DTE Energy®

Detroit Edison

Fermi 3 Combined License Application

Part 7: Departures Report

(Includes Information on Departures, Exemptions and Supplemental Information)

Revision 2
March 2010

Introduction:

A departure is a plant-specific deviation from design information in a standard design certification rule. Departures from the reference ESBWR Design Control Document (DCD) are identified and evaluated consistent with regulatory requirements and guidance. Each departure is examined in accordance with 10 CFR 52 requirements. Although the ESBWR Design Certification Application is currently under review with the NRC, departures are evaluated utilizing the guidance provided in Regulatory Guide 1.206, Section C.IV.3.3.

The following departure is evaluated in this report:

EF3 DEP 11.4-1: Long-term, Temporary Storage of Class B and C Low-Level Radioactive Waste

Departure: EF3 DEP 11.4-1 - Long-Term, Temporary Storage of Class B and C Low-Level Radioactive Waste

Summary of Departure:

The ESBWR DCD identifies that on-site storage space for a six-month volume of packaged waste is provided in the Radwaste Building. The Fermi Unit 3 Radwaste Building is configured to accommodate a minimum of ten years volume of packaged Class B and C waste, while maintaining space for at least three months of packaged Class A waste. This departure is effected by reconfiguring the arrangement of systems and components within the ESBWR RWB volume. The systems structures and components requiring re-arrangement are associated with the Liquid Waste Management System (LWMS) and Solid Waste Management System (SWMS). The existing Radwaste Building Fire Protection and HVAC Systems have sufficient capacity to accommodate the extra volume of Class B and C wastes, and require no modification.

Scope/Extent of Departure:

This departure affects Tier 1 information in the ESBWR DCD. This departure is identified in Part 10: ITAAC Section 1.

This departure affects Tier 2 information in the ESBWR DCD. This departure is identified in FSAR Sections 1.2.2.10.2, 9.4.3.1, 11.4, 11.4.1, 11.4.2.2.1, 11.4.2.2.2, 11.4.2.2.4, and 11.4.2.3.1; FSAR Tables 9A.5-5R, 11.4-1R, 11.4-2R, 12.3-4R, and 12.3-8R; and FSAR Figures 1.2-21R, 1.2-22R, 1.2-23R, 1.2-24R, 1.2-25R, 9A.2-20R, 9A.2-21R, 9A.2-22R, 9A.2-23R, 9A.2-24R, 11.4-1R, 11.4-2R, 12.3-19R, 12.3-20R, 12.3-21R, 12.3-22R, 12.3-39R, 12.3-40R, 12.3-41R, 12.3-42R, 12.3-61R, 12.3-62R, 12.3-63R, and 12.3-64R.

Departure Justification:

DCD Sections 11.4.1, SWMS Design Basis, and 11.4.2.2.4, Container Storage Subsystem, discuss on-site storage space for low-level radioactive waste. The design accommodates a sixmonth volume of packaged waste storage in the Radwaste Building.

Class A, B, and C low-level radioactive waste is normally promptly disposed of at licensed offsite processing and disposal facilities. In the event that an offsite facility is not available to accept Class B and C waste shipments, the Fermi Unit 3 Radwaste Building waste storage space has been configured to accommodate at least ten years of Class B and C waste generated during plant operation. Shielding analysis results show that the dose rates in surrounding areas, both within the building and externally, are maintained below the allowable limits in accordance with the radiological area classification in FSAR Section 12.3.1.3. Long-term, temporary storage of Class B and C waste HICs, with design lifetimes of 300 years, will not have an adverse effect on the integrity of the waste containers. Periodic inspections will be performed to confirm container integrity during storage.

The increased Class B and C waste storage space is consistent with the regulatory guidance of NUREG-0800, Section 11.4, Appendix 11.4-A. The storage space reserved for Class A waste exceeds that recommended by NUREG-0800, Standard Review Plan, Branch Technical Position 11-3.

Departure Evaluation:

This departure affects Tier 1and Tier 2 information.

Tier 1. The Descriptions of the locations of Area Radiation Monitors (ARMs) in the Radwaste Building (RWB) have been modified to logically reflect the RWB layout. The number of ARMs in the RWB remains unchanged, only the room descriptions have been changed. Accordingly it does not:

1. Result in a decrease in the level of safety.
2. Present a risk to the public health and safety, or present inconsistencies with the common defense and security.

Tier 2. This Tier 2 departure does not affect off-site dose rates or the integrity of waste containers in storage. As such, the potential for increased radiation exposure to members of the public is not created. Accordingly, it does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;
2. Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the plantspecific DCD;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;
4. Result in more than a minimal increase in the consequences of a malfunction of a SSC important to safety previously evaluated in the plant-specific DCD;
5. Create a possibility for an accident of a different type than any evaluated previously in the plantspecific DCD;

6. Create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD;
7. Result in a design basis limit for a fission product barrier as described in the plant specific DCD being exceeded or altered; or
8. Result in a departure from a method of evaluation described in the plant-specific DCD use.

Therefore, this departure has no safety significance.