PMFermiCOLPEm Resource

From: Muniz, Adrian
Sent: Wednesday, May 09, 2012 3:20 PM
To: Michael K Brandon
Cc: Hale, Jerry; Nicholas A Latzy; FermiCOL Resource
Subject: Draft RAI 6446
Attachments: RAI 6446.doc

Mike:

Please see attached to this e-mail a draft Request for Additional Information (RAI) related to the Fukushima recommendations. As discussed on the phone, I intend to issue the RAI this week. However, should your staff need to discuss the questions contained in this draft RAI, please contact us as soon as possible.

Thanks,

Adrian Muñiz

Hearing Identifier: Fermi_COL_Public
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Draft Request for Additional Information No. 6446 Revision 4

Fermi Unit 3
Detroit Edison
Docket No. 52-033
SRP Section: 01.05 - Other Regulatory Considerations
Application Section: Various FSAR Sections - Final SER Chapter 20

QUESTIONS for ESBWR/ABWR Projects 1 (NGE1)

01.05-***

In January 2012, the staff issued NUREG-2115, “Central and Eastern United States Seismic Source Characterization for Nuclear Facilities,”(CEUS-SSC), marking the completion of approximately four years of collaborative work between NRC, the Department of Energy, and the Electric Power Research Institute. In addition, the NRC staff has been directed by the Commission to implement the Fukushima Near-Term Task Force recommendations contained in SECY-12-0025, “Proposed Orders and Requests for Information in Response to Lessons Learned from Japan’s March 11, 2011, Great Tohoku Earthquake and Tsunami” dated February 17, 2012. This request for additional information (RAI) specifically addresses Recommendation 2.1, "Evaluation of the Seismic Hazards Analysis," which specifies the use of the CEUS-SSC in a site probabilistic seismic hazard analysis (PSHA). Consistent with Recommendation 2.1, as well as the need to consider the latest available information in the PSHA for your planned reactor site, the NRC staff requests that you:

1) Evaluate the potential impacts of the newly released CEUS-SSC model, with potential local and regional refinements as identified in the CEUS-SSC model, on the seismic hazard curves and the site-specific ground motion response spectra (GMRS)/foundation input response spectra (FIRS). For re-calculation of the PSHA, please follow either the cumulative absolute velocity filter or minimum magnitude specifications outlined in Attachment 1 to Seismic Enclosure 1 of the March 12, 2012 letter (ADAMS Accession No. ML12053A340).

2) Modify the site-specific GMRS and FIRS if you determine changes are necessary given the evaluation performed in part 1) above.

In order to minimize delays to the current licensing schedule, we request that you respond within 60-days of receipt of this RAI or provide a schedule for your response within 30-days.

01.05-***

The NRC staff has been directed by the Commission to implement the Fukushima Near-Term Task Force recommendations contained in SECY-12-0025, “Proposed Orders and Requests for Information in Response to Lessons Learned from Japan’s March 11, 2011, Great Tohoku Earthquake and Tsunami” dated February 17, 2012. Attachment 2 to order EA-12-049 (ADAMS Accession No. ML12054A735) for all power reactor licensees and holders of construction permits in active or deferred status requires a

phased approach for mitigating beyond-design-basis external events. The initial phase requires the use of installed equipment and resources to maintain or restore core cooling, containment, and spent fuel pool (SFP) cooling capabilities. The transition phase requires providing sufficient, portable, onsite equipment and consumables to maintain or restore these functions until they can be accomplished with resources brought from off site. The final phase requires obtaining sufficient offsite resources to sustain those functions indefinitely.

The design described in the Fermi 3 final safety analysis report (FSAR), Rev. 4 references the Economic Simplified Boiling-Water Reactor (ESBWR) design control document (DCD), Rev. 9 which includes passive design features that provide core, containment, and SFP cooling capability for 72 hours, without reliance on alternating current (ac) power. These features do not rely on access to any external water sources since the containment vessel and the passive containment cooling system serve as the safety-related ultimate heat sink. The NRC staff reviewed these design features prior to issuance of the final safety evaluation report (ADAMS Accession No. ML110050215). The ESBWR design also includes equipment to maintain required safety functions in the long term (beyond 72 hours to 7 days) including capability to replenish water supplies. Connections are provided for generators and pumping equipment that can be brought to the site to back up the installed equipment. The staff concluded in its FSER for the ESBWR design that the installed equipment (and alternatively, the use of transportable equipment) is capable of supporting extended operation of the passive safety systems to maintain required safety functions in the long term. As such, this RAI requests Detroit Edison (Fermi 3 COL applicant) to address the following items relative to the final phase.

1) Develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment and SFP cooling capabilities following a beyond-design-basis external event.

2) These strategies must be capable of mitigating a simultaneous loss of all ac power and loss of normal access to the normal heat sink and have adequate capacity to address challenges to core cooling, containment, and SFP cooling capabilities.

3) Provide reasonable protection for the associated equipment from external events. Such protection must demonstrate that there is adequate capacity to address challenges to core cooling, containment, and SFP cooling capabilities.

4) Describe capability of implementing the strategies in all modes.

5) Full compliance shall include procedures, guidance, training and acquisition, staging, or installing of equipment needed for the strategies.

In order to minimize delays to the current licensing schedule, we request that you respond within 60-days of receipt of this RAI or provide a schedule for your response within 30-days.

01.05-***

The NRC staff has been directed by the Commission to implement the Fukushima Near-Term Task Force recommendations contained in SECY-12-0025, “Proposed Orders and Requests for Information in Response to Lessons Learned from Japan’s March 11, 2011, Great Tohoku Earthquake and Tsunami” dated February 17, 2012. Attachment 2 to Order EA-12-051 (ADAMS Accession No. ML12054A679) for all power reactor licensees and holders of construction permits in active or deferred status requires reliable indication of the water level in associated spent fuel storage pools capable of supporting identification of the following pool water level conditions by trained personnel: (1) level that is adequate to support operation of the normal fuel pool cooling system, (2) level that is adequate to provide substantial radiation shielding for a person standing on the spent fuel pool operating deck, and (3) level where fuel remains covered and actions to implement make-up water addition should no longer be deferred.

The design described in the ESBWR DCD, Rev. 9 as referenced in the Fermi 3 FSAR, Rev. 4 addresses many of these attributes of spent fuel pool level instrumentation. The NRC staff reviewed these design features prior to issuance of the final safety evaluation report (ADAMS Accession No. ML110050215). The ESBWR design largely addresses the requirements in Attachment 2 by providing two safety-related pool level instrument channels for both the spent fuel and buffer pools. The instruments measure level from the top of the spent fuel pool to the top of the fuel racks to address the range requirements listed above. The safety-related classification provides for the following additional design features:

- Instruments
- Arrangement
- Mounting
- Qualification
- Independence
- Electrical isolation and physical separation between instrument channels
- Testing
- Display

As such, this RAI requests Fermi 3 to address the following items that were not specified in ESBWR DCD, Rev. 9:

1. The spent fuel pool/buffer pool level instrumentation shall include the following design features:

    1.1 Power supplies: Instrumentation channels shall provide for power connections from sources independent of the plant alternating current (ac) and direct current (dc) power distribution systems, such as portable generators or replaceable batteries. Power supply designs should provide for quick and accessible connection of sources independent of the plant ac and dc power distribution systems. Onsite generators used as an alternate power source and replaceable batteries used for instrument channel power shall have sufficient capacity to maintain the level indication function until offsite resource availability is reasonably assured.

1.2 Accuracy: The instrument shall maintain its designed accuracy following a power interruption or change in power source without recalibration.

2. The spent fuel pool/buffer pool instrumentation shall be maintained available and reliable through appropriate development and implementation of a training program. Personnel shall be trained in the use and the provision of alternate power to the safety-related level instrument channels.

In order to minimize delays to the current licensing schedule, we request that you respond within 60-days of receipt of this RAI or provide a schedule for your response within 30-days.

01.05-***

The NRC staff has been directed by the Commission to implement the Fukushima Near-Term Task Force recommendations contained in SECY-12-0025, “Proposed Orders and Requests for Information in Response to Lessons Learned from Japan’s March 11, 2011, Great Tohoku Earthquake and Tsunami” dated February 17, 2012. Request For Information Pursuant To Title 10 Of The *Code of Federal Regulations* 50.54(F) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident (ADAMS Accession No. ML12073A348) for all power reactor licensees and holders of construction permits in active or deferred status requires additional information specific to Recommendation 9.3, "Emergency Preparedness: Communications." The NRC staff requests that you assess the communications systems and equipment used during an emergency event as described in Enclosure 5 of this request for information (ADAMS Accession No. ML12056A051), including any proposals for changes to your current application.

In order to minimize delays to the current licensing schedule, we request that you respond within 60-days of receipt of this RAI or provide a schedule for your response within 30-days.