Chapter 6 Engineered Safety Features

6.0 General

This section of the referenced DCD is incorporated by reference with no departures or supplements.

6.1 Engineered Safety Feature Materials

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

6.1.2.3 Evaluation

Delete the parenthetical statement at the end of the second paragraph, and insert a new third paragraph as follows.

STD COL 6.1.3-1-A **[START COM 6.1-001]** For protective coatings and organic materials used inside the containment that do not meet the requirements of ASTM D 5144 and RG 1.54 as per above, an evaluation is performed to determine the generation rate, as a function of time, of combustible gases that can be formed from these unqualified organic materials under DBA conditions. Surveys of the containment are used to identify this material. The technical basis and assumptions used for this evaluation are documented and retained as quality records. These evaluations will be completed before fuel load, **[END COM 6.1-001]** and **[START COM 6.1-002]** the FSAR will be revised, as necessary, in a subsequent update to incorporate the results of these evaluations. **[END COM 6.1-002]**

6.1.3 COL Information

6.1.3-1-A Protective Coatings and Organic Materials

STD COL 6.1.3-1-A This COL item is addressed in Subsection 6.1.2.3.

6.2 Containment Systems

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

6.2.1.6 Test and Inspection

Add the following at the end of this section.

STD SUP 6.2-1

Inspections to Limit Debris

Procedures describe the activities necessary to prevent debris from affecting the emergency core cooling and long-term cooling safety functions in accordance with RG 1.82, including: 1) inspection of the cleanliness of pools within containment, 2) a visual examination for evidence of structural degradation or corrosion of debris screens, 3) an inspection of the wetwell and the drywell, including the vents, downcomers, and deflectors, for the identification and removal of debris or trash that could contribute to the blockage of debris screens for the ECC and long-term cooling safety functions, 4) containment cleanliness programs to clean the pools within containment on a regular basis, and 5) plant procedures for control and removal of foreign materials from the containment and abatement procedures to avoid latent debris generation during removal and/or replacement of insulation within containment.

6.2.4.2 System Design

Replace the parenthetical after the third sentence in the first paragraph with the following.

STD COL 6.2-1-H

DCD Tables 6.2-16 through 6.2-42 require an entry for the length of pipe from the containment to the inboard and outboard isolation valves. **[START COM 3.12-001]** Pipe lengths will be determined as part of completion of the piping design ITAAC identified in DCD Tier 1, Table 3.1-1. **[END COM 3.12-001] [START COM 3.12-002]** The FSAR will be revised to reflect the pipe length information in a subsequent update. **[END COM 3.12-002]**

6.2.8 COL Information

STD COL 6.2-1-H

6.2-1-H COL item is addressed in Subsection 6.2.4.2.

6.3 Emergency Core Cooling Systems

This section of the referenced DCD is incorporated by reference with no departures or supplements.

6.4 Control Room Habitability Systems

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

6.4.4 System Operation Procedures

EF3 COL 6.4-1-A

Replace the second paragraph with the following:

Operators are provided with training and procedures for control room habitability that address the applicable aspects of NRC Generic Letter 2003-01 and are consistent with the intent of Generic Issue 83. Training and procedures are developed and implemented in accordance with Sections 13.2 and 13.5, respectively. The implementation milestones for training and procedures are provided in Sections 13.4 and 13.5, respectively.

6.4.5 Design Evaluations

System Safety Evaluation

Add the following after the second paragraph.

EF3 SUP 6.4-1

The impact of a postulated design basis accident (DBA) in Fermi 2 on the Fermi 3 control room was evaluated. The evaluation was performed as follows:

- Atmospheric dispersion factors, X/Qs, at the Fermi 3 MCR intakes were conservatively calculated assuming a point source, a distance of 350 m (1148 ft), and a release height of 10 m (32.8 ft). Meteorological data used for cross-unit impact is consistent with that used for the X/Q values presented in Section 2.3. A nominal “receptor to source” direction of 228° was assumed (with respect to “true north”). To ensure all potential release points from Fermi 2 were considered, a safety factor of 1.5 was applied to the nominal results. The X/Q values are presented in Table 2.3-304.
- The Fermi 2 LOCA as described in Section 15.6.5 of the Fermi 2 UFSAR was reviewed. The resultant dose to the Fermi 3 Control Room operators was determined to be within the regulatory limits by comparing the Fermi 2 and Fermi 3 X/Q values and control room

filtration design parameters. Detailed modeling of the Fermi 3 control room was not performed because the doses are bounded by a postulated Fermi 3 LOCA.

Based on this conservative analysis, the resultant dose is bounded by the control room operator dose from a postulated Fermi 3 DBA, and is less than GDC 19 limits.

Replace DCD Table 6.4-2 with Table 2.2-203 and replace the third paragraph with the following.

EF3 COL 6.4-2-A

Potential toxic gas sources are evaluated to confirm that an external release of hazardous chemicals does not impact control room habitability. These sources include: 1) off-site industrial facilities and transportation routes; 2) Fermi 2; and 3) Fermi 3.

Evaluation of potentially hazardous off-site chemicals within 8 km (5 mi) of the control room is addressed in Section 2.2. As described therein, there are no significant impacts to the Fermi 3 control room from a postulated release of hazardous chemicals used or stored off-site within 8 km (5 mi) of the control room, including those in oil or gas pipe-lines. There are also no significant control room habitability impacts due to chemicals being transported along off-site routes within 8 km (5 mi) of the plant.

Toxic gas analysis for potentially hazardous chemicals stored on site is performed in accordance with the guidelines of RG 1.78 and on the basis of no action being taken by the control room operator. The results of the analysis, when compared to the toxicity limits given in RG 1.78, show hazardous concentrations of toxic gas in the control room are not reached.

On-site locations with potentially toxic chemicals are identified in Table 2.2-203.

Hydrogen and oxygen storage facilities are in excess of 229 m (750 ft) from the control room. This distance is acceptable for toxic gas concerns per RG 1.78 based on hazards of postulated instantaneous release followed by vapor cloud explosion or intake of a flammable vapor concentration into a safety-related intake. The hazard for the oxygen supply was a postulated release with an increased concentration at a safety-related intake. Calculations performed to evaluate the habitability

of the control room for accidental releases of hydrogen or oxygen from the hydrogen water chemistry system indicate control room personnel are not subject to the hazard of breathing air with insufficient oxygen inside the control room due to a release of hydrogen. Other identified chemicals are stored in amounts and locations that are adequately separated from the control room intakes such that detection and/or control room isolation is not required.

The maximum concentrations for on-site chemicals, as calculated for Fermi 2, are based on the equations provided in NUREG-0570. This evaluation is bounding for the Fermi 3 control room intake on the basis of a greater separation distance from Fermi 3 control room than the Fermi 2 control room. The relative locations for the chemical storage areas, as well as the control room intakes and refresh rates for Fermi 2 and Fermi 3 were considered in the analysis along with the properties of the stored chemicals. The maximum concentrations determined for the room intakes were evaluated for safety in comparison with the toxicity limits from RG 1.78. The analysis performed shows that the control room concentration for a given chemical does not exceed the applicable toxicity limit. Based on this analysis, Seismic Category I Class safety-related toxic gas monitoring instrumentation is not required.

6.4.9 COL Information

6.4-1-A CRHA Procedures and Training

EF3 COL 6.4-1-A This COL item addressed in Subsection 6.4.4.

6.4-2-A Toxic Gas Analysis

EF3 COL 6.4-2-A This COL item addressed in Subsection 6.4.5 and Table 2.2-203.

6.5 Atmosphere Cleanup Systems

This section of the referenced DCD is incorporated by reference with no departures or supplements.

6.6 Preservice and Inservice Inspection and Testing of Class 2 and 3 Components and Piping

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

Replace the last sentence and the parenthetical statement of the third paragraph of this section with the following.

STD COL 6.6-1-A The PSI/ISI program description for Class 2 and 3 components and piping is provided in DCD Section 6.6.

6.6.10 Plant Specific PSI/ISI Program Information

6.6.10.1 Relief Requests

Add the following at the end of this section.

STD COL 6.6-1-A No relief requests for the PSI/ISI program have been identified.

6.6.10.2 Code Edition

Replace the second sentence of this section with the following:

STD COL 6.6-1-A The initial ISI program incorporates the latest edition and addenda of the ASME Code approved in 10 CFR 50.55a(b) on the date 12 months before initial fuel load.

Add the following new section.

STD COL 6.6-1-A

6.6.10.3 Program Implementation

The milestones for preservice and inservice inspection program implementation are provided in Section 13.4.

6.6.11 COL Information

6.6-1-A PSI/ISI Program Description

STD COL 6.6-1-A This COL item is addressed in Section 6.6.

Appendix 6A TRACG Application for Containment Analysis

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 6B Evaluation of the TRAGG Nodalization for the ESBWR Licensing Analysis

This section of the referenced DCD is incorporated by reference with no departures or supplements.

Appendix 6C Evaluation of the Impact of Containment Back Pressure on the ECCS Performance

This section of the referenced DCD is incorporated by reference with no departures or supplements.