PMSTPCOL PEmails

From: Tai, Tom
Sent: Friday, August 24, 2012 1:08 PM
To: STPCOL
Subject: FW: Section 3.7 & 3.8 Actions - Updated August 15, 2012
Attachments: Punch List 08152012.pdf; Power Spectral Density for Design Time History.pdf

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From: Price, John E [mailto:jeprice@STPEGS.COM]
Sent: Friday, August 24, 2012 1:07 PM
To: Tai, Tom
Cc: Chakravorty, Manas; Chakrabarti, Samir; Thomas, Brian; Head, Scott; Mookhoek, William
Subject: Section 3.7 & 3.8 Actions - Updated August 15, 2012

Tom,

The attached document, *Punch List 08152012*, provides scope and status for all known actions required for FSAR Sections 3.7 and 3.8. This document will be used on our weekly telephone conference. The next call is scheduled for Wednesday, August 29, 2012.

Recent and current actions include:

- RAIs 03.08.04-18 S5, 03.08.04-23 R1, and 02.03.01-24 S3 are on track for an 8/30/2012 submittal.
- NRC actions for PLI 270 and PLI 273 have been closed to NINA actions under PLI 274 and PLI 275, respectively.

Regarding new Punch List Item 274 on Manas' question for the frequency content of the time history, I have attached relevant pages from our August 4, 2010 meeting presentation. This material did not get into any RAI. A more refined model was subsequently developed to resolve the Staff's concern. Thus, all RAI responses present the results with a more refined model.

Please do not hesitate to contact me with any questions or clarifications. Regards,

John E. Price

Licensing Engineer - STP Units 3 & 4

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Subject: FW: Section 3.7 & 3.8 Actions - Updated August 15, 2012
Sent Date: 8/24/2012 1:08:10 PM
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From: Tai, Tom

Created By: Tom.Tai@nrc.gov

Recipients:
"STPCOL" <STP.COL@nrc.gov>
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MESSAGE	1435	8/24/2012 1:08:14 PM
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August 15, 2012

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Sections 3.7 & 3.8 - Post February 2012 Audit

[Closed]

Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
195	3.7-67	Provide reasoning why no comparison is provided for out-of-plane moment for walls for validation of MSM.	**03.07.01-29 S3**	**[4/10/12]**	Reasoning based on the following added to the RAI response. : 1. Maximum accelerations being similar between MSM and Direct Method 2. Models are the same 3. Element formulations are the same No COLA update was required.
196	3.7-68	On Table 03.07.01-29 S1.9, is there a sketch? Explain the spectra groups.	**03.07.01-29 S3**	**[4/10/12]**	Note added to Table 3H.6-17 to define spectra groups
197	3.7-70	Explain Tables 03.07.01-29 S5, S6 & S7. Provide new Table for impact of MSM on section cut forces. Explain impact of MSM on RSWPH Roof and Operating Floor. Address impact of MSM on vertical excitation of basin water.	**03.07.01-29 S3**	**[4/10/12]**	Note added to state the design margins are based on envelope of all SSI soil cases analyzed. Provided new table (Attachment 1) in the RAI response. See Action Item 3.7-74. COLA update provided for PH roof and operating floor. The impact on pressure exerted on basin walls is addressed.
198	3.7-74	Perform response spectrum analysis for the RSW Pump House roof and operating floor using the enveloping MSM response spectrum from the walls and verify or adjust design as necessary. - Fixed and simply supported boundary conditions - 7% structural damping	**03.07.01-29 S3**	**[4/10/12]**	Updated RAI and added to COLA mark-up. Subsequent to the Audit, it was determined that the accelerations used for the design of the pump house roof and operating floor beams and slabs in Revision D of U7-UHS-S-CALC-DESN-6002 are per calculation U7-UHS-C-CALC-DESN-6009 and include the effect of all final response spectra scale factors including MSM. No further analysis is required.
199	3.7-75	Revise RAI and COLA to provide justification for acceptance of amplified motions using MSM.	**03.07.01-29 S3**	**[4/10/12]**	Updated RAI and provided COLA mark-up. to provide justification as discussed during Audit, including the following additions: 1. No significant content in the time history in high frequencies 2. Conservatism in design 3. Minor differences in results for MSM vs. SM 4. Majority of designs based on envelope of 0.3g RG 1.60 and amplified motion
200	3.8-47	Add comparison of results tables for MSM vs. SM accelerations for UHS design to RAI response	**03.07.01-29 S3**	**[4/10/12]**	New table provided with closure of Punch List Item 197.
201	3.8-49	In COLA Figures 3H.6-214, 3H.6-215, 3H.3-50, and 3H.3-51 add pressures used for design. Also, add new figures for stability soil pressures to COLA.	**03.07.02-13 S5**	**[4/10/12]**	RAI Response includes revised and added figures.

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[Closed]

Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
202	3.8-52	Justify validity of the last sentence on page 42 (section 4.3.3.1b) of the Guideline document used for missile evaluation (U7-PROJ-S-RPT-STRU-6003)	**02.03.01-24, S1**	**[4/10/12]**	In response to the discussion during the 03/21/2012 phone conference, NINA addressed the following in the RAI response: By comparison to Bechtel Topical report BC-TOP-9-A, it has been shown that the STP parameters and formulations for determination of car impact force are quite conservative. The response also addresses the impact of "impact duration" on the calculated Dynamic Load Factors (DLF) and subsequent analysis results.
203	3.8-53	In the hurricane calculation, state the limitations associated with use of guidelines document for missile evaluations and how they are addressed within the calculation.	**N/A**	**[4/10/12]**	Calculation has been updated as discussed.
204	3.8-55	Provide reference for automobile impact forcing function.	**N/A**	**[4/10/12]**	Calculation has been updated as discussed.
205	3.8-56	Revise Inspections, Tests, and Analyses to the language similar to Tables 3.0-1 for 3.0-25, 26, 27, and 28.	**02.03.01-24, S1**	**[4/10/12]**	Updated to hurricane ITAAC provided in RAI response and COLA markup.
206	3.8-57	ITAAC markups will be based on COLA Revision 7. COLA markup will be revised.	**02.03.01-24, S1**	**[4/10/12]**	Updated hurricane ITAAC based on COLA Rev. 7.
207	3.8-58	Add minimum thickness (penetration, perforation, and spalling) statement to Section 3H.11 for RB and CB.	**02.03.01-24, S1**	**[4/10/12]**	Revised COLA markup for 3H.11.
208	3.8-59	Add panel assessment for RB and CB to Section 3H.11. COLA markup will be revised.	**02.03.01-24, S1**	**[4/10/12]**	Revised COLA markup for 3H.11.
209	3.8-60	Add reference to Figure 3H.6-141 (DGFOSV isometric view) to DGFOSV design table in COLA.	**02.03.01-24, S1**	**[4/10/12]**	Revised COLA markup.
210	3.8-61	Add figures for the UHS and RWB (similar to DGFOSV isometric, Figure 3H.6-141) to go along with design table information in COLA. COLA markup will be revised.	**03.07.02-13 S5**	**[4/10/12]**	Revised COLA markup.
211	3.8-62	Add sketches (typical sections and plans for RSW Tunnel, DGFOT, and DGFOSV) to COLA. COLA markup will be revised.	**03.07.02-13 S5**	**[4/10/12]**	Revised COLA markup.
212	3.8-63	Perform a hurricane stability evaluation for II/I buildings and structures. Document results in the COLA markup.	**02.03.01-24, S1**	**[4/10/12]**	Document results in COLA markup for 3H.11.
213	3.8-64	Address soil pressure exceedances (4 cases) in COLA markup. COLA markup will be provided.	**03.07.01-29 S3**	**[4/10/12]**	Revised COLA to address four exceedances not previously addressed by stating induced shears and moments are less than design shears and moments.
214	3.8-65	For site specific structures, when defining loads, provide reference to ACI 349 XX to justify negligible impact of ambient temperatures. COLA markup will be provided.	**03.07.02-13 S5**	**[4/10/12]**	Revised COLA markup provided for each section discussing design loads.
215	3.8-66	Add a note to Table 3H.9-1 indicating that "The Radwaste Building Structure is designed for tornado missiles and hurricane missiles as described. The large openings at and above grade are not missile protected."	**02.03.01-24, S1**	**[4/10/12]**	Revised COLA markup.

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[Closed]

Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
216	3.8-67	Update DGFOT stability evaluation for site-specific amplified motion. Check other stability evaluations for same issue.	**N/A**	**[4/10/12]**	DGFOT calculation, as well as other stability calculations, were reviewed. No COLA updates are necessary.
217	3.8-68	03.07.02-13 will be revised to include discussion of passive pressure as well as Crane Wall. RAI response and COLA will be updated.	**03.07.02-13 S5**	**[4/10/12]**	The RAI response and COLA markup were provided with a discussion of the following for the DGFOT: 1. The total SSSI force (per COLA figure 3H.7-5) on the east wall is less than available passive pressure 2. The Crane Wall provides additional confinement for the soil between the structures thereby limiting significant movement. The RAI response and COLA markup also provided a discussion that the total resistance demand will not be adversely affected by use of Mononobe-Okabe for determination of driving force For DGFOSV and RSW Piping Tunnel, provide. These discussion were based on investigations performed for DGFOT.
218	1	3H.1.6: No discussion of lateral pressure. What about the Reactor Building lateral pressure diagrams?	**03.07.02-13 S5**	**[4/10/12]**	Provided discussion and reference to 3H.1-1 through 3H.1-6 in Section 3H.1 of COLA.
219	2	3H.2.6: Review the marked paragraphs - do we need the text in paragraph 7?	**03.07.02-13 S5**	**[4/10/12]**	Eliminated first paragraph on Page 3H-6 of Reviewer's Guide. Also, included discussions on lateral pressure based on Figure 3A-302.
220	3	3H.5.3: Explain the change in title.	**03.07.02-13 S5**	**[4/10/12]**	Revised the title of 3H.5.3 to say "Structural Analysis report for the Reactor Building, Control Building, RSW Piping Tunnel, UHS/RSW Pump House, DGFOSV, and DGFOT"
221	4	Confirm that the gratings do not allow 1" sphere to pass through.	**02.03.01-24, S1**	**[4/10/12]**	COLA updated to specifically state that the spacing between grating bars is less than 1", thereby preventing entrance of 1" sphere.
222	5	There are 2 resisting lateral earth diagrams for DGFOT? Figure 3H.7-4 and new figure in presentation.	**N/A**	**[N/A]**	No action required.
223	6	Figure 3H.7-4: DGFOT resisting lateral earth pressure on walls of FOT. New figure added on page 82 of handout for lateral soil pressures. Why are there two figures?	**N/A**	**[N/A]**	No action required.
224	7	Reference to Figure 3.7.1-29 S1.264 in the COLA in 3H.10.C.(3)	**03.07.01-29 S3**	**[4/10/12]**	The reference to RAI figure number was eliminated.
225	8	Editorial: add the word "ratio of" in the paragraph on RSW Piping Tunnel in Section 3H.10.C(3)	**03.07.01-29 S3**	**[4/10/12]**	Comment incorporated.
226	9	Please clarify scope of RW-IIa criteria used for design of RWB.	**02.03.01-24, S1**	**[4/10/12]**	See Punch List Item 215 (Action Item 3.8-66).
227	10	3H11: Hurricane - Load combination 1.6S =, Note that for shear 1.4S	**02.03.01-24, S1**	**[4/10/12]**	COLA markup will clarify lesser allowable for shear.
228	11	Table 3H.6-5, Note 1: W_{th} is not in Section 3H.6.4.3.4.1 3H.6-12, 3H.6-16, 3H.7-2 Stability factor for RB is missing? II/I structures	**02.03.01-24, S1**	**[4/10/12]**	For W_{th} definition, refer to Section 3H.11.
229	12	Missile impact evaluation - RB, CB, RSW Tunnel	**02.03.01-24, S1**	**[4/10/12]**	Provided discussion in Section 3H.11 for missile impact evaluation of RB, CB, and RSW Tunnel.

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Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
230	13	For each structure describe the Hurricane wind evaluation and refer to the Tables or some discussion.	**02.03.01-24, S1**	**[4/10/12]**	Provided discussions on hurricane evaluations for each structure (RB, CB, DGFOT, UHS/RSW Pump House, DGFOSV, RSW Tunnel) in 3H.11.
231	14	For description of each structure provide reference to where plans, sections, etc. for the building may be found.	**03.07.02-13 S5**	**[4/10/12]**	For each site-specific structure, where the structure is described, references to Figures for the structure have been provided. In addition, when discussing the results, references to appropriate figures defining locations of element stresses being reported have been provided.
232	15	3H-22. Paragraph 3H.10 Page 3H-85: Under the four bullets in discussion of "SSI Soil Pressure used in Structural Design" provide the reference Figure numbers where these information is provided. In addition for RSW Piping Tunnel, clarify if the SSI soil pressure is based on amplified input which accounted for DOFFS issue? (Replaces previous PLI 185)	**03.07.01-29 S3**	**[4/10/12]**	1. Provide references for SSI soil pressure plots for UHS/RSW Pump House using SM, also provide reference figure numbers for other structures 2. For RSW Piping Tunnel SSI soil pressures, clarify if its based on amplified input motion or not Update RAI response as well as COLA markups.
233	16	In Section 3H, examine all reference figures for H and H' and eliminate those not applicable.	**03.07.02-13 S5**	**[4/10/12]**	Revised COLA markup.
234	17	Expand COLA markup Section 3H.10a to elaborate more on V&V of Modified Subtraction Method	**03.07.01-29 S3**	**[4/10/12]**	Text revised to indicate that the V&V for the Modified Subtraction Method was done using the Control Building Model. Updated RAI response as well as COLA markups provided.
235	3/21 Phone Call	Confirm that NINA revised the UHS/PH calculation as to use the 1994 of the steel code N690 (N690-94, including Supplement 2) and indicate in which RAI response the NINA reported to have revised the calculations to meet code requirements per N690-94.	**03.07.02-13 S5**	**[4/10/12]**	
236	3/21 Phone Call	Per SRP 3.8.4 and RG 1.206 the applicant should specify any testing and ISI requirements applicable to critical areas of the UHS/PH and RSWT, whereby monitoring and maintenance programs are acceptable if the program is in accordance with 10 CFR 50.65 and RG 1.160. NINA is requested to confirm how these ISI requirements are accomplished for below-grade concrete walls and foundations to: (a) examine for signs of degradation the exterior, exposed portions of below-grade concrete, when excavated for any reason, and (b) conduct periodic site monitoring of ground water chemistry, to confirm that the ground water remains nonaggressive.	**03.07.02-13 S5**	**[4/10/12]**	

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[Closed]

Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
237	3/21 Phone Call	In FSAR section 3H.6.4.4, NINA has provided information regarding the structural materials used in the design of the site-specific Category I structures including the UHS/PH and RSWT. No special construction techniques have been proposed or described in the FSAR and no explicit mention of quality control programs has been included in the FSAR. According to SRP provisions including 3.8.4.(I.6), NINA is requested to provide: (a) the concrete ingredients and reinforcing bar splices; (b) nondestructive examination of the materials to determine physical properties, placement of concrete, and erection tolerances; (c) the extent to which the materials and quality control programs comply to ACI 349, with additional criteria provided by RG 1.142 for concrete and ANSI/AISC N690-1994 including Supplement 2 (2004) for steel, as applicable; (d) welding of reinforcing bars if proposed, to comply with American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code (Code) Section III, Division 2. RG 1.206 further requires for quality control in general, verifying the extent of compliance with applicable provisions of SRP Sections 3.8 and 17.5 and recommendations of RG 1.55, “Concrete Placement in Category I Structures”. Thus NINA is asked to incorporate this information in the FSAR.	**03.07.02-13 S5**	**[4/10/12]**	
238	3/21 Phone Call	Regarding the evaluation of columns and beams the applicant in its response RAI 03.07.01-29S1R1 presented the procedure utilized to quantify the impact of the MSM on design. Thereby, the member forces resulting from two SASSI analyses (SM and MSM) for full and empty basin and UB soils case were compared to yield a scale factor (SF4), which whenever greater one, was used to amplify the SM member forces. The modified member forces were compared with the available design demand, and found acceptable if a positive margin was the result. The staff noted that this approach would not consider the influence from the two confirmatory analyses (a) and (b) described above and needs clarification from NINA to resolve this issue.	**03.07.01-29 S3**	**[4/10/12]**	

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[Closed]

Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
239	3/21 Phone Call	During the February 2012 audit the staff realized that none of the 19 cut sections described above included the horizontal slabs (roof and operating floor in PH). The applicant was therefore asked to provide a corresponding evaluation to assess the impact the MSM may have on the structural response of the horizontal elements. In its response to PLI 198, the applicant provided selected pages from the UHS/PH calculation report showing that the operating and roof slab were designed for corrected vertical accelerations of (1.16g) and (1.55g) respectively, and that those accelerations would include the effects of MSM and mesh refinement. Since there was a previous mesh refinement study that already yielded acceleration amplification factors, the staff requests clarification from NINA if the mentioned design accelerations include corresponding correction factors CF2 and CF3 described above.	**03.07.01-29 S3**	**[4/10/12]**	
240	4/18 Phone Call	In Item 3 of RAI Response 03.07.02-13 S5, the required information for typical sections and plans is not consolidated at one location, instead the information is scattered in text descriptions, figures and design tables. Consider providing all information in plan and section drawings.	**03.07.02-13 S6**	**[5/29/12]**	The RAI Supplement addresses the following and is included in an FSAR mark-up: Current DGFOSV drawings provide adequate information. Additional information for DGFOTs is not required, except for text description of entrances. Structural Layout Drawings added for the Radwaste Building and the UHS/RSW Pumphouse, including the RSW Tunnel immediately adjacent to the RSW Pumphouse. The Structural Layout Drawings consist of floor plans and one section in each direction. The drawings provide wall and slab thickness information. Reinforcing steel is not be shown. Steel framing plans are not provided.
241	4/18 Phone Call	For Item 1 of RAI Response 02.03.01-24 S1, NINA is requested through some means (RAI response and/or COLA markups) to provide a positive statement that for addressing the global effect, the minimum design force due to impact of a 4000 lb car with a velocity of 134 mph is 1027 kips.	**02.03.01-24 S2**	**[5/22/12]**	Discussed at the teleconference on 04/25/2012. Confirmatory statement added to the RAI Response.
242	4/18 Phone Call	In RAI Response 03.07.01-29 S3, it appears that some table entries for Table 03.07.01-29 S3.7 are missing. This table is used to address item 4 of this RAI.	**N/A**	**[N/A]**	Discussed at the teleconference on 04/25/2012. No further action required.

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Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
243	4/18 Phone Call	In Item 7 of RAI Response 03.07.01-29 S3: 1. For 1st and 2nd bullets, additional explanation is required to demonstrate that the design out-of-plane shear and moments are higher than the applied out-of-plane shear and moments. 2. For the 2nd bullet, exceedances of Figure 3H.50 appear to be more severe than those of Figure 3H.51. The response only addresses exceedances of Figure 3H.51.	**03.07.01-29 S4**	**[5/29/12]**	Discussed at the teleconference on 04/25/2012. 1. RAI clarified, no change to FSAR. 2. No further action required.
244	4/25 Phone Call	The Audit Report for Hurricane and Wind Analyses refers to six (6) findings. Applicant is requested to explain how each of these findings have been addressed.	**02.03.01-24 S2**	**[5/22/12]**	Most of the findings were either addressed in RAI Response 02.03.01-24 S1 or responded to at the Audit as follows: 1. Responded to at the Audit 2. & 3. Item 1 in RAI Response 02.03.01-24 S1 4. Calculation has been revised. Refer to Punch List Item 250 5. Item 13 in RAI Response 02.03.01-24 S1 6. Item 7 in RAI Response 02.03.01-24 S1 RAI clarified to indicate responses.
245	4/25 Phone Call	1. In COLA markups, revise the title of Section 3H.3.4.3.1.4 to read as “Lateral Soil Pressures (H & H’)”. 2. In COLA Section 3H.3.4.3.1.4, revise the last 2 paragraphs to become consistent. Right now the paragraph before the last one states no soil pressure exceedance, whereas the last paragraph addresses soil pressure exceedance.	**03.07.01-29 S4**	**[5/29/12]**	RAI clarified, includes FSAR markup
246	4/25 Phone Call	1. Explain why is the dynamic soil pressure used for design in Figure 3H.7-2 different from those shown in Figures 3H.7-5 through 3H.7-8. 2. Explain why is the dynamic soil pressure used for design in Figure 3H.6-242 different from those shown in Figures 3H.6-226 through 3H.6-231. 3. Delete “Roof” in the title of Figure 3H.6-51. 4. Explain the reason for changes in soil pressure plots presented in Figures 3H.7-3 and 3H.7-4 in comparison to those that were provided in COLA Rev. 6.	**03.07.02-13 S6**	**[5/29/12]**	RAI clarified, includes FSAR markup
247	5/2 Phone Call	COLA Part 9, ITAAC Table 3.0-1, Item 5 for the Ultimate Heat Sink does not contain an inspection requirements for flooding, unlike ITAACs for similar structures. Applicant is requested to add a commitment similar to the one for Item 8 (b) in Table 3.0-5.	**02.03.01-24 S2**	**[5/22/12]**	COLA Part 9, ITAAC Table 3.0-1 revised to add inspection requirements for flooding.
248	5/2 Phone Call	In part "A" of Item 13 of RAI 02.03.01-24 S1, provide clarification that the wall and slab thicknesses used for missile impact evaluations of the UHS/RSW Pump House, DGFOSV and DGFOT represent the most critical cases.	**02.03.01-24 S2**	**[5/22/12]**	Requested clarification provided in RAI Supplement.

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249	5/2 Phone Call	The discussion in parts "D" and "E" of Item 13 of RAI 02.03.01-24 S1 should also include panel dimensions.	**02.03.01-24 S2**	**[5/22/12]**	Discussion in RAI expanded to include panel dimensions.
250	5/2 Phone Call	Applicant is requested to confirm closure of Punch List Items 203 and 204.	**02.03.01-24 S2**	**[5/22/12]**	Punch List Items were closed by updating the calculation on or before April 10, 2012.
251	5/2 Phone Call	Applicant is requested to review how COL Action 3.19 has been incorporated into the COLA and determine if it is properly addressed.	**03.07.01-29 S4**	**[5/29/12]**	The reference to FSAR Section 2.5S.2 in Section 3.7.5.1 is correct for the description of the site-specific SSE. Reference to FSAR Table 2.0-2 and Appendix 3A, which show the comparison between the DCD Tier 1 requirement and site-specific SSE, added to the FSAR.
252	5/8 T. Tai e-mail	COLA mark-up section 3H.11.2, Evaluations for Hurricane Design, Global Evaluations, bullet 1, states that "The structure in its entirety is evaluated for the total hurricane load (Wth) in conjunction with all other applicable loads per load combinations in subsection 3H.11.1." Please clarify how the hurricane missile load was considered and applied to the structure for such analysis.	**02.03.01-24 S2**	**[5/22/12]**	Clarification provided in RAI response.
253	5/8 T. Tai e-mail	COLA mark-up section 3H.11.3, Structures Designed for Site-Specific Hurricane, Non-Seismic Category I Structures, paragraph 1, states that these structures are designed for site-specific hurricane loads. The description should be clarified to state that hurricane wind was considered only for stability evaluation and design of lateral load resisting system, and not for design of these structures.	**02.03.01-24 S2**	**[5/22/12]**	Clarification provided in RAI response, including FSAR markup
254	5/8 T. Tai e-mail	COLA mark-up section 3H.11.3.1, and 3H.11.3.2: The 3rd paragraph of the above two sections appears to conclude that the exterior walls and slabs of the RB and the CB are adequate for site-specific hurricane based on DCD design for tornado. This does not appear to be a true statement since automobile missile loads due to hurricane was determined to be higher than that for tornado. Please clarify.	**02.03.01-24 S2**	**[5/22/12]**	Clarification provided in RAI response, including FSAR markup
255	5/8 T. Tai e-mail	COLA mark-up section 3H.11.3.3, and 3H.11.3.6: Please clearly state that the access regions of the tunnels are included in the evaluation.	**02.03.01-24 S2**	**[5/22/12]**	Clarification provided in RAI response, including FSAR markup
256	5/8 T. Tai e-mail	COLA mark-up section 3H.11.3.4, paragraph 4: There appears to be an editorial error in the statement in this paragraph.	**02.03.01-24 S2**	**[5/22/12]**	Clarification provided in RAI response.
257	5/8 T. Tai e-mail	It was understood from earlier conference calls that all wall panels were designed for a minimum automobile impact load of 1027 kips. However, Tables 3H.11-1, -2, and -3 show maximum impact loads on walls to be less than 1027 kips. Please clarify.	**02.03.01-24 S2**	**[5/22/12]**	Clarification provided in RAI response.

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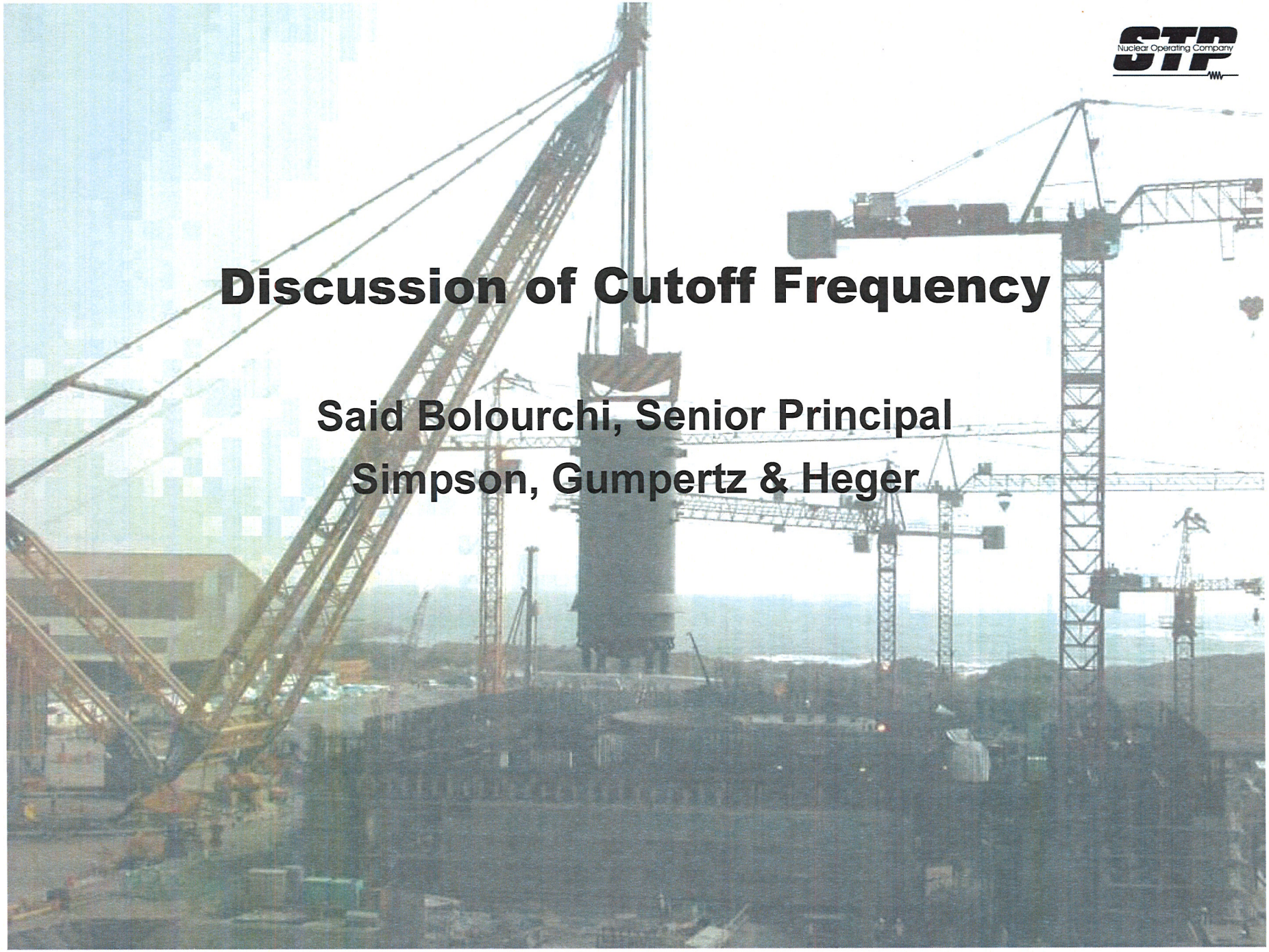
[Closed]

Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
258	5/9 Phone Call	NRC Staff made reference to SRP 3.8.5 and asked the STP 3&4 Project how effects of construction sequence (e.g., differential settlement, etc.) are addressed in the structural design of foundations.	**N/A**	**[7/23/12]**	Response provided at July 23, 2012 Audit
259	5/16 Phone Call	With respect to Punch List Item 257, clarifying notes should be added to COLA Tables 3H.11-2 and 3H.11-3.	**02.03.01-24 S2**	**[5/22/12]**	Notes added to COLA Tables 3H.11-2 and 3H.11-3.
260	5/16 Phone Call	Staff requested information on how Punch List Item 155 was addressed. [PLI 155 - Address adequacy of Control Building Walls to withstand pressure exerted by filler material at seismic joints between RB and CB. (Provided verbal response on 02/01/2012)]	**03.07.02-13 S6**	**[5/29/12]**	Clarification provided in RAI response.
261	6/6 Phone Call	In Subsection 3H.6.4.3.2, specify that a lower stress limit of 1.4 will be used for shear	**03.08.04-18 S4**	**8/30/12**	COLA will be updated
262	3.8-69	Include in COLA a discussion of foundation soil springs, spring values, and reason for using uniform soil springs for RWB SAP2000 model	**03.08.04-18 S4**	**8/30/12**	RAI response and COLA will be updated
263	3.8-70	Include the basis for selection of anchor bolt material for RWB	**03.08.04-18 S4**	**8/30/12**	RAI response and COLA will be updated
264	3.8-71	Provide basis for using no load for wall attachments in the structural design in an RAI response	**03.08.04-18 S4**	**8/30/12**	RAI response will be updated
265	3.8-72	Provide additional explanation for simultaneous consideration of sliding and overturning about two horizontal axes in COLA	**03.08.04-18 S4**	**8/30/12**	RAI response and COLA will be updated
266	3.8-73	Revise COLA Figure 3H.6-137 to remove reference to UHS figures	**03.08.04-18 S4**	**8/30/12**	COLA will be updated
267	3.8-74	Revise COLA Figures 3H.6-48 through 50 to show passive soil pressures needed for stability	**03.08.04-18 S4**	**8/30/12**	COLA will be updated
268	3.8-75	Revise response to RAI 03.08.04-23 to explain why lower bound spring values were selected for use	**03.08.04-23 R1**	**8/30/12**	RAI response will be updated
269	3.8-76	Clarify that 1,024 kip load is the peak of the triangular impulse load for the automobile impact in the horizontal direction and that 445 kip load is peak of the triangular implulse load for the vertical direction in COLA. Also, in the RAI response clarify that the DLF is always greater than or equal to 1.	**02.03.01-24, S3**	**8/30/12**	RAI response and COLA will be updated

Punch List for South Texas Project Units 3 & 4 - Post February 2012 Audit
Sections 3.7 & 3.8 - Post February 2012 Audit

[Closed]

Punch List Item	AI No.	Action Item Description	RAI	Submittal Date	Notes
270	3.8-77	NRC to identify what, if any, action has to be taken to resolve the Control Building SSI analysis	**N/A**	**[8/15/12]**	NRC provided feedback, refer to PLI 274
271	3.8-78	Evaluate automobile impact due to hurricane for: 1. east wall of Control Building between elevation 50'-11" and 67'-3/4" 2. east wall of Reactor Building between elevation 54'-1/2" and 71'-9"	**02.03.01-24, S3**	**8/30/12**	RAI response will be updated
272	3.8-79	Revise the construction sequence COLA mark up as follows: 1. For UHS/RSW Pump House, add an additional bullet to address construction above UHS basemat level 2. For buried tunnels, revise first bullet to clarify that construction should be uniform and level by level	**03.08.04-18 S4**	**8/30/12**	COLA will be updated
273	3.8-80	NRC to identify areas for enhancement in COLA Section 3H.11 on hurricane	**N/A**	**[8/15/12]**	NRC provided feedback, refer to PLI 275
274	8/15 Phone Call	Provide document reference for the energy content in the time history used for the Control Building Benchmarking SSI analysis using MSM	**N/A**	**8/6/12**	Will respond via e-mail
275	8/15 Phone Call	Respond to Staff need for Design Basis Hurricane Wind and Hurricane Missile Evaluation	**N/A**	**TBD**	Will discuss plan at the 8/22 Conference Call



Discussion of Cutoff Frequency

Said Bolourchi, Senior Principal
Simpson, Gumpertz & Heger

Cutoff/Passing Frequencies
RAI 03.07.02-24, RAI 03.07.02-26

- The minimum cutoff/passing frequencies in a SSI analysis depend on the following:
  - Frequency content of input motion – For UHS 98% of the input motion energy is below 15 Hz frequency
  - Primary SSI frequency – The SSI frequency of UHS is below 5.6 Hz
  - Structural frequencies – Major UHS modes are below 15 Hz
- The industry standard (ASCE 4-98) for cutoff frequency is twice the SSI frequency but not less than 10 Hz
- The minimum passing frequency and cutoff frequency used in the analysis is 15.2 Hz (at the base of the UHS) and 16.6 Hz, respectively, which meets the above requirements.
- The minimum passing frequency for the excavated elements at top of the soil level for Lower Bound case is 10.7 Hz. However upper excavation level element size is not important since the slab is horizontally rigid, most motion is acted at foundation level and subtraction method is used.

Cutoff/Passing Frequencies
RAI 03.07.02-24, RAI 03.07.02-26

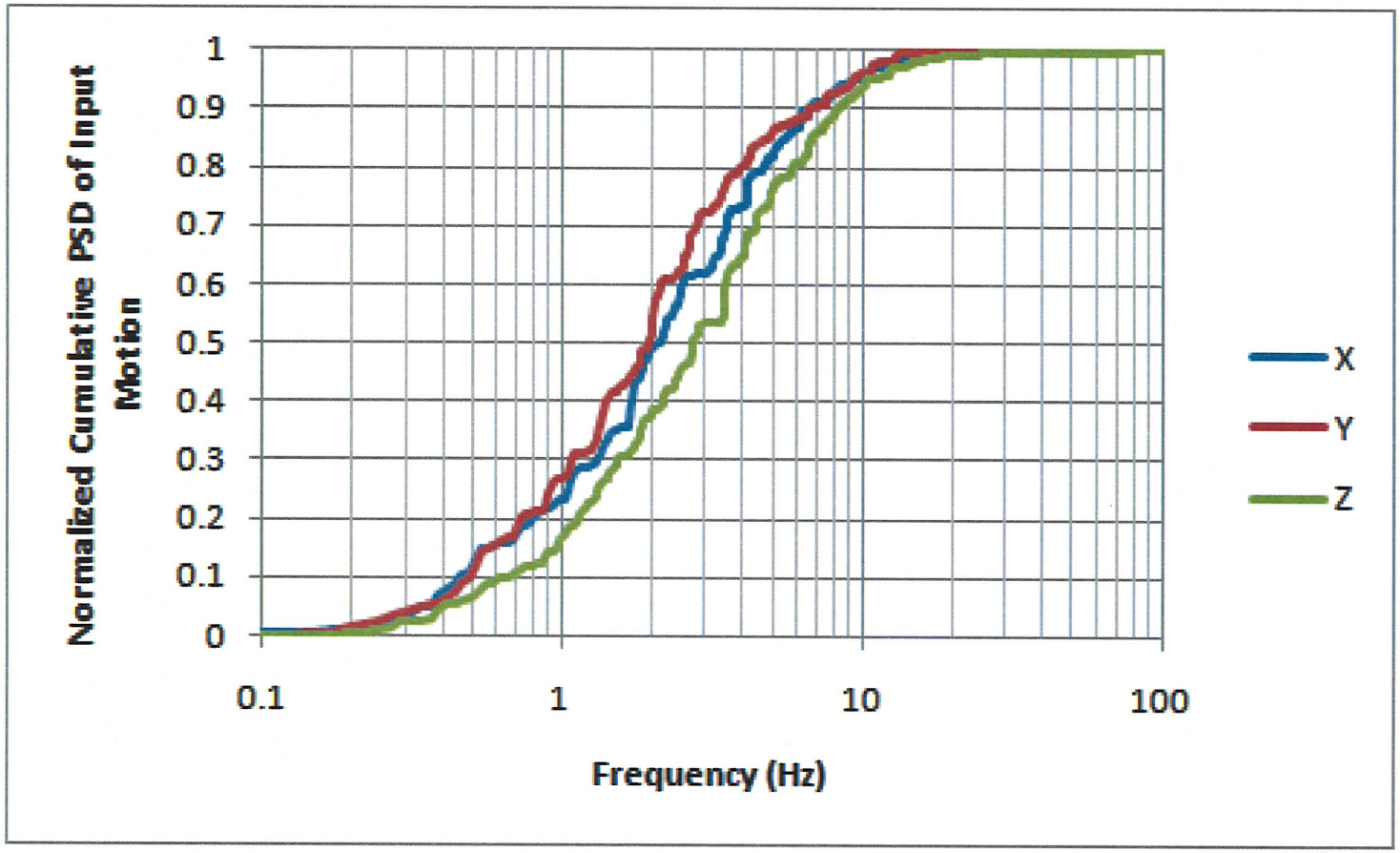


Figure 1 - Normalized Cumulative Power Spectral Density of the Design Time History