

PMSTPCOL PEmails

From: Anand, Raj
Sent: Monday, July 20, 2009 9:39 AM
To: Mookhoek, William; Stephens Scot
Cc: STPCOL
Subject: Questions that we plan to discuss during audit 7/229-30, 2009
Attachments: Chapter 11 Questions_with Chapter 12 added.doc

Hi Scot,

I am enclosing in draft the questions that the NRC staff plans to discuss during the audit scheduled for July 29-30, 2009. These questions may be edited, revised or deleted based upon the discussions we will have with you during the audit. If the response to the questions are needed on the docket for the development of the SER, the staff will issue these questions as RAIs.

Thanks,
Raj

Raj Anand

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The following table represents a draft list of discussion items/questions that staff plans to discuss during the safety site audit for the STP Units 3 & 4 COLA FSAR Chapters 11 and 12. Additional items or changes may be added to the existing list, based on discussion and review.

Preliminary Information Needs for the STP Site Audit for FSAR Chapters 11 and 12

Serial #	FSAR Section	Discipline	Information Needs	Reviewer	Resolved	eRAI #	Letter #
1	11.2-4 with applicability to 11.3, 11.4 and 11.5	Liquid Waste Management System	<p>A review of STP FSAR Chapter 11 (Tier 2, Rev. 2) and applicant's response to RAI 11.04-1 (STP Letter ABR-AE-08000046, June 26, 2008) indicates that specific changes are proposed for the radioactive waste management, including the LWMS, GWMS, and SWMS, described in FSAR Sections 11.2, 11.3, and 11.4, respectively. The Departures Report indicates that the departures have been evaluated and determined to comply with the requirements of 10 CFR Part 52, Appendix A, Section VIII.B.5. Given that the DCD systems designs were completely replaced, the staff was not able to find enough information with which to determine the acceptability of the applicant's evaluation process in light of the requirements of Appendix A to Part 52. It is not clear if the applicant performed a full evaluation in assessing whether the proposed changes are consistent with the requirements of Part 52, Appendix A, Section VIII.B (Tier 2 Information), paragraphs 5.b.(2), (4), and (6) in concluding that NRC approval is not required for the changes described in the Departures Report. Specifically, the staff needs to confirm the following in order to reach a finding of reasonable assurance on applicable Part 20 and Part 50 regulations given the proposed changes made to all radwaste management systems:</p> <p>a. LWMS, GWMS, and SWMS - The response contained in STP Letter ABR-AE-08000046 (June 26, 2008) indicates that the Part 52 Appendix A "screening evaluations were recreated" because previous documents were not available. The applicant is requested to describe the process and procedures that</p>	S. Williams		2752	109

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			<p>STP developed and used in documenting all DCD departures. In addition to the requested description of the process and procedures, provide copies of the documentation packages generated in screening the design changes of the LWMS, GWMS, and SWMS.</p> <p>b. LWMS - The response contained in STP Letter ABR-AE-08000046 (June 26, 2008) indicates that the failure of the Low Conductivity Collector Tank remains the limiting accident and, consequently, the proposed change does not result in an increase in the frequency of the limiting accident previously evaluated in the DCD. However, it is not clear if the evaluation considered the use of a skid mounted LWMS system setup and operated near a loading dock, which affords greater opportunities for spills and leaks to impact the environment. Accordingly, the applicant is requested to provide information showing whether the screening process did consider the failure of components from the skid-mounted LWMS system, and that if it were to fail, the resulting release of liquid waste would comply with the effluent concentration limits and unity-rule of Appendix B (Table 2) to Part 20 and dose limits to members of the public under Parts 20.1301 and 20.1302, and criteria of radwaste tank failure consequence analysis of SRP Section 11.2 and BTP 11-6 (NUREG-0800, March 2007).</p> <p>c. GWMS and OGS - A review of the Departures Report indicates that the number of charcoal adsorber vessels and their configuration have been changed when compared to the DCD. The Departures Report also states that there is no impact on the probability or consequence of an accident or system or component malfunction. However, it is not clear if the evaluation considered that changes in the configuration of charcoal vessels and changes in operating temperatures of the</p>				

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			<p>charcoal beds negatively affect the holdup times of noble gases and removal efficiencies of iodines in charcoal delay beds. Accordingly, the applicant is requested to provide information showing that the screening process did consider such system parameters in confirming that gaseous effluent releases will comply effluent concentration limits and unity-rule of Appendix B (Table 2) to Part 20 and dose limits to members of the public under Parts 20.1301 and 20.1302.</p> <p>d. OGS - A review of the Departures Report indicates that the number of charcoal adsorber vessels and their configuration have been changed when compared to the DCD. The Departures Report also states that there is no impact on the probability or consequence of an accident or system or component malfunction. However, it is not clear if the evaluation considered that changing the configuration of the OGS from an integrated unit to a recombiner train would change the vulnerability of the system to withstand internal effects of H₂/O₂ detonations, whether the revised design includes instrumentation and analyzers to preclude the formation of explosive gas mixtures, and assessed the radiological impact of an OGS leak or component failure at the EAB given the new design. Accordingly, the applicant is requested to provide information showing whether the screening process did consider the such considerations for the OGS, and that if it were to fail, the resulting release of gaseous waste would comply with the effluent concentration limits and unity-rule of Appendix B (Table 2) to Part 20 and dose limits to members of the public under Parts 20.1301 and 20.1302, and criteria of radwaste tank failure consequence analysis of SRP Section 11.3 and BTP 11-5 (NUREG-0800, March 2007).</p> <p>Accordingly, the applicant is requested to describe the results of the screening evaluations conducted for each technical and</p>				

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			regulatory aspect identified above and provide supporting information in each applicable FSAR Section, i.e., Sections 11.2, 11.3, and 11.4. The applicant is requested to include in its response supporting information at a level of detail that is adequate for the staff to conduct its own independent evaluation.				
2	11.02-5	Liquid Waste Sys	Please explain how the application demonstrates that the site can meet the general environmental radiation standard in 40 CFR Part 190 (per 10 CFR 20.1301(e)), and provide sufficient information for the staff to evaluate the bases and assumptions used in the applicant's analysis. Please incorporate this analysis into the FSAR or justify its exclusion	S. Williams		2955	393
3	11.03-2	Gas Waste Sys.	ESTB 11-5 is being utilized as a reference for section 15.7.1.1. ESTB 11-5 is not a current version document. SRP BTP 11-5 Revision 3 is the most current. Based upon the changes included in the current version of BTP11-5, are there any calculations in this section 15.7.1.1 that may need changed	S. Williams		2982	394
4	11.03-3	Gas Waste Sys.	STP responses to RAI 02.03.05-8 and RAI 02.03.04-5 indicate changes to the X/Q and D/Q dispersion factors. These factors are used in calculating the gaseous effluent doses to the MEI and the gaseous effluent doses for normal gaseous releases. FSAR section 12.2.3.1 states, "Using site-specific parameters, the average annual liquid releases and the average annual airborne releases to the environment have been computed and are shown in Tables 12.2-20 through 12.2-23." The applicant is requested to address and resolve the following: Since these dispersion factors have changed as indicated in RAI 02.03.05-8 & RAI 02.03.04-5, have the related gaseous effluent doses in Tables 12.2-20 through 12.2-23 been re-evaluated?	S. Williams		3280	

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5	11.03-4	Gas Waste Sys.	<p>FSAR Section 15.7 Radioactive Release from Subsystems and Components has a sub section 15.7.1.1 Basis and Assumptions that states; "Therefore, inadvertant operator action with bypass of the delay charcoal beds is analyzed for compliance to ESTB 11-5."</p> <p>Effluent Systems Treatment Branch (ESTB) no longer exists and ESTB-11 has been revised and now exists as SRP BTP 11-5, version 3.</p> <p>a. What version of SRP BTP 11-5 was used to used to analyze for compliance with this section?</p> <p>b. What source term was utilized for the determination of the "radioactive flow" through the offgas system.</p> <p>c. How were the radioactivity levels in excess of environmental limits determined, "which are defined by 10CFR20as not greater than 2×10^{-2} m Sv/h at the site boundary."?</p> <p>Please provide the details, such as source term, flow estimate and X/Q dispersion as to how the radioactivity levels are determined.</p>			2983	
6	12.2.2.2	Gas Waste Sys.	<p>Please provide detailed information to enable the staff to validate and verify the estimated doses cited in FSAR section 12.2.2.2 with respect to the dose objectives of Appendix I to 10 CFR Part 50 and the dose limits in 10 CFR 20.1301(e); please revise the FSAR to include this information, or justify its exclusion. The information should include the following:</p> <ul style="list-style-type: none"> • a complete description of how the applicant derived all the 	R. Kellner		3018	

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			<p>values listed in Table 12.2-21, including all assumptions made</p> <ul style="list-style-type: none"> • citations to any reference material used (for documents not publicly available please provide a copy for staff's use) • detailed breakdown of individual doses by pathway and organ • detailed breakdown of population doses by pathway and organ 				
7	11.4	Solid Waste Sys.	<p>STP 3 & 4 COL FSAR Section 11.4.3, Plant Specific Solid Radwaste Information, Item (2), states "The wet waste solidification process and the spent resin and sludge dewatering process will result in products that comply with 10 CFR 61.56 for STP 3 & 4 as provided in Radioactive Waste Process Control Program (PCP). The PCP utilized by Units 1 & 2 is provided with the COL application and the latest revision will be provided as per the schedule in Table 13.4S-1."</p> <p>FSAR Section 11.4.3, Item (3) states, "Establishment and implementation of a process control program (PCP) for the dewatering processing of the spent resins and filter sludges for STP 3 & 4 is provided in Radioactive Waste Process Control Program (PCP). The PCP utilized by Units 1&2 is provided with the COL application and the latest revision will be provided as per the schedule in Table 13.4S-1."</p> <p>Therefore, the PCP will be common to all four units on site. In keeping with the policy of utilizing a site PCP, please answer the following:</p> <ol style="list-style-type: none"> 1) Verify that STP has reviewed Nuclear Energy Institute (NEI) document NEI 07-10A, "Generic FSAR Template Guidance for Process Control Program (PCP)" for applicability and possible incorporation into the STP 3 & 4 COL. 2) NEI 07-10A "identifies the administrative and 	S. Williams		3172	

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			<p>operational controls for waste processing, process parameters, and surveillance requirements which assure that the final waste product meets the requirements of applicable Federal, State and Disposal Site waste form requirements for burial at a 10 CFR 61 licensed Low Level Waste (LLW) disposal site." If STP has reviewed NEI 07-10A and determined that it will not be incorporated into the FSAR, modify all applicable FSAR Sections to fully describe all elements of the PCP program, or justify an alternative. Otherwise, reference NEI 07-10A in the STP FSAR.</p>				
8	11.1	Source Terms	<p>FSAR Section 11.1 defines the source terms in reactor water and steam which serve as design bases for gaseous, liquid, and solid radioactive management systems. The values listed in FSAR Table 11.1-6 are expressed in the units required by the procedure in ANSI/ANS 18.1.</p> <p>FSAR Section 1.9 identifies the version of ANSI/ANS 18.1 utilized in the STP FSAR as ANSI/ANS 18.1 - 1984.</p> <p>SRP 11.1 page 11.1-5 item 9., states "If the applicant's calculational technique or any source term parameter differs from that given in ANSI/ANS 18.1-1999, NUREG-0016, or NUREG-0017, they should be described in detail and the bases for the methods and/or parameters used should be provided.</p> <p>Please provide the description in detail and the bases for the methods and/or parameters used in FSAR Section 11.1 that differ from ANSI/ANS 18.1 - 1999.</p>	S. Williams		2959	
9	11.3	Gaseous Waste Sys.	<p>Question 12951</p> <p>In Standard Review Plan (SRP) Section 11.3, "Gaseous Waste</p>	S. Williams		3256	

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			<p>Management System,” Section 4 of SRP Acceptance Criteria, it states, “System designs should describe features that will minimize, to the extent practicable, contamination of the facility and environment; facilitate eventual decommissioning; and minimize, to the extent practicable, the generation of radioactive waste in accordance with Regulatory Guide 1.143, for gaseous wastes produced during normal operation and anticipated operational occurrences, and the requirements of 10 CFR 20.1406 or the DC application, update in the SAR, or the COL application to the extent not addressed in a referenced certified design.”</p> <ul style="list-style-type: none"> · STD DEP 10.4-5, Table 11.3-3, “Equipment Malfunction Analysis,” removes equipment from consideration and only includes the preheater, recombiner, and condenser. In the FSAR, provide justification or clarification on why the other equipment analyzed in Table 11.3-3 of the DCD are no longer included in Table 11.3-3, “Equipment Malfunction Analysis,” of the FSAR. · STD DEP 10.4-5 of the FSAR, Figures 11.3-1, “Offgas System PFD,” and 11.3-2 “Offgas System P&ID,” make substantial changes from the same figures given in the DCD. For example, Figure 11.3-2, “Offgas System P&ID,” of the DCD, note 6 states, “After any valve closes due to high radiation signal, it shall remain closed until reset by manual switch.” Note 6 is given with reference to the last valve before the final vent of the Gaseous Waste Management System (GWMS). <p>In the FSAR, provide justification and clarification of the omission of these notes, including but not limited to note 6, annunciator alarms, piping specifications, and other design information that was provided in the DCD.</p>				

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10		11.3	<p>Question 12949</p> <p>In Technical Rationale Section 5 of the Standard Review Plan (SRP) Section 11.3, "Gaseous Waste Management System," it states, "Compliance with GDC 60 requires that design provisions be included in the nuclear power unit to control releases of radioactive materials in gaseous effluents to the environment during normal reactor operation, including anticipated operational occurrences."</p> <p>STD DEP 10.4-5, Section 11.3.3.3, "Process Facility," proposes to remove the phrase, "If any of these conditions cannot be met with reactor condensate, the coolant should be supplied by a closed cooling water system of reliability and quality equal to that of reactor condensate." The staff notes that Section 11.3.3.3, "Process Facility," changes the coolant for the offgas condensers from reactor condensate to turbine building cooling water (TCW). In the FSAR, provide additional discussion on how the TCW provides equivalent reliability and quality as reactor condensate as a suitable coolant for the offgas condensers, and provide discussion on how the offgas condensers are cooled in the event TCW is not available.</p>	S.Williams		3256	
11	12.2, 12.3-4	Radiation Sources and Radiation Protection Design Features	<p>As a result of STD DEP 11.2-1, STD DEP 11.3-1, and STD DEP 11.4-1 the applicant has replaced, or significantly modified, the liquid, gaseous, and solid waste management systems as submitted in the STP 3 & 4 FSAR,. The radwaste management system changes resulted in resizing and redesigning the radwaste building which in turn required that the radwaste building normal and post-accident dose calculations and radiation zone maps be revised. In reviewing the normal and post-accident dose information provided and referenced in Section 12.3 of the STP 3 & 4 FSAR, the staff determined that redesign of the radwaste management systems and radwaste building may:</p> <p>a. result in more than a minimal increase in the consequences of an accident previously evaluated in the</p>	R. Kellner		3289	

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			<p>plant-specific DCD;</p> <p style="text-align: center;">-or-</p> <p>b. result in more than a minimal increase in the consequences of a malfunction of a SSC important to safety previously evaluated in the plant-specific DCD.</p> <p>As a result, the basis is unclear for how the applicant determined compliance of STD DEP 11.2.1, STD DEP 11.3-1, and STD DEP 11.4-1 with 10 CFR Part 52, Appendix A, Section VIII.B.5.b, specifically Criteria 3 and 4.</p> <p>Therefore, the staff requests that the applicant provide further detail of the STP radwaste building normal and post-accident dose evaluations with respect to compliance with the relevant requirements in 10 CFR 50.34(f)(2)(viii), 10CFR 50.34(f)(2)(xxviii), NUREG 0737 Section II.B.2, and GDC 19 requirements regarding operator access to plant vital areas during and following a reactor accident. In addition, the staff requests that the applicant provide further detail with respect to GDC 61 requirements regarding adequate shielding, containment and confinement of radioactive waste, and other systems which may contain radioactivity.</p>				