PMFermiCOLPEm Resource

From: Govan, Tekia
Sent: Thursday, October 24, 2013 7:45 AM
To: 'Michael K Brandon' (brandonm@dteenergy.com)
Cc: Muniz, Adrian; FermiCOL Resource
Subject: Draft SSI Audit Plan
Attachments: Fermi SSI Audit Plan November 18 2013 rev1.doc

Mike:

Please find attached the draft SSI audit plan for the week of November 18, 2013.

Please give me a call if you have any questions/concerns.

Thanks
Tekia

Hearing Identifier: Fermi_COL_Public
Email Number: 1281

Mail Envelope Properties (F5A4366DF596BF458646C9D433EA37D7014BB97B6B03)

Subject: Draft SSI Audit Plan
Sent Date: 10/24/2013 7:45:09 AM
Received Date: 10/24/2013 7:45:10 AM
From: Govan, Tekia

Created By: Tekia.Govan@nrc.gov

Recipients:
"Muniz, Adrian" <Adrian.Muniz@nrc.gov>
Tracking Status: None
"FermiCOL Resource" <FermiCOL.Resource@nrc.gov>
Tracking Status: None
"'Michael K Brandon' (brandonm@dteenergy.com)" <brandonm@dteenergy.com>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

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MESSAGE	185	10/24/2013 7:45:10 AM
Fermi SSI Audit Plan November 18 2013 rev1.doc	79418	

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Priority: Standard
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AUDIT PLAN TO REVIEW SOIL STRUCTURE INTERACTION CALCULAUTIONS RELATED TO FSAR SECTIONS 3.7 AND 3.8

A. Background

DTE Electric Company has performed site-specific Soil Structure Interaction (SSI) analyses in support of the Fermi 3 Combine License application, and in response to the NRC staff's Request for Additional Information (RAI) Letter Nos. 70, 79, 82, and 85.

DTE's planned approach to performing the SSI analyses and addressing the RAIs was provided in letter NRC3-12-0030, and discussed with the NRC staff in a Public Meeting held on November 29, 2012. Subsequent to this interaction, DTE documented the analyses methodology, assumptions, and results in letters NRC3-13-0005, NRC3-13-0007, NRC3-13-00015, NRC3-13-00017, NRC3-13-00018, NRC3-13-00019, NRC3-13-00021, NRC3-13-00023, NRC3-13-00024, NRC3-13-00026, NRC3-13-00027, NRC3-13-00028, NRC3-13-00031, and NRC3-13-00032, as well as in markups to FSAR Tier 2, Sections 3.7 and 3.8.

The purpose of the audit is to review selected portions of the calculations that were prepared in support of the documentation provided to the staff, as described above.

B. Regulatory Audit Bases

10 CFR Part 50, Appendix B, requires, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculation methods or by the performance of a suitable testing program. Appendix B to SRP Section 3.8.4 provides requirements and guidelines for implementation of structural design audits. These documents as stated above, provides the regulatory audit bases for this scheduled audit.

C. Regulatory Audit Scope or Methodology

The scope of the audit is to review the site-specific SSI analyses performed in support of the Fermi 3 Combine License application, and in response to the NRC staff's RAI Letter Nos. 70, 79, 82, and 85.

Specifically, the staff will review selected portions of the calculations that were prepared in support of the documentation provided to the staff in in letters NRC3-13-0005, NRC3-13-0007, NRC3-13-00015, NRC3-13-00017, NRC3-13-00018, NRC3-13-00019, NRC3-13-00021, NRC3-13-00023, NRC3-13-00024, NRC3-13-00026, NRC3-13-00027, NRC3-13-00028, NRC3-13-00031, and NRC3-13-00032, as well as in markups to FSAR Tier 2, Sections 3.7 and 3.8.

Specific audit areas are listed in the audit agenda. Any significant findings during the audit will be documented in the audit report and RAIs may be issued if necessary.

D. Information and Other Material Necessary for the Regulatory Audit

A complete list of the applicant's calculations should be made available to the staff prior to the start of the audit. Two hard copies of the calculations should be made available for review during the audit.

Special Requests

The NRC requests that DTE Electric Company provide:

- A working space for the duration of the audit at the Sargent & Lundy office.
- A small private conference room for NRC internal discussions
- A telephone for contacting NRC staff and HQ
- A teleconference line for the audit entrance and exit meetings

E. Audit Team

The audit team will include:

- Tekia Govan, Project Manager (NRC)
- Manas K Chakravorty, Technical Reviewer (NRC)
- Manuel Miranda, NRC Contractor (BNL)
- Carl Costantino, NRC Contractor (BNL)

F. Logistics

Date:	November 18, 2013 through November 22, 2013
Time:	varies per day, see agenda
Location:	Sargent and Lundy Offices 55 E. Monroe Street Chicago, IL
Point-of-Contact:	Michael Brandon, DTE Electric Company

G. Deliverables

Within 90 days of completion of the audit, the audit team will generate an audit results summary report (ARSR). The ARSR will provide a list of documents audited by the audit team, confirmation that sufficient information has been collected, and document that information required for the NRC staff to complete their review of the SSI analysis for the Fermi 3 application.

AGENDA FOR
FERMI 3: REVIEW OF SOIL STRUCTURE INTERACTION CALCULATIONS RELATED TO FSAR SECTIONS 3.7 AND 3.8

November 18 through November 22, 2013
(Times are subject to change based on the progress of audit.)

Monday November 18, 2013

- Entrance Meeting (8:00-8:30am)
  - Introductions
  - Purpose and Objectives of Audit
  - Review of Audit Plan and Schedule
  - Contacts for DTE, S&L, GEH, and NRC
- Review of SSI Inputs for RB, CB and FWSC (8:30-12:00 am)
  - Development of small-strain LR, IR, and UR backfill properties
  - Development of FIRS, and PBSRS
  - Development of LB, BE, and UB strain iterated profiles
  - Development of SSI input time-histories
- **Lunch (12:00-1:00)**
- Review of SSI Inputs for RB, CB and FWSC – Cont. (1:00-4:30 pm)
  - Development of small-strain LR, IR, and UR backfill properties
  - Development of FIRS, and PBSRS
  - Development of LB, BE, and UB strain iterated profiles
  - Development of SSI input time-histories
- Review of SSI Analysis (1:00-4:30 pm)
  - V&V for SASSI2010
  - SASSI2010 Modified Subtraction Method validation studies
- NRC Staff Caucus (4:30-5:00 pm)
- Summary of the day and action items (5:00-5:30 pm)

Tuesday November 19, 2013

- Follow up on previous day's action items/Plan of the day (8:00-8:30 am)
- Review of SSI Analysis – Cont. (8:30-12:00 pm)
  - V&V for SASSI2010
  - SASSI2010 Modified Subtraction Method validation studies
  - SSI analysis of RB/FB and CB without considering backfill (licensing-basis analysis)

        - Analysis model details (e.g., adequacy of layers, excavated volume and structure mesh, passing frequency, transfer functions, etc.)
        - ISRS results for RB/FB and CB
        - Enveloping seismic loads and accelerations
        - Response of SDOF oscillators for RB/FB and CB
        - Lateral pressures on sidewalls

Lunch (12:00-1:00)

- Review of SSI Analysis – Cont. (1:00-4:30 pm)
  - SSI analysis of RB/FB and CB considering backfill (sensitivity analysis)
    - Analysis model details (e.g., adequacy of layers, excavated volume and structure mesh, passing frequency, transfer functions, etc.)
    - ISRS results for RB/FB and CB
    - Enveloping seismic loads and accelerations
    - Response of SDOF oscillators for RB/FB and CB
    - Lateral pressures on sidewalls
- Staff Caucus (4:30-5:00 pm)
- Summary of the day and action items (5:00-5:30 pm)

Wednesday November 20, 2013

- Follow up on previous day's action items/Plan of the day (8:00-8:30 am)
- Review of SSI Analysis – Cont. (8:30-12:00 pm)
  - SSI analysis of RB/FB and CB without considering backfill (licensing-basis analysis)
    - Analysis model details (e.g., adequacy of layers, excavated volume and structure mesh, passing frequency, transfer functions, etc.)
    - ISRS results for RB/FB and CB
    - Enveloping seismic loads and accelerations
    - Response of SDOF oscillators for RB/FB and CB
    - Lateral pressures on sidewalls
  - SSI analysis of RB/FB and CB considering backfill (sensitivity analysis)
    - Analysis model details (e.g., adequacy of layers, excavated volume and structure mesh, passing frequency, transfer functions, etc.)
    - ISRS results for RB/FB and CB
    - Enveloping seismic loads and accelerations
    - Response of SDOF oscillators for RB/FB and CB
    - Lateral pressures on sidewalls

Lunch (12:00-1:00)

- Review of SSI Analysis – Cont. (1:00-4:30 pm)
  - SSSI Effects
    - RB and CB
    - CB and FWSC
- Staff Caucus (4:30-5:00 pm)
- Summary of the day and action items (5:00-5:30 pm)

Thursday November 21, 2013

- Follow up on previous day's action items/Plan of the day (8:00-8:30 am)

- Review of SSI Analysis – Cont. (8:30-12:00 pm)
  - SSI analysis of RB/FB and CB considering backfill (sensitivity analysis)
    - Analysis model details (e.g., adequacy of layers, excavated volume and structure mesh, passing frequency, transfer functions, etc.)
    - ISRS results for RB/FB and CB
    - Enveloping seismic loads and accelerations
    - Response of SDOF oscillators for RB/FB and CB
    - Lateral pressures on sidewalls
  - SSSI Effects
    - RB and CB
    - CB and FWSC

Lunch (12:00-1:00)

- Review of Foundation Design of RB/FB and CB (1:00-4:30 pm)
  - Sliding and overturning stability calculations
  - Bearing pressures and basemat design calculations
  - Sidewall design calculations

- Discussion of Other Issues (1:00-4:30 pm)
  - FSAR clarifications
  - Review of input spectra used for seismic design of safety-related SSCs located in floor slabs of RB/FB and CB

- Staff Caucus (4:30-5:00 pm)

- Summary of the day and action items (5:00-5:30 pm)

Friday November 22, 2013

- Follow up on previous day's action items/Plan of the day (8:00-8:30 am)

- Discussion of Other Issues (8:30-10:00 am)

- Staff Caucus (10:00-10:30 am)

- Exit Meeting (10:30-11:00 am)