

PMFermiCOLPEm Resource

From: Anand, Raj
Sent: Monday, October 17, 2011 9:56 AM
To: Nicholas A Latzy; FermiCOL Resource
Cc: Muniz, Adrian; Hale, Jerry
Subject: Fermi Draft staff's slides for Chapters 6 and 19. Thanks.
Attachments: FERMI Chp 19 Slides.pptx; Fermi 3 Chapter 6 Slides (3).pptx

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Presentation to the ACRS Subcommittee

Fermi Unit 3 COL Application Review

Chapter 19

PRA Results and Severe Accidents Evaluation

October 21, 2011



Staff Review Team

- **Project Managers**
 - **Adrian Muniz, Lead PM, DNRL/BWR**
 - **Raj Anand, Chapter PM, DNRL/BWR**
- **Technical Staff**
 - **Mark Caruso, Sr. Reliability & Risk Engineer, DSRA/SPRA**
 - **Jim Xu, Sr. Structural Engineer, DE/SEB2**



Regulations and Review Guidance

- 10 CFR 52.79(a)(46)
 - describe plant-specific PRA and results
- 10CFR 52.79(d)(1)
 - may reference design cert PRA and update to reflect site/design specific parameters and features
- 10 CFR 52.79(a)(17)
 - show compliance with relevant TMI requirements
- 10 CFR 50.34(f)(i) – TMI Requirement
 - Do a plant/site specific PRA to seek improvements in reliability of core and containment cooling capability
- NUREG-0800 Section 19.0 (SRP)



Regulations and Review Guidance (continued)

- Interim Staff Guidance COL/DC-ISG-03 (PRA)
- Interim Staff Guidance COL/DC-ISG-20 (Seismic Margins)
- Regulatory Guide 1.206



Discussion of Technical Review

- Plant Specific PRA & Severe Accident Evaluations



Plant Specific PRA & Severe Accidents Evaluation

- Application incorporated Certified Design PRA and Severe Accident Evaluation by reference and stated site-specific and plant-specific design features and design parameters were enveloped in Certified Design PRA.
- RAIs issued to obtain supporting site-specific evaluation.
- Applicant provided its site-specific evaluation and included results into FSAR.
- Staff reviewed applicant's site-specific evaluation and agrees with conclusion.



Plant Specific PRA – Review Issues

- loss of preferred power (LOPP) frequency
 - bounded by frequency in Certified Design PRA
- loss of service water frequency
 - bounded by frequency in Certified Design PRA
- site-specific terrain and meteorological data
 - high winds analysis in Certified Design PRA is bounding



Plant Specific PRA – Review Issues

- Seismic Margins
 - site ground motion response spectra and foundation input response spectra enveloped by ESBWR CSDRS
 - geotechnical profiles are characterized as a hard rock site
 - site characteristics are bounded by the ESBWR site parameters
 - Certified design Seismic Margins Analysis bounding
 - Fermi must confirm plant-specific HCLPF values bounded by values in Certified Design analysis prior to fuel load



Plant Specific PRA – Review Issues

- **Plant-specific flooding of the yard**
 - yard flood zone includes all outside areas of the site
 - components in yard that support a safety function are manual fire hose connections for refilling ICS/PCCS pools; connections not credited in PRA
 - Certified Design PRA flooding analysis bounding
- **Plant-specific service water (SW) building flooding**
 - Certified Design PRA treats SW building as one flood zone
 - all SW pumps assumed to fail for any flooding in zone
 - Certified Design PRA flooding analysis is bounding



Conclusions

- The applicant has addressed the required information relating to PRA results and insights, and Severe Accidents evaluation.
- The staff concludes that Fermi 3 FSAR Chapter 19 is acceptable and conform to regulatory requirements.



Questions/Comments



Fermi 3 COL FSAR

Chapter 6 Engineered Safety Features

October 21, 2011

Overview of Chapter 6 Review

- **6.1 Design Basis Accident Engineered Safety Feature Materials (IBR)**
- **6.2 Containment Systems and related Appendices (IBR)**
- **6.3 Emergency Core Cooling Systems (IBR)**
- **6.4 Control Room Habitability Systems**
- **6.5 Atmosphere Cleanup Systems (IBR)**
- **6.6 Preservice and Inservice Inspection and Testing of Class 2 and 3 Components and Piping**

STD COL 6.4-1-A:

Control Room Habitability Area (CRHA) Procedures and Training

- **Generic Letter 2003-01 and Generic Issue 83**
 - **COM 13.4-028 Non-Licensed plant staff training program**
 - **COM 13.4-016 Reactor operator training program**
 - **COM 13.5-002 Operating Procedures**
- **Applicant's Information Acceptable**

EF3 COL 6.4-2-A: Toxic Gas Analysis

- **GDC 19, TMI Action Plan III.D.3.4, Reg Guide 1.78**
- **COL FSAR Information**
 - **N₂ (Fermi 2) and CO₂ (Fermi 3) identified (Section 2.2)**
 - **Concentrations at CRHA intake exceed the limits (RG 1.78)**
 - **CRHA concentrations significantly lower than the limits**
- **Staff Review**
 - **RAI 02.02.03-5 (ML092750405)**
 - **List of all toxic chemicals**
 - **Details of toxic gas evaluations**
- **Applicant's Conclusions Acceptable**
 - **N₂ and CO₂ release do not pose any threat to the CR operators**
 - **No Seismic Category I safety-related toxic gas monitors required**

Section 6.4 - Radiological Control Room Habitability

EF3 SUP 6.4-1

Impact of Unit 2 DBA on Unit 3 Control Room

- **Fermi 3 control room doses from Fermi 2 DBAs are less than the doses from Fermi 3 DBAs.**
- **The Fermi 3 control room meets GDC-19.**

ASME CLASS 2 AND 3 PSI/ISI

- **Section 6.6 of the Fermi 3 COL FSAR addresses Preservice and Inservice Inspection and Testing of Class 2 and 3 components and piping.**
- **This section incorporates by reference (Section 6.6 of the ESBWR DCD, Tier 2, Revision 9) and provides additional information on the following COL items**

STD COL 5.2-1-A

System Pressure Tests

- **The additional information states that the system leakage and hydrostatic tests will meet all requirements of the ASME Code and the limitations under 10 CFR 50.55a**
- **The staff concludes that the additional information agrees with the limitations for pressure testing of Class 1, 2, and 3 components in 10 CFR 50.55a and is acceptable to the staff**

STD COL 6.6-1-A

Augmented Inservice Inspection

- **Additional information is provided in Section 6.6 to address a full description of the PSI/ISI programs and augmented programs under Section 5.2.4**
- **Milestones for the program are added under Section 13.4 – Operational Programs Required by NRC Regulations**
- **In Section 6.6.7.1 of the FSAR, the applicant addresses FAC Program Description**

STD COL 6.6-1-A
Augmented Inservice Inspection (cont.)

- **ISI - Implemented prior to commercial service (COM 13.4-024)**
- **PSI – Completion prior to plant startup (COM 13.4-026)**
- **Staff concludes that the PSI/ISI and FAC programs meets SRP guidance provided in Section 6.6 of NUREG-0800, and is therefore acceptable**

STD COL 6.6-2-A **PSI/ISI Accessibility**

- **The applicant provided a discussion about preserving accessibility of welds to meet ASME Code nondestructive examination coverage requirements**
- **The additional information discusses the use of radiography to obtain the examination coverage**
- **Staff concludes that the additional information meets SRP guidance provided in Section 6.6 of NUREG-0800 and is therefore acceptable**

Conclusion

- **Staff's finding related to information incorporated by reference is in NUREG-1966 (ESBWR FSER)**
- **Staff reviewed the COL information items and additional information provided by the applicant in Chapter 6 of the COL FSAR and found them to be acceptable**
- **There are no open items in the staff's review of COL FSAR Chapter 6**