CCNPP3COLA PEmails

From: Meyer, Philip D [Philip.Meyer@pnl.gov]
Sent: Friday, July 31, 2009 6:14 PM
To: Jones, Henry; Tiruneh, Nebiyu; Caverly, Jill; Vail, Lance W; Eric L. Geist
Cc: Rycyna, John; Raione, Richard
Subject: RE: CALVERT CLIFFS RAI STATUS
Attachments: CCNP3 e-RAI Workflow Tracking .docx

Henry,

I've updated the table with comments and RAI Status for all of the 2.4.12 and 2.4.13 RAIs. Let me know if you have any questions about these.

I have recommended closure of all RAIs for which we have gotten responses. There are 7 RAIs in 2.4.12 for which we expect a response on 9/14/09. There is one RAI for which the applicant has not provided a response date (at least to my knowledge), RAI 2.4.13-4. My understanding is that our current schedule is to complete the pTER by 10/16/09, two weeks prior to John receiving it on 10/30/09. Assuming we get responses for all RAIs by 9/14/09, this schedule is fine.

-phil

From: Jones, Henry [mailto:Henry.Jones@nrc.gov]
Sent: Wednesday, July 29, 2009 8:21 AM
To: Tiruneh, Nebiyu; Caverly, Jill; Vail, Lance W; Meyer, Philip D; Eric L. Geist
Cc: Rycyna, John; Raione, Richard
Subject: CALVERT CLIFFS RAI STATUS

I have attached worksheet of the RAI status for Calvert Cliffs (Section 2.4). For PNNL and USGS:

(1) Please review and provide feedback regarding the resolution (Closed, etc) of those RAIs that have already receive an applicant response.

(2) Based on the projected applicant response due dates, please provide a date for the completion of your confirmatory analysis and submission of the PTER w/OI (Phase 2).

Thanks,
Henry

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Hearing Identifier: CalvertCliffs_Unit3Cola_Public_EX
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Subject: RE: CALVERT CLIFFS RAI STATUS
Sent Date: 7/31/2009 6:14:06 PM
Received Date: 7/31/2009 6:14:10 PM
From: Meyer, Philip D

Created By: Philip.Meyer@pnl.gov

Recipients:
"Rycyna, John" <John.Rycyna@nrc.gov>
Tracking Status: None
"Raione, Richard" <Richard.Raione@nrc.gov>
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Files	**Size**	**Date & Time**
MESSAGE	1664	7/31/2009 6:14:10 PM
CCNP3 e-RAI Workflow Tracking .docx	29752	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

CCNP3 e-RAI Workflow Tracking Table Project:						
FSAR Section	**Original RAI#**	**RAI Text**	**e-RAI ID**	**e-RAI Question Number**	**Response Date and Tracking Reference**	**Resolution**
2.4.2	2.4.2-1	In order to assure that the locally-intense precipitation flood event will not adversely impact the Unit 3 safety-related SSCs, and that construction of Unit 3 will be compliant with 10 CFR 52.79(a)(31), the following additional information needs to be reflected in appropriate sections of the FSAR, as appropriate: Clearly identify locations where supercritical flows are likely to occur. Also indicate locations where PMP-generated flood events produce velocities significantly larger than the design velocity for the channel bed material (i.e., where damage exceeding normal maintenance would result). For these locations, describe how failure of these drainage features will not degrade any structures related to safety. Clearly identify locations where hydraulic jumps are likely to form during the flooding event and provide a description of fortification measures to ensure that hydraulic forces induced by the jumps do not erode or degrade conveyance of ditches. If the hydraulic structures are expected to fail during the Probable Maximum Precipitation generated flood event, provide a description describing how failure will not degrade any structures related to safety. Provide a detailed description of the lateral-structure flow simulated in the numerical model. Include details regarding the expected flow path, depth and velocity of flow, erosion control measures, and a list of buildings and structures that are intercepted along the flow path. Provide a description of Administrative Controls or surveillance requirements to ensure the ditches remain clear of obstructions, the side-slopes remain stable, and that the site-drainage system will function as described in the FSAR considering the length of the Unit 3 licensing period.	2088	8384	19 May 2009, UN#09-123, RAI 100 ML0914100571	
2.4.5	2.4.5-1	The USACE Engineer Manual 1110-2-1412 (USACE, 1986) has been superseded by **USACE** Engineer Manual 1110-2-1100 (USACE, 2006). The guidance in RG 1.59 is that the assessment of hazards from storm surges be based on the Probable Maximum Hurricane (PMH). Please explain why the storm parameters obtained from the USACE (1986) reference and reported in the FSAR are consistent with the PMH estimation procedure described by NOAA (1979), or justify an alternative approach.	2089	8385	20 May 2009, UN#09-237, RAI 103 ML0914601881	
2.4.5	2.4.5-2	The NRC Staff's guidance states that recommendations of Regulatory Guide 1.59 should be supplemented by standard engineering practice currently in use. Please explain how the storm surge water surface elevations obtained from Regulatory Guide 1.59 and adjusted for CCNPP site location using the model developed for the Chesapeake Bay (USACE, 1959) are conservative with respect to current engineering practice	2089	8386	15 June 2009, UN#09-290, RAI 103 ML0916800361	Response due 09/01/09

		described in USACE Engineering Manual 1110-2-1100 (USACE, 2006) and those of the NOAA National Weather Service with regard to the SLOSH model (NOAA, 1992), or justify an alternative approach.				
2.4.5	2.4.5-3	Please explain how the storm surge water level estimation procedure accounts for more recent hurricanes that have occurred in the last three decades since the publication of the Probable Maximum Hurricane estimation procedure (NOAA, 1979).	2089	8387	20 May 2009, UN#09-237, RAI 103 ML0914601881	
2.4.5	2.4.5-4	Please provide a set of alternate locations of the eye of the Probable Maximum Hurricane storm (FSAR Figure 2.4-26) to demonstrate that the chosen location would maximize the overwater fetch and therefore result in the most severe plausible storm surge near the CCNPP site.	2089	8388	15 June 2009, UN#09-290, RAI 103 ML0916800361	Response due 09/01/09
2.4.5	2.4.5-5	UniStar stated in FSAR Section 2.4.5.4 that period of oscillation of wind-induced seiches in Chesapeake Bay is between 2 and 3 days. Please provide a reference and a summary of the method used to estimate the period of oscillation of wind-induced seiches in Chesapeake Bay.	2089	8390	20 May 2009, UN#09-237, RAI 103 ML0914601881	
2.4.6	2.4.6-1	Section C.I.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the generation of tsunami-like waves from hill-slope failures. Provide topographic and geologic maps and CCNPP site reconnaissance data used in the assessment of potential subaerial landslides near the site.	2090	8391	?	?
2.4.6	2.4.6-2	Section C.1.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the generation of tsunami-like waves from hill-slope failures and the stability of the coastal' area. Provide a discussion in the updated FSAR of the cliff-side stability near the CCNPP site with reference to the findings in Section 2.5.2.1 and 2.4.9 of the FSAR.	2090	8392	3 June 2009, UN#09-255, RAI 99 ML0915902061	
2.4.6	2.4.6-3	Section C.I.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the generation of tsunami-like waves from hill-slope failures. Provide a discussion in the updated FSAR of the topographic relief of the eastern side of Chesapeake Bay, opposite the CCNPP site, and the findings in Section 2.5 of the FSAR.	2090	8393	?	?
2.4.6	2.4.6-4	Section C.1.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the potential of earthquake-induced waves in large bodies of water. Provide a discussion in the updated FSAR of the historical and geologic record, or lack thereof, for seismically-generated seiches in Chesapeake Bay. If possible, also provide an analysis of resonant frequencies of the Bay.	2090	8394	3 June 2009, UN#09-255, RAI 99 ML0915902061	
2.4.6	2.4.6-5	Section C.1.2.4.6.2 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the historical tsunami record,	2090	8395	3 June 2009, UN#09-	

		including paleo-tsunami evidence. Provide a discussion in the updated FSAR of the literature search conducted that was used to conclude the absence of tsunami deposits preserved in the vicinity of the CCNPP site.			255, RAI 99 ML0915902061	
2.4.6	2.4.6-6	Section C.1.2.4.6.3 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the source characteristics needed to determine Probable Maximum Tsunami Flooding. These characteristics include detailed geo-seismic descriptions of the controlling local tsunami generators, including location, source dimensions, and maximum displacement. Provide a discussion in the updated FSAR of the literature search conducted that was used to determine the tsunami source parameters for the Norfolk Canyon landslide scenario.	2090	8396	15 June 2009, UN#09-287, RAI 99 ML0916800351	
2.4.6	2.4.6-7	Section C.I.2.4.6.3 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the source characteristics needed to determine Probable Maximum Tsunami Flooding. These characteristics include detailed geo-seismic descriptions of the controlling distant tsunami generators, including location, source dimensions, and maximum displacement. Provide a discussion in the updated FSAR of the literature search conducted that was used to determine the tsunami source parameters for the La Palma landslide scenario.	2090	8397	15 June 2009, UN#09-287, RAI 99 ML0916800351	
2.4.6	2.4.6-8	Section C.1.2.4.6.3 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the source characteristics needed to determine Probable Maximum Tsunami Flooding. These characteristics include detailed geo-seismic descriptions of the controlling distant tsunami generators, including location, source dimensions, fault orientation, and maximum displacement. Provide a discussion in the updated FSAR of the numerical model used to determine the 0.9 m maximum amplitude at the Chesapeake Bay entrance for the Haiti (Greater Antilles) earthquake scenario.	2090	8398	15 June 2009, UN#09-287, RAI 99 ML0916800351	
2.4.6	2.4.6-9	Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Provide input files and hydrodynamic model codes (NLSWE and TSU) used in the model simulations.	2090	8399	15 June 2009, UN#09-290, RAI 99 ML0916800361	Response due 07/31/09
2.4.6	2.4.6-10	Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site, including verification of all models used in the analysis. Provide runup validation and/or field comparisons of the hydrodynamic model codes (NLSWE and TSU) used in the model simulations, in addition to the Gaussian hump comparison with analytic solutions.	2090	8400	15 June 2009, UN#09-290, RAI 99 ML0916800361	Response due 09/01/09
2.4.6	2.4.6-11	Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Correct the typographical error in the first term of equation 2.4.6-2 in the updated	2090	8401	?	?

		FSAR				
2.4.6	2.4.6-12	Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Clarify the phrase "waves quickly dispersed" in the updated FSAR and provide a surface contour map of maximum tsunami wave height in Chesapeake Bay.	2090	8402	15 June 2009, UN#09-290, RAI 99 ML0916800361	Response due 09/01/09
2.4.6	2.4.6-13	Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Indicate how tsunami run-up on land is estimated from near-shore tsunami amplitude in the updated FSAR.	2090	8403	15 June 2009, UN#09-290, RAI 99 ML0916800361	Response due 09/01/09
2.4.6	2.4.6-14	Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site. Describe the source of data and method used to develop the bathymetric grid for the tsunami model. Also provide a description of the grid-size sensitivity test in the updated FSAR.	2090	8404	15 June 2009, UN#09-290, RAI 99 ML0916800361	Response due 09/01/09
2.4.6	2.4.6-15	Section C.I.2.4.6.5 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami water levels. This includes providing estimates of maximum and minimum (low water) tsunami wave heights from both distant and local generators. Provide a discussion in the updated FSAR of the water levels for all simulations (NLSWE and TSU models), so that the limiting water levels can be confirmed.	2090	8405	15 June 2009, UN#09-290, RAI 99 ML0916800361	Response due 08/25/09
2.4.6	2.4.6-16	Section C.I.2.4.6.5 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami water levels. This includes providing estimates of maximum and minimum (low water) tsunami wave heights from both distant and local generators. Provide a discussion in the updated FSAR of how uncertainty in simulated tsunami water levels was determined.	2090	8406	15 June 2009, UN#09-290, RAI 99 ML0916800361	Response due 08/25/09
2.4.6	2.4.6-17	Section C.I.2.4.6.5 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami water levels. This includes describing the ambient water levels, including tides, sea level anomalies, and wind waves assumed to be coincident with the tsunami. Provide a discussion in the updated FSAR of long-term sea level rise that may be coincident with tsunami water levels.	2090	8407	15 June 2009, UN#09-290, RAI 99 ML0916800361	Response due 09/01/09
2.4.12	2.4.12-1	Legends of some FSAR figures in the electronic version are unreadable at any magnification (e.g., 2.4-68 and 2.4-70). Figures in Calculation No. 25237-103-KOC-HMMG-00001, Groundwater Flow Model of Surficial Aquifer, provided to Staff via the reading room, are in black and white and are less informative than they would have been if they had been in color and they are unreadable in some cases. Provide legible, color copies of all figures in FSAR section 2.4 and in	2092	8408	12 June 2009, UN#09-280, RAI 101 ML0916902281	Legibility of figures was improved in a revision of the FSAR. Calc.

		Calculation No. 25237-103-KOC-HMMG-00001.				No. 25237-103-KOC-HMMG-00001 Rev. 1 was in color and was placed in the reading room. RAI Status: Closed.
2.4.12	2.4.12-2	FSAR Section 2.5.4 refers to the hydrogeologic units at the site as Terrace Sand, Chesapeake Clay/Silt (Ila and I1c), and Chesapeake Cemented Sand (lib). Different titles for the units are used in FSAR Section 2.4.12. Resolve discrepancies between FSAR Sections 2.4.12 and 2.5.4 in the descriptions of the hydrogeologic units at the CCNPP site and in the elevations of the unit contacts. This resolution should include any applicable changes to the FSAR 2.4.13 transport analysis.	2092	8409	02 July 2009, UN#09-302, RAI 101 ML0918802451	Figure 1 of letter UN#09-302 provides the correlation between the hydrogeologic units described in FSAR 2.4.12 and the geotechnical unit described in FSAR 2.5.4. Relatively minor discrepancies in unit contact elevations are explained in a proposed FSAR revision. The response states that unit thicknesses were revised in reevaluating the data and that this will be incorporated in a revision to the transport analysis of FSAR 2.4.13.

						RAI Status: Closed.
2.4.12	2.4.12-3	FSAR Section 2.4.12.4 states both that (1) water for operation of CCNPP Unit 3 would come from a desalination plant and (2) water for construction and operation of CCNPP Unit 3 will be met from desalination or by appropriating ground water from Units 1 and 2. Clarify the CCNPP CCNPP Unit 3 ground water use projections given these ambiguous statements. Also, state in this section whether projected future on-site and off-site groundwater use, and the resulting reduction in groundwater heads, will affect plant safety (e.g., through subsidence). At the site hydrology audit, the applicant stated that additional groundwater modeling would be undertaken to address this issue. Provide a description of this additional modeling and provide electronic copies of the model input files used.	2092	8411	12 June 2009, UN#09-280, RAI 101 ML0916902281	Per email from Henry Jones 7/22/09, the applicant expects to send a response by 9/14/09.
2.4.12	2.4.12-4	The FSAR refers to groundwater head observations made between July 2006 and July 2007, although observations presented in FSAR Tables 2.4-35 and 2.4-26 only extend through March 2007. Provide the additional data referred to in the FSAR.	2092	8412	20 May 2009, UN#09-243, RAI 101 ML0914705730	The FSAR states that groundwater level measurements will be collected “through July 2007” (FSAR Rev. 4, pg. 2-773). Elsewhere in the FSAR, however, the period of observation is referred to as July 2006 to June 2007. The response to this RAI included groundwater head measurements for April, May, and June 2007, so that the data provided now covers the 12-

						month period of July 2006 through June 2007. RAI Status: Closed.
2.4.12	2.4.12-5	Provide a description of the water budget at the site. This description should include estimates of recharge to the surficial aquifer, recharge to the Chesapeake units from the surficial aquifer, and recharge to the Piney Point-Nanjemoy aquifer from the Chesapeake. Regional information can be used in developing these estimated recharge values. Provide a three-dimensional conceptual description of groundwater flow within and between these units (Surficial aquifer, Chesapeake units and Piney-Point Nanjemoy aquifer), provide an interpretation of the available groundwater head data (particularly from well OW-744) within the context of the three dimensional conceptual description, and discuss the potential for a groundwater pathway from the CCNPP facility to the Piney-Point Nanjemoy aquifer.	2092	8413	12 June 2009, UN#09-280, RAI 101 ML0916902281	Per email from Henry Jones 7/22/09, the applicant expects to send a response by 9/14/09.
2.4.12	2.4.12-6	Groundwater heads and estimated hydraulic gradients were observed to be variable in time.: Given the limited number of observations (one year of monthly head data) provide a discussion of the potential impact of temporal variability in head on the estimated groundwater velocities and travel times.	2092	8414	12 June 2009, UN#09-280, RAI 101 ML0916902281	Per email from Henry Jones 7/22/09, the applicant expects to send a response by 9/14/09.
2.4.12	2.4.12-7	In FSAR Section 2.4.12.4, provide specific details of the anticipated groundwater monitoring programs during CCNPP Unit 3 construction and operation, including monitoring objectives, monitoring locations, what quantities will be measured, and the frequency of monitoring.	2092	8415	02 July 2009, UN#09-302, RAI 101 ML0918802451	A revision to FSAR Section 2.4.12.4 was proposed. The revision describes a program of groundwater head monitoring during construction and operation. Existing wells to be included in the construction monitoring and

						a set of proposed wells to be included in the operational monitoring are described. An additional figure showing well locations is proposed as part of the FSAR revision. RAI Status: Closed.
2.4.12	2.4.12-8	Provide an electronic copy of the Visual MODFLOW input files used in the groundwater modeling discussed in FSAR Section 2.4.12.5.	2092	8416	20 May 2009, UN#09-243, RAI 101 ML0914705730	MODFLOW input files were provided, they appear to represent the most recent modeling of the Surficial aquifer, and the files appear to be complete. RAI Status: Closed.
2.4.12	2.4.12-9	The DCD requirement on subsurface hydrostatic loading states that the maximum groundwater level is 1.0 m below grade. The results of the groundwater modeling described in FSAR Section 2.4.12.5 and Calculation No. 25237-103-KOC-HMMG-00001, Groundwater Flow Model of Surficial Aquifer, show that the DCD requirement is not satisfied at several locations and that the predicted groundwater level is very close to the DCD requirement (within one meter) over a relatively large area. Provide a discussion of the degree of conservatism of the model results and the reliability of meeting the DCD requirement on maximum groundwater level considering the following issues: The observed average fluctuation in the surficial aquifer was 1.2 m over the year of observation;	2092	8417	15 June 2009, UN#09-290, RAI 101 ML0916800361	Response due 09/14/09

		The calibration errors reported in Calculation No. 25237-103-KOC-HMMG-00001: root mean squared residual of 0.8 m, correlation coefficient of 0.525; The use of the pre-construction, calibrated recharge value of 8.7 in/yr for post-construction conditions; Other model errors, such as not accounting for the presence of building foundations and the surface of cut areas prior to filling; Clarify the locations of and other names for the buildings identified in Calculation No. 25237-103-KOC-HMMG-00001, Groundwater Flow Model of Surficial Aquifer, as having a depth to groundwater of less than 1.0 m: buildings 1UQB, 1URB, 1UBP, and 2UBP. A figure was provided as Attachment 3 to the Calculation that was indicated to identify these buildings. However, only 1URB could be identified on this figure, the easternmost building in the nuclear island.				
2.4.12	2.4.12-10	Calculation No. 25237-103-KOC-HMMG-00001, Groundwater Flow Model of Surficial Aquifer, concludes with the following statement: "To explain the area around the power block where the saturated thickness of the surficial aquifer is zero, detailed modeling should be conducted. This should account for the building foundations, which will act as barriers to groundwater flow, potentially raising the water-table. The other feature that should be incorporated is the surface of the cut areas prior to filling. This will provide a more accurate representation of the base of the fill/top of the surficial aquifer." Provide a discussion describing how the issues raised in these conclusions are being addressed. If additional modeling has been conducted, describe this modeling and provide electronic versions of the model input files used.	2092	8418	15 June 2009, UN#09-290, RAI 101 ML0916800361	Response due 09/14/09
2.4.12	2.4.12-11	At the site hydrology audit the applicant stated that a new modeling effort will be looking at post-construction effects to the Upper Chesapeake unit. This was in reference to a question about alternative pathways considered and consistency between FSAR 2.4.12 and 2.4.13. If this new modeling has been conducted, describe this modeling and provide electronic versions of the model input files used.	2092	8419	15 June 2009, UN#09-290, RAI 101 ML0916800361	Response due 09/14/09
2.4.12	2.4.12-12	Clarify whether the electrical manholes referred to in the last paragraph of FSAR Section 2.4.12.5 are safety-related.	2092	8420	12 June 2009, UN#09-280, RAI 101 ML0916902281	Per email from Henry Jones 7/22/09, the applicant expects to send a response by 9/14/09.
2.4.13	2.4.13-1	Provide confirmation of, and the technical basis for, the use of the Reactor Coolant Storage Tank as the source tank with the greatest	2093	8421	15 July 2009, UN#09-296, RAI 104	In the RAI response, the

		inventory for the purposes of the accidental release analysis.			ML0920100981	applicant confirmed that total activity released in their scenario from the reactor coolant storage tank bounds the other potential liquid sources. RAI Status: Closed.
2.4.13	2.4.13-2	Provide a reference for the radionuclide activities used as the source in the accidental release analysis (FSAR Table 2.4-44).	2093	8422	15 July 2009, UN#09-296, RAI 104 ML0920100981	The applicant described the basis for the source term activities, with reference to ANSI/ANS 18.1, the DEI-131 Tech. Spec., and the range of burn-up considered in determining bounding activities. I expected to see a reference to the DCD in the response, but did not so I compared the applicant's source term to the DCD Tier 1 Table 5.0-1, Inventory of Radionuclides Which Could

						Potentially Seep Into the Groundwater, and found that the applicant's source was more conservative. This issue should be coordinated with the SRP 11.2 review. RAI Status: Closed.
2.4.13	2.4.13-3	Provide information on the presence or absence of chelating agents in the tank used for the source in the accidental release analysis. Also discuss the planned use of any chemical agents anywhere at the site which could modify the radionuclide transport characteristics of the subsurface region.	2093	8423	15 July 2009, UN#09-296, RAI 104 ML0920100981	The applicant confirmed that no chelating agents will be present in the reactor coolant storage tanks and described the use of chelating agents in the Radioactive Waste Processing Building. RAI Status: Closed.
2.4.13	2.4.13-4	Provide a discussion of the technical basis for concluding that the postulated groundwater pathway is conservative, including discussion of the following: • The assumption that a transport analysis that does not consider hydrodynamic dispersion is conservative for a constituent subject to decay; • A conservative analysis of the limiting value for a radionuclide mixture considers the possible combination of radionuclides at the boundary of the unrestricted area due	2093	8424		No schedule for a response has been provided by the applicant.

		to variation in K_d values and does not simply assume minimum K_d values for all radionuclides in the mixture; • Possible alternative pathways, e.g., to the underlying aquifer or to St. John's Creek and Branch 3; • The impact of site construction (excavation and fill) on possible alternative transport pathways; • Consistency with FSAR Sections 2.4.12 and 2.5.4.				
2.4.13	2.4.13-5	Provide (in the Richland Reading Room) an electronic copy of the Excel spreadsheet used to calculate the radionuclide concentrations.	2093	8425		The spreadsheet was provided. RAI Status: Closed.