## PMSTPCOL PEmails

**From:** Anand, Raj
**Sent:** Tuesday, September 21, 2010 9:20 AM
**To:** scstephens@stpegs.com; wemookhoek@stpegs.com; ccchappell@stpegs.com
**Cc:** Wunder, George; Eudy, Michael; Spencer, Michael; Stutzcage, Edward; Roach, Edward; STPCOL
**Subject:** Draft eRAIs related to Chapter 12 for the conference call on Wednesday, September 22 (PUBLIC)
**Attachments:** RAIs 5049 and 5050.docx

**Hearing Identifier:** SouthTexas34Public_EX
**Email Number:** 2406

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**Subject:** Draft eRAIs related to Chapter 12 for the conference call on Wednesday, September 22 (PUBLIC)
**Sent Date:** 9/21/2010 9:20:14 AM
**Received Date:** 9/21/2010 9:20:16 AM
**From:** Anand, Raj

**Created By:** Raj.Anand@nrc.gov

**Recipients:**
"Wunder, George" <George.Wunder@nrc.gov>
Tracking Status: None
"Eudy, Michael" <Michael.Eudy@nrc.gov>
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**Post Office:** HQCLSTR01.nrc.gov

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| MESSAGE | 3 | 9/21/2010 9:20:16 AM |
| RAIs 5049 and 5050.docx | 20227 | |

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

**Draft RAIs related to Chapter 12 for the conference call**

**RAI 5049**

The staff has reviewed the information provided in the revised response to RAI 12.02-14. On the basis of this review, the staff has the following questions, regarding this RAI.

1. The response includes STP 3&4 FSAR revisions to ABWR DCD Tables 12.2-5a and 12.2-5b as well as new Tables 12.2-31 (SFP Peak Gamma Radiation Source) and 12.2-32 (SFP Peak Neutron Source). These new tables provide the source term for the Spent Fuel Pool (SFP) based on 270% of the core load one day post shutdown. However, the response does not include a source term for radionuclides (corrosion and fission products) contained in the SFP water. This information is necessary to perform radiation dose calculations for workers standing on the fuel handling bridge and to completely satisfy Tables 12.2-5a and 12.2-5b of the ABWR DCD, which state that the SFP radiation source and geometry information is the applicant's responsibility. Also, Regulatory Guide 1.206, Section C.I.12.2.1 "Contained Sources", states that the applicant is to provide the models, parameters, and bases for all values used to calculate source magnitudes, for normal and accident conditions. Please provide this SFP water source term information and include it in the STP 3&4 FSAR.

2. A figure was included in the RAI response showing a vertical cut view of the SFP. Some of the dimensions on the figure appear to be inconsistent with the spent fuel storage shielding dimensions shown in Table 12.2-5c of the ABWR DCD and STP 3&4 FSAR. In addition, this figure does not include some of the dimensions and spatial relationships needed by the staff to perform a shielding calculation. Specifically, there appears to be an inconsistency between the depth of water above the fuel assemblies as shown in the SFP figure and the depth of water as indicated in Table 12.2-5c. In addition, the figure does not show the minimum distance between the top of a raised fuel assembly at maximum height and the SFP water surface, the height of the SFP fuel pool bridge above the water surface, and the location of refueling personnel during refueling operations on the fuel pool bridge. In order for the staff to be able to perform an accurate deep dose equivalent calculation for a person standing on the fuel pool bridge, please provide an updated figure of the SFP, addressing these items.

3. As stated in item 1 above, additional information is needed in order to perform a radiation dose calculation for workers standing on the fuel handling bridge. During refueling operation ANSI/ANS-57.1-1992 states that fuel handling equipment shall be designed so that the operator will not be exposed to >2.5 mrem/hr (25 μSv/hr) from an irradiated fuel unit, control component, or both, elevated to the up-position interlock with the pool at normal operating water level. Verify that the maximum dose rate to an operator on the fuel handling bridge will not exceed the 2.5 mrem/hr criteria stated in this ANSI/ANS standard.

4. Regulatory Guide 1.206, Section C.I.12.3.2, states that the applicant should provide information regarding the shielding of each radiation source. Section C.I.12.1.3 of this Regulatory Guide also states that applicants should describe how operating procedures will be used to ensure doses are kept ALARA. The RAI response does not provide a description of any design features/access controls that will be used to limit the dose rate to individuals working in the Spent Fuel Pool area. Please provide a description of any design features/access controls (such as installing additional shielding to the fuel handling bridge/refueling machine to lower dose rates to the operator on the fuel handling bridge and minimizing the personnel stay times on the refueling bridge) that will be used, to ensure that the dose to refueling personnel are maintained ALARA during refueling operations.

5. ABWR DCD Chapter 12 figures provide radiation zone maps for areas adjacent to the spent fuel storage room. Please confirm that the dose rates in areas adjacent to the SFP room will be no higher than what is indicated in the ABWR DCD Chapter 12 figures and include any changes in estimated dose rates in the Chapter 12 FSAR radiation zone maps.

**RAI 5050**

In response to RAI 12.02-18 (Letter U7-C-STP-NRC-100111, ADAMS Document Number ML101390226), STP provided additional information concerning the Condensate Storage Tanks (CST). In this response, STP also contends that this additional information on the CST will not be described further in the STP 3 &4 COLA FSAR since the description of the CST is incorporated by reference from ABWR DCD Section 9.2.9. This response is similar to previous RAI responses, in which STP provided the requested information but did not include the information in the FSAR. However, it is the staff's opinion that STP has not provided adequate information in the COL FSAR to satisfy the following:

1. COL License Information Item 12.3 (Section 12.1.4.3 of the ABWR DCD) states that, "COL applicants will provide, to the level of detail provided in Regulatory Guide 1.70, the criteria and/or conditions under which various operating procedures and techniques shall be provided to ensure that occupational radiation exposures ALARA are implemented." Section 12.1.3 of Regulatory Guide 1.70 states "In the FSAR, provide the criteria and/or conditions under which various operating procedures and techniques for ensuring that occupational radiation exposures are ALARA are implemented for all systems that contain, collect, store, or transport radioactive liquids, gases, and solids". Since NRC staff cannot identify any operating procedures or techniques associated with the CST, for ensuring that occupational radiation exposures are ALARA, described in the STP 3&4 FSAR, the staff does not believe that COL License Information Item 12.3 has been adequately addressed in the STP 3&4 FSAR. In addition, Regulatory Guide 1.70 also states that sources of radiation should be described, and that the description should

tabulate sources by isotopic composition or gamma ray energy groups, source strength, and geometry, as well as provide the basis for the values. Therefore, in accordance with Regulatory Guide 1.70, the COL applicant should include information on CST source composition, geometry, strength, and any controls for access, in the FSAR. Most of this information was previously provided (but not incorporated into the FSAR) in prior RAI responses.

2. Regulatory Guide 1.206, Section C.I.12.2.1, which is based on Regulatory Guide 1.70, states that COL applicants should describe any additional radiation sources that were not previously identified in the DCD. However, STP has not identified the CST as a radiation source in the FSAR. Please update the STP 3&4 FSAR Tables 12.2-5a, 12.2-5b, and 12.2-5c to include information identifying the CST as a radiation source, in accordance with Regulatory Guide 1.206.