

PMSTPCOL PEmails

From: Tai, Tom
Sent: Wednesday, October 05, 2011 3:53 PM
To: Price, John E
Cc: STPCOL
Subject: STP - Sept 27-30, 2011 Audit Highlight
Attachments: DOE Issue_UHS MSM Margin Questions.doc; DOE Issue_Soil Pressures.doc

John,

Below is a summary highlight of the audited items for management briefing. In addition, I'm also attaching a summary description of the actions we agreed with NINA/S&L during the meeting regarding resolution of the "confidence" of the pseudo-static method to establish design basis for the UHS seismic input, and the discussion of lateral soil pressure that I believe we still owe you feedback for action, if any.

Please note that this is not meant to be the audit report and the format and contents may change after final review.

Regards

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From the September 27-30, 2011 audit in Chicago, the major issues discussed are:

- **To address the DOE issue, a forward path has been agreed on to address confidence in the section cut forces obtained from the Modified Subtraction Method (MSM) of the SASSI analysis to demonstrate that sufficient margin exists in the current design based on the equivalent static analysis using the results of Subtraction Method (SM) of the SASSI analysis.**
- **As part of addressing the DOE issue the discrepancies observed in the pressure distribution between the DM and MSM/SM, 2-D SSSI method (Section 6 SSSI analysis) will be relied upon to address the developed horizon pressure on RWB wall and the existing margin in the design.**
- **As part of addressing the DOE issue, the discrepancies observed in the pressure distribution between the DM and MSM/SM, full passive pressure will be used for design for DGFOVS.**
- **RSWT and DGFOT will use the DM.**
- **Project specific validation of 3-D SSI horizon pressure distribution between DM and SM/MSM can't be assessed at this time since the pressure distribution for CB 3-D SSI analysis using the DM was not obtained during the confirmatory analysis performed for DCD departure evaluation.**
- **3-D SSI analysis of UHS/PHB can't be performed using 3D DM because of computer program limitations. However, additional justification will be provided by the applicant based on the existing significant conservatism in the current design.**
- **The applicant will provide further quantitative justification for demonstrating that the existing design and the stability calculations will not be affected by the potential increase in the amplified input spectra due to the impact of the DOE issue.**
- **The applicant will resubmit the response to the applicable RAI to clearly describe how dynamic analysis of the SB/TB/CBA was performed to address the II/I issue.**
- **How the use of using IBC 2006 for II/I structural design leads to equivalent margin of safety same as that for the Cat I structures was discussed. Also discussed, were the proposed II/I ITAACs. It was agreed that the NRC will review the proposed method for design of II/I structures and the corresponding draft ITAACs for the II/I structures and provide appropriate feed back to the applicant.**

- **It was stated that a complete response by the applicant to all the RAIs by November 2011 would enable the SEB2 to issue a draft SER to the DNRL by March 2012 provided that there is no impact to the design basis established based on the SM and any future staff audit does not find any additional issues.**
- **Section 7 for the SSSI analysis does not go through the soil in between the RSWT and the UHS/PHS wall. As such, the applicant needs to demonstrate that the soil pressure used in the design of the UHS/PHB wall and RSWT wall would be conservative as compared to the pressures obtained from an SSSI analysis if the section were to cover the soil in between the UHS/PHB wall and the RSWT wall.**
- **The staff may have to conduct an additional audit during December 2011 to ensure that the current design basis envelop any increases resulting from the evaluation of the DOE issues.**

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DOE Issue – Evaluation of UHS/PH

Summary of applicant's presentation during the audit

1. SASSI Coarse Model
2. Modified model to include intermediate interaction nodes
3. Rerun SASSI (MSM, UB Soil)
 - a. Compare transfer functions
 - b. Compare absolute accelerations
 - c. Compare ISRS
 - d. Compare cut line forces
4. Compare cut line forces
 - a. Show margin against SAP
5. Margin computed by:
 - a. Comparing SASSI coarse model (SM) TH cut forces with SAP equivalent static cut line forces
 - b. Compare margin against MSM cut line forces
6. Justification is based on remaining margin is acceptable
7. Action: More adequate confirmation of margin

DOE Issue – Evaluation of Lateral Soil Pressures

Summary of applicant's presentation during the audit

2D – SSSI Analysis

- Section 6:
 - SM & MSM are similar
 - DM shows differing pressure distribution at exterior walls with LB soil
- Section 1&2: not relevant for Cat I buildings
- Section 3, 4: interior walls, thus not relevant
- Section 5: DGFOT West wall, margins from existing analyses
- Section 6: RWB West wall, margins from existing analyses
- Section 7: UHS Basin South wall, margins from existing analyses

2D – SSI Analyses

1. RSW Tunnel: DM in the works
 - DGFOT: DM in the works

3D – SSI Analyses

- DGFOSV: MSM in the works, but no SM results available for comparison. Designed for full passive pressure.
- UHS/PH: existing SM results show substantial margin against design loads

Comments:

- Effect of MSM on 3D-SSI not known