised PSP, to clarify that the Fermi 3 defensive strategy satisfies the assumptions in the ESBWR Safeguards Assessment Report.

The NRC staff found the applicant response to RAI 13.06.01-53 acceptable, as it provides site arrangement drawings that specify the location of the external BREs and the fields of fire from these locations, as required by 10 CFR 52.79(d)(3), 10 CFR 52.79(a)(35)(i), and 10 CFR 73.55(b)(3)(ii). In Part 2, Revision 3 of the Fermi COL FSAR dated February 2011, the applicant provided a revised EF3 COL 13.6-16-A, by adding the additional information needed to support the licensing basis. Therefore, RAIs 13.06.01-21, 13.06.01-52 and 13.06.01-53 are closed.

- EF3 COL 13.6-17-A

Site-specific locations of security barriers were addressed by the applicant through the Fermi COL FSAR, Subsection 13.6.2.

> A site arrangement drawing that shows the location of the Protected Area (PA) fence, the isolation zone on either side of the PA fence, the Vehicle Barrier System (VBS), any Red Zone or Delay Fences, and any buildings or structures inside the PA that are not part of the Design is provided in the Physical Security Plan.
>
> Prior to the milestone for Physical Security Plan implementation (Table 13.4-201), a demonstration that the security strategy described in the ESBWR Safeguards Assessment Report (DCD Reference 13.6-6) remains valid will be conducted.

In RAI 13.06.01-21, the NRC staff asked the applicant how COL Information Item 13.6-17-A will be addressed. In its response dated August 30, 2010, the applicant provided a revised figure showing the site-specific locations of security barriers, which will be incorporated into Part 2 and Part 8 of the Fermi COL FSAR. In Table 13.4-201, the applicant included a commitment [COM 13.4-017] to implement the PSP and demonstrate that the security strategy described in the ESBWR Safeguards Assessment Report (NEDE-33391) remains valid prior to fuel on site.

The NRC staff finds the response to RAI 13.06.01-21, in regard to COL Information Item 13.6-17-A, acceptable as it provides a commitment to add a site arrangement drawing to the PSP to show the location of the protected area (PA) fence, isolation zone on either side of the fence, the vehicle barrier system (VBS), any red zone or delay fences, and any buildings or structures inside the PA that are not part of the design.

In a letter dated February 14, 2011, the applicant provided a revised PSP, Revision 3 (ADAMS Accession No. ML110600508), adding a site arrangement drawing that shows the location of the PA fence, isolation zone on either side of the fence, the VBS, any red zone or delay fences, and any buildings or structures inside the PA that are not part of the design. Therefore, this portion of RAI 13.06.01-21 is closed.

In addition, the applicant provided a revised FSAR Part 2 and Part 10, Revision 3, both dated February 2012. The COL applicant identified a milestone for demonstrating that the security strategy described in the Safeguards Assessment Report remains valid prior to receipt of fuel on site, in accordance with the ESBWR design and 10 CFR 73.55(a)(4). Therefore, this RAI 13.06.01-21 is closed.

- STD COL 13.6-18-A

Ammunition for armed responders was addressed by the applicant through the Fermi COL FSAR Subsection 13.6.2.

> Prior to the milestone for Physical Security Plan implementation (Table 13.4-201), the security plan will be updated with an analysis to determine if armed responders require ammunition greater than the amount normally carried to provide reasonable assurance of successful engagement of adversaries from various engagement positions, including the development of necessary procedures to assure adequate ammunition is available.

The staff's evaluation of STD COL 13.6-18-A is contained in Subsection 13.6.4.1.9 of this SER. The staff reviewed STD COL 13.6-18-A and determined that it adequately references that an analysis to determine if ammunition greater than the amount that is normally carried and the development of necessary procedures will be completed in accordance with the milestone for the Physical Security Plan implementation table (Table 13.4-201).

The site protective strategy is in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

- STD COL 13.6-19-A

Site-specific update of the ESBWR Safeguards Assessment Report was addressed by the applicant through the Fermi COL FSAR Subsection 13.6.2.

> Prior to the milestone for Physical Security Plan implementation (Table 13.4-201), the security plan will be updated with an analysis of the ESBWR Safeguards Assessment Report (DCD Reference 13.6-6) reflecting site-specific locations of engagement positions including fields of fire. This applies for the external Bullet Resisting Enclosures as well as any internal positions that have external engagement responsibilities. This will include an implementation analysis of the Security Strategy described in the report, focusing on the effectiveness of neutralization of adversaries before significant radiological sabotage can occur.

In RAI 13.06.01-1, the NRC staff asked the applicant to describe how the specific security features identified in NEDE-33391 will be tracked, incorporated, verified, and demonstrated for the Fermi 3 physical protection program. In its response dated May 3, 2010, the applicant stated that the latest revision of NEDE-33391, ESBWR "Safeguards Assessment Report" will be used to develop a strategy that will be tested and implemented to protect Fermi 3 against the adversary characteristics of the DBT. The assumptions in the report will be analyzed when

developing the protective strategy. In RAI 13.06.01-51, the NRC staff asked for follow up information on how the strategy for the co-located site (Fermi 2) will be reflected in the revision of the Safeguards Assessment Report.

In its response, dated September 2, 2010, the applicant stated that although the response to RAI 13.06.01-1 addressed only the ESBWR Safeguards Assessment Report (NEDE-33391), it is understood that since Fermi 2 and Fermi 3 are to be co-located within a single PA, it will be necessary for the site protective strategy to include the plant specific security features of both plants. As such, the ESBWR Safeguards Assessment Report and similar information for Fermi 2 (e.g., target sets and defensive strategy) will be reviewed, assessed, modified, and verified in the development of the site protective strategy.

Development of the site protective strategy is a necessary milestone in the implementation of the Fermi Security Program. The applicant stated that the milestone for the development of the site protective strategy, as well as the major changes (modifications or revisions) resulting from the development of the protective strategy will be communicated to the NRC and tracked in the Commitment Tracking Program. The applicant stated that it will submit, within 12 months after issuance of a COL, a schedule for implementation of the Fermi Security Program that supports planning for and conduct of NRC inspections. The applicant also stated that the schedule will be updated every 6 months until 12 months before scheduled fuel load, and every month thereafter until either the Fermi Security Program has been fully implemented or the plant has been placed in commercial service, whichever comes first. The staff evaluation of the proposed license condition is set forth below, and the staff-approved version of the condition is documented in SER Subsection 13.6.5 as License Condition 13.6-1.

The NRC staff found the applicant responses to RAI 13.06.01-1 and RAI 13.06.01-51 acceptable, as they provide in their FSAR, STD COL 13.6-19-A a commitment to update the PSP with the analysis from the ESBWR Safeguards Assessment Report and the protective strategy to include plant specific features of both units, as required by 10 CFR 73.55(b). Therefore, RAIs 13.03.01-1 and 13.06.01-51 are closed.

- STD COL 13.6-20-A

Physical security ITAAC is covered in part by the ESBWR standard ITAAC that address the physical plant security systems and those features that are part of the standard design.

> Features of the physical security system are covered, in part, by the standard ESBWR design, while other features are plant and site specific. Accordingly, the ESBWR standard ITAAC cover the physical plant security system and address those features that are part of the standard design. NRC guidance provides suggested ITAAC that cover both the standard design and the plant and site specific features. The plant and site-specific Physical Security ITAAC not covered by the ESBWR Tier 1, Section 2.19, are contained in Part 10, “ITAAC”, Section 2.2.1 “Site-Specific Physical Security ITAAC.”

In a supplemental response to RAI 19.03-38 (ADAMS Accession No. ML11229A767), dated August 16, 2011, the applicant identified the following commitments to track implementation of the Physical Security Program, the Safeguards Contingency Program, and the Training and Qualification Program:

1. Physical Security Program - Implemented prior to fuel onsite [COM 13.4-017]
2. Safeguards Contingency Program - Implemented prior to fuel onsite [COM 13.4-017]
3. Training and Qualification Program - Implemented prior to fuel onsite [COM 13.4-017]

In Fermi 3 FSAR Part 2, Revision 4, dated February 2012, the applicant revised the Security Programs listed in Table 13.4-201 that were addressed by a license condition required by 10 CFR 73.55(a)(4). In Part 10, Revision 3, dated February 2012; Section 3 was also revised to include those items listed in FSAR Table 13.4-201 where license conditions were proposed as the implementation requirement.

License Conditions

- Part 10, Section 3.6

In response to NRC Letter Number 63, dated August 16, 2011 (ADAMS Accession No. ML11229A767), the applicant proposed a license condition in Part 10 of the Fermi COL application that provides milestones for implementing applicable portions of the Security Program. Specifically, the applicant proposed the following:

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

The applicant followed the recommendations of the SRM dated February 22, 2006, on SECY-05-0197, in formulating the above license condition. The Staff, however, notes that the Commission, in its 2012 decision in the *Vogtle* proceeding, approved a license containing a different condition governing the same subject.

Condition 2. D.(11) of the Southern Nuclear Operating Company's, Vogtle Electric Generating Plant, Unit 3, COL (ADAMS Accession No. ML112991110), which governs the Operational Program Implementation Schedule, states:

> "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."

The staff will use Vogtle Condition 2.D.(11) as a template for the corresponding condition in a Fermi COL, should the Commission grant the application.

13.6.4.1 *Physical Security Plan*

The applicant submitted in Part 8 of the COL application the Fermi 3 PSP, T&QP and SCP to meet the requirements of 10 CFR 52.79(a)(35) and (36). Part 2, FSAR, Chapter 13, Section 13.6 references Fermi 3 PSP, T&QP, and SCP in describing the licensing basis for establishing a physical protection program, design of a physical protection system, and security organization, that will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety. The PSP submitted by Fermi 3 makes references to 10 CFR 50.34(c) and (d). Since this is a Combined Operating License Application which includes a common protected area (PA) for both operating and new reactors, the references should include 10 CFR 52.79(a)(35)(i), (36)(i) and (36)(ii). This reflects a template error, and both references require submission of the same information. The staff evaluated the Fermi 3 Security Plans only.

Security plans must describe how the applicant will implement Commission requirements and those site-specific conditions that affect implementation, as required by 10 CFR 73.55(c)(1)(i) and 10 CFR 73.55(c)(1)(ii).

The requirements are provided in 10 CFR 73.55(c), and (d) to establish, maintain, and implement a PSP to meet the requirements of 10 CFR 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors against Radiological Sabotage," and 10 CFR Part 73, Appendices B and C. The applicant must show establishment and maintenance of a security organization, the use of security equipment and technology, the training and qualification of security personnel, the implementation of predetermined response plans and strategies, and the protection of digital computer and communication systems and networks. The applicant must have a management system for development, implementation, revision, and oversight of security implementing procedures. The approval process for implementing security procedures will be documented.

In RAI 13.06.01-7, the NRC staff questioned the applicant's intended scope of the submitted PSP, T&QP, and SCP. In its response, the applicant stated that the PSP, T&QP, and SCP will apply to both Fermi 2 and Fermi 3 and will replace the existing NRC-approved PSP for Fermi 2 at some point in time not yet identified. In RAI 13.06.01-48, the NRC staff requested additional details on an implementation schedule for the Fermi PSP. In its response, the applicant stated a milestone for the implementation of the Fermi PSP, as a replacement for the Fermi 2 PSP, which will be communicated to the NRC and tracked in the Commitment Tracking Program. The applicant will submit, within 12 months after issuance of a COL, a schedule for implementation of the Fermi Security Program that supports planning for and conduct of NRC inspections.

This is being documented in Subsection 13.6.5 as License Condition 13.6-1. The NRC staff finds the responses to RAI 13.06.01-7 and RAI 13.06.01-48 acceptable, as they provide a license condition on implementation of the Fermi Security Program, which is acceptable for the reasons set forth in Subsection 13.6.5 of this SER. Therefore, RAI 13.06.01-7 and 13.06.01-48 are closed.

The NRC staff has reviewed the applicant's description in PSP Section 1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent

with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(c) and (d), and therefore is acceptable.

13.6.4.1.1 Introduction and Physical Facility Layout

The provisions of 10 CFR 52.79(a)(35) require that the application include a physical security plan describing how the applicant will meet the requirements of 10 CFR Part 73 (and 10 CFR Part 11, "Criteria and Procedures for Determining Eligibility for Access to or Control over Special Nuclear Material," if applicable, including the identification and description of jobs as required by 10 CFR 11.11(a) of this chapter, at the proposed facility). The plan must list tests, inspections, audits, and other means to be used to demonstrate compliance with the requirements of 10 CFR Parts 11 and 73, if applicable; and a description of the implementation of the physical security plan.

> The provisions of 10 CFR 52.79(a)(36) require that the application contain: (i) a safeguards contingency plan in accordance with the criteria set forth in Appendix C to 10 CFR Part 73. The safeguards contingency plan shall include plans for dealing with threats, thefts, and radiological sabotage, as defined in 10 CFR Part 73 of this chapter, relating to the special nuclear material and nuclear facilities licensed under this chapter and in the applicant's possession and control. Each application for this type of license shall include the information contained in the applicant's safeguards contingency plan. (Implementing procedures required for the Emergency Plan need not be submitted for approval.)
>
> (ii) A training and qualification plan in accordance with the criteria set forth in Appendix B to 10 CFR Part 73.
>
> (iii) A cyber security plan in accordance with the criteria set forth in 10 CFR 73.54 of this chapter;
>
> (iv) A description of the implementation of the safeguards contingency plan, training and qualification plan, and cyber security plan; and
>
> (v) Each applicant who prepares a physical security plan, a safeguards contingency plan, a training and qualification plan, or a cyber security plan, shall protect the plans and other related Safeguards Information against unauthorized disclosure in accordance with the requirements of 10 CFR 73.21 of this chapter.

The provisions of 10 CFR 52.79(a)(44) require that the application contain a description of the fitness-for-duty (FFD) program required by 10 CFR Part 26, "Fitness for Duty Programs," and its implementation.

Requirements are established in 10 CFR 73.55(c)(2) to ensure protection of SGI against unauthorized disclosure in accordance with 10 CFR 73.21. The applicant's submittal in Part 8 of the COL application (page 1) acknowledges that the PSP the T&QP, and the SCP discuss specific features of the physical security system or response procedures and are SGI.

Section 1 of the PSP describes the applicant's commitment to satisfying 10 CFR 50.34(c) and (d) and 10 CFR Part 73 by submitting a PSP, and to controlling the PSP and appendices as SGI according to 10 CFR 73.21.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.b, require a description of the physical layout of the site.

Section 1.1 of the PSP provides descriptions of location, site layout, and facility configuration. The PSP describes the physical structures and their locations on the site, description of the PA, and a description of the site in relation to nearby towns, roads, and other environmental features important to the coordination of response operations. The plant layout includes identification of main and alternate entry routes for law enforcement assistance forces and the location of control points for marshaling and coordinating response activities.

In addition, Section 1.1 of the Fermi COL application describes general plant descriptions that include details of the 16-to 80-kilometer (10- to 50-mile) radius of the geographical area of the Fermi 3 site, a site area map, and general plant and site descriptions. Fermi COL FSAR, Chapter 2, references the ESBWR Design Certification for the principal design and operating characteristics for the design and construction of Fermi 3. Part 1, General Information, of the Fermi COL application describes the name of the applicant and principal business locations.

The NRC staff has reviewed the facility physical layout provided in Section 1.1 of the PSP and as supplemented by Fermi COL FSAR. The NRC staff determined that the applicant included site-specific conditions that affect the applicant's capability to satisfy the requirements of a comprehensive PSP. The applicant has adequately described the physical structures and their locations on site and the site in relation to nearby towns, roads, and other environmental features important to the effective coordination of response operations. The applicant described the main and alternate entry routes for law-enforcement assistance forces and the location of control points for marshaling and coordinating response activities in the site-specific law enforcement response plan. The NRC staff concludes that the applicant's security plans have met the requirements for content of a PSP as stated above. Therefore, the NRC staff finds the "Facility Layout" described in the PSP and the Fermi COL FSAR is acceptable.

13.6.4.1.2 Performance Objectives

The provisions of 10 CFR 73.55(b)(1) require, in part, that the applicant shall establish and maintain a physical protection program with an objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety. The provisions of 10 CFR 73.55(b)(2) establish, in part, the requirement to protect a nuclear power reactor against the DBT of radiological sabotage as described in 10 CFR 73.1. The provisions of 10 CFR 73.55(b)(3)(i) and 10 CFR 73.55(b)(3)(ii) require the applicant to establish a physical protection program designed to ensure the capabilities to detect, assess, interdict, and neutralize threats up to and including the DBT of radiological sabotage, as stated in 10 CFR 73.1, are maintained at all times, and to provide defense-in-depth, supporting processes, and implementing procedures that will ensure the effectiveness of the physical protection program.

Section 2 of the PSP outlines regulatory requirements for the establishment and maintenance of an onsite physical protection system, security organization, and integrated response capability.

As part of the objective, the security program design incorporates supporting processes such as defense-in-depth principles, including diversity and redundancy, to ensure that no single event can disable the security response capability. The physical protection systems and programs described in the PSP are designed to protect against the DBT of radiological sabotage in accordance with the requirements of 10 CFR 73.55(a) through (r) or equivalent measures that meet the same high assurance objectives provided by paragraph (a) through (r). The applicant proposes to use the corrective action program to track, trend, correct and prevent recurrence of failures and deficiencies in the physical protection program.

The NRC staff has reviewed the applicant's description in PSP Section 2, for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b), and therefore is acceptable.

13.6.4.1.3 Performance Evaluation Program

Requirements are established in 10 CFR 73.55(b)(4) through (b)(11) for the applicant to analyze and identify site-specific conditions, establish programs, plans, and procedures that address performance evaluations, access authorization, cyber security, insider mitigation, fitness for duty (FFD), corrective actions, and operating procedures. Regulations in 10 CFR 73.55(b)(6) prescribe specific requirements to establish, maintain, and implement a performance evaluation program in accordance with 10 CFR Part 73, Appendix B, Section VI for implementation of the plant protective strategy.

Section 3.0 of the PSP describes that drills and exercises, as discussed in the T&QP, will be used to assess the effectiveness of the contingency response plan and the effectiveness of the applicant's response strategy. Other assessment methods include formal and informal exercises or drills, self-assessments, and internal and external audits and evaluations.

The performance evaluation processes and criteria that assess the effectiveness of the security program, including adequate protection against radiological sabotage, will be established in facility procedures and the deficiencies identified will be managed through the corrective action program.

Section 3.0 of the PSP references Section 4.0 of the T&QP, which provides additional details related to the performance evaluation of security personnel in accordance with 10 CFR Part 73 Appendix B Section VI. Section 4.0 of the T&QP includes provisions to conduct security force tactical drills and force-on-force exercises to evaluate the effectiveness of security systems and the response performances of security personnel. In addition, Section 17 of the PSP describes additional detail regarding the applicant's processes for reviews, evaluations and audits that will complement the performance evaluation program.

The NRC staff has reviewed the applicant's description in PSP Section 3 and the T&QP Section 4 (evaluated separately) for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b)(6), and therefore is acceptable.

13.6.4.1.4 Establishment of Security Organization

The provisions of 10 CFR 73.55(d) establish requirements to describe a security organization, including the management system for oversight of the physical protection program. The security organization must be designed, staffed, trained, qualified, periodically re-qualified, and equipped to implement the physical protection program as required by 10 CFR 73.55(b) and 10 CFR Part 73, Appendices B and C.

As explained below, Section 4.0 of the PSP describes how the applicant meets the requirements of 10 CFR 73.55(d)(1).

Security Organization Management

Section 4.1 of the PSP describes the organization's management structure. The PSP establishes that the security organization is a critical component of the physical protection program and is responsible for the effective application of engineered systems, technologies, programs, equipment, procedures, and personnel that are necessary to detect, assess, interdict, and neutralize threats up to and including the DBT of radiological sabotage. The security organization may be proprietary, contract, or other qualified personnel.

The PSP describes that the organization will be staffed with appropriately trained and equipped personnel, in a command structure with administrative controls and procedures, to provide a comprehensive response. Section 4.1 of the PSP also describes the roles and responsibilities of the security organization. The PSP provides that at least one full time, dedicated security shift supervisor, who has the authority for command and control of all security operations, is on site at all times.

The security force implementing the security functions as described in this section of the plan will either be a proprietary force, or contractor or other qualified personnel. The training and qualification provisions are described in the T&QP.

The NRC staff has reviewed the applicant's description in PSP Sections 4 and 4.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(d) and is, therefore, acceptable.

13.6.4.1.5 Qualification for Employment in Security

The requirements of 10 CFR 73.55(d)(3) state, in part, that the applicant may not permit any individual to implement any part of the physical protection program unless the individual has been trained, equipped and qualified to perform assigned duties and responsibilities in accordance with Appendix B to 10 CFR Part 73 and the applicant's T&QP.

Section 5 of the PSP describes that employment qualifications for members of the security force are delineated in the T&QP.

The NRC staff has reviewed the applicant's description in PSP Section 5 for the implementation of the site-specific physical protection program in accordance with Commission regulations and

NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(d)(3) and therefore is acceptable.

13.6.4.1.6 Training of Facility Personnel

Consistent with requirements in 10 CFR 73.55(d)(3), 10 CFR 73.56, "Personnel Access Authorization Requirements for Nuclear Power Plants," and 10 CFR Part 73, Appendix B, Section VI.C.1, all personnel who are authorized unescorted access to the applicant's PA receive training, in part, to ensure that they are trained to perform their assigned duties and responsibilities in the event of a security incident. Individuals assigned to perform security-related duties or responsibilities, such as, but not limited to, material searches and vehicle escort are trained and qualified in accordance with the T&QP to perform these duties and responsibilities and to ensure that each individual has the minimum knowledge, skills, and abilities required for effective performance of assigned duties and responsibilities.

Section 6 of the PSP describes the training provided for all personnel who have been granted unescorted access to the applicant's PA.

The NRC staff has reviewed the applicant's description in PSP Section 6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.56 and 10 CFR Part 73, Appendix B, and therefore is acceptable.

13.6.4.1.7 Security Personnel Training

The provisions of 10 CFR 73.55(d) require that all security personnel are trained and qualified in accordance with 10 CFR Part 73, Appendix B, Section VI prior to performing their duties.

Section 7 of the PSP describes that all security personnel are trained, qualified and perform tasks at levels specific for their assignments in accordance with the applicant's T&QP.

The NRC staff has reviewed the applicant's description in PSP Section 7 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP and the T&QP meets the requirements of 10 CFR 73.55(d) and therefore is acceptable. The NRC staff's review of the applicant's T&QP is located in Subsection 13.6.4.2 of this SER.

13.6.4.1.8 Local Law Enforcement Liaison

The following requirement is stated in 10 CFR 73.55(k)(9), "To the extent practicable, licensees shall document and maintain current agreements with applicable law enforcement agencies to include estimated response times and capabilities." In addition, 10 CFR 73.55(m)(2) requires that the periodic licensee reviews of the physical protection program required by that section

include an audit of the effectiveness of the response commitments by local, State and Federal law enforcement authorities.

Section 8 of the PSP provides a detailed discussion of the ongoing relationship with LLEAs. The plans addressing response, communication methodologies and protocols, command and control structures and marshaling locations are located in the operations procedures, emergency plan procedures and the site-specific law enforcement response plan. The law enforcement response plan is reviewed biennially concurrent with the PSP effectiveness review.

The NRC staff has reviewed the applicant's description in PSP Section 8 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent-with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR 73.55(m)(2), and therefore is acceptable.

13.6.4.1.9 Security Personnel Equipment

The requirements of 10 CFR 73.55(d)(3) state, in part, that the applicant may not permit any individual to implement any part of the physical protection program unless the individual has been trained, equipped and qualified in accordance with 10 CFR Part 73, Appendix B and the T&QP. Regulations in 10 CFR Part 73, Appendix B, Section VI.G.2(a) state, in part, that the applicant must ensure that each individual is equipped or has ready access to all personal equipment or devices required for the effective implementation of the NRC-approved security plans, the applicant's protective strategy, and implementing procedures. The provisions of 10 CFR Part 73, Appendix B, Sections VI.G.2(b) and (c) delineate the minimum equipment requirements for security personnel and armed response personnel.

The applicant addresses STD COL 13.6-18-A as follows: Section 9 of the PSP describes the equipment, including armament, ammunition and communications equipment that is provided to security personnel in order to ensure that security personnel are capable of performing the function stated in the Commission-approved security plans, applicant's protective strategy, and implementing procedures.

The NRC staff has reviewed the applicant's description in PSP Section 9 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(d)(3) and Appendix B, Section VI.G.2, and therefore is acceptable.

13.6.4.1.10 Work Hour Controls

The provisions of 10 CFR Part 26, "Fitness for Duty Programs," Subpart I, "Managing Fatigue," establish the requirements for managing fatigue. The provisions of 10 CFR 26.205, "Work Hours," establish requirements for work hours. The provisions of 10 CFR 26.205(a) require that any individual who performs duties identified in 10 CFR 26.4(a)(1) through (a)(5) shall be subject to the requirements of 10 CFR 26.205(a).

Section 10 of the PSP describes how the applicant will implement work hour controls in accordance with 10 CFR Part 26, Subpart I, and that site procedures shall describe performance objectives and implementing procedures.

The NRC staff's review of the FFD program is found in Section 13.7 of this SER.

13.6.4.1.11 Physical Barriers

The following requirements are established in 10 CFR 73.55(e): "Each licensee shall identify and analyze site-specific conditions to determine the specific use, type, function, and placement of physical barriers needed to satisfy the physical protection program design requirements of 10 CFR 73.55(b)." (1) The applicant shall: (i) "Design, construct, install and maintain physical barriers as necessary to control access into facility areas for which access must be controlled or denied to satisfy the physical protection program design requirements of paragraph (b) of this section." 10 CFR 73.55(b)(3)(ii) states that the physical protection program must: "Provide defense-in-depth through the integration of systems, technologies, programs, equipment, supporting processes, and implementing procedures as needed to ensure the effectiveness of the physical protection program."

Section 11 of the PSP provides a general description of how the applicant will implement its program for physical barriers, and that this implementation is in accordance with the performance objectives and requirements of 10 CFR 73.55(b).

Owner Controlled Area (OCA) Barriers

Section 11.1 of the PSP describes the use of OCA barriers at the site.

Vehicle Barriers

PSP Subsections 11.2.1 and 11.2.2 provides for vehicle control measures to protect against the DBT of radiological sabotage. The staff has verified that such measures are in accordance with site-specific analysis. Further, the staff has determined that these measures integrate systems, technologies, programs, supporting processes, and implementing procedures to provide defense-in-depth against the DBT land vehicle bomb assault. The staff has also determined that such measures provide for a VBS at a stand-off distance adequate to protect personnel, equipment, and systems necessary to prevent significant core damage and spent fuel sabotage against the effects of such an assault. Further, the staff confirmed that the applicant's PSP provides that the inspection, monitoring, and maintenance of the VBS are included in facility procedures. In view of the above, the staff concludes that the PSP identifies measures taken to provide high assurance that a land vehicle bomb assault can be defended against.

Accordingly, the staff concludes that the proposed vehicle control measures are consistent with the physical protection program design requirements of 10 CFR 73.55(b)(3)(ii) and 10 CFR 73.55(e)(10)(i).

Waterborne Threat Measures

The provisions of 10 CFR 73.55(e)(10)(ii) require the applicant to "identify areas from which a waterborne vehicle must be restricted, and where possible, in coordination with local, State, and Federal agencies having jurisdiction over waterway approaches, deploy buoys, markers, or

other equipment. In accordance with the site-specific analysis, provide periodic surveillance and observation of waterway approaches and adjacent areas."

In RAI 13.06.01-12, the NRC staff requested that the applicant provide further information with regard to the waterborne threat protection measures. In RAI 13.06.01-49, the NRC staff asked follow up questions regarding the surveillance and observation of waterway approaches, specifically during the winter months. In its response (ADAMS Accession No. ML102570700), the applicant addressed the establishment of a permanent security zone by the U.S. Coast Guard and referenced other sections of the PSP that discuss additional measures that are always in place.

The staff concludes that Subsection 11.2.3 of the PSP describes protection measures adequate to protect the Fermi 3 site against waterborne threats.

Accordingly, the NRC staff found the responses to RAI 13.06.01-12 and RAI 13.06.01-49 acceptable, as they provide details on how the applicant meets the regulatory requirements of 10 CFR 73.55(e)(10)(ii). Therefore, RAI 13.06.01-12 and 13.06.01-49 are closed.

Protected Area Barriers

The provisions of 10 CFR 73.55(e)(8)(i) require that the PA perimeter must be protected by physical barriers that are designed and constructed to: (1) limit access to only those personnel, vehicles, and materials required to perform official duties; (2) channel personnel, vehicles, and materials to designated access control portals; and (3) be separated from any other barrier designated as a vital area physical barrier, unless otherwise identified in the PSP.

The descriptions of the PA barrier are provided in PSP Section 11.3.

Section 11.3 of the PSP describes the extent to which the PA barrier at the perimeter is separated from a vital area/island barrier. The security plan identifies where the PA barrier is not separated from a vital area barrier, as required by 10 CFR 73.55(e)(8)(i)(c).

Section 11.3 of the PSP describes isolation zones. As required in 10 CFR 73.55(e)(7), the isolation zone is maintained in outdoor areas adjacent to the PA perimeter barrier and is designed to ensure the ability to observe and assess activities on either side of the PA perimeter.

These descriptions meet the definitions of physical barrier and PA in 10 CFR 73.2 and the requirements of 10 CFR 73.55(e)(8).

Vital Area Barriers

The provisions of 10 CFR 73.55(e)(9) require that "Vital equipment must be located only within vital areas, which must be located within a protected area so that access to vital equipment requires passage through at least two physical barriers, except as otherwise approved by the Commission and identified in the security plans." In addition, 10 CFR 73.55(e)(5) requires that the physical barriers to access of certain vital areas shall be bullet resisting.

Section 11.4 of the PSP describes that vital areas are restricted access areas surrounded by physical barriers with the capability to restrict access to only authorized individuals.

In RAI 13.06.01-17, the NRC staff asked for clarification on the protection of the secondary alarm station as required by 10 CFR 73.55(i)(4)(iii). In its response dated May 17, 2010, the applicant stated that Section 11.4 and Appendix A of the PSP would be revised to be consistent with Section 15.4 of the PSP, which states that both the CAS and SAS shall be constructed to meet the standard of 10 CFR 73.55 (i)(4)(iii).

In Revision 2 of the Fermi PSP dated June 30, 2010, the applicant provided the necessary information to satisfy the requirements of 10 CFR 73.55(i)(4)(iii).

The NRC staff finds the response to RAI 13.06.01-17 acceptable as it provides clarification on how the applicant meets requirements for the secondary alarm station, consistent with 10 CFR 73.55(i)(4)(iii). Therefore, this RAI 13.06.01-17 is closed. Section 11.4 also describes that the reactor CR, CAS, SAS and the location within which the last access control function for access to the PA is performed, must be bullet resisting. Accordingly, the staff finds all vital areas are constructed in accordance with established regulatory requirements.

Target Set Equipment

The provisions of 10 CFR 73.55(f) require the following: "The licensee shall document and maintain the process used to develop and identify target sets, to include the site-specific analyses and methodologies used to determine and group the target set equipment or elements. The licensee shall consider cyber attacks in the development and identification of target sets. Target set equipment or elements that are not contained within a protected or vital area must be identified and documented consistent with the requirements in 10 CFR 73.55(f)(1) and be accounted for in the licensee's protective strategy. The licensee shall implement a process for the oversight of target set equipment and systems to ensure that changes to the configuration of the identified equipment and systems are considered in the licensee's protective strategy. Where appropriate, changes must be made to documented target sets."

Section 11.5 of the PSP describes that target set equipment or elements that are not contained within a protected or vital area are identified and accounted for in the site protective strategy

In connection with the review of the ESBWR physical protection program, the staff identified several RAIs relating to target sets. In light of these RAIs, GE Hitachi [GEH] provided additional design detail to give the applicant insight into the development of site-specific target set analyses. The applicant incorporates by reference the design of physical protection systems within the design of the vital island and vital structures for the ESBWR, as described in the ESBWR DCD including topical reports, NEDE-33389, NEDE-33390, and NEDE-33391.

GE Hitachi stated in NEDE-33391, "ESBWR Safeguards Assessment Report," that target sets were created to aid in the development of the ESBWR physical security systems, which are not considered as final or fully comprehensive because of the simplified assumptions that were made, and that a comprehensive target set document must be developed following an approved development process. GE Hitachi also stated that the insights from the development of target sets described in the ESBWR Safeguards Assessment Report should be considered and included, as appropriate. However, the simplifying assumptions need to be expanded to include the necessary combinations of Target Set elements. In addition, the Target Set document should include adjustments to reflect site-specific conditions.

The NRC staff has reviewed the applicant's description in Sections 11.5 and 14.5 of the PSP, Section 7 of the SCP, and information in NEDE-33391, "ESBWR Safeguards Assessment Report," for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in Sections 11.5 and 14.5 of the PSP, Section 7 of the SCP, and the information in NEDE-33391, "ESBWR Safeguards Assessment Report," conform to the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in Sections 11.5 and 14.5 of the PSP and Section 7 of the SCP meets the requirements of 10 CFR 73.55(f)(1), (3) and (4), and is, therefore, acceptable. The target sets, target set analysis and site protective strategy are in facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii).

Delay Barriers

The provisions of 10 CFR 73.55(e)(3)(ii) require that physical barriers must "provide deterrence, delay, or support access control" to perform the required function of the applicant's physical protection program. The PSP describes the use of delay barriers at Fermi 3.

Section 11.6 of the PSP includes a description of the use of delay barriers to meet the requirements of 10 CFR 73.55(e).

The NRC staff has reviewed the applicant's description in PSP Sections 11, 11.1, 11.2, 11.2.1, 11.2.2, and 11.2.3, and Sections 11.3 through 11.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP conforms to the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(e), and therefore is acceptable.

13.6.4.1.12 Security Posts and Structures

The provisions of 10 CFR 73.55(e)(5) require that the reactor CR, the CAS, and the location within which the last access control function for access to the PA is performed, must be bullet-resisting.

Section 12 of the PSP states that security posts and structures are qualified to a level commensurate with their application within the site protective strategy, and that these positions are constructed of bullet resisting materials. Section 11.4 of the PSP states the reactor CR, the CAS, and the location within which the last access control function for access to the PA is performed must be bullet resisting.

The NRC staff has reviewed the applicant's description in PSP Section 12 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP conforms to the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(e)(5), and therefore is acceptable.

13.6.4.1.13 Access Control Devices

Regulations in 10 CFR 73.55(g)(1) state that, consistent with the function of each barrier or barrier system, the applicant shall control personnel, vehicle, and material access, as applicable, at each access control point in accordance with the physical protection program design requirements of 10 CFR 73.55(b).

The applicant addresses STD COL 13.6-6-A as follows: The provisions of 10 CFR 73.55(g)(6) require control of access control devices as stated: "The licensee shall control all keys, locks, combinations, passwords and related access control devices used to control access to PAs, vital areas and security systems to reduce the probability of compromise."

Types of Security Related Access Control Devices

Section 13.1 of the PSP describes that the applicant uses security-related access control devices to control access to protected and vital areas and security systems.

Control and Accountability

Subsection 13.2.1 of the PSP describes the control of security related locks. Subsection 13.2.2 of the PSP describes the controls associated with the changes to and replacements of access control devices and the accountability and inventory control process, and the circumstances that require changes in security related locks. The applicant uses facility procedures to produce, control, and recover keys, locks, and combinations for all areas and equipment which serve to reduce the probability of compromise. The issue of access control devices is limited to individuals who have unescorted access authorization and need access to perform official duties and responsibilities. Keys and locks are accounted for through a key inventory control process as described in facility procedures.

The NRC staff has reviewed the applicant's description in PSP Sections 13, 13.1, 13.2, 13.2.1, and 13.2.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the descriptions provided in the PSP meet the requirements of 10 CFR 73.55(g)(1) and (6), and therefore are acceptable.

13.6.4.1.14 Access Requirements

Access Authorization and Fitness for Duty

The provisions of 10 CFR 73.55(b)(7) require the applicant to establish, maintain, and implement an access authorization program in accordance with 10 CFR 73.56 and to describe the program in the PSP. The provisions of 10 CFR Part 26 require the applicant to establish and maintain an FFD program.

Section 14.1 of the PSP describes that the access authorization program implements regulatory requirements utilizing the provisions in RG 5.66, "Nuclear Power Plant Access Authorization Program," Revision 1, dated July 2009. RG 5.66 is an acceptable method for meeting the requirements of 10 CFR 73.55(b)(7).

The NRC staff has reviewed the applicant's description in PSP Section 14.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b)(7), 10 CFR 73.56 and 10 CFR Part 26 and therefore is acceptable.

Insider Mitigation Program

The provisions of 10 CFR 73.55(b)(9) require that the applicant establish, maintain, and implement an insider mitigation program and describe the program in the PSP. The insider mitigation program must monitor the initial and continuing trustworthiness and reliability of individuals granted or retaining unescorted access authorization to a protected or vital area, and implement defense-in-depth methodologies to minimize the potential for an insider to adversely affect, either directly or indirectly, the applicant's capability to prevent significant core damage and spent fuel sabotage. The insider mitigation program must include elements from: the access authorization program; the FFD program; the cyber security program; and the physical protection program.

Section 14.2 of the PSP describes how the applicant will establish, maintain, and implement an insider mitigation program utilizing the guidance in RG 5.77. The insider mitigation program requires elements from the access authorization program described in 10 CFR 73.56; the FFD program described in 10 CFR Part 26; the cyber security program described in 10 CFR 73.54, and the physical security program described in 10 CFR 73.55. In addition, Section 14.2 describes the integration of the programs mentioned above to form a cohesive and effective insider mitigation program. The applicant addresses the observations for the detection of tampering. RG 5.77 is an acceptable method for meeting the requirements of 10 CFR 73.55(b)(9).

In RAI 13.06.01-46, the NRC staff asked the applicant to address the methodology and frequency chosen to monitor and/or patrol the spent fuel pool including proposed alternative measures. In its response dated May 17, 2010, the applicant stated that the spent fuel pool for Fermi 3 will be monitored and patrolled as stated in PSP Section 14.2.

Accordingly, the NRC staff finds the response to RAI 13.06.01-46 acceptable as it provides required detail on how the applicant meets 10 CFR 73.55(i)(5). Therefore, RAI 13.06.01.46 is closed.

The NRC staff has reviewed the applicant's description in PSP Section 14.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b)(9), and therefore is acceptable.

Picture Badge Systems

Requirements for badges are stated in 10 CFR 73.55(g)(6)(ii). "The licensee shall implement a numbered photo identification badge system for all individuals authorized unescorted access to the PA and vital areas. In addition, identification badges may be removed from the protected

area under limited conditions and only by authorized personnel. Records of all badges shall be retained and shall include name and areas to which persons are granted unescorted access."

The provisions of 10 CFR 73.55(g)(7)(ii) require that individuals not employed by the applicant, but who require frequent or extended unescorted access to the PA and/or vital areas to perform duties and responsibilities required by the applicant at irregular or intermittent intervals, shall satisfy the access authorization requirements of 10 CFR 73.56 and 10 CFR Part 26 of this chapter, and shall be issued a non-employee photo identification badge that is easily distinguished from other identification badges before being allowed unescorted access to the protected and vital areas. Non-employee photo identification badges must visually reflect that the individual is a non-employee and that no escort is required.

Section 14.3 of the PSP describes the site picture badge system, as follows: Identification badges will be displayed while individuals are inside the PA or vital areas. When not in use, badges may be removed from the PA by authorized holders, provided that a process exists to deactivate the badge upon exit and positively confirm the individual's true identity and authorization for unescorted access prior to entry into the PA. Records are maintained to include the name and areas to which unescorted access is granted of all individuals to whom photo identification badges have been issued.

The NRC staff has reviewed the applicant's description in PSP Section 14.3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(g)(6)(ii) and (7)(ii), and therefore is acceptable.

Searches

The provisions of 10 CFR 73.55(h) require, in part, that the applicant meet the objective to detect, deter, and prevent the introduction of firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage. To accomplish this, the applicant shall search individuals, vehicles, and materials consistent with the physical protection program design requirements in paragraph (b) of this section, and the function to be performed at each access control point or portal before granting access.

Section 14.4 of the PSP provides an overview description of the search process for vehicle, personnel and materials. The search process is conducted using security personnel, specifically trained non-security personnel, and technology. Detailed discussions of actions to be taken in the event unauthorized materials are discovered are found in implementing procedures.

Vehicle Barrier Access Control Point

The provisions of 10 CFR 73.55(h)(2)(ii) through (v) provide the requirements for the applicant to search vehicles at the OCA and 10 CFR 73.55(h)(3) provides requirements for searches of personnel, vehicles and materials prior to entering the PA.

Subsection 14.4.1 of the PSP describes the process for the search of personnel, vehicles and materials at predetermined locations prior to granting access to designated facility areas

identified by the applicant as needed to satisfy the physical protection program. The applicant states that it has developed specific implementing procedures to address vehicle and materials searches at these locations.

Protected Area Packages and Materials Search

Subsection 14.4.2 of the PSP describes the process for conducting searches of packages and materials for firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage using equipment capable of detecting these items or through visual and physical searches or both to ensure that all items are clearly identified before these items can enter the Fermi PA. Detailed provisions for conducting these searches are found in the applicant's implementing procedures and include the search and control of bulk materials and products. The applicant's implementing procedures also discuss the control of packages and materials previously searched and tamper sealed by personnel trained in accordance with the T&QP.

Protected Area Vehicle Search

Subsection 14.4.3 of the PSP describes the process for the search of vehicles for firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage using equipment capable of detecting these items or through visual and physical searches or both to ensure that all items are clearly identified at the PA. Detailed provisions for conducting these searches are found in the applicant's implementing procedures. The applicant's implementing procedures also address the search methodologies for vehicles that must enter the PA under emergency conditions.

Protected Area Personnel Searches

Subsection 14.4.4 of the PSP describes the process for searches of all personnel requesting access into PAs. The PSP describes the search for firearms, explosives, incendiary devices, or other items that could be used to commit radiological sabotage using equipment capable of detecting these items or through visual and physical searches or both to ensure that all items are clearly identified prior to granting access into the PA. All persons except official Federal, State, and Local Law Enforcement Agency personnel on official duty are subject to these searches upon entry to the PA. Detailed discussions of observation and control measures are found in the implementing procedures.

Protected Area Access Controls

Subsection 14.4.5 of the PSP describes the process for controlling access at all points where personnel or vehicles could gain access into the applicant's PA. The plan notes that all points of personnel access are through a lockable portal. The entry process is normally monitored by multiple security personnel. Personnel are normally allowed access through means that verify identity and authorization following the search process. Vehicles are controlled through positive control methods described in facility procedures.

Escort and Visitor Requirements

The provisions of 10 CFR 73.55(g)(7) state, in part, that the applicant may permit escorted access to protected and vital areas to individuals who have not been granted unescorted access in accordance with the requirements of 10 CFR 73.56 and 10 CFR Part 26. Provisions in 10 CFR 73.55(g)(8) establish escort requirements. The applicant is required to implement procedures for processing, escorting and controlling visitors. Procedures will address confirmation of identity of visitors, maintenance of a visitor control register, visitor badging and escort controls including, training, communications, and escort ratios.

Subsection 14.4.6 of the PSP describes the process for control of visitors. The PSP affirms that procedures address the identification, processing, and escorting of visitors, and the maintenance of a visitor control register. Training provisions for escorting visitors include responsibilities, communications and escort ratios. All escorts are trained to perform escort duties in accordance with site requirements as described in the procedures. All visitors wear a badge that clearly indicates that an escort is required.

The NRC staff has reviewed the applicant's description in PSP Sections 14.4, and 14.4.1 through 14.4.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Section 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(h)(2), (h)(3), (g)(7) and (g)(8), and therefore is acceptable.

Vital Area Access Controls

The provisions of 10 CFR 73.55(g)(4) require that the applicant control access into vital areas consistent with established access authorization lists. In response to a site-specific credible threat or other credible information, the applicant shall implement a two-person (line-of-sight) rule for all personnel in vital areas so that no one individual is permitted access to a vital area.

The provisions of 10 CFR 73.56(j) require the applicant to establish, implement, and maintain a list of individuals who are authorized to have unescorted access to specific nuclear power plant vital areas during non-emergency conditions. The list must include only those individuals who have a continued need for access to those specific vital areas in order to perform their duties and responsibilities. The list must be approved by a cognizant manager or supervisor who is responsible for directing the work activities of the individual who is granted unescorted access to each vital area, and be updated and reapproved no less frequently than every 31 days.

Section 14.5 of the PSP describes vital areas and that the applicant maintains vitals areas locked and protected by an active intrusion alarm system. An access authorization system is established to limit unescorted access that is controlled by an access authorization list that is reassessed and reapproved at least once every 31 days. Additional access control measures are described in the facility procedures.

The NRC staff has reviewed the applicant's description in PSP Section 14.5 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff

finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(g)(4), and therefore is acceptable.

13.6.4.1.15 Surveillance Observation and Monitoring

The provisions of 10 CFR 73.55(i)(1) require that the applicant establish and maintain intrusion detection systems that satisfy the design requirements of 10 CFR 73.55(b) and provide, at all times, the capability to detect and assess unauthorized persons and facilitate the effective implementation of the protective strategy.

Illumination

The provisions of 10 CFR 73.55(i)(6) require, in part, that all areas of the facility are provided with illumination necessary to satisfy the design requirements of 10 CFR 73.55(b) and implement the protective strategy. Specific requirements include providing a minimum illumination level of 0.2 foot-candles, measured horizontally at ground level, in the isolation zones and appropriate exterior areas within the PA. Alternatively, the applicant may augment the facility illumination system by means of low-light technology to meet the requirements of this section or otherwise implement the protective strategy. The applicant shall describe in the security plans how the lighting requirements of this section are met and, if used, the type(s) and application of low-light technology.

Section 15.1 of the PSP describes that all isolation zones and appropriate exterior areas within the PA have lighting capabilities that provide illumination sufficient for the initiation of an adequate response to an attempted intrusion of the isolation zone, a PA, or a vital area. A discussion of the implementation of technology using fixed and non-fixed low light level cameras or alternative technological means is provided. The applicant has addressed the potential for loss of lighting and the compensatory actions that would be taken if that event were to occur.

Surveillance Systems

The provisions of 10 CFR 73.55(i)(5) require, in part, that the applicant implement, establish, and maintain intrusion detection and assessment, surveillance, and observation and monitoring systems to satisfy the design requirements of 10 CFR 73.55(b), and to conform to the applicant's OCA.

Section 15.2 of the PSP describes that surveillance is accomplished by human observation and technology. Surveillance systems include a variety of cameras, video display, and annunciation systems designed to assist the security organization in observing, detecting, and assessing alarms or unauthorized activities. Certain systems provide real-time and recorded play back of recorded video images. The specifics of surveillance systems are described in facility implementing procedures.

Intrusion Detection Equipment

Section 15.3 of the PSP describes the perimeter intrusion detection system, and the PA and vital area intrusion detection systems. These systems are capable of detecting attempted penetration of the PA perimeter barrier; are monitored with assessment equipment designed to satisfy the requirements of 10 CFR 73.55(i) and provide real-time and play-back/recorded video images of the detected activities before and after each alarm annunciation. The PSP describes

how the applicant will meet regulatory requirements for redundancy, tamper indication and uninterruptable power supply.

Central Alarm Station (CAS) and Secondary Alarm Station (SAS) Operation

The applicant addresses STD COL 13.6-7-A and EF3 COL 13.6-8-A as follows: The provisions of 10 CFR 73.55(i)(4) provide requirements for alarm stations. It is required, in 10 CFR 73.55(i)(4)(i) that both alarm stations must be designed and equipped to ensure that a single act, in accordance with the DBT of radiological sabotage defined in 10 CFR 73.1, cannot disable both alarm stations. The applicant shall ensure the survivability of at least one alarm station to maintain the ability to perform the following functions: 1) detect and assess alarms; 2) initiate and coordinate an adequate response to an alarm; 3) summon offsite assistance; and 4) provide command and control. The provisions of 10 CFR 73.55(i)(4)(iii) require, in part, that the CAS and SAS alarm stations must be equal and redundant.

Section 15.4 of the PSP describes the functional operations of the CAS and the SAS. The PSP provides that the alarm stations are equipped such that no single act will disable both alarm stations. The applicant's PSP provides that each alarm station is properly manned and that no activities are permitted that would interfere with the operator's ability to execute assigned duties and responsibilities.

In RAI 13.06.01-21, the NRC staff asked the applicant how COL action item 13.6-8-A will be addressed. In its response dated August 30, 2010 (ADAMS Accession No. ML102440652), the applicant provided an "Analysis of the No Single Act Requirement for CAS and SAS." This analysis has been included as Appendix 8C of Part 8.

The NRC staff finds the response to RAI 13.06.01-21, in regard to EF3 COL 13.6-8-A, acceptable because the analysis shows that the CAS and SAS are designed and equipped to ensure that a single act cannot disable both stations. Therefore, this portion of RAI 13.06.01-21 is closed.

Security Patrols

Owner Controlled Area Surveillance and Response

The provisions of 10 CFR 73.55(e)(6) require that the applicant establish and maintain physical barriers in the OCA, as needed, to satisfy the physical protection program design requirements of 10 CFR 73.55(b). It is required in 10 CFR 73.55(i)(5)(ii), in part, that the applicant provide continuous surveillance, observation and monitoring of the OCA and that these responsibilities may be performed by security personnel during continuous patrols, through the use of video technology, or by a combination of both.

Subsection 15.5.1 of the PSP describes the processes used to meet this requirement. The PSP discusses the process to be used and provides that details regarding the implementation of OCA surveillance techniques are found in facility procedures. The PSP provides a discussion regarding the implementation of manned and video options for patrolling and surveillance of the OCA.

Protected and Vital Area Patrols

The provisions of 10 CFR 73.55(i)(5)(iii) through (viii) require, in part, that armed patrols check unattended openings that intersect a security boundary, such as an underground pathways, check external areas of the PA and vital area portals, periodically inspect vital areas, conduct random patrols of accessible target set equipment, be trained to recognize obvious tampering and if detected, initiate an appropriate response in accordance with established plans and procedures.

Subsection 15.5.2 of the PSP describes the process employed by the applicant to meet the above requirements. The PSP describes the areas of the facility that will be patrolled and observed, as well as the frequency of these patrols and observations. The applicant has provided for observations to detect tampering in Section 14.2 of the PSP and in the facility procedures.

The NRC staff has reviewed the applicant's description in PSP Sections 15, 15.1 through 15.4, 15.5.1, and 15.5.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. The staff has verified that the PSP provides for the identification of openings, areas, and equipment that must be checked, inspected, or otherwise observed by armed patrols. Further, the staff has determined that the PSP provides for training of patrols and procedures to recognize obvious tampering and to initiate an appropriate response to recognized tampering. In view of these staff determinations the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(b) and (i), and therefore are acceptable with respect to surveillance, observation, and monitoring.

13.6.4.1.16 Communications

The provisions of 10 CFR 73.55(j)(1) through (6) describe the requirements for establishment and maintenance of continuous communication capabilities with both onsite and offsite resources to ensure effective command and control during both normal and emergency situations. An individual assigned to an alarm station must be capable of calling for assistance, on-duty security force personnel must be capable of maintaining continuous communication with each alarm station and vehicle escorts, and personnel escorts must maintain timely communication with security personnel. Continuous communication capabilities must terminate in both alarm stations, including that between LLEA and each alarm station and the between the CR and each alarm station. Non-portable communications must remain operable from independent power sources. The applicant must identify areas where communications could be interrupted or not maintained.

Notifications (Security Contingency Event Notifications)

Section 16.1 of the PSP states that the applicant has a process to ensure that continuous communications are established and maintained between the onsite security force staff and the offsite support agencies.

System Descriptions

Section 16.2 of the PSP describes the establishment and maintenance of the communications system. Detailed descriptions of security systems are included in the facility procedures, including areas where communications could be interrupted or not maintained. The Fermi site security personnel have access to both hard wired and alternate communications systems. Site security personnel are assigned communications devices to maintain continuous communications with the CAS and SAS. All personnel and vehicles are assigned communications resources with which to maintain continuous communications. Continuous communication protocols are available between the CAS, SAS and the CR. The applicant maintains a secondary power source, within a vital area, for all non-portable security communications equipment.

The NRC staff has reviewed the applicant's description in PSP Sections 16, 16.1 and 16.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(j)(1) through (6), and therefore are acceptable.

13.6.4.1.17 Review, Evaluation, and Audit of the Physical Security Program

The provisions of 10 CFR 73.55(m) require, in part that each element of the physical protection program be reviewed at least every 24 months. A review is required within 12 months after initial physical protection program implementation or a change in personnel, procedures, equipment or facilities that could have a potentially adverse effect on security. A review is also required as necessary based on site-specific analysis assessments, or other performance indicators. Reviews must be conducted by individuals independent of those responsible for security program and those directly responsible for implementation of the onsite physical protection program. Reviews must include an audit of security plans, implementing procedures and local law enforcement commitments. Results of reviews shall be presented to management at least one level above the level responsible for day-to-day plant operations, and findings must be entered in the site corrective action program.

Section 17 of the PSP describes that the physical security program is reviewed 12 months following initial implementation and at least every 24 months by individuals independent of both security program management and personnel who have a direct responsibility for implementation of the security program. The physical security program review includes, but is not limited to, an audit of the effectiveness of the physical security program, cyber security plans, implementing procedures, safety/security interface activities, the testing, maintenance, and calibration program, and response commitments by local, State, and Federal law enforcement authorities.

The PSP also states that a review shall be conducted as necessary based upon site-specific analyses, assessments, or other performance indicators and as soon as reasonably practical, but no longer than 12 months, after changes occur in personnel, procedures, equipment, or facilities that potentially could adversely affect safety/security.

The PSP provides further that the results and recommendations of the physical security program review, management's finding on whether the physical security program is currently

effective and any actions taken as a result of recommendations from prior program reviews are documented in a report to plant management and to appropriate corporate management at least one level higher than that having responsibility for the day-to-day plant operation. The PSP provides that these reports are maintained in an auditable form and maintained for inspection.

The PSP states that findings from the onsite physical security program reviews are entered into the facility corrective action program.

The provisions of the PSP described above are virtually identical to the requirements of Section 73.55(m) summarized above, and the PSP satisfies those requirements. The NRC staff, however, raised a question regarding how the application addressed the requirements of 10 CFR 73.58.

In RAI 13.06.01-47, the NRC staff requested that the applicant address the requirements of 10 CFR 73.58, "Safety/security requirements for nuclear power reactors." In its response, the applicant stated that procedures similar to the administrative procedures implemented for Fermi 2 will be developed and implemented to manage the safety/security interface for Fermi 3 in accordance with 10 CFR 73.58. Additionally, a description of the Fermi 3 safety/security interface program will be included in Fermi COL FSAR, Subsection 13.6.2.

The NRC staff finds that the response to RAI 13.06.01-47 meets the requirements of 10 CFR 73.58 and is acceptable, because it provides a commitment to implement administrative procedures to manage the safety/security interface. Specifically the Fermi COL FSAR Revision 3, Subsection 13.6.2, dated February 2011, states:

> STD SUP 13.6-2 [START COM 13.6-002] Administrative procedures have been implemented that meet the requirements of 10 CFR 73.58 for managing the safety/security interface [END COM 13.6-002].

The staff has verified that COM 13.6-002 has been included in the Fermi 3 FSAR. Therefore, this RAI 13.06.01-47 is closed. In RAI 13.06.01-57, the NRC staff requested clarification pertaining to how the applicant, once licensed, will analyze and identify changes in the site-specific conditions related to the ESBWR's structures, systems, and components (SSCs) (described in certain technical reports), resulting from changes made to the Fermi 3 COL between issuance of the COL and the security program implementation milestones provided in FSAR Table 13.4-201 to ensure that the security plan continues to meet 10 CFR 73.55(b)(4). Also, clarify how the applicant, once licensed, will ensure that the as-built plant continues to meet all physical protection program design and performance criteria in 10 CFR 73.55 at the time the physical protection program is implemented.

During a public telephone call on August 4, 2014 (ML14281A128), the NRC staff provided feedback to the applicant concerning the addition of "NRC endorsed" and the removal of "currently accepted" to the RAI 13.06.01-57 response. In a letter dated August 4, 2014, the applicant submitted to the NRC a revised COLA markup associated with its response to RAI 13.06.01-57.

In its response, the applicant stated that the description of the content of the administrative procedures implementing the 10 CFR 73.58 Fermi 3 COLA FSAR, Subsection 13.6.2 will be revised as follows:

These procedures are in effect at the time of issuance of the COL and were developed using NRC endorsed industry guidance.

The NRC staff finds that the response to RAI 13.06.01-57 meets the requirements of 10 CFR 73.55(b)(4) and 10 CFR 73.58 and is acceptable, because it provides a commitment to implement administrative procedures to manage the safety/security interface during the construction phase and throughout the operational phase. The incorporation of changes to the Fermi 3 COL FSAR, Section 13.6.2 is being tracked as Confirmatory Item 13.6-1. The staff verified that FSAR Revision 7 incorporated changes provided in response to RAI 13.06.01-57. Therefore, Confirmatory Item 13.6-1 is resolved.

The NRC staff has reviewed the applicant's description in PSP Section 17 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. As set forth above, the staff finds that the applicant's description in the PSP meets the requirements of 10 CFR 73.55(b)(4), and 10 CFR 73.55(m), and therefore is acceptable.

13.6.4.1.18 Response Requirements

The provisions of 10 CFR 73.55(k) require, in part, that the applicant establish and maintain a properly trained, qualified and equipped security force required to interdict and neutralize threats up to and including the DBT defined in 10 CFR 73.1, to prevent significant core damage and spent fuel sabotage. To meet this objective, the applicant must ensure that necessary equipment is in supply, working, and readily available. The applicant must ensure training has been provided to all armed members of the security organization who will be available on site to implement the applicant's protective strategy as described in the facility procedures and 10 CFR Part 73, Appendix C. The applicant must have facility procedures to reconstitute armed response personnel and have established working agreement(s) with LLEA. The applicant must have implemented a threat warning system to accommodate heightened security threats and coordination with NRC representatives.

Section 18 of the PSP describes an armed response team, as well as its responsibilities, training and equipment, and the number of armed response force personnel required to be immediately available at all times to implement the site's protective strategy. The PSP provides for training in accordance with the requirements of 10 CFR Part 73, Appendix B that will ensure implementation of the site protective strategy in accordance with 10 CFR Part 73, Appendix C. Procedures are in place to reconstitute the armed response personnel as are agreements with LLEA. The PSP also describes procedures to manage the threat warning system.

The NRC staff has reviewed the applicant's description in PSP Section 18 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(k), and therefore is acceptable.

13.6.4.1.19 Special Situations Affecting Security

The provisions of 10 CFR 73.58 require that each nuclear power reactor applicant requesting a license be issued under 10 CFR Part 50 or

> 10 CFR Part 52, comply with the following requirements: the applicant shall assess and manage the potential for adverse effects on safety and security, including the site emergency plan, before implementing changes to plant configurations, facility conditions, or security; the scope of changes to be assessed and managed must include planned and emergent activities (such as, but not limited to, physical modifications, procedural changes, changes to operator actions or security assignments, maintenance activities, system reconfiguration, access modification or restrictions, and changes to the security plan and its implementation); where potential conflicts are identified, the applicant shall communicate them to appropriate personnel and take compensatory and/or mitigative actions to maintain safety and security under applicable Commission regulations, requirements, and license conditions.

The provisions of 10 CFR 73.55(a)(2) require the applicant's security plans to identify, describe, and account for site-specific conditions that affect its capability to satisfy the requirements of that section.

The provisions of 10 CFR 73.55(n)(8) require, in part, operational and post-maintenance performance testing to ensure operational readiness for security equipment and systems.

Refueling/Major Maintenance

Section 19.1 of the PSP describes that security procedures identify measures for implementation of actions prior to refueling or major maintenance activities. These measures include controls to ensure that a search is conducted prior to revitalizing an area, that protective barriers and alarms are fully operational, and that post-maintenance performance testing is performed to ensure operational readiness of equipment in accordance with 10 CFR 73.55(n)(8).

Construction and Maintenance

Section 19.2 of the PSP states that during periods of construction and maintenance when temporary modifications are necessary, the applicant will implement measures that provide for equivalency in the physical protective measures and features impacted by the activities such that physical protection measures are not degraded. The process for making such changes or modifications is included in the facility procedures.

The NRC staff has reviewed the applicant's description in PSP Sections 19.1 and 19.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(n)(8) and 10 CFR 73.58, and are, therefore, acceptable.

13.6.4.1.20 Maintenance, Testing, and Calibration

In accordance with 10 CFR 73.55(n), the applicant is required to establish, maintain, and implement a maintenance, testing, and calibration program to ensure that security systems and equipment, including secondary and uninterruptible power supplies, are tested for operability and performance at predetermined intervals, maintained in operable condition, and have the

capability of performing their intended functions. The regulation requires that the applicant describe its maintenance testing and calibrations program in the PSP, and that the implementing procedures describe the details and intervals for conducting these activities. Applicant procedures must identify criteria for documenting deficiencies in the corrective action program and ensuring data protection in accordance with 10 CFR 73.21. The applicant must conduct periodic operability testing of the intrusion alarm system and must conduct performance testing at the beginning and end of the period for which it is used for security, or if the period of continuous use exceeds 7 days, at least once every seven days. Communication equipment must be tested not less than daily, and search equipment must also be tested periodically. Procedures must be established for testing equipment located in hazardous areas, and procedures must be established for returning equipment to service after each repair.

Sections 20.1 through 20.6 of the PSP describe the maintenance, testing and calibration program for security-related equipment. Section 20.1 states that the applicant shall conduct intrusion detection testing in accordance with recommended testing procedures described in RG 5.44, Revision 3 which specifies testing frequency. Accordingly, the staff has determined that the PSP provides for testing of each operational component credited for the implementation of the security program at a frequency in accordance with 10 CFR 73.55(n), the PSP, and implementing procedures.

The NRC staff has reviewed the applicant's description in PSP Sections 20 and 20.1 through20.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(n), and therefore are acceptable.

13.6.4.1.21 Compensatory Measures

The provisions of 10 CFR 73.55(o) require, in part, that the applicant shall identify criteria and measures to compensate for degraded or inoperable equipment, systems, and components to meet the requirements of section 73.55. Compensatory measures must provide a level of protection that is equivalent to the protection that was provided by the degraded or inoperable, equipment, system, or components. Compensatory measures must be implemented within specific time frames necessary to meet the appropriate portions of 10 CFR 73.55(b) and described in the security plans.

Section 21 of the PSP identifies measures and criteria to compensate for degraded or inoperable equipment, systems, and components in accordance with 10 CFR 73.55(o) to assure that the effectiveness of the physical protection system is not reduced by failure or other contingencies affecting the operation of the security-related equipment or structures. Sections 21.1 through 21.12 of the PSP address PA and vital area barriers, intrusion detection and alarm systems, lighting, fixed and non-fixed closed circuit television, play-back and recorded video systems, computer systems, access control devices, VBSs, channeling barrier systems, and other security related equipment.

The NRC staff has reviewed the applicant's description in PSP Sections 21 and 21.1 through 21.12, for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800,

Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(o), and therefore is acceptable.

13.6.4.1.22 Records

The provisions of 10 CFR 73.55(q) and 10 CFR Part 73, Appendix B, Section VI.H, and Appendix C, Section II.C , require, in part, that the applicant must retain and maintain all records required to be kept by the Commission regulations, orders, or license conditions until the Commission terminates the license for which the records were developed, and shall maintain superseded portions of these records for at least three years after the record is superseded, unless otherwise specified by the Commission. The provisions of 10 CFR Part 26, Subpart N, 10 CFR 73.56(o), and 10 CFR 73.70 include requirements for records regarding fitness for duty, access authorization, and certain other security-related matters, respectively. Among other things, the applicant is required to keep records of contracts with any contracted security force that implements any portion of the onsite physical protection program for the duration of the contract. The applicant must make all records, required to be kept by the Commission, available to the Commission and the Commission may inspect, copy, retain and remove all such records, reports and documents whether kept by the applicant or a contractor. Review and audit reports must be maintained and available for inspection for a period of 3 years.

Section 22 of the PSP addresses the requirements to maintain records. Sections 22.1 through 22.13 address each kind of record that the applicant will maintain and the duration of retention for each record. The following types of records are maintained in accordance with the above mentioned regulations: access authorization; suitability, physical, and psychological qualification records for security personnel; PA and vital area access control records; PA visitor access records; PA vehicle access records; vital area access transaction records; vitalization and de-vitalization records; vital area access list reviews; security plans and procedures; security patrols, inspections and tests; maintenance; CAS and SAS alarm annunciation and security response records; LLEA records; records of audits and reviews; access control devices; security training and qualification records; firearms testing and maintenance records; and engineering analysis for the VBS.

The NRC staff has reviewed the applicant's description in PSP Sections 22 and 22.1 through 22.13 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1 the staff finds that the descriptions provided in the PSP meet the requirements of 10 CFR Part 26, 10 CFR 73.55(q), 10 CFR 73.56(o), and 10 CFR 73.70, and are, therefore, acceptable.

13.6.4.1.23 Digital Systems Security

Section 23 of the PSP addresses digital systems security. The applicant stated in its PSP that it has implemented the requirements of 10 CFR 73.54 and maintains a cyber security plan that describes how it has provided high assurance that safety, security, and emergency preparedness (SSEP) functions are protected against the DBT.

The NRC staff's review of the cyber security plan is found in Section 13.8 of this SER.

13.6.4.1.24 Temporary Suspension of Security Measures

The provisions of 10 CFR 73.55(p) allow the applicant to suspend implementation of affected requirements of this section under the following conditions: (i) In accordance with 10 CFR 50.54(x) and 50.54(y) of this chapter, the licensee may suspend any security measures under this section in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent. This suspension of security measures must be approved as a minimum by a licensed senior operator before taking this action. (ii) During severe weather when the suspension of affected security measures is immediately needed to protect the personal health and safety of security force personnel and no other immediately apparent action consistent with the license conditions and technical specifications can provide adequate or equivalent protection. This suspension of security measures must be approved, as a minimum, by a licensed senior operator, with input from the security supervisor or manager, before taking this action.

Suspension of Security Measures in Accordance with 10 CFR 50.54(x) and (y)

Section 24.1 of the PSP addresses suspension of security measures in accordance with 10 CFR 50.54(x) and 10 CFR 50.54(y). Specifically, the plan provides description of the conditions under which suspension is permissible, the level of authority necessary to suspend security measures, and the provisions for reporting such a suspension.

Suspension of Security Measures during Severe Weather or Other Hazardous Conditions

As required in 10 CFR 73.55(p), state in part, suspension of security measures are reported and documented in accordance with the provisions of 10 CFR 73.71. Section 73.55(p) states further that this suspension of security measures must be approved, as a minimum, by a licensed senior operator, with input from the security supervisor or manager, before taking this action. Suspended security measures must be reinstated as soon as conditions permit.

Section 24.2 of the PSP provides that certain security measures may be temporarily suspended during circumstances such as imminent, severe or hazardous weather conditions, but only when such action is immediately needed to protect the personal health and safety of security force personnel and no other immediately apparent action consistent with the security measures can provide adequate or equivalent protection. Under the PSP, suspended security measures shall be restored as soon as practical.

The NRC staff has reviewed the applicant's description in PSP Sections 24, 24.1, and 24.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the PSP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the PSP meets the requirements of 10 CFR 73.55(p), and therefore is acceptable.

13.6.4.1.25 Appendix A Glossary of Terms and Acronyms

Appendix A, "Glossary of Terms and Acronyms," was reviewed and found to be consistent with the NRC endorsed NEI 03-12, Revision 6 template.

13.6.4.1.26 Conclusions on the Physical Security Plan

Accordingly, the NRC staff's review described in Subsections 13.6.4.1.1 through 13.6.4.1.25 of this SER, the Fermi 3 PSP meets the requirements of 10 CFR 73.55(a) through (r). The target sets, target set analysis, and site protective strategy are in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and procedurally correct implementation of the PSP will provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

13.6.4.2 *Appendix B Training and Qualification Plan*

13.6.4.2.1 Introduction

The provisions of 10 CFR 73.55(c)(4) state that the applicant shall establish, maintain, implement, and follow a T&QP that describes how the criteria set forth in 10 CFR Part 73, Appendix B will be implemented.

The provisions of 10 CFR 73.55(d)(3) state that the applicant may not permit any individual to implement any part of the physical protection program unless the individual has been trained, equipped, and qualified to perform their assigned duties and responsibilities in accordance with 10 CFR Part 73, Appendix B and the T&QP. Non-security personnel may be assigned duties and responsibilities required to implement the physical protection program and shall:

(i) Be trained through established applicant training programs to ensure each individual is trained, qualified, and periodically requalified to perform assigned duties.

(ii) Be properly equipped to perform assigned duties.

(iii) Possess the knowledge, skills, and abilities, to include physical attributes such as sight and hearing, required to perform their assigned duties and responsibilities.

In addition, 10 CFR Part 73, Appendix B, Section VI.D.2(a) states armed and unarmed individuals shall be re-qualified at least annually in accordance with regulatory requirements and the Commission-approved T&QP.

The T&QP describes that it is written to address the requirements found in 10 CFR Part 73, Appendix B, Section VI. The applicant indicates that the objective of the plan is to provide a mechanism to ensure that members of the security organization, and all others who have duties and responsibilities in implementing the security requirements and protective strategy, are properly trained, equipped and qualified. The T&QP describes how deficiencies identified during the administration of the T&QP requirements are documented in the site corrective action program.

The NRC staff has reviewed the introduction section in the T&QP and has determined that it includes all of the programmatic elements necessary to satisfy the requirements of

10 CFR 73.55 and 10 CFR Part 73, Appendix B, Section VI applicable to the T&QP. Additional section-by-section evaluations and discussions are found in the following paragraphs.

13.6.4.2.2 Employment Suitability and Qualification

Provisions for mental qualifications, documentation, and physical requalification for security personnel (applicant employee and contractor) are described in the following T&QP sections.

Suitability

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.1(a) require, in part, that before employment, or assignment to the security organization, an individual shall: (1) possess a high school diploma or pass an equivalent performance examination designed to measure basic mathematical, language, and reasoning skills, abilities, and knowledge required to perform security duties and responsibilities; (2) have attained the age of 21 for an armed capacity or the age of 18 for an unarmed capacity; (3) not have any felony convictions that reflect on the individual's reliability; and (4) not be disqualified from possessing or using firearms or ammunition in accordance with applicable State or Federal law, including 18 U.S.C. 922, for individuals in an armed capacity. Applicants shall use information that has been obtained during the completion of the individual's background investigation for unescorted access to determine suitability. Satisfactory completion of a firearms background check for the individual under 10 CFR 73.19 of this part will also fulfill this requirement. The provisions of 10 CFR Part 73, Appendix B, Section VI.B.1(b) require that the qualification of each individual to perform assigned duties and responsibilities must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.1 of the T&QP details the requirements of qualifications for employment in the security organization that follows the regulation in 10 CFR Part 73, Appendix B, Section VI.B.1(a).

Physical Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2 require, in part, that individuals whose duties and responsibilities are directly associated with the effective implementation of the Commission-approved security plans, applicant protective strategy, and implementing procedures, may not have any physical conditions that would adversely affect their performance of assigned security duties and responsibilities.

Section 2.2 of the T&QP details that those individuals who are directly associated with implementation of the security plans, protective strategy and procedures, may not have any physical conditions that would adversely affect their performance of assigned security duties and responsibilities. All individuals that are found on the critical task matrix shall demonstrate the necessary physical qualifications prior to duty.

Physical Examination

It is stated in 10 CFR Part 73, Appendix B, Section VI.B.2(a)(2), that armed and unarmed individuals assigned security duties and responsibilities shall be subject to a physical examination designed to measure the individual's physical ability to perform assigned duties and responsibilities as identified in the Commission-approved security plans, applicant protective strategy, and implementing procedures.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2(a)(3) state, in part, that the physical examination must be administered by a licensed health professional with the final determination being made by a licensed physician to verify the individual's physical capability to perform assigned duties and responsibilities.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2.(b) through (e) provide the minimum requirements that individuals must meet, and include requirements for vision, hearing, review of existing medical conditions, and examination for potential addictions.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.2(f) address medical examinations before returning to assigned duties following any incapacitation.

Section 2.3 of the T&QP describes the physical examinations for armed and unarmed individuals assigned security duties, as well as other individuals that implement parts of the physical protection program. Minimum requirements exist for physical examinations of vision, hearing, existing medical conditions, addiction or other physical requirements.

The NRC staff has reviewed the applicant's description in T&QP Sections 2.1, 2.2, and 2.3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73 Appendix B, Sections VI.B.1 and VI.B.2, and are, therefore, acceptable.

Medical Examinations and Physical Fitness Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.4(a), require, in part, that armed members of the security organization shall be subject to a medical examination by a licensed physician, to determine the individual's fitness to participate in physical fitness tests, and that the applicant shall obtain and retain a written certification from the licensed physician that no medical conditions were disclosed by the medical examination that would preclude the individual's ability to participate in the physical fitness tests or meet the physical fitness attributes or objectives associated with assigned duties.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.4(b), require, in part, that before assignment, armed members of the security organization shall demonstrate physical fitness for assigned duties and responsibilities by performing a practical physical fitness test. The physical fitness test must consider physical conditions such as strenuous activity, physical exertion, levels of stress, and exposure to the elements as they pertain to each individual's assigned security duties. The physical fitness qualification of each armed member of the security organization must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.4 of the T&QP is explicit in its requirements for medical examinations and physical qualifications.

The NRC staff has reviewed the applicant's description in T&QP Section 2.4 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the

T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.B.4(a) and 10 CFR Part 73, Appendix B, Section VI.B.4(b), and therefore is acceptable.

Psychological Qualifications

General Psychological Qualifications

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3(a),require, in part, that armed and unarmed individuals shall demonstrate the ability to apply good judgment, mental alertness, the capability to implement instructions and assigned tasks, and possess the acuity of senses and ability of expression sufficient to permit accurate communication by written, spoken, audible, visible, or other signals required by assigned duties and responsibilities.

Subsection 2.5.1 of the T&QP details that individuals whose security tasks and jobs are directly associated with the effective implementation of the security plan and protective strategy shall demonstrate the qualities in 10 CFR Part 73, Appendix B, Section VI.B.3(a).

Professional Psychological Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3(b), require, in part, that a licensed psychologist, psychiatrist, or physician trained in part to identify emotional instability shall determine whether armed members of the security organization and alarm station operators in addition to meeting the requirement stated in Appendix B, Section VI.B.3(a) , have no emotional instability that would interfere with the effective performance of assigned duties and responsibilities.

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.3(c), require that a person professionally trained to identify emotional instability shall determine whether unarmed individuals, in addition to meeting the requirement stated in Appendix B, Section VI.B.3(a), have no emotional instability that would interfere with the effective performance of assigned duties and responsibilities.

Subsection 2.5.2 of the T&QP provides for the administration of psychological and emotional determination that will be conducted by appropriately licensed and trained individuals.

The NRC staff has reviewed the applicant's description in T&QP Subsections 2.5.1 and 2.5.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Sections VI.B.3(a), (b) and (c), and therefore are acceptable.

Documentation

The provisions of 10 CFR Part 73, Appendix B, Section VI.H.1 require, in part, the retention of all reports, records, or other documentation required by Appendix B in accordance with 10 CFR 75.55(q).

Section 2.6 of the T&QP describes that qualified training instructors create the documentation of training activities and that security supervisors attest to these records, as required. Records are retained in accordance with Section 22 of the PSP as described in Subsection 13.6.4.1.22 of this SER.

The NRC staff has reviewed the applicant's description in T&QP Section 2.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.H.1 and therefore is acceptable.

Physical Requalification

The provisions of 10 CFR Part 73, Appendix B, Section VI.B.5 require that: (a) at least annually, armed and unarmed individuals shall be required to demonstrate the capability to meet the physical requirements of this appendix and the applicant's T&QP; and (b) the physical requalification of each armed and unarmed individual must be documented by a qualified training instructor and attested to by a security supervisor.

Section 2.7 of the T&QP describes that physical requalification is conducted at least annually, and documented as described in the PSP and as has otherwise been described in 10 CFR Part 73, Appendix B, Section VI.B.5.

The NRC staff has reviewed the applicant's description in T&QP Section 2.7 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.B.5 and therefore is acceptable.

13.6.4.2.3 Individual Training and Qualification

Duty Training

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.1 provide for duty training and qualification requirements. The regulation states, in part, that all personnel who are assigned to perform any security-related duty or responsibility shall be trained and qualified to perform assigned duties and responsibilities to ensure that each individual possesses the minimum knowledge, skills, and abilities required to effectively carry out those assigned duties and responsibilities. Each individual who is assigned duties and responsibilities identified in the Commission-approved security plans shall be trained before assignment in accordance with the requirements of Part 73, Appendix B, and the T&QP and the PSP. Such personnel must be trained and qualified in the use of all equipment or devices required to effectively perform all assigned duties and responsibilities.

Section 3.1 of the T&QP details the requirements that individuals assigned duties must be trained in their duties, meet minimum qualifications, and be trained and qualified in all equipment or devices required prior to performing their duties.

The NRC staff has reviewed the applicant's description in T&QP Sections 3.0, and 3.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.1 and therefore are acceptable.

On-The-Job Training

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.2(a) through (c) provide requirements for on-the-job training. On-the-job training performance standards and criteria must ensure that each individual demonstrates the requisite knowledge, skills, and abilities needed to effectively carry out assigned security duties and responsibilities. Individuals assigned contingency duties must complete a minimum of 40 hours of on-the-job training.

On-the-job training for contingency activities and drills must include, but is not limited to, hands-on application of knowledge, skills, and abilities related to: (1) response team duties; (2) use of force; (3) tactical movement; (4) cover and concealment; (5) defensive positions; (6) fields of fire; (7) redeployment; (8) communications (primary and alternate); (9) use of assigned equipment; (10) target sets; (11) table top drills; (12) command and control duties; and (13) applicant protective strategy.

The T&QP provides a comprehensive discussion of the applicant's approach to meeting the requirements for on-the-job training as identified above and covers each of the elements.

The NRC staff has reviewed the applicant's description in T&QP Section 3.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Sections VI.C.2(a) through (c), and therefore is acceptable.

Critical Task Matrix

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.1(b) require, in part, that each individual who is assigned duties and responsibilities identified in the Commission-approved security plans, applicant protective strategy, and implementing procedures shall, before assignment, demonstrate proficiencies in implementing the knowledge, skills and abilities to perform assigned duties.

The T&QP includes a critical task matrix as Table 1 of the T&QP. This matrix addresses the means through which each individual will demonstrate the required proficiencies. Tasks that individuals must perform are listed in RG 5.75.

The NRC staff has reviewed the applicant's description in T&QP Section 3.3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.1(b) and therefore is acceptable.

Initial Training and Qualification Requirements

The provisions of 10 CFR Part 73, Appendix B, Section VI.C.1(a) through (b), provide the requirements for duty training.

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1and (2), provide requirements for demonstration of qualification.

Section 3.4 of the T&QP describes that the individuals must be trained and qualified prior to performing security-related duties within the security organization, and must meet the minimum qualifying standards in Subsections 3.4.1 and 3.4.2.

Written Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1(b)(1), provide that written exams must include those elements listed in the Commission-approved T&QP to demonstrate an acceptable understanding of assigned duties and responsibilities, to include the recognition of potential tampering involving both safety and security equipment and systems.

Subsection 3.4.1 of the T&QP describe the measures that are implemented by the applicant to meet the requirements in 10 CFR Part 73, Appendix B, Section VI.D.1(b)(1).

Hands on Performance Demonstration

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1(b)(2), require that armed and unarmed individuals shall demonstrate hands-on performance for assigned duties and responsibilities by performing a practical hands-on demonstration for required tasks. The hands on demonstration must ensure that theory and associated learning objectives for each required task are considered and that each individual demonstrates the knowledge, skills, and abilities required to effectively perform the task.

Subsection 3.4.2 of the T&QP describe the measures that are implemented by the applicant to meet the requirements in 10 CFR Part 73, Appendix B, Section VI.D.1(b)(2).

The NRC staff has reviewed the applicant's description in T&QP Sections 3.4, 3.4.1, and 3.4.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Sections VI.C.1(b)(1) and VI.D.1(b)(2), and therefore are acceptable.

Continuing Training and Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.2 state, in part, that armed and unarmed individuals shall be requalified at least annually in accordance with the requirements of this appendix and the Commission-approved T&QP. The results of requalification must be documented by a qualified training instructor and attested to by a security supervisor.

Section 3.5 of the T&QP provides a discussion regarding the management of the requalification program to ensure that each individual is trained and qualified. In part, the applicant's plan provides that annual requalification may be completed up to 3 months before or 3 months after the scheduled date. However, the next annual training must be scheduled 12 months from the previously scheduled date rather than the date the training was actually completed.

The NRC staff has reviewed the applicant's description in T&QP Section 3.5 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.D.2, and therefore is acceptable.

Annual Written Examination

The provisions of 10 CFR Part 73, Appendix B, Section VI.D.1.(b)(3), provide that armed individuals shall be administered an annual written exam that demonstrates the required knowledge, skills, and abilities to carry out assigned duties and responsibilities as an armed member of the security organization. The annual written exam must include those elements listed in the Commission-approved T&QP to demonstrate an acceptable understanding of assigned duties and responsibilities.

Subsection 3.5.1 of the T&QP provides that each individual will be tested, in part, with an annual written exam that at a minimum covers: the role of security personnel; use of deadly force; the requirements in 10 CFR 73.21; authority of private security personnel; power of arrest; search and seizure; offsite law enforcement response; tactics; and tactical deployment and engagement.

The NRC staff has reviewed the applicant's description in T&QP Subsection 3.5.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.D.1.(b)(3) and is, therefore, acceptable.

Demonstration of Knowledge Skills and Abilities

The provisions of 10 CFR Part 73, Appendix B, Sections VI.A., B., C., and D. (A.4, C.3(d), D.1(a), and D.1(b)(2)) state, in part, that an individual must demonstrate required knowledge, skills and abilities, to carry out assigned duties and responsibilities.

Subsection 3.5.2 of the T&QP provides that all knowledge, skills and abilities will be demonstrated in accordance with a SAT program, similar to what is described in RG 5.75.

The NRC staff has reviewed the applicant's description in T&QP Subsection 3.5.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Sections VI.A., B., C., and D. and therefore is acceptable.

Weapons Training and Qualification

General Firearms Training

The provisions of 10 CFR Part 73, Appendix B, Section VI.E require that armed members of the security organization shall be trained and qualified in accordance with the requirements of this appendix and the Commission-approved T&QP. Training must be conducted by certified firearms instructors who shall be recertified at least every 3 years. Applicants shall conduct annual firearms familiarization and armed members of the security organization must participate in weapons range activities on a nominal 4 month periodicity.

Subsection 3.6.1 of the T&QP addresses the requirements in 10 CFR Part 73, Appendix B, Sections VI.E.1(d)(1) through (11), and includes provisions for training in the use of deadly force and participation in weapons range activities on a nominal 4 month periodicity. Each armed member of the security organization is trained and qualified by a certified firearms instructor for the use and maintenance of each assigned weapon to include but not limited to, marksmanship, assembly, disassembly, cleaning, storage, handling, clearing, loading, unloading, and reloading, for each assigned weapon.

The NRC staff has reviewed the applicant's description in T&QP Subsection 3.6.1 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.E.1 and therefore is acceptable.

General Weapons Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.1, "Weapons Qualification and Requalification Program," require that qualification firing must be accomplished in accordance with Commission requirements and the Commission-approved T&QP for assigned weapons. The results of weapons qualification and requalification must be documented and retained as a record.

Subsection 3.6.2 of the T&QP provides that all armed personnel are qualified and requalified with assigned weapons. All weapons qualification and requalification must be documented and retained as a record.

The NRC staff has reviewed the applicant's description in T&QP Subsection 3.6.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.1 and therefore is acceptable.

Tactical Weapons Qualification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.2 require that the applicant conduct tactical weapons qualification. The applicant's T&QP must describe the firearms used, the firearms qualification program, and other tactical training required to implement the

Commission-approved security plans, applicant protective strategy, and implementing procedures. Applicant developed tactical qualification and requalification courses must describe the performance criteria needed to include the site-specific conditions (such as lighting, elevation, fields of fire) under which assigned personnel shall be required to carry out their assigned duties.

Subsection 3.6.3 of the T&QP provides that a tactical qualification course of fire is used to assess armed security force personnel in tactical situations to ensure they are able to demonstrate that their required tactical knowledge, skills and abilities remain proficient.

The NRC staff has reviewed the applicant's description in T&QP Subsection 3.6.3 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.2 and therefore is acceptable.

Firearms Qualification Courses

a. The provisions of 10 CFR Part 73, Appendix B, Section VI.F.3, state, in part, that the applicant shall conduct the following qualification courses for each weapon used: an annual daylight fire qualification course; and an annual night fire qualification course.

Courses of Fire

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.4 describe required courses of fire.

Subsection 3.6.4 of the T&QP provides a description of the firearms qualification scores for each of the courses of fire used to ensure armed members of the security organization are properly trained and qualified. Courses of fire are used individually for handguns, semiautomatic rifles, and enhanced weapons.

The NRC staff has reviewed the applicant's description in T&QP Subsection 3.6.4 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.3, and 10 CFR Part 73, Appendix B, Section VI.F.4 and therefore is acceptable.

Firearms Requalification

The provisions of 10 CFR Part 73, Appendix B, Section VI.F.5 provide that armed members of the security organization shall be requalified for each assigned weapon at least annually in accordance with Commission requirements and the Commission-approved T&QP, and the results documented and retained as a record. Firearms requalification must be conducted using the courses of fire outlined in 10 CFR Part 73, Appendix B, Sections VI.F.2, VI.F.3, and VI.F.4.

Subsection 3.6.5 of the T&QP states that armed members of the security organization will requalify at least annually with each weapon assigned, using the courses of fire provided in the T&QP.

The NRC staff has reviewed the applicant's description in T&QP Subsection 3.6.5 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.F.5 and therefore is acceptable.

Weapons, Personal Equipment and Maintenance

The provisions of 10 CFR Part 73, Appendix B, Section VI.G provide the requirements for weapons, personal equipment, and maintenance. These requirements provide that the applicant shall provide armed personnel with weapons that are capable of performing the function stated in the Commission-approved security plans, applicant protective strategy, and implementing procedures. In addition, the applicant shall ensure that each individual is equipped or has ready access to all personal equipment or devices required for the effective implementation of the Commission-approved security plans, applicant protective strategy, and implementing procedures.

Section 3.7 of the T&QP describes that personnel are provided with weapons and personnel equipment necessary to meet the plans and the protective strategy. The equipment provided is described in Section 9 of the PSP, and maintenance is performed as described in Section 20 of the PSP. The staff's review of Section 9, "Security Personnel Training" and Section 20, "Maintenance, Testing, and Calibration," of the PSP is in Subsections 13.6.4.1.9 and 13.6.4.1.20 of this SER.

The NRC staff has reviewed the applicant's description in T&QP Section 3.7 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.G, and therefore is acceptable.

Documentation

The provisions of 10 CFR Part 73, Appendix B, Section VI.H require that the applicant retain all reports, records, or other documentation required by this appendix in accordance with the requirements of 10 CFR 73.55(q). The applicant shall retain each individual's initial qualification record for 3 years after termination of the individual's employment and shall retain each requalification record for 3 years after it is superseded. The applicant shall document data and test results from each individual's suitability, physical, and psychological qualification and shall retain this documentation as a record for 3 years from the date of obtaining and recording these results.

Section 3.8 of the T&QP provides that records are retained in accordance with Section 22, "Records," of the PSP. PSP, Section 22.11 describes how the applicant will retain each individual's initial qualification record for three (3) years after termination of the individual's

employment and shall retain each re-qualification record for three (3) years after it is superseded.

The NRC staff has reviewed the applicant's description in T&QP Section 3.8 for the implementation of the site-specific Physical Protection Program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.H and therefore is acceptable.

13.6.4.2.4 Performance Evaluation Program

The provisions in 10 CFR Part 73, Appendix B, Section VI.C.3, "Performance Evaluation Program," state, in part, that:

> (a) [Applicants] shall develop, implement, and maintain a Performance Evaluation Program that is documented in procedures [and] which describes how the [applicant] will demonstrate and assess the effectiveness of their onsite physical protection program and protective strategy, including the capability of the armed response team to carry out their assigned duties and responsibilities during safeguards contingency events. The Performance Evaluation Program and procedures shall be referenced in the [applicant's T&QP].
>
> (b) The Performance Evaluation Program shall include procedures for the conduct of tactical response drills and force-on-force exercises designed to demonstrate and assess the effectiveness of the [applicant's] physical protection program, protective strategy and contingency event response by all individuals with responsibilities for implementing the [SCP].
>
> …
>
> (l) The Performance Evaluation Program must be designed to ensure that:
> (1) Each member of each shift who is assigned duties and responsibilities required to implement the [SCP] and [applicant] protective strategy participates in at least one (1) tactical response drill on a quarterly basis and one (1) force-on-force exercise on an annual basis[.]

Section 4 of the T&QP details the performance evaluation program consistent with the requirements of 10 CFR Part 73, Appendix B, Section VI.C.3(a) through (m). Additional details of the performance evaluation program are described in the facility procedures.

The NRC staff has reviewed the applicant's description in T&QP Section 4 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, Section VI.C.3 and therefore is acceptable.

13.6.4.2.5 Definitions

The provisions of 10 CFR Part 73, Appendix B, Section VI.J, state, in part, that terms defined in 10 CFR Part 50, 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," and 10 CFR Part 73 have the same meaning when used in this appendix. Definitions are found in the PSP, Appendix A, "Glossary of Terms and Acronyms".

Included in this section of the T&QP is the Critical Task Matrix, which is considered SGI and has not been included in this SER.

The NRC staff has reviewed the applicant's description in T&QP of the Critical Task Matrix tasks for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the T&QP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the T&QP meets the requirements of 10 CFR Part 73, Appendix B, and therefore is acceptable.

13.6.4.2.6 Conclusion on the Training and Qualification Plan

On the basis of the NRC staff's review described in Subsections 13.6.4.2.1 through 13.6.4.2.5 of this SER, the Fermi 3 T&QP meets the requirements of 10 CFR Part 73, Appendix B. The target sets, target set analysis, and site protective strategy will be in the facility implementing procedures, which are not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). The NRC staff concludes that complete and procedurally correct implementation will provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

13.6.4.3 *Appendix C Safeguards Contingency Plan*

13.6.4.3.1 Background Information

This category of information identifies the perceived dangers and incidents that the plan addresses and a general description of how the response is organized.

<u>Purpose of the Safeguards Contingency Plan</u>

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.b, indicate that the applicant should discuss general goals, objectives and operational concepts underlying the implementation of the SCP.

Section 1.1 of the SCP describes the purpose and goals of the SCP, including guidance to security and management for contingency events.

<u>Scope of the Safeguards Contingency Plan</u>

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.c, delineate the types of incidents that should be covered by the applicant in the SCP, how the onsite response effort is organized and coordinated to effectively respond to a safeguards contingency event, and how the onsite

response for safeguards contingency events has been integrated into other site emergency response procedures.

Section 1.2 of the SCP states the scope of the SCP to analyze and define decisions and actions of security force personnel, as well as facility operations personnel, for achieving and maintaining safe shutdown.

Perceived Danger

The provisions of 10 CFR Part 73, Appendix C, Section II.B.1.a, require that, consistent with the DBT specified in 10 CFR 73.1(a)(1), the applicant shall identify and describe the perceived dangers, threats, and incidents against which the SCP is designed to protect.

Section 1.3 of the SCP outlines the threats used to design the physical protection systems.

The applicant adequately addresses perceived danger, provides a purpose of the plan, and describes the scope of the plan.

Definitions

Section 1.4 of the SCP describes that a list of terms and their definitions used in describing operational and technical aspects of the approved SCP as required by 10 CFR Part 73, Appendix C, Section II.B.1.d is found in Appendix A of the PSP.

The NRC staff has reviewed the applicant's description in SCP Sections 1, 1.1, 1.2, 1.3, and 1.4 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.B.1 and therefore are acceptable.

13.6.4.3.2 Generic Planning Base

As required in 10 CFR Part 73, Appendix C, Section II.B.2., this section of the plan defines the criteria for initiation and termination of responses to security events to include the specific decisions, actions, and supporting information needed to respond to each type of incident covered by the approved SCP.

Situations Not Covered by the Contingency Plan

Section 2.1 of the SCP details the general types of conditions that are not covered in the plan.

Situations Covered by the Contingency Plan

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.a, require, in part, that the plan identify those events that will be used for signaling the beginning or aggravation of a safeguards contingency according to how they are perceived initially by the applicant's personnel. Applicants shall ensure detection of unauthorized activities and shall respond to all alarms or other indications signaling a security event, such as penetration of a PA, vital area, or unauthorized barrier penetration (vehicle or personnel); tampering, bomb threats, or other threat

warnings—either verbal, such as telephoned threats, or implied, such as escalating civil disturbances.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.b, require, in part, that the plan define the specific objective to be accomplished relative to each identified safeguards contingency event. The objective may be to obtain a level of awareness about the nature and severity of the safeguards contingency to prepare for further responses; to establish a level of response preparedness; or to successfully nullify or reduce any adverse safeguards consequences arising from the contingency.

The provisions of 10 CFR Part 73, Appendix C, Section II.B.2.c require, in part, that the applicant identify the data, criteria, procedures, mechanisms and logistical support necessary to achieve the objectives identified.

Section 2.2 of the SCP describes in detail the specific situations it covers, provides a list of objectives for each event, and provides data necessary for each event.

The NRC staff has reviewed the applicant's description in SCP Sections 2, 2.1 and 2.2 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C Section II.B.2 and therefore are acceptable.

13.6.4.3.3 Responsibility Matrix

The provisions of 10 CFR Part 73, Appendix C, Section II.B.4 state that this category of information consists of the detailed identification of responsibilities and specific actions to be taken by the applicant's organizations and/or personnel in response to safeguards contingency events. To achieve this result the applicant must address the following:

- The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.a require, in part, that the applicant develop site procedures that consist of matrixes detailing the organization and/or personnel responsible for decisions and actions associated with specific responses to safeguards contingency events. The responsibility matrix and procedures must be referenced in the applicant's SCP.

- The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.b require, in part, that the responsibility matrix procedures shall be based on the events outlined in the applicant's generic planning base and must include specific objectives to be accomplished, descriptions of responsibilities for decisions and actions for each event, and overall description of response actions each responding entity.

- The provisions of 10 CFR Part 73, Appendix C, Section II.B.4.c require in part, that responsibilities are to be assigned in a manner that precludes conflict of duties and responsibilities that would prevent the execution of the SCP and emergency response plans.

- The provisions of 10 CFR Part 73, Appendix C, SectionII.B.4.d require, in part, that the applicant ensure that predetermined actions can be completed under the postulated conditions.

Section 3 of the SCP includes a responsibility matrix, as required by Appendix C, Section II.B.4.a. The responsibility matrix integrates the response capabilities of the security organization (described in Section 4 of the SCP) with the background information relating to decision/actions and organizational structure (described in Section 1 of the SCP), as required by Appendix C, Section II.B.4.a. The responsibility matrix provides an overall description of the response actions and their interrelationships, as required by Appendix C, Section II.B.4.b. Responsibilities and actions have been predetermined to the maximum extent possible and assigned to specific entities to preclude conflicts that would interfere with or prevent the implementation of the SCP or the ability to protect against the DBT of radiological sabotage, as required by Appendix C, Section II.B.4.c. The applicant has described how it will ensure that predetermined actions can be completed under the postulated conditions as required by Appendix C, Section II.B.4.d.

The NRC staff has reviewed the applicant's description in SCP Section 3 for the implementation of the site-specific physical Protection Program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.B.4 and therefore is acceptable.

13.6.4.3.4 Licensee Planning Base

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3 require, in part, that the applicant's planning base include factors affecting the SCP that are specific for each facility.

Licensee Organization

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.a require, in part, that the SCP describe the organization's chain of command and delegation of authority during safeguards contingency events, to include a general description of how command and control functions will be coordinated and maintained.

Duties/Communication Protocols

Subsection 4.1.1 of the SCP details the duties and communications protocols of each member of the security organization responsible for implementing any portion of the applicant's protective strategy, which will allow for coordination and maintenance of command and control functions as required by Appendix C, Section II.B.3.a.

Security Chain of Command/Delegation of Authority

Subsection 4.1.2 of the SCP describes in detail the chain of command and delegation of authority during contingency events, and this is also described in the responsibility matrix portions of the SCP. The chain of command and delegation of authority during normal operations is discussed in the PSP. Accordingly, the staff concludes that the applicant has

described the chain of command and delegation of authority during contingency events as required by Appendix C, Section II.B.3.a.

Physical Layout

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.b, require, in part, that the SCP include a site map depicting the physical structures located on the site, including onsite independent spent fuel storage installations, and a description of the structures depicted on the map. Plans must also include a description and map of the site in relation to nearby towns, transportation routes (e.g., rail, water, and roads), pipelines, airports, hazardous material facilities, and pertinent environmental features that may have an effect upon coordination of response activities. Descriptions and maps must indicate main and alternate entry routes for law enforcement or other offsite response and support agencies and the location for marshaling and coordinating response activities.

Section 4.2 of the SCP references Sections 1.1 and 14.5 of the PSP for layouts of the OCA, PA, vital areas, site maps, and descriptions of site features. The staff confirmed that these layouts, maps, and descriptions include the detailed information required by Appendix C, Section II.B.3.b and described above.

Safeguards Systems

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.c require, in part, that the SCP include a description of the physical security systems that support and influence how the applicant will respond to an event in accordance with the DBT described in 10 CFR 73.1(a). The description must begin with onsite physical protection measures to be implemented at the outermost facility perimeter, and must move inward through those measures to be implemented to protect target set equipment.

Section 4.3 of the SCP describes that safeguards systems are described in PSP Sections 9, 11, 12, 13, 15 and 16, and in the facility implementing procedures/documents. Section 8 of the SCP describes how physical security systems will be used to respond to a threat at the site, as required by Appendix C, Section II.B.3.c. As further required by Appendix C, Section II.B.3.c, the SCP description begins with physical protection measures proposed at the outermost facility perimeter, and moves inward through those measures proposed to protect target set equipment.

Law Enforcement Assistance

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.d require, in part, that the applicant provide a listing of available law enforcement agencies, a general description of their response capabilities, their criteria for response, and a discussion of working agreements or arrangements for communicating with these agencies.

Section 4.4 of the SCP states in detail the role of LLEA in the site protective strategy. In accordance with Appendix C, Section II.B.3.d, these details include LLEA response capabilities, LLEA criteria for response, and the working agreements or arrangements for communicating with these LLEAs. Additional details regarding LLEA are included in Section 8 of the PSP and Section 5.6 of the SCP.

Policy Constraints and Assumptions

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.e require, in part, that the SCP include a discussion of State laws, local ordinances, and company policies and practices that govern the applicant's response to incidents. These must include, but are not limited to, the following: 1) use of deadly force; 2) recall of off-duty employees; 3) site jurisdictional boundaries, and 4) use of enhanced weapons, if applicable.

Section 4.5 of the SCP details the site security policies, including the use of deadly force, provisions for the recall of off-duty employees, site jurisdictional boundaries, and authority to request offsite assistance, as required by Appendix C, Section II.B.3.e.

Administrative and Logistical Considerations

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.f require, in part, that the applicant provide descriptions of practices which influence how the security organization responds to a safeguards contingency event to include, but not limited to, a description of the procedures that will be used for ensuring that equipment needed to facilitate responses will be readily accessible, in good working order, and in sufficient supply.

Section 4.6 of the SCP outlines administrative duties of the Manager-Nuclear Security and the Security Shift Supervisor, and the use of facility procedures and administrative forms.

The NRC staff has reviewed the applicant's description in SCP Sections 4, 4.1, 4.1.1, 4.1.2, and 4.2 through 4.6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR Part 73, Appendix C, Section II.B.3 and therefore are acceptable.

13.6.4.3.5 Response Capabilities

This section outlines the response by the applicant to threats to the facility. As set forth below, the applicant describes in detail how they protect against the DBT with onsite and offsite organizations, in accordance with the regulations in 10 CFR 50.54(p)(1) and (hh)(1), 10 CFR 73.55(k), 10 CFR Part 73, Appendix B, Section VI and 10 CFR Part 73, Appendix C, Section II.B.3. In addition, Appendix C, "Introduction," states, in part, that it is important to note that an applicant's SCP is intended to be complementary to any emergency plans developed pursuant to Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," of 10 CFR Part 50 and 10 CFR 52.79, "Contents of Applications; Technical Information and FSAR.

Response to Threats

Section 5.1 of the SCP describes the protective strategy design to defend the facility against all aspects of the DBT. Each organization has defined roles and responsibilities.

Armed Response Force

Section 5.2 of the SCP notes the individuals included in the responsibility matrix and their role in the site protective strategy. This section also notes the minimum number of individuals and their contingency equipment for implementation of the protective strategy. The applicant described the armed response team consistent with 10 CFR 73.55(k)(4), (5), (6) and (7), 10 CFR Part 73, Appendix B, Section VI, and 10 CFR Part 73, Appendix C, Section II.B.3.

Supplemental Security Officer

Section 5.3 of the SCP describes in detail the use of supplemental security officers in the site protective strategy. The applicant described the use of supplemental security officers, consistent with the requirements in 10 CFR 73.55(k)(4).

Facility Operations Response

Section 5.4 of the SCP describes the role of operations personnel in the site protective strategy, including responsibilities, strategies and conditions for operator actions as discussed in 10 CFR 50.54(hh)(1).

Emergency Plan Response

Section 5.5 of the SCP notes the integration of the Emergency Plan (EP) with the applicant's protective strategy, and it gives some examples of how the Emergency Plan can influence the protective strategy as discussed in 10 CFR 73.55(b)(11).

Local Law Enforcement Agencies (LLEA)

Section 5.6 of the SCP documents the current agreements with applicable LLEA, and therefore meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the LLEAs that will respond to the site as a part of the protective strategy. Details on the LLEA response are located in Section 8 of the PSP. Further, Section 5.6 provides a general description of the LLEA response capability and meets the corresponding portions of 10 CFR 73.55(k)(9).

State Response Agencies

Section 5.7 of the SCP documents the current agreements with applicable LLEA, and therefore meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the State response agencies that will respond to the site as a part of the protective strategy. Further Section 5.7 provides a general description of the LLEA response capability and meets the corresponding portions of 10 CFR 73.55(k)(9).

Federal Response Agencies

Section 5.8 of the SCP documents the current agreements with applicable LLEA, and therefore meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d and lists the Federal response agencies that will respond to the site as a part of

the protective strategy. Further Section 5.8 provides a general description of the LLEA response capability and meets the corresponding portions of 10 CFR 73.55(k)(9).

Response to Independent Spent Fuel Storage Installation (ISFSI) Events

Section 5.9 of the SCP meets the requirements of 10 CFR 73.55(k)(9) and 10 CFR Part 73, Appendix C, Section II.B.3.d, and describes the Response Requirements for Independent spent Fuel Storage Installation (ISFSI) as a part of the protective strategy.

In RAI 13.06.01-55, the NRC staff asked for additional information on the physical security protection measures for the existing ISFSI in the current Fermi 2 operating plant PA, and requested justification for the omission of information from the Fermi 2 PSP, including Appendix D, in the Fermi 3 PSP.

In a letter dated September 23, 2011, the applicant submitted a revised the PSP, Revision 5, to include information in Appendix C, Section 5.9, and Appendix D relative to the protection of the ISFSI located within the PA, consistent with the existing Fermi 2 PSP.

The NRC staff finds the responses to RAI 13.06.01-55 acceptable, as it provided details on how the applicant meets the requirements in 10 CFR Part 73 for physical protection of an ISFSI. Therefore, this RAI 13.06.01-55 is closed.

The NRC staff has reviewed the applicant's description in SCP Sections 5.0 through 5.9 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the SCP meet the requirements of 10 CFR 50.54(p)(1) and 10 CFR 50.54(hh)(1), 10 CFR 73.55(k), 10 CFR Part 73, Appendix B, Section VI and 10 CFR Part 73, Appendix C, Section II.B.3 and therefore are acceptable. In addition, Appendix C, "Introduction" states, in part, that it is important to note that an applicant's SCP is intended to be complementary to any EPs developed pursuant to Appendix E to 10 CFR Part 50 and 10 CFR 52.17.

13.6.4.3.6 Defense-In-Depth

Section 6 of the SCP lists site physical security characteristics, programs, and strategy elements intended to illustrate the defense in depth nature of the site protective strategy, as required in 10 CFR 73.55(b)(3).

The NRC staff has reviewed the applicant's description in SCP Section 6 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR 73.55(b)(3) and therefore are acceptable.

13.6.4.3.7 Primary Security Functions

Section 7 of the SCP details the primary security functions of the site, and their roles in the site protective strategy. It also notes the development of target sets, and their function in the development of the applicant's protective strategy.

The NRC staff has reviewed the applicant's description in SCP Section 7 for the implementation of the site-specific physical protection program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR 73.55(b) and therefore is acceptable.

13.6.4.3.8 Protective Strategy

The provisions of 10 CFR Part 73, Appendix C, Section II.B.3.c(v) require that applicants develop, implement, and maintain a written protective strategy that shall: 1) be designed to meet the performance objectives of 10 CFR 73.55 (a) through (k); 2) identify predetermined actions, areas of responsibilities, and timelines for the deployment of armed personnel; 3) include measures that limit the exposure of security personnel to possible attack; 4) include a description of the physical security systems and measures that provide defense in depth; 5) describe the specific structure and responsibilities of the armed response organization; and 6) provide a command and control structure.

Section 8 of the SCP describes the site protective strategy.

In RAI 13.06.01-33, the NRC staff asked for clarification of the duties and number of officers that are described in the last paragraph of page C-34 and the last paragraph of C-33.

The NRC staff finds the response to RAI 13.06.01-33 acceptable as it provides clarification on the site protective strategy that will be implemented in compliance with 10 CFR Part 73, Appendix C, Section II.B.3.c.(v). Therefore, this RAI 13.06.01-33 is closed.

The NRC staff has reviewed the applicant's description in SCP Section 8 for the implementation of the site-specific Physical Protection Program in accordance with Commission regulations and NUREG-0800 acceptance criteria. Because the applicant's description in the SCP is consistent with the acceptance criteria in NUREG-0800, Subsection 13.6.1, the staff finds that the description provided in the SCP meets the requirements of 10 CFR 73.55(a) through (r) and 10 CFR Part 73, Appendix C and therefore is acceptable.

13.6.4.3.9 Conclusions on the Safeguards Contingency Plan

Accordingly, the NRC staff's review described in Subsections 13.6.4.3.1 through 13.6.4.3.8 of this SER, the SCP meets the requirements of 10 CFR Part 73, Appendix C, in accordance with the DBT of radiological sabotage as stated in 10 CFR 73.1. The target sets, target set analysis, and site protective strategy will be in facility implementing procedures, which are not subject to NRC staff review as part of this COL application and are, therefore, subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). The NRC staff concludes that complete and procedurally correct implementation of the SCP will provide high assurance that activities involving special nuclear

material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

13.6.5 Post Combined License Activities

For the reasons discussed in the technical evaluation section above, the staff finds the following license condition to track implementation of the Physical Security Program, the Safeguards Contingency Program, and the Training and Qualification Program, acceptable.

> License Condition (13.6-1) No later than 12 months after issuance of the COL, the licensee 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 the operational programs in the FSAR table have been fully implemented.

Commitment 13.4-017: The applicant identified the following commitments to track implementation of the Physical Security Program, the Safeguards Contingency Program, and the Training and Qualification Program:

1. Physical Security Program - Implemented prior to fuel onsite [COM 13.4-017]
2. Safeguards Contingency Program - Implemented prior to fuel onsite [COM 13.4-017]
3. Training and Qualification Program - Implemented prior to fuel onsite [COM 13.4-017]

13.6.6 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 physical security, and there is no outstanding information that needs to be addressed in the Fermi COL FSAR related to this section. The results of the NRC staff's technical evaluation of the information incorporated by reference in the Fermi COL application are documented in NUREG-1966.

The staff concludes that the relevant information presented in the Fermi COL FSAR is acceptable based on the applicable regulations specified in Subsection 13.6.4 of this SER. The staff based its conclusion on the following:

- The NRC staff's review of the PSP, T&QP and SCP has focused on ensuring the necessary programmatic elements are included in these plans in order to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

- As described in this section, the NRC staff has determined that these plans include the necessary programmatic elements that, when effectively implemented, will provide the required high assurance. The burden to effectively implement these plans remains with the applicant. Effective implementation is dependent on the procedures and practices the applicant develops to satisfy the programmatic elements of its PSP, T&QP, and

SCP. The target sets, target set analysis and site protective strategy are in the facility implementing procedures, which were not subject to NRC staff review as part of this COL application, and are therefore subject to future NRC inspection in accordance with 10 CFR 73.55(c)(7)(iv) and 10 CFR Part 73, Appendix C, Section II.B.5(iii). As provided by Section 3 of the applicant's PSP, a performance evaluation program will be implemented that periodically tests and evaluates the effectiveness of the overall protective strategy. This program provides that deficiencies be corrected. In addition, NRC inspectors will conduct periodic force-on-force exercises that will test the effectiveness of the applicant's protective strategy. Based on the results of the applicant's own testing and evaluation, the NRC's baseline inspections and force-on-force exercises, enhancements to the applicant's PSP, T&QP, and SCP may be necessary to ensure that the overall protective strategy can be effectively implemented. As such, the NRC staff approval of the applicant's PSP, T&QP, and SCP is limited to the programmatic elements necessary to provide the required high assurance as stated above. Should deficiencies be identified with the programmatic elements of these plans as a result of the periodic applicant or NRC conducted drills or exercises that test the effectiveness of the overall protective strategy, the plans shall be corrected to address these deficiencies in a timely manner and the applicant should notify the NRC of these plan changes in accordance with the requirements of 10 CFR 50.54(p) or 10 CFR 50.90.

The COL applicant's security plan information is withheld from public disclosure in accordance with the provisions of 10 CFR 73.21.

13.6A Site-Specific Inspection, Test, Analysis, and Acceptance Criteria for Physical Security

13.6A.1 Introduction

The Fermi 3 COL application describes in Part 10, "Proposed License Conditions (Including ITAAC)" "Inspection, Test, Analysis, and Acceptance Criteria" of the license conditions for the plant's physical protection systems or features to provide physical protection of the site specific protective strategy and elements of a site security program. The COL application incorporates by reference the standard ESBWR design including physical protection systems within the design of the vital island and vital structures. The COL application incorporates by reference the ESBWR plant layout and configurations of barriers, and listed ITAAC related to the site-specific design for achieving detection, assessment, communications, delay, and response for physical protection against potential acts of radiological sabotage and theft of special nuclear material.

The design bases or supporting security analyses and assumptions related to the design descriptions of security-related features incorporated as reference from the ESBWR DCD is Tier 2 information, including NEDE-33391, "The ESBWR Safeguards Assessment Report," NEDE-33390, "The ESBWR Interim Compensatory Measures Report" and NEDE-33389, "The ESBWR Security Enhancement Report." Descriptions of site specific security structures, programs and contingency measures are located in the Fermi Physical Security Plan, which includes the site physical security plan (PSP), training and qualification plan, and the safeguards contingency plan.

13.6A.2 Summary of Application

Section 14.3 of the Fermi 3 COL FSAR, Revision 7 incorporates by reference the Table 2.19-1 of the ESBWR DCD Revision 10 and TRs. Part 10, Revision 4, Section 2.2, of the Fermi COL application incorporates by reference the Physical Security ITAAC (PS-ITAAC) for systems within the scope of the DCD Tier 1. Part 10, Revision 4, Section 2.2.1 also listed the Site Specific Physical Security ITAAC and Design Description.

In addition, in DTE COL FSAR Section 14.3, the applicant provided the following:

COL Information

- STD COL 14.3-2-A Site-Specific ITAAC

The selection criteria and methodology provided in this section of the referenced DCD were utilized as the site-specific selection criteria and methodology for ITAAC. These criteria and methodology were applied to those site-specific (SS) systems that were not evaluated in the referenced DCD. The entire set of ITAAC for the facility, including DC-ITAAC, EP-ITAAC, PS-ITAAC, and SS-ITAAC, is included in the [COL application] Part 10.

License Condition

- Part 10, License Condition
- Operational Program Readiness

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

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

13.6A.3 Regulatory Basis

The regulatory basis on the information incorporated by reference is addressed in the FSER related to the ESBWR DCD. In addition, the acceptance criteria associated with the relevant requirements of the Commission regulations are given in 10 CFR Part 73. 10 CFR Part 73 includes specific security and performance requirements that, when adequately implemented, are designed to protect nuclear power reactors against acts of radiological sabotage, prevent the theft or diversion of special nuclear material, and protect SGI against unauthorized release.

Regulation in 10 CFR 52.80(a) requires that information submitted in a COL application include the proposed ITAAC that the licensee shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the ITAAC are met, the facility

has been constructed and will operate in conformity with the COL, the provisions of the Atomic Energy Act, and the NRC's regulations.

The Fermi 3 design descriptions, commitments, and acceptance criteria for the security features, including the plant's layout and determination of vital equipment and areas, for a certified design that is based on physical protection systems or hardware provided for meeting requirements including the following Commission regulations:

- 10 CFR Part 50
- 10 CFR Part 52
- 10 CFR 73.1(a)(1), "Radiological sabotage"
- 10 CFR 73.55
- 10 CFR Part 73, Appendix B, "General Criteria for Security Personnel"
- 10 CFR Part 73, Appendix C, "Nuclear Power Plant Safeguards Contingency Plans"
- 10 CFR Part 73, Appendix G, "Reportable Safeguards Events"
- 10 CFR Part 73, Appendix H, "Weapons Qualification Criteria"
- 10 CFR Part 74, "Material Control and Accounting of Special Nuclear Material"
- 10 CFR 100.21(f), "Non-Seismic Siting Criteria"

Regulatory requirements and acceptance criteria related to physical protection systems or hardware are identified in Section 14.3.12 of NUREG-0800.

Regulatory guidance documents that are applicable to this evaluation are:

- RG 1.91 "Evaluations of Explosions Postulated to Occur at Transportation Routes Near Nuclear Power Plants," Revision 1
- RG 1.206
- RG 4.7 "General Site Suitability Criteria for Nuclear Power Stations," Revision 2
- RG 5.7 "Entry/Exit Control for Protected Areas, Vital Areas, and Material Access Areas," Revision 1
- RG 5.12
- RG 5.29, "Nuclear Material Control and Accounting for Nuclear Power Reactors"
- RG 5.44, "Perimeter Intrusion Alarm Systems," Revision 3
- RG 5.62, "Reporting of Safeguards Events," Revision 1
- RG 5.65
- RG 5.66
- Information Notice 86-83, "Underground Pathways into Protected Areas, Vital Areas, and Controlled Access Areas," September 19, 1986.

- Regulatory Information Summary 2005-04, "Guidance on the Protection of Unattended Openings that Intersect a Security Boundary or Area," April 14, 2005 (Exempt from public disclosure in accordance with 10 CFR 2.390)

The COL applicant is required to describe commitments for establishing and maintaining a physical protection system (engineered and administrative controls), organization, programs, and procedures for implementing a site-specific strategy that demonstrate, if adequately implemented, high assurance of protection of the plant against the DBT. The site-specific physical protection system described must be reliable and available and implement the concept of defense-in-depth protection in order to provide a high assurance of protection. The security operational programs and the physical protection system are required to meet specific and performance requirements of 10 CFR Part 26, 10 CFR 73.54, 10 CFR 73.55, 10 CFR 73.56, 10 CFR 73.57, and 10 CFR 73.58. Within this context, the DC applicant is required only to address those elements or portion of physical protection system or features that are considered within the scope of design. The technical basis for physical protection hardware within the scope of the design provides the basis for ITAAC verification and closure.

13.6A.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed Section 14.3 of the ESBWR DCD, Revision 10, and checked to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD represents the complete scope of information relating to this review topic.[1] The NRC staff's review confirmed that the information in the application and incorporated by reference addresses the required information relating to ITAAC for physical security. The results of the NRC staff's evaluation of the information incorporated by reference in the Fermi 3 COL application are documented in NUREG-1966 and its supplements.

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

COL Information

- STD COL 14.3-2-A Site-Specific ITAAC

STD COL 14.3-2-A adds the following after DCD Section 14.3.9.

> The selection criteria and methodology provided in this section of the referenced DCD were utilized as the site-specific selection criteria and methodology for ITAAC. These criteria and methodology were applied to those site-specific (SS) systems that were not evaluated in the referenced DCD. The entire set of ITAAC for the facility, including DC-ITAAC, EP-ITAAC, PS-ITAAC, and SS-ITAAC, is included in COLA Part 10.

In Part 10, of the Fermi 3 COL application, Detroit Edison describes the PS-ITAAC for the plant's physical protection systems or features to provide physical protection of the site-specific protective strategy and elements of a site security program. The COL application incorporates by reference Tier 1, Table 2.19-1 of the ESBWR DCD, including plant layout and configurations of barriers, and listed ITAAC related to the site-specific design for achieving detection,

[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.

assessment, communications, delay, and response for physical protection against potential acts of radiological sabotage and theft of special nuclear material. DCD Tier 1, Table 2.19-1 includes the PS-ITAACs that are in the scope of the ESBWR standard design. Site-specific PS-ITAAC that are outside the scope of the ESBWR DCD Tier 1, Table 2.19-1 are provided in Table 2.2.1-1 of Part 10 of the Fermi 3 COL application.

The NRC staff's evaluation of the PS-ITAAC (STD COL 14.3-2-A) is documented in the Sections 13.6A.4.1 through 13.6A.4.3 of this SER.

13.6A.4.1 *Detection and Assessment Hardware*

The applicant submitted PS-ITAAC, in Revision 4 of the Fermi 3 COL application, Part 10, Table 2.2.1-1, "ITAAC for the Site-Specific Security System." The Fermi 3 COL application incorporates by reference the ESBWR DCD Tier 1, Table 2.19-1, Revision 10, design commitments and ITAAC for the physical security system to be used at Fermi 3.

The physical security system provides physical features to detect, delay, assist response to, and defend against the DBT for radiological sabotage. The physical security system consists of physical barriers and an intrusion detection system. The details of the physical security system are categorized as SGI. The physical security system provides protection for vital equipment and plant personnel.

The PS-ITAAC reference numbers listed below are from NUREG-0800, SRP Section 14.3.12, "Physical Security Hardware - Appendix "A"," and are used to provide clarification of the ITAAC related to "Detection and Assessment Hardware."

PS-ITAAC 2 Protected Area Barrier:

a. Physical barriers for the protected area perimeter will not be part of vital area barriers.
b. Penetrations through the protected area barrier will be secured and monitored.
c. Unattended openings that intersect a security boundary, such as underground pathways, will be protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.

PS-ITAAC 3 Isolation Zone:

a. Isolation zones will exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and will be designed of sufficient size to permit observation and assessment on either side of the barrier.
b. Isolation zones will be monitored with intrusion detection and assessment equipment that is designed to provide detection and assessment of activities within the isolation zone.
c. Areas where permanent buildings do not allow sufficient observation distance between the intrusion detection system and the protected area barrier (e.g., the building walls are immediately adjacent to, or are an integral part of the protected area barrier) will be monitored with intrusion detection and assessment equipment that is designed to detect the attempted or actual

penetration of the protected area perimeter barrier before completed penetration of the barrier and assessment of detected activities.

PS-ITAAC 4 Protected Area Perimeter Intrusion Detection and Assessment Systems :

a. The perimeter intrusion detection system will be designed to detect penetration or attempted penetration of the protected area perimeter barrier before completed penetration of the barrier, and for subsequent alarms to annunciate concurrently in at least two continuously manned onsite alarm stations (central and secondary alarm stations).
b. The perimeter assessment equipment will be designed to provide video image recording with real-time and playback capability that can provide assessment of detected activities before and after each alarm annunciation at the protected area perimeter barrier.
c. The intrusion detection and assessment equipment at the protected area perimeter will be designed to remain operable from an uninterruptible power supply in the event of the loss of normal power.

PS-ITAAC 6 Bullet Resistant Barriers Requirements:

The external walls, doors, ceiling, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area will be bullet resistant, to at least Underwriters Laboratories Ballistic Standard 752, “The Standard of Safety for Bullet-Resisting Equipment,” Level 4, or National Institute of Justice Standard 0108.01, “Ballistic Resistant Protective Materials,” Type III.

PS-ITAAC 9 Picture Badge Identification System Requirements:

An access control system with a numbered photo identification badge system will be installed and designed for use by individuals who are authorized access to protected areas and vital areas without escort.

Accordingly, the NRC staff determined that the Fermi 3 COL application, Part 10, Table 2.2.1-1 has adequately addressed the requirements related to the PS-ITAAC for Detection and Assessment Hardware Items 2(a), 2(b), 2(c), 3(a), 3(b), 3(c), 4(a), 4(B), 4(c), 6 partially, and 9 as identified in Appendix A to Section 14.3.12 of NUREG-0800.

The Fermi 3 COL application, Part 10, Table 13.4-201 and Part 10, Section 3 has adequately addressed the requirements of 10 CFR 73.55(a)(4).

The Fermi 3 COL application, Part 10, Table 2.2.1-1 partially addressed PS-ITAAC 6. The application references the ESBWR DCD, which also partially addressed PS-ITAAC 6. The NRC staff determined the between both the Fermi 3 COL and the ESBWR DCD all elements of the PS-ITAAC 6 are adequately addressed as identified in Appendix A to Section 14.3.12 of NUREG-0800.

The staff has determined that the Detection and Assessment Hardware PS-ITAAC, described in NUREG-0800, Section 14.3.12 has been fully addressed between the Fermi 3 submission and the ESBWR DCD.

13.6A.4.2 *Delay or Barrier Design*

The applicant submitted PS-ITAAC, in Revision 4 of the Fermi 3 COL application, Part 10, Table 2.2.1-1, “ITAAC for the Site-Specific Security System”. The Detroit Edison Fermi 3 COLA incorporates by reference the ESBWR DCD Tier 1, Table 2.19-1, Revision 10, design commitments and ITAAC for the physical security system to be used at the Fermi 3.

The PS-ITAAC listed below reference numbers are from NUREG-0800, SRP Section 14.3.12, “Physical Security Hardware - Appendix "A”," and are used to provide clarification of the ITAAC related to “Delay or Barrier Design.”

PS-ITAAC 1 Vital Area and Vital Area Barrier:

a. Vital equipment will be located only within a vital area.
b. Access to vital equipment will require passage through at least two physical barriers.

PS-ITAAC 8 Personnel, Vehicle, and Material Access Control Portals and Search Equipment:

a. Access control points will be established and designed to control personnel and vehicle access into the protected area.
b. Access control points will be established and designed with equipment for the detection of firearms, explosives, and incendiary devices at the protected area personnel access points.

Accordingly, the NRC staff determined that the Fermi 3 COL application, Part 10, Table 2.2.1-1 has adequately addressed, PS-ITAAC for Delay or Barrier Design Items 8(a), 8(b), identified in Appendix A to Section 14.3.12 of NUREG-0800.

The Fermi 3 COL application, Part 10, Table 2.2.1-1 partially addressed PS-ITAAC 1(a) and 1(b). The application references the ESBWR DCD, which also partially addressed PS-ITAAC 1(a) and 1(b). The NRC staff determined that between both the Fermi 3 COL and the ESBWR DCD all elements of the PS-ITAAC 1(a) and 1(b) are adequately addressed as identified in Appendix A to Section 14.3.12 of NUREG-0800.

The staff has determined that PS-ITAAC described in NUREG-0800, Section 14.3.12 has been fully addressed between the Fermi 3 submission and the ESBWR DCD.

13.6A.4.3 *Systems, Hardware, or Features Facilitating Security Response and Neutralization*

The applicant submitted PS-ITAAC, in Revision 4 of the Fermi 3 COL application, Part 10, Table 2.2.1-1, “ITAAC for the Site-Specific Security System”. The Detroit Edison Fermi 3 COL application incorporates by reference the ESBWR DCD Tier 1, Table 2.19-1, Revision 10, design commitments and ITAAC for the physical security system to be used as the Fermi 3.

The below listed PS-ITAAC reference numbers are from NUREG-0800, SRP Section 14.3.12 Physical Security Hardware - Appendix "A" and are used to provide clarification of the ITAAC related to “Systems, Hardware, or Features Facilitating Security Response and Neutralization.”

PS-ITAAC 5 Illumination Requirements:

Isolation zones and exterior areas within the protected area will be provided with illumination to permit assessment in the isolation zones and observation of activities within exterior areas of the protected area.

PS-ITAAC 7 Vehicle Control Measures Requirements:

The vehicle barrier system will be designed, installed, and located at the necessary standoff distance to protect against the design-basis threat vehicle bombs.

PS-ITAAC 10 Vehicle Areas Access Control Requirements:

Unoccupied vital areas will be designed with locking devices and intrusion detection devices that annunciate in the Secondary Alarm Station.

PS-ITAAC 11 Alarm Station:

a. Intrusion detection equipment and video assessment equipment will annunciate and be displayed concurrently in at least two continuously manned onsite alarm stations (Central and Secondary Alarm Stations).
b. The Secondary Alarm Station will be located inside the protected area and will be designed so that the interior of the alarm station is not visible from the perimeter of the protected area.
c. Central and Secondary Alarm Stations will be designed, equipped and constructed such that no single act, in accordance with the design-basis threat of radiological sabotage, can simultaneously remove the ability of both the central and secondary alarm stations to (1) detect and assess alarms, (2) initiate and coordinate an adequate response to alarms, (3) summon offsite assistance, and (4) provide effective command and control.
d. Both the Central and Secondary Alarm Stations will be constructed, located, protected, and equipped to the standards for the Central Alarm Station (alarm stations need not be identical in design but shall be equal and redundant, capable of performing all functions required of alarm stations).
e. ITAAC 11(new). In May 2010, SRP Section 14.3.12 was revised during the review of this application; an additional PS-ITAAC task was added to this section. This new task is addressed by the applicant in Section 15 of the Fermi 3 PSP. The ITAAC SRP dated January 2010, that was used for review is published in the Federal Register. The initial (2007) SRP on date of application meets the requirements under 10 CFR 50.34(h)

PS-ITAAC 12 Secondary Power Supplies for Alarm Annunciation and Communication Equipment Requirements:

The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.

PS-ITAAC 13 Intrusion Detection Systems Console Display:

a. Security alarm devices, including transmission lines to annunciators, will be tamper indicating and self-checking (e.g., an automatic indication is provided when failure of the alarm system or a component occurs or when on standby power), and alarm annunciation indicates the type of alarm (e.g., intrusion alarms, emergency exit alarm) and location.
b. Intrusion detection and assessment systems will be designed to provide visual display and audible annunciation of alarms in the Secondary Alarm Station.

PS-ITAAC 14 Intrusion Detection Systems Recording Requirements:

Intrusion detection systems recording equipment will record onsite security alarm annunciation including the location of the alarm, false alarm, alarm check, and tamper indication and the type of alarm, location, alarm circuit, date, and time.

PS-ITAAC 15 Vital Area Emergency Exits Requirements:

Emergency exits through the protected area perimeter and vital area boundaries will be alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency.

PS-ITAAC 16 Communication:

a. The Secondary Alarm Station will have conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.
b. The Secondary Alarm Station will be capable of continuous communication with on-duty security force personnel.
c. Non-portable communications equipment in the Secondary Alarm Station will remain operable from an independent power source in the event of loss of normal power.

Accordingly, the NRC staff determined that the Fermi 3 COL application, Part 10, Table 2.2.1-1 has adequately addressed, PS-ITAAC for Systems, Hardware, or Features Facilitating Security Response and Neutralization Items 5, 7, 10 11(a), 11(b), 11(c), 11(d), (Note: 10 CFR 50.34(h), SRP Section 14.3.12 was revised during the review of this application, and an additional PS-ITAAC task was added to this section. This new task is addressed by the applicant in Section 15 of the Fermi 3 PSP), 12, 13(a), 13(b), 15, 16(a), 16(b), 16(c), identified in Appendix A to Section 14.3.12 of NUREG-0800.

The Fermi 3 COL application, Part 10, Table 2.2.1-1 partially addressed PS-ITAAC Items 10, 11(b), 12, 13(a), 13(b), 14, 15, 16(a), 16(b), 16(c). The application references the ESBWR DCD, which also partially addressed PS-ITAAC Items 10, 11(b), 12, 13(a), 13(b), 14, 15, 16(a), 16(b), 16(c). The NRC staff determined that between both the Fermi 3 COL and the ESBWR DCD all elements of the PS-ITAAC Items 10, 11(b), 12, 13(a), 13(b) 14, 15, 16(a), 16(b), 16(c) are adequately addressed as identified in Appendix A to Section 14.3.12 of NUREG-0800.

The staff has determined that Systems, Hardware, or Features Facilitating Security Response and Neutralization PS-ITAAC described in NUREG-0800, Section 14.3.12 has been fully addressed between the Fermi 3 submission and the ESBWR DCD.

License Condition

- Part 10, License Condition

The staff has reviewed the license condition below against the recommendations in SECY-05-0197 as endorsed by the related SRM, dated February 22, 2006. The staff concluded that the proposed license condition conforms to the guidance in SECY-05-0197. In February 2013, DTE submitted a revised FSAR Table 13.4-201 and Part 10, of their COL application, which confirms the addition of the Operational Program Readiness milestone requirements for Physical Security.

In addition the staff proposes the following License Condition for ITAAC for Physical Security:

Operational Program Readiness

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

The licensee shall perform and satisfy the ITAAC defined in FSAR Table 2.2.1-1, "ITAAC for the Site-Specific Physical Security," as shown in Attachment 1 of the SER.

13.6A.5 Post Combined License Activities

License Condition 13.6A-1: The licensee shall submit to the appropriate Director of the NRC, a schedule, no later than 12 months after issuance of the COL, that supports planning for and conduct of NRC inspections of operational programs listed in the operational program FSAR Table 13.4-201. The schedule shall be updated every 6 months until 12 months before scheduled fuel loading, and every month thereafter until the operational programs in the FSAR table have been fully implemented. This schedule shall also address:

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

The licensee shall perform and satisfy the ITAAC defined in FSAR Table 2.2.1-1, "ITAAC for the Site-Specific Physical Security," as shown in Attachment 1 of this SER.

13.6A.6 Conclusions

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. The NRC staff reviewed the application and checked the referenced DCD. The staff's review confirmed that the applicant addressed the required information relating to PS-ITAAC, and there is no outstanding information expected to be addressed in the Detroit Edison COL FSAR 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.

The NRC staff concludes that the relevant information presented in the Fermi 3 COL FSAR and the additional information received in the letter dated May 3, 2010, is acceptable based on the applicable regulations specified in Section 13.6A.4.3 of this SER. The staff based its conclusion on the following:

> STD COL 14.3-2-A, as related to PS-ITAAC is acceptable based on the following discussion. The NRC staff finds that the applicant adequately describes the physical security systems or provides and/or facilitates the implementation of the site-specific protective strategy and security programs as documented in Section 13.6 of this SER. The applicant adequately describes the site-specific PS-ITAAC for meeting the requirements of 10 CFR 73.55 and provides the technical bases for establishing a PS-ITAAC for the protection against acts of radiological sabotage and theft of special nuclear material. The applicant includes systems and features as stated in Fermi 3 COL FSAR, Chapter 13.6 which includes referenced TRs. The applicant has provided adequate descriptions of objectives, prerequisites, test methods, data required, and acceptance criteria for security-related ITAAC for the approval of the Fermi 3 COL.

Attachment 1: FSAR Table 2.2.1-1, "ITAAC for the Site-Specific Physical Security"

Table 2.2.1-1 ITAAC for the Site-Specific Security System		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
1(a). Vital equipment will be located only within a vital area.	1(a). All vital equipment locations will be inspected.	1(a). Vital equipment is located only within a vital area.
1(b). Access to vital equipment will require passage through at least two physical barriers.	1(b). All vital equipment physical barriers will be inspected.	1(b). Vital equipment is located within a protected area such that access to the vital equipment requires passage through at least two physical barriers.
2(a). Physical barriers for the protected area perimeter will not be part of vital area barriers.	2(a). The protected area perimeter barriers will be inspected.	2(a). Physical barriers at the perimeter of the protected area are separated from any other barrier designated as a vital area barrier.
2(b). Penetrations through the protected area barrier will be secured and monitored.	2(b). All penetrations through the protected area barrier will be inspected.	2(b). All penetrations and openings through the protected area barrier are secured and monitored by intrusion detection equipment.
2(c). Unattended openings that intersect a security boundary, such as underground pathways, will be protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.	2(c). All unattended openings within the protected area barriers will be inspected.	2(c). All unattended openings (such as underground pathways) that intersect a security boundary (such as the protected area barrier), are protected by a physical barrier and monitored by intrusion detection equipment or provided surveillance at a frequency sufficient to detect exploitation.
3(a). Isolation zones will exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and will be designed of sufficient size to permit observation and assessment on either side of the barrier.	3(a). The isolation zones in outdoor areas adjacent to the protected area perimeter barrier will be inspected.	3(a). The isolation zones exist in outdoor areas adjacent to the physical barrier at the perimeter of the protected area and are of sufficient size to permit observation and assessment of activities on either side of the barrier in the event of its penetration or attempted penetration.

Table 2.2.1-1 ITAAC for the Site-Specific Security System		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
3(b). Isolation zones will be monitored with intrusion detection and assessment equipment that is designed to provide detection and assessment of activities within the isolation zone.	3(b). The intrusion detection equipment within the isolation zones will be inspected.	3(b). Isolation zones are equipped with intrusion detection and assessment equipment capable of providing detection and assessment of activities within the isolation zone.
3(c). Areas where permanent buildings do not allow sufficient observation distance between the intrusion detection system and the protected area barrier (e.g., the building walls are immediately adjacent to, or are an integral part of the protected area barrier) will be monitored with intrusion detection and assessment equipment that is designed to detect the attempted or actual penetration of the protected area perimeter barrier before completed penetration of the barrier and assessment of detected activities.	3(c). Inspections of areas of the protected area perimeter barrier that do not have isolation zones will be performed.	3(c). Areas where permanent buildings do not allow sufficient observation distance between the intrusion detection system and the protected area barrier (e.g., the building walls are immediately adjacent to, or an integral part of, the protected area barrier) are monitored with intrusion detection and assessment equipment that detects attempted or actual penetration of the protected area perimeter barrier before completed penetration of the barrier and assessment of detected activities.
4(a). The perimeter intrusion detection system will be designed to detect penetration or attempted penetration of the protected area perimeter barrier before completed penetration of the barrier, and for subsequent alarms to annunciate concurrently in at least two continuously manned onsite alarm stations (central and secondary alarm stations).	4(a). Tests, inspections, or a combination of tests and inspections of the intrusion detection system will be performed.	4(a). The intrusion detection system can detect penetration or attempted penetration of the protected area perimeter barrier before completed penetration of the barrier, and subsequent alarms annunciate concurrently in at least two continuously manned on site alarms stations (central and secondary alarm stations).
4(b). The perimeter assessment equipment will be designed to provide video image recording with real-time and playback capability that can provide assessment of detected activities before and after each alarm annunciation at the protected area perimeter barrier.	4(b). Tests, inspections, or a combination of tests and inspections of the video assessment equipment will be performed.	4(b). The perimeter assessment equipment is capable of real-time and playback video image recording that provides assessment of detected activities before and after each alarm at the protected area perimeter barrier.

Table 2.2.1-1 ITAAC for the Site-Specific Security System		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
4(c). The intrusion detection and assessment equipment at the protected area perimeter will be designed to remain operable from an uninterruptible power supply in the event of the loss of normal power.	4(c). Tests, inspections, or a combination of tests and inspections of the uninterruptible power supply will be performed.	4(c). All Intrusion detection and assessment equipment at the protected area perimeter remains operable from an uninterruptible power supply in the event of the loss of normal power.
5. Isolation zones and exterior areas within the protected area will be provided with illumination to permit assessment in the isolation zones and observation of activities within exterior areas of the protected area.	5. The illumination in isolation zones and exterior areas within the protected area will be inspected.	5. Illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or alternatively augmented, sufficient to permit assessment and observation.
6. The external walls, doors, ceiling, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area will be bullet resistant, to at least Underwriters Laboratories Ballistic Standard 752, “The Standard of Safety for Bullet-Resisting Equipment,” Level 4, or National Institute of Justice Standard 0108.01, “Ballistic Resistant Protective Materials,” Type III.	6. Type test, analysis, or a combination of type test and analysis of the external walls, doors, ceiling, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area will be performed.	6. A report exists and concludes that the walls, doors, ceilings, and floors in the Secondary Alarm Station, and the last access control function for access to the protected area are bullet resistant to at least Underwriters Laboratories Ballistic Standard 752, Level 4, or National Institute of Justice Standard 0108.01, Type III.
7. The vehicle barrier system will be designed, installed, and located at the necessary standoff distance to protect against the design-basis threat vehicle bombs.	7. Type test, inspections, analysis or a combination of type tests, inspections, and analysis will be performed for the vehicle barrier system	7. A report exists and concludes that the vehicle barrier system will protect against the threat vehicle bombs based on the standoff distance for the system.
8(a). Access control points will be established and designed to control personnel and vehicle access into the protected area.	8(a). Tests, inspections, or a combination of tests and inspections of installed systems and equipment will be performed.	8(a). Access control points exist for the protected area and are configured to control access.

Table 2.2.1-1 ITAAC for the Site-Specific Security System		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
8(b). Access control points will be established and designed with equipment for the detection of firearms, explosives, and incendiary devices at the protected area personnel access points.	8(b). Tests, inspections, or a combination of tests and inspections of installed systems and equipment will be performed.	8(b). Detection equipment exists and is capable of detecting firearms, explosives, and incendiary devices at the protected area personnel access control points.
9. An access control system with a numbered photo identification badge system will be installed and designed for use by individuals who are authorized access to protected areas and vital areas without escort.	9. The access control system and the numbered photo identification badge system will be tested.	9. The access authorization system with a numbered photo identification badge system is installed and provides authorized access to protected and vital areas only to those individuals with unescorted access authorization.
10. Unoccupied vital areas will be designed with locking devices and intrusion detection devices that annunciate in the Secondary Alarm Station.	10. Tests, inspections, or a combination of tests and inspections of unoccupied vital area intrusion detection equipment and locking devices will be performed.	10. Unoccupied vital areas are locked, and intrusion is detected and annunciated in the Secondary Alarm Station.
11(a). Intrusion detection equipment and video assessment equipment will annunciate and be displayed concurrently in at least two continuously manned onsite alarm stations (Central and Secondary Alarm Stations).	11(a). Tests, inspections, or a combination of tests and inspections of intrusion detection equipment and video assessment equipment will be performed.	11(a). Intrusion detection equipment and video assessment equipment annunciate and display concurrently in at least two continuously manned onsite alarm stations (Central and Secondary Alarm Stations).
11(b). The Secondary Alarm Station will be located inside the protected area and will be designed so that the interior of the alarm station is not visible from the perimeter of the protected area.	11(b). The Secondary Alarm Station location will be inspected.	11(b). The Secondary Alarm Station is located inside the protected area, and the interior of the alarm station is not visible from the perimeter of the protected area.

Table 2.2.1-1 ITAAC for the Site-Specific Security System		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
11(c). Central and Secondary Alarm Stations will be designed, equipped and constructed such that no single act, in accordance with the design-basis threat of radiological sabotage, can simultaneously remove the ability of both the central and secondary alarm stations to (1) detect and assess alarms, (2) initiate and coordinate an adequate response to alarms, (3) summon offsite assistance, and (4) provide effective command and control.	11(c). Tests, inspections, or a combination of tests and inspections of the Central and Secondary Alarm Stations will be performed.	11(c). Central and Secondary Alarm Stations are designed, equipped, and constructed such that no single act, in accordance with the design-basis threat of radiological sabotage, can simultaneously remove the ability of both the central and secondary alarm stations to (1) detect and assess alarms, (2) initiate and coordinate an adequate response to alarms, (3) summon offsite assistance, and (4) provide effective command and control.
11(d). Both the Central and Secondary Alarm Stations will be constructed, located, protected, and equipped to the standards for the Central Alarm Station (alarm stations need not be identical in design but shall be equal and redundant, capable of performing all functions required of alarm stations).	11(d). Tests, inspections, or a combination of tests and inspections of the Central and Secondary Alarm Stations will be performed.	11(d). The Central and Secondary Alarm Stations are located, constructed, protected, and equipped to the standards of the Central Alarm Station and are functionally redundant (stations need not be identical in design).
12. The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.	12. The secondary security power supply system will be inspected.	12. The secondary security power supply system for alarm annunciator equipment contained in the Secondary Alarm Station and non-portable communications equipment contained in the Secondary Alarm Station is located within a vital area.

Table 2.2.1-1 ITAAC for the Site-Specific Security System		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
13(a). Security alarm devices, including transmission lines to annunciators, will be tamper-indicating and self-checking (e.g., an automatic indication is provided when failure of the alarm system or a component occurs or when on standby power), and alarm annunciation indicates the type of alarm (e.g., intrusion alarms, emergency exit alarm) and location.	13(a). All security alarm devices and transmission lines will be tested.	13(a). Security alarm devices including transmission lines to annunciators are tamper indicating and self-checking (e.g., an automatic indication is provided when failure of the alarm system or a component occurs, or when the system is on standby power), and the alarm annunciation indicates the type of alarm (e.g., intrusion alarm, emergency exit alarm) and location.
13(b). Intrusion detection and assessment systems will be designed to provide visual display and audible annunciation of alarms in the Secondary Alarm Station.	13(b). Intrusion detection and assessment systems will be tested.	13(b). The intrusion detection and assessment systems provide a visual display and audible annunciation of alarms in the Secondary Alarm Station (concurrently with the display and annunciation in the Central Alarm Station).
14. No Site-Specific ITAAC specified.	14. No Site-Specific ITAAC specified.	14. No Site-Specific ITAAC specified.
15. Emergency exits through the protected area perimeter and vital area boundaries will be alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency.	15. Tests, inspections, or a combination of tests and inspections of emergency exits through the protected area perimeter and vital area boundaries will be performed.	15. Emergency exits through the protected area perimeter and vital area boundaries are alarmed with intrusion detection devices and secured by locking devices that allow prompt egress during an emergency.
16(a). The Secondary Alarm Station will have conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.	16(a). Tests, inspections, or a combination of tests and inspections of the Secondary Alarm Stations' conventional (land line) telephone service will be performed.	16(a). The Secondary Alarm Station is equipped with conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.

Table 2.2.1-1 ITAAC for the Site-Specific Security System		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
16(a). The Secondary Alarm Station is equipped with conventional (land line) telephone service with the Main Control Room and local law enforcement authorities.	16(b). Tests, inspections, or a combination of tests and inspections of the Secondary Alarm Stations' continuous communication capabilities will be performed.	16(b). The Secondary Alarm Station is capable of continuous communication with on-duty watchmen, armed security officers, armed responders, or other security personnel who have responsibilities within the physical protection program and during contingency response events.
16(c). Non-portable communications equipment in the Secondary Alarm Station will remain operable from an independent power source in the event of loss of normal power.	16(c). Tests, inspections, or a combination of tests and inspections of the non-portable communications equipment will be performed.	l6(c). All non-portable communication devices (including conventional telephone systems) in the Secondary Alarm Station are wired to an independent power supply that enables those systems to remain operable (without disruption) during the loss of normal power.

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 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 will be 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 will be managed commensurate with maintaining public health and safety.

13.7.2 Summary of Application

This section of the FSAR, Revision 7, describes the Fermi 3 FFD Program for the construction and operating phases.

Supplemental Information

- STD SUP 13.7-1 Fitness for Duty

The FFD Program will be 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 will be implemented as described in Table 13.4-201.

The construction phase of the FFD Program is consistent with NEI 06-06, Revision 5, "Fitness for Duty Program Guidance for New Nuclear Power Plant Construction Sites." 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 described in NEI 06-06 with additional details—and security personnel before 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 identifies 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 the 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 the new Section 13.7 in the response to RAIs 13.07-1 through 13.07-4 in a letter dated December 16, 2010 (ADAMS Accession No. 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 the 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 (ADAMS Accession No. ML103540126), 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 it 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 will 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 (ADAMS Accession No. ML103540126), provides adequate details in Table 1.6-201 of how Detroit Edison will implement NEI 06-06. This attachment provides a sufficient level of detail that addresses all of the milestones established by 10 CFR 26.3 and 26.4. The attachment lists FFD Program elements such as the title, source, section, milestone, and requirements 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 that are set forth in

10 CFR 52.79(a)(44). The staff verified that FSAR Revision 7 includes the applicant's proposed changes. Therefore, RAI 13.07-1 is closed.

In Section 3.7, the applicant identifies Commitment (COM 13.7-001), 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, and (Sheet 13-43) comport with 10 CFR 26 Sections 26.3 and 26.4 and guidance in the NRC letter to the NEI dated December 2, 2009,"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 a reasonable assurance of a finding of acceptability. For example, will Fermi 3 base its Sections 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 (ADAMS Accession No. ML103540126), 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 26.3 and 26.4.

The staff verified that the applicant has included the proposed changes in FSAR Revision 7. Therefore, RAI 13.07-2 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, under Supplemental Information 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 RAI 13.07-3 dated December 16, 2010 (ADAMS Accession No. 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 finds that the response to RAI 13.07-3 provides a sufficient level of detail and addresses all of the milestones established by 10 CFR 26.3 and 26.4. The staff verified that the applicant has included the proposed changes in FSAR Revision 7. Therefore, this RAI 13.07-3 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 RAI 13.07-4, dated December 16, 2010 (ADAMS Accession No. 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 finds that the response to RAI 13.07-4 provides a sufficient level of detail and addresses all of the milestones established by 10 CFR 26.3 and 26.4. The staff verified that the applicant has included the proposed changes in FSAR Revision 7. Therefore, this RAI 13.07-4 is closed.

13.7.5 Post Combined License Activities

The applicant identifies the following commitment:

- Commitment (COM 13.7-001) – 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 the NRC endorsement or to the requirements of 10 CFR Part 26.

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 concludes 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 (ADAMS Accession No. ML092881085).

13.8 Cyber Security

13.8.1 Introduction

This FSAR, Revision 7, section 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, (ADAMS Accession No. ML101810387) Detroit Edison submitted a Revision 1 of the Cyber Security Plan (CSP) for Fermi 3. The CSP applies to all critical digital assets (CDAs) required for Fermi 3 operations. In the submittal, Detroit Edison describes how it will establish, implement, and maintain a Cyber Security Program that protects digital computer and communication systems and networks associated with safety-related and important-to-safety functions; security functions; and emergency preparedness functions including offsite communications and support systems and equipment which, if compromised, would adversely impact safety, security, or emergency preparedness functions.

The staff issued an RAI requesting the applicant to address the staff's concerns with the CSP that the applicant did not provide a glossary in the CSP. In the responses to RAI 13.06.06-1 dated September 21, 2010 (ADAMS Accession No. ML102660141), the applicant clarified that the intent is to incorporate the NEI 08-09, Revision 6, Appendix B "Glossary" by including a reference with one deviation. The deviation from NEI 08-09, Revision 6, "Cyber Security Plan Template," Appendix B, "Glossary," was identified in the transmittal letter for Revision 1 of the Fermi 3 CSP dated June 25, 2010, (ADAMS Accession No. ML101810387) and was related to the definition of "Cyber Attack." NRC accepted the revised "Cyber Attack" definition in a letter from NRC to NEI dated June 7, 2010 (ADAMS Accession No. ML101550052).

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)
- 10 CFR Part 73, Appendix G

10 CFR 73.54 requires each applicant to build and operate a nuclear power plant under 10 CFR Part 52 to submit a CSP that satisfies the requirements of 10 CFR 73.54 for Commission review and approval.

In a letter to the NEI dated May 5, 2010 (ADAMS Accession No. ML101190371), NRC stated that an applicant may use the template in NEI 08-09, Revision 6 to prepare an acceptable CSP. Detroit Edison submitted a CSP for Fermi 3 that was based on the template in NEI 08-09, Revision 6. The staff reviewed the applicant's CSP against the template in NEI 08-09, Revision 6, which is comparable to RG 5.71, "Cyber Security Programs for Nuclear Facilities."

13.8.4 Technical Evaluation

The staff performed a technical evaluation of the applicant's CSP. The staff's review finds that the applicant's CSP conforms to the guidance in NEI 08-09, Revision 6, which is comparable to RG 5.71 to satisfy the requirements in 10 CFR 73.54. The staff also reviewed the applicant's CSP against the requirements of 10 CFR 73.54 in accordance with the guidance in RG 5.71. The staff's evaluation of each section of the applicant's CSP is discussed below.

13.8.4.1 *Scope and Purpose*

This CSP describes how Fermi 3 will establish a Cyber Security Program that will achieve high assurance that Fermi 3 digital computer and communication systems and networks associated with SS Emergency Plan functions (hereafter defined as CDAs) are adequately protected against cyber attacks up to and including the design-basis threat.

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 are described in the CSP and provide high assurance of the adequate protection of systems associated with the SS Emergency Plan functions from cyber attacks:

- Implementing and documenting the "baseline" security controls described in Regulatory Position C.3.3 of RG 5.71.
- 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 staff finds that the applicant has established adequate measures to implement and document the Cyber Security Program, including baseline security controls. Based on the review, the 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 states that the Cyber Security Program will be established, implemented, and maintained as described in Section 3.1 of NEI 08-09, Revision 6, which is comparable to Regulatory Position C.3 of 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 applicant's 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, will be implemented to protect CDAs from cyber attacks.

Based on the above information, the staff finds that the CSP adequately addresses security controls.

13.8.4.3 *Cyber Security Assessment and Authorization*

The CSP provides information addressing the creation of a formal and documented cyber security assessment and authorization policy. This policy includes details concerning the creation of a formal documented procedure comparable to Section 3.1.1 of NEI 08-09, Revision 6.

The staff finds that the applicant has established adequate measures to define and address the purpose, scope, roles, responsibilities, management commitment, and coordination to facilitate the implementation of the cyber security assessment and authorization policy.

The staff reviewed the CSP and finds that the applicant has adequately established the 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 responsibilities of the Cyber Security Assessment Team (CSAT) 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 that are comparable to Section 3.1.2 of NEI 08-09, Revision 6. The CSP also states that the CSAT has the authority to conduct an independent assessment.

The 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 of RG 5.71.

The CSP lists the roles of and responsibilities for the CSAT that include 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 description, the 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 CSP states that the licensee applicant will identify and document CDAs and critical systems, including a general description; overall functions; overall consequences if a compromise were to occur; and security functional requirements or specifications as described

in Section 3.1.3 of NEI 08-09, Revision 6—which are comparable to those in Regulatory Position C.3.1.3 of RG 5.71.

Based on the above, the staff finds that the CSP adequately describes the process for identifying CDAs.

13.8.4.6 *Examination of Cyber Security Practices*

The 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 architectural drawings); information on security devices; and any other information that may be helpful during the cyber security assessment process 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 the NRC examination of the collected information.

Based on the above information, the staff finds that the CSP adequately describes the examination of cyber security practices.

13.8.4.7 *Reviews and Validation Testing*

The 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 plan of the licensee 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 information, the 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*

In accordance with 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 of 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, the applicant must assess the potential for an adverse impact 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 information, the staff finds that the CSP adequately describes the capability to mitigate vulnerabilities and apply security controls.

13.8.4.9 *Incorporating the Cyber Security Program into the Physical Protection Program*

The 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

information 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 information, the staff finds that the CSP adequately describes the CSP as a component of the Physical Security Program.

13.8.4.10 *Cyber Security Controls*

The CSP describes how the technical, operational and management 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 evaluated and dispositioned based on site-specific conditions during all phases of the Cyber Security Program. The CSP states that many security controls have actions that must be performed on specific frequencies, and the frequency of a security control is satisfied if the action is performed within 1.25 times of the frequency specified in the control (as applied) and measured from the previous performance of the action as described in Section 4.2 of NEI 08-09, Revision 6.

Based on the above information, the staff finds that the CSP adequately describes the implementation of cyber security controls.

13.8.4.11 *Defense-in-Depth Protective Strategies*

The 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 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 staff finds that the “Defense-in-Depth Protective Strategies” described in Section 4.3 of the CSP are acceptable.

13.8.4.12 *Ongoing Monitoring and Assessment*

The CSP describes how the ongoing monitoring of cyber security controls to support CDAs will be 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; a cyber security impact analysis of changes and changed environments; ongoing assessments of cyber security controls; an 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 details, the staff finds that the CSP adequately describes ongoing monitoring and assessment.

13.8.4.13 *Modification of Digital Assets*

The CSP describes how cyber security controls are established, implemented, and maintained to protect CDAs. These security controls ensure that: 1) modifications to CDAs are evaluated

before implementation, 2) cyber security performance objectives are maintained, and 3) acquired CDAs have cyber security requirements in place to achieve the site's Cyber Security Program objectives. These controls are 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 information, the staff finds that the CSP adequately describes the modification of digital assets.

13.8.4.14 *Attack Mitigation and Incident Response*

The CSP describes the process to ensure that SS Emergency Plan 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 the incident response policy and procedures and addresses training, testing, drills, incident handling, incident monitoring, and incident response assistance. The CSP also describes the identification, detection, response, containment, eradication, and recovery activities comparable to Section 4.6 of NEI 08-09, Revision 6.

Based on the above details, the staff finds that the CSP adequately describes attack mitigation and incident response.

13.8.4.15 *Cyber Security Contingency Plan*

The CSP describes the 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 describes the Cyber Security Contingency Plan that will include the response to events. The plan includes procedures for operating CDAs in a contingency, roles and responsibilities of responders, processes and procedures for the 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 information, the staff finds that the CSP adequately describes the cyber security contingency plan.

13.8.4.16 *Cyber Security Training*

The CSP describes a program that establishes the training requirements necessary for the personnel and contractors of the applicant/licensee 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 will be 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 information, the staff finds that the CSP adequately describes cyber security training and awareness requirements.

13.8.4.17 *Evaluate and Manage Cyber Risk*

The CSP describes how the cyber risk is evaluated and managed utilizing site programs and procedures that are comparable to those in 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 shows how each will be used to evaluate and manage risk.

Based on the above information, the staff finds that the CSP adequately describes the evaluation and management of cyber risks.

13.8.4.18 *Policies and Procedures*

The CSP describes the development and implementation of policies and procedures that 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. The CSP includes the process to document, review, approve, issue, use, and revise policies and procedures.

The CSP also describes the applicant'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 information, the staff finds that the CSP adequately describes cyber security policies and implementation procedures.

13.8.4.19 *Roles and Responsibilities*

The CSP describes the roles of 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. In accordance with the Incident Response Plan, the CSIRT initiates emergency actions when required to safeguard CDAs from cyber security compromises and to assist with the eventual recovery of compromised systems. The implementing procedures establish roles of 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 information, the 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 information, the staff finds that the CSP adequately describes the Cyber Security Program review.

13.8.4.21 *Document Control and Records Retention and Handling*

The CSP states that the applicant has established the necessary measures and governing procedures to ensure that sufficient records of items and activities affecting cyber security will be developed, reviewed, approved, issued, used, and revised to reflect completed work.

The staff was concerned that the Fermi 3 discussion of records retention did not comply with 10 CFR 73.54(h). The staff issued RAI 13.06.06-1 requesting the applicant to provide clarifications about Fermi 3's records retention. The applicant's response, dated September 21, 2010 (ADAMS Accession No. ML102660141), stated that the CSP will be modified to follow NEI 08-09, Revision 6, which describes cyber security records retention procedures which are appropriate and acceptable to the staff and comply with 10 CFR 73.54(h). The implementation of this response is being tracked as Confirmatory Item 13.6.6-1. The staff verified that FSAR Revision 7 includes retaining records until the Commission terminates the license, in accordance with the requirements of 10 CFR 73.54(h). Therefore, Confirmatory Item 13.6.6-1 is resolved.

Based on the above information, the staff concludes 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 refers to the implementation milestone for the Cyber Security Program and Commitment COM 13.4-032. The milestone is "prior to fuel on-site." The NRC staff's review of the implementation milestone finds that it satisfactory, because it complies with 10 CFR 73.55(a)(4).

Based on the above review, the 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 applicant identifies the following commitment in FSAR Table 13.4-201:

- Commitment (13.5-032) – Develop and implement a CSP prior to fuel on-site (Protected Area).

13.8.6 Conclusion

The staff compared Table 13.4-201 of the FSAR and the Fermi 3 CSP to the relevant NRC regulations and the criteria in RG 5.71 via NEI 08-09, Revision 6. The staff concludes that the applicant is in compliance with NRC regulations.

On the basis of the review, the staff finds that the information in the Fermi 3 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 has 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.