

Open Item Tracking List  
NRC Audit 3.7/3.8 - June 20 - 24, 2016

No.	Status	Issue	Date Identified	Reference	Person	Response	Date
1	Open	(1) KHNP will revise the justification for its use of low pass filtering on the CSDRS time histories with corner frequencies lower than 50 Hz. A draft was shown to the staff during the audit and the staff reviewed and accepted it. KHNP will email the final version to the PM.	Monday June 20, 2016	3.7.1	J. Nie	Justification of the use of low passing filtering will be added to the response to the NRC feedback by 6/24/2016 <a href="#">KHNP INPUT</a> Justification of the use of low pass filtering was added to the response to the NRC feedback and provided during the audit. The response for feedback will be provided on 07/18/2016	6/21/2016
2	Open	(2) Add PSD calculations using strong motions following the SRP 3.7.1 Rev. 4 Appendices A & B in their response to RAI 3.7.1-3, which has not been submitted yet.	Monday June 20, 2016	3.7.1-3	J. Nie	New PSD calculations will be performed in accordance with SRP 3.7.1 Rev. 4 Appendix B guidelines by 6/30/2016 <a href="#">KHNP Input</a> The draft revised response will be provided by 7/15/2016	7/15/2016
3	Open	(3) NRC will send KHNP a feedback on the revised response to RAI Q 3.7.3-1, which will include a request for justification for the use of 33 Hz as the criteria to determine flexible/rigid tanks. This feedback will also include review comments from NRC MEB. The feedback will be discussed in a Bi-Weekly meeting.	Tuesday June 21, 2016	3.7.3-1	J. Nie	<a href="#">KHNP INPUT</a> KHNP awaiting NRC feedback.	6/21/2016
4	Open	(4) KHNP will revise its response to RAI Q 3.7.1-5 to (a) avoid the use of "gaps in the site response transfer functions" because they do not describe what KHNP intended to say; (b) correctly describe the transfer functions shown in Figures 1 through 18 as from the bed rock to the foundation level and with proper designation of within or outcrop motions based on its SHAKE analysis; (c) add plots for at least the cases of S6, S7, S2, and S5, to show the transfer functions from the ground surface to the outcropping layer at the foundation level, to be consistent with DCD Figure 3.7A-12 and Figures 5-25, 5-26, and 5-27 in APR1400-E-S-NR-14001-P, Rev. 0; and (d) develop a technical report to document the SHAKE analyses that support this RAI response. The requested transfer functions in item (c) should be provided for one horizontal direction and one vertical direction.	Thursday June 23, 2016	3.7.1-5	J. Nie	<a href="#">KHNP INPUT</a> The revised response will be revised to incorporate the NRC comment by 07/20/2016.	7/20/2016
5	Open	(5) In a report entitled "1. APR1400 CSDRS Compatible Time Histories," which is preliminary, the conclusion section indicates that the SRP 3.7.1 Rev. 4 Appendix B method may underestimate the PSD in some frequency ranges if the time histories are not stationary. This conclusion contradicts the staff experience in using that method including the recent staff confirmatory analysis of KHNP design ground motions. KHNP agreed to revise that conclusion.	Thursday June 23, 2016	3.7.1	J. Nie	<a href="#">KHNP Input</a> The report will be revised by 07/31/2016.	7/31/2016
6	Closed	Revise/remove the statement in 1-310-C305-002 related to using the surface coherency function through depth as being a conservative assumption.	Monday June 20, 2016	3.7.2-1	R. Roche / C. Costantino	Markups incorporating the NRC comment will be provided during the audit <a href="#">KHNP INPUT</a> Markups incorporating the NRC comment were provided during the audit on 06/22/2016.	6/22/2016

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No.	Status	Issue	Date Identified	Reference	Person	Response	Date
7	Closed	Propose markups to TeR 14004 to clarify the use of ACS SASSI for the NI and EDGB/DFOT Room and characterization of the equivalency between the HRHF analysis approach for these structures.	Monday June 20, 2016	3.7.2-1	R. Roche / R. Morante	Markups incorporating the comment will be provided during the audit. <a href="#">KHNP INPUT</a> Markups incorporating the comment were provided during the audit on 06/22/2016.	6/22/2016
8	Closed	For the EDGB/DFOT Room clarify if SRSS is being used for the TF or the response quantity of interest. Propose markups to TeR 14004 to clarify this aspect and the use of Abrahamson's Coherency function.	Monday June 20, 2016	3.7.2-1	R. Roche / C. Costantino	Calculation document describing the clarification was provided and is being reviewed by the audit team. <a href="#">KHNP INPUT</a> Calculation document describing the clarification was provided during the audit on 06/22/2016.	6/22/2016
9	Closed	Provide the degradation curves for backfill (HRHF analysis) in calculation 1-310-C305-002.	Monday June 20, 2016	3.7.2-1	R. Roche / C. Costantino	Document describing the degradation curves for backfill will be provided <a href="#">KHNP INPUT</a> Information describing the degradation curves for backfill was provided during the audit on 06/22/2016.	6/22/2016
10	Open	Propose markups to TeR 14004 to justify the adequacy of the design to CSDRS relative to HRHF. Characterize design margin. Open for EDBG and DFOT. Closed for CIS.	Monday June 20, 2016	3.7.2-1	R. Roche / T. Houston	The applicant provided markups to TeR 14004, addressing the 6/20/2016 action items related to HRHF evaluation (Q.3/7.2-1). The staff found the markups to be adequate. Further, the staff indicated that the markups describing the applicant's conclusion of the adequacy of the design to CSDRS relative to HRHF based on a comparison to allowable steel stresses (for the Containment Internal Structure), are adequate pending favorable results of the in-process HRHF analysis (i.e. 16 mode solution). <a href="#">KHNP INPUT</a> The draft response will be revised to incorporate the NRC comment by 2016-07-15.	7/15/2016
11	Open	The applicant is to provide comparisons of ISRS at the center of AB walls, obtained from ANSYS coarse model and SASSI model that demonstrate consistent results between the two models. This is to be provided for a subset of the walls identified in the response to Q 3.7.2-10 (e.g. 5 walls), converging the frequency range (e.g. low frequency, mid frequency, and high frequency) for the walls identified in the response. Alternatively, the applicant is to provide an approach to be described in the DCD, for performing local analysis of walls for which an ISRS at the center of the wall is to be developed for equipment design/analysis purposes.	Tuesday June 21, 2016	3.7.2-10	R. Roche	<a href="#">KHNP INPUT</a> During the audit, it was promised that ISRS of four (4) walls in the response to Q 3.7.2-10 would be compared between ANSYS coarse and ACS SASSI models. ISRS comparison results will be provided on 07/13/2016. The revised response will be provided by 07/20/2016.	7/20/2016
12	Open	Two candidate approaches for addressing the S05 ISRS exceedance for the EDGB/DFOT were discussed. The applicant is considering the relocation of these structures away from the NI backfill portion and performing further SSI analyses for these structures. Alternatively, the applicant is to consider the inclusion of the S05 ISRS in the envelope ISRS for the EDGB/DFOT, pending further evaluation of the accuracy of S05 ISRS results.	Tuesday June 21, 2016	3.7.2-9	R. Roche	<a href="#">KHNP Input</a> The revised response will be provided by 07/30/2016.	7/30/2016
13	Open	KHNP will revise its RAI response with markups to DCD section 3.7.2.12, consistent with staff feedback. The comparison of responses will be included in the associated Technical Report.	Tuesday June 21, 2016	3.7.2-2	R. Roche	<a href="#">KHNP Input</a> The revised response will be provided by 07/15/2016.	7/15/2016

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No.	Status	Issue	Date Identified	Reference	Person	Response	Date
14	Open	KHNP to submit draft response  KHNP discussed its basis for the spring stiffness used in the calculation of ground contact ratio for the EDGB/DFOT. The staff agrees that the spring stiffness can be adjusted for different soil profiles.	Tuesday June 21, 2016	3.7.2-4	R. Roche	KHNP will revise its RAI response with respect to the information related to the EDGB/DFOT to (a) clarify that the fixed-base analysis refers to <b>ANSYS fixed-base transient analysis</b> , (b) include final results and remove preliminary results (in the response and associated markups to TeR 14006), and (c) revise the markups to Section A.4.1.1 in TeR 14006 to replace the expression "rigid springs" by "relatively stiff spring" and remove the sentence referring to fixed-base analysis. Additionally, the KHNP will remove the expression "conservatively" from section A.4.3.1 in TeR 14006.  <a href="#">KHNP Input</a> <i>The revised response will be provided by 07/15/2016.</i>	7/15/2016
15	Open	KHNP will revise RAI response to remove the paragraph that discusses the ASCE 4-98 water compressibility criteria because it did not convey what KHNP intended to say.	Tuesday June 21, 2016	3.7.2-5	R. Roche	<a href="#">KHNP INPUT</a> <i>The draft response will be revised to incorporate the NRC comment by 2016-07-15.</i>	7/15/2016
16	Open	Open - SSSI analyses with consideration of embedment is being performed; Potential SER Open Item	Tuesday June 21, 2016	3.7.2-6	R. Roche	<a href="#">KHNP INPUT</a> <i>The SSSI analyses are being performed for the NI and EDGB/DFOT combined model. KHNP will provide the draft response by 2016-08-12.</i>	8/12/2016
17	Open	• 3.7.2-7 e (Open – Poisson's ratio sensitivity study being performed; Potential SER Open Item)  The staff and KHNP discussed resolution approaches to justify modeling the slabs between the SSW and CS as mass.	Tuesday June 21, 2016	3.7.2-7	R. Roche	Action Items (to be resolved during audit open period):  (a) KHNP will perform sensitivity study using fixed-base analysis with coupled CS and IS to evaluate the effects on the response. Alternatively KHNP will include a commitment in the DCD to ensure that the detailed design of the connection will be performed to be consistent with the modeling assumptions.  (b) In addition to the above, KHNP indicated that the frequencies for the aforementioned slabs (provided in Question 3.8.3-5 related input), need revision. KHNP will provide the revised slab frequencies.  <a href="#">KHNP Input</a> <i>The revised response will be provided by 07/30/2016.</i>	7/30/2016
18	Open	Regarding the accidental torsion calculation, technical report 1-350-C304-001, Rev 4 for the EDGB/DFOT, referenced the AB calculation 9-320-C307-001 as input to the accidentals torsion calculation instead of the calculation for the EDGB SSI Analysis.	Tuesday June 21, 2016	3.7.2-8	R. Roche	Action Item (to be resolved during audit open period): KHNP will revise the reference.  <a href="#">KHNP INPUT</a> <i>The calculation (1-350-C304-001) will be revised to incorporate the NRC comments by 2016-07-15.</i>	7/15/2016
19	Open	Potential SER Open Item) • Sidewalls soil separation sensitivity study is being performed.  KHNP provided the documentation related to the NQA1 V&V for ACS SASSI, which meets the staff's expectation.  Action Item: KHNP will describe the ACS SASSI V&V to NQA1 requirements in its response and benchmark problem coverage of APR1400 parameters of interest.	Tuesday June 21, 2016	3.7.2-11	R. Roche	<a href="#">KHNP Input</a> <i>The revised response will be provided by 07/30/2016.</i>	7/30/2016
20	Open	Action Item (to be resolved during audit open period): KHNP will update Appendix G 1-350-C304-001.	Tuesday June 21, 2016	3.7.2-12	R. Roche	<a href="#">KHNP INPUT</a> <i>The calculation (1-350-C304-001) will be revised to incorporate the NRC comments by 2016-07-15.</i>	7/15/2016

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No.	Status	Issue	Date Identified	Reference	Person	Response	Date
21	Open	1-350-C305-001, Rev 4 EDGB Seismic Analysis  Action Item: KHNP will identify walls (in the plan and/or section views of the EDGB provided in the calculation) that are not included in the EDGB model (i.e. walls that are not designed for shear wall system). Further, KHNP will include in the calculation a description of its process for local analysis of the aforementioned walls for developing an ISRS at the center of the wall if necessary for the design/qualification of components/equipment that may be attached to such walls.	Tuesday June 21, 2016	Audit item	R. Roche	<a href="#">KHNP INPUT</a> The calculation (1-350-C305-001) will be revised to incorporate the NRC comments by 2016-07-15.	7/15/2016

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Item No.	Status	Issue	Date Identified	Reference	Person	Response	Date
1	Open	Explain how value of 0.016g for the POSVR is obtained and include in DCD markups	Monday June 20, 2016	RAI 129-8085 3.8.1-1	V. Thomas/J. Braverman	KHNP provided proposed markup on 6/21. Staff reviewed and found it to be technically acceptable. KHNP action to submit final RAI response. <a href="#">KHNP INPUT</a> The revised final RAI response will be submitted by 07/18/2016.	7/18/2016
2	Open	For piping/equipment /structures the spectra are provided to the other disciplines (Electrical, equipment, etc.) for equipment qualifications- add statement to DCD markup	Monday June 20, 2016	RAI 129-8085 3.8.1-1	V. Thomas/J. Braverman	KHNP provided proposed markup on 6/21. Staff reviewed and found it to be technically acceptable. KHNP action to submit final RAI response. <a href="#">KHNP INPUT</a> The revised final RAI response will be submitted by 07/18/2016.	7/18/2016
3	Open	All parts of response are acceptable - NRC would like to see proposed markups to DCD	Monday June 20, 2016	RAI 129-8085 3.8.1-2	V. Thomas/J. Braverman	KHNP provided proposed markup on 6/21. Staff reviewed and found it to be technically acceptable. KHNP action to submit final RAI response. <a href="#">KHNP INPUT</a> The revised final RAI response will be submitted on 07/18/2016.	7/18/2016
4	Open	All part of response are acceptable - NRC would like to see DCD markups to Table 3.8-1 and Reference Section - provided	Monday June 20, 2016	RAI 129-8085 3.8.1-4	V. Thomas/J. Braverman	KHNP agrees with the action identified; KHNP provided proposed markup on 6/21. Staff reviewed and found it to be technically acceptable. KHNP action to submit final RAI response. <a href="#">KHNP Input</a> The DCD markups for Table 3.8-1 and 3.8.6 (References) will be reflected in the revised response of RAI 8274 Q 03.08.04-3 by 7/18/2016.	07/18/2016
5	Open	Add "in accordance with RG 1.216" to COL item	Monday June 20, 2016	RAI 129-8085 3.8.1-5	V. Thomas/J. Braverman	KHNP agrees with the action identified <a href="#">KHNP INPUT: Need to address Audit items.</a>	TBD
6	Open	(b) verify DLF; e(1) Explain a substantially reduced concrete tensile strength (1/2ft) in RAI response and DCD markup - make sensitivity run w/ 0.1ft; e(2) Replace the 2nd and 3rd paragraphs on the DCD markup with the 2 paragraphs in the RAI response	Monday June 20, 2016	RAI 129-8085 3.8.1-5	V. Thomas/J. Braverman	KHNP agrees with the action identified <a href="#">KHNP INPUT: Need to address Audit items.</a>	TBD
7	Open	(a) Include the same explanation from 3.8.1-5 e(1)	Monday June 20, 2016	RAI 129-8085 3.8.1-8	V. Thomas/J. Braverman	KHNP agrees with the action identified <a href="#">KHNP INPUT: Need to address Audit items.</a>	TBD
8	Open	(b) Explain whether DL is applied 1st and then the pressure load is incrementally applied until the pressure from the event is reached	Monday June 20, 2016	RAI 129-8085 3.8.1-8	V. Thomas/J. Braverman	KHNP agrees with the action identified <a href="#">KHNP INPUT: Need to address Audit items.</a>	TBD
9	Open	Need to perform similar calc as in 3.8.1-5 (b) for DLF	Monday June 20, 2016	RAI 129-8085 3.8.1-8	V. Thomas/J. Braverman	KHNP agrees with the action identified <a href="#">KHNP INPUT: Need to address Audit items.</a>	TBD
10	Open	All parts of response are acceptable - NRC	Tuesday June 21, 2016	RAI 199-8233; 3.8.1-9	V. Thomas/J. Braverman	KHNP provided proposed markup on 6/21. Staff reviewed and found it to be technically acceptable. KHNP action to submit final RAI response. <a href="#">KHNP INPUT</a> The revised final RAI response will be submitted by 07/19/2016.	7/19/2016

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11	Open	All parts of response are acceptable-NRC	Tuesday June 21, 2016	RAI 199-8233; 3.8.1-10	V. Thomas/J. Braverman	KHNP provided proposed markup on 6/21. Staff reviewed and found it to be technically acceptable. KHNP action to submit final RAI response. <a href="#">KHNP INPUT</a> The revised final response will be submitted by 7/18/16	7/18/2016
12	Resolved/CI	All parts of response are acceptable-NRC	Tuesday June 21, 2016	RAI 199-8233; 3.8.1-11	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
13	Resolved/CI	All parts of response are acceptable-NRC	Tuesday June 21, 2016	RAI 199-8233; 3.8.1-12	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
14	Resolved/CI	All parts of response are acceptable-NRC	Tuesday June 21, 2016	RAI 199-8233; 3.8.1-13	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
15	Resolved/CI	All parts of response are acceptable-NRC		RAI 199-8233; 3.8.1-14	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
16	Open	a) Staff to review V&V for DARTEM; b) Applicant to provide markup for Table 3.8-11 (Table is technically acceptable); c) Show consistency w/response to RAI 3.7.2 2 (Table 3.8A-40) and in markup text for DCD. Refer to both tables (3.8-11 and 3.8A-40)	Tuesday June 21, 2016	RAI 249-8323; 3.8.1-15	V. Thomas/J. Braverman	a) Staff confirmed the V&V program for DARTEM. Applicant to address part c.	TBD
17	Resolved/CI	KHNP to revise the dimensions of the basemat size (Part 4)	Tuesday June 21, 2016	RAI 249-8323; 3.8.1-16	V. Thomas/J. Braverman	KHNP provided proposed markup on with the appropriate dimensions in its original response.	NA
18	Open	KHNP to respond to Staff feedback (provided 4/29/2016) by 6/30/2016	Tuesday June 21, 2016	RAI 200-8225; 3.8.2-2	V. Thomas/J. Braverman	KHNP to respond to Staff feedback (provided 4/29/2016) by 6/30/2016	06/30/2016
19	Open	Deferred - KHNP Staff not present at audit (SRV Loading)	Tuesday June 21, 2016	RAI 208-8245; 3.8.3-1	V. Thomas/J. Braverman	Action KHNP	TBD
20	Resolved/CI	All parts of response are acceptable-NRC	Tuesday June 21, 2016	RAI 208-8245; 3.8.3-2	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
21	Open	Staff provided feedback to DCD markup. In general, KHNP to review all the loads and load combinations in the Attachment and Table 3.8-9A; include those loads and load combinations applicable to the CIS in Sec 3.8.3 of the DCD and incorporate KHNP's input from the 6/15/16 Agenda	Tuesday June 21, 2016	RAI 208-8245; 3.8.3-3	V. Thomas/J. Braverman	KHNP to incorporate comments provided by staff in the DCD revision <a href="#">KHNP Input</a> The revised response will be provided by 07/18/2016.	7/18/2016
22	Open	KHNP to provide further justification for not including leak chase channel systems for the embedded containment floor and liner	Tuesday June 21, 2016	RAI 332-8382; 3.8.3-8	V. Thomas/J. Braverman	KHNP to provide response <a href="#">KHNP Input</a> The result of further justification will be provided by 07/22/2016.	07/22/2016
23	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-1	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
24	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-2	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
25	Open	All parts of response are acceptable-NRC - See Part (e) actions	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-3	V. Thomas/J. Braverman	<b>Action NRC - Review the welding procedure in AWS D1-1 Note: Rev.2 of the final response was submitted to NRC on 6/20/16</b>	TBD
26	Resolved/CI	All parts of response are acceptable-NRC; Calc 1-320-C304-002 page 168/235 Section 3.6.3 - Surcharge needs to be consistent with RAI response	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-4	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD <a href="#">KHNP Input</a> The calculation 1-320-C304-002 page 168/235 section 3.6.3 is not related with surcharge loads. The purpose of this issue is to revise the location of design water level in Fig.193 of calculation. So the calculation 1-320-C304-002 Fig.193 will be revised to incorporate this issue.	NA

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27	Open	a) Provide an example calc of how stability is used in design per DCD Table 3.8-9B; b) Provide reference/source for the methodology for considering stability; c) KHNP to discuss whether scope of DCD includes structural steel design d) KHNP to revise the response to staff feedback related to overall stability loads on page 38/43 of the 6/15/16 agenda e) KHNP to revise its response to the staff feedback provided in the 6/15/16 agenda. KHNP may revise Table 3.8-9B to remove stability load assuming there are no steel columns in SCI structures subject to N690. Applicant to review Section 2.2, "Finite Element Types," of the calc 1-320-C304-002, "Auxiliary Building Structural Analysis," related to the use of steel composite columns in SC I structures. Also, the applicant agreed to delete the phrase, "In order to consider the weight of spent fuel pool roof materials, 0.05 ksf of dead weight is added to attachment load of spent fuel pool roof area at EL. 213'-6"," in Section 3.2.4, "Additional Loading in Critical Control Area," part c, "Spent Fuel Pool Roof Materials," of the calc 1-320-C304-002, "Auxiliary Building Structural Analysis."	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-5		KHNP will consider feedback and may revise response to simplify <a href="#">KHNP Input</a> The draft revised response will be provided by 7/20/2016 The calculation 1-320-C304-002 will be revised to incorporate this issue by 07/15/2016.	07/20/2016 07/15/2016
28	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-6	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
29	Open	a) KHNP to revise its input to include the phrase "by the absolute sum," at the end of bullet#3 (page 23/43 of 6/15 Agenda) b) KHNP to include similar description for EDGB and DFOT in the DCD, as done for the Aux Bldg.	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-7	V. Thomas/J. Braverman	See "Issues" <a href="#">KHNP Input</a> The revised response will be provided on 07/30/2016.	07/30/2016
30	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-8	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
31	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 227-8274; 3.8.4-9	V. Thomas/J. Braverman	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
32	Open	a) KHNP to add to section 3.8A.1., the following - "Different types of members"; "Different types of materials" b) KHNP agrees to the Staff's list (Pg. 34/43 of 6/15/16 Agenda) except bullet #4 (Steel column and beam). KHNP to have internal discussion on Bullet #4	Wednesday June 22, 2016	RAI 255-8285; 3.8.5-1	V. Thomas/J. Braverman/A. Ista	Action KHNP <a href="#">KHNP Input</a> The revised response will be provided by 07/25/2016	07/25/2016
33	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 255-8285; 3.8.5-2	V. Thomas/J. Braverman/A. Ista	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
34	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 255-8285; 3.8.5-3	V. Thomas/J. Braverman/A. Ista	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
35	Open	KHNP will provide input after the sliding stability evaluation is completed	Wednesday June 22, 2016	RAI 255-8285; 3.8.5-4	V. Thomas/J. Braverman/A. Ista	Action KHNP <a href="#">KHNP Input</a> The revised response about the stability evaluation(nonlinear time history analysis) will be provide by 11/30/2016	11/30/2016
36	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 255-8285; 3.8.5-5	V. Thomas/J. Braverman/A. Ista	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
37	Resolved/CI	All parts of response are acceptable-NRC	Wednesday June 22, 2016	RAI 255-8285; 3.8.5-6	V. Thomas/J. Braverman/A. Ista	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA

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38	Open	a) KHNP will provide moment diagram across the foundation; b)c)d) - KHNP internal discussion is required (construction sequence) - KHNP indicated that they will address the construction sequence evaluation. Also, consideration of differential settlement criteria is not adequate because it does not consider angular distortion (NRC Tech Rational Document, USACOE Manual, & ASME PVP Paper; e) need to revise wording for COL site-specific evaluation and COL item (soil variations) and design margins	Wednesday June 22, 2016	RAI 255-8285; 3.8.5-7	V. Thomas/J. Braverman/A. Ista	Action KHNP <a href="#">KHNP Input</a> The revised final RAI response except the construction sequence will be submitted by 07/20/2016. The response related with construction sequence analysis will be incorporated as the analysis performed by contractor is finished. Depending on the discussion about updated response related other items in Bi-weekly meeting (2016/07/13), the final response will be provided by 11/30/2016.	07/20/2016 11/30/2016
39	Open	Draft RAI response given to NRC for review; NRC will discuss later during Audit or during the biweekly public call	Thursday June 23, 2016	RAI 255-8285; 3.8.5-8	V. Thomas/J. Braverman/A. Ista	<b>Deferred - Action NRC</b> <a href="#">KHNP Input</a> The revised final RAI response will be submitted on 07/20/2016.	7/20/2016
40	Open	Responses 1,2,4,5 & 6 are acceptable (defer to other RAI responses); No. 3 - Defer to another RAI response and KHNP agreed to include in COL item 3.8(3) monitoring during construction and plant operation; (new) KHNP to add new COL Item as per response to Question 3.8.5-7.	Thursday June 23, 2016	RAI 255-8285; 3.8.5-9	V. Thomas/J. Braverman/A. Ista	Action KHNP <a href="#">KHNP Input</a> Depending on the discussion about updated response in Bi-weekly meeting (2016/07/13), the final response will be provided by 07/20/2016.	07/20/2016
41	Resolved/CI	All parts of response are acceptable-NRC	Thursday June 23, 2016	RAI 255-8285; 3.8.5-10	V. Thomas/J. Braverman/A. Ista	Confirmatory Action - Response is closed. NRC required CI action for next revision of DCD	NA
42	Open	Draft RAI response given to NRC for review; NRC will discuss later during Audit or during the biweekly public call	Thursday June 23, 2016	RAI 255-8285; 3.8.5-11	V. Thomas/J. Braverman/A. Ista	<b>Deferred - Action NRC</b> <a href="#">KHNP Input</a> The revised final RAI response was provided to the Staff during the audit. NRC feedback is pending.	TBD
43	Open	Draft RAI response given to NRC for review; NRC will discuss later during Audit or during the biweekly public call	Thursday June 23, 2016	RAI 255-8285; 3.8.5-12	V. Thomas/J. Braverman/A. Ista	<b>Deferred - Action NRC</b> <a href="#">KHNP Input</a> The revised final RAI response was provided to the Staff during the audit. NRC feedback is pending.	TBD
44	Open	Table 1 - a) KHNP to provide missing text from the 6/15/16 agenda and insert text into the RAI response; b) Resolved/closed; c&d) Confirmatory Action; For Table 2 - a&b) Resolved/Closed (deferred to 3.8.5-7; c) Resolved/closed	Thursday June 23, 2016	RAI 255-8285; 3.8.5-13	V. Thomas/J. Braverman/A. Ista	Action KHNP <a href="#">KHNP Input</a> Depending on the discussion about updated response in Bi-weekly meeting (2016/07/13), the final response will be provided by 07/20/2016.	07/20/2016
45	Open	NRC feedback provided to KHNP (6/11/15); KHNP will incorporate into their new sliding stability analysis	Thursday June 23, 2016	RAI 255-8285; 3.8.5-14/15	V. Thomas/J. Braverman/A. Ista	Action KHNP <a href="#">KHNP Input</a> The revised response will be provided in accordance with the schedule of Q 03.08.05-4 response.	11/30/2016



Open Item Tracking List  
NRC Audit 3.7/3.8 - June 20 - 24, 2016

Item No.	Status	Issue	Date Identified	Reference	Person	Response	Date
46	Open	a) Resolved/closed; b.1) Resolved/Closed; b.2i) - KHNP to revise COL 3.8(11) to include the criteria about Vs (shear wave velocity) in the COL item; b.2a-b) KHNP to include the various types of analyses needed. In addition to DCD 3.8.5, include reference to Technical Report on Stability; b.2c) Resolved/closed because of b.2a-b); b.2d) Resolved/Closed b.3) KHNP indicated that the stability and basemat design analyses are being revised using 3-D soil FEM. Therefore, the technical report on stability will be revised and description of these analyses is presented in RAI 3.8.5-8; b.4) Resolved/Closed; c.1&2) Resolved/Closed; <b>c.3) NRC needs to perform further detailed review and provide feedback on the next public call;</b> c.4) Resolved/Closed - deferred to 3.8.5-7	Thursday June 23, 2016	RAI 255-8285; 3.8.5-16	V. Thomas/J. Braverman/A. Ista	Action KHNP & NRC <a href="#">KHNP Input</a> The revised final RAI response submittal date based on resolution to c.3	TBD
47	Open	<b>1) Further detail review by staff needed (Re:Table 1);</b> 2&3) Resolved/Closed; 4) KHNP to revise text in response to 3.8.5-17 and Technical Report (if required), including acceptance criteria of 0.5-in. per 50 feet; 5) KHNP to provide response in regards to the staff's latest feedback; KHNP to clarify whether 0.5 inches acceptance criteria is acceptable to gravity load, or seismic or gravity and seismic. Include in RAI response, Technical Report, DCD Sec. 2.0, and Tier 1 (Table 2.1-1); 6) Resolved/Closed as result of questions 4 & 5. Note: Above (1-6) also applied to EDGB and DFOT. <b>Differential Settlement between NI and Edge:</b> 1) KHNP to revise response to indicate TGB is not safety-related and no safety systems are connected to it; 2) Resolved/Closed per Item 1; 3) KHNP to explain why the trending of differential settlement is not consistent with S1, S4, and S8 (Table 4-3) or delete information related to TGB. 4) Resolved/Closed per Item 6) above	Thursday June 23, 2016	RAI 255-8285; 3.8.5-17	V. Thomas/J. Braverman/A. Ista	Action KHNP & NRC <a href="#">KHNP Input</a> Depending on the discussion about updated response in Bi-weekly meeting (2016/07/13), the final response will be provided by 07/20/2016.	07/20/2016
48	Open	Per 6/15/16 Public Meeting Agenda - Input 1 - Resolved/Closed per 3.8.5-7; Input 2 - KHNP to provide justification for not including long term settlement (reference information or sufficient margin against acceptance criteria); Input 3 - Resolved/Closed per COL item	Thursday June 23, 2016	RAI 255-8285; 3.8.5-18	V. Thomas/J. Braverman/A. Ista	Action KHNP <a href="#">KHNP Input</a> The revised final RAI response will be submitted on 07/15/2016.	7/15/2016
49	Open	Per 6/15/16 Public Meeting Agenda - a) staff provided feedback to KHNP regarding the approach for demonstrating structural adequacy of the lean concrete/mudmat - check bearing stress and shear strength; b,c,d) Resolved/Closed; e) Resolved/Closed per Item a	Thursday June 23, 2016	RAI 255-8285; 3.8.5-19	V. Thomas/J. Braverman/A. Ista	Action KHNP <a href="#">KHNP Input</a> The draft revised response will be submitted by 07/20/2016.	7/20/2016
50	Open	1) KHNP to insert the phrase "for the PSW" in the paragraph that begins with the sentence "Figure 1 for the PSW shows..." 2) KHNP to describe Figures 2 & 3 in its response 3) KHNP to summarize the description of the accidental thermal loads in Section 3.8.3.4 of the DCD	Thursday June 23, 2016	3.8.3-4	V. Thomas/J. Braverman	Action KHNP <a href="#">KHNP Input</a> The revised final RAI response will be submitted by 07/18/2016.	7/18/2016

Open Item Tracking List  
NRC Audit 3.7/3.8 - June 20 - 24, 2016

Item No.	Status	Issue	Date Identified	Reference	Person	Response	Date
51	Open	a) Resolved/Closed; b) Staff Feedback based on KHNP's response Attachment 1 to the 6/1/16 Public Meeting Agenda - 3.8.3-5 portion; <b>Question #1</b> - 1 - KHNP to identify reference plants; 2 - KHNP to delete phrase regarding "out of work scope"; 3 - KHNP to explain how sliding connection is ensured and how friction forces are considered; 4 - Explain whether same design approach is used for other floor slabs; 5 - Describe how minimum gap between steel beam/slab and containment is evaluated against relative displacements from seismic, thermal and LOCA ; <b>Question #2</b> - 1 - Applicant to delete "bumper;" <b>Question #3</b> - 1 - Applicant to provide Figure 3 that is discussed in KHNP input; <b>Question #4</b> - 1 - KHNP to consider using the envelop of the vertical spectra at both ends of slab or provide justification; <b>Question 5</b> - Resolved/Closed; <b>Question 6</b> - Addressed by Question 1 item 5); c) Confirmatory Action; d) Resolved/closed per 3.8.3-4	Thursday June 23, 2016	3.8.3-5	V. Thomas/J. Braverman	Action KHNP <a href="#">KHNP Input</a> The revised response will be submitted by 07/25/2016	07/25/2016
52	Open	1) Confirmatory 2) Technically Acceptable - KHNP needs to submit revised response 3) Resolved/Closed; 4) Resolved/Closed	Thursday June 23, 2016	3.8.3-6	V. Thomas/J. Braverman	Action KHNP <a href="#">KHNP Input</a> The revised final RAI response will be submitted on 07/18/2016.	7/18/2016
53	Open	Technically Acceptable - KHNP to submit revised response	Thursday June 23, 2016	3.8.3-7	V. Thomas/J. Braverman	Action KHNP <a href="#">KHNP Input</a> The draft revised response will be submitted by 07/20/2016.	7/20/2016