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JUNE 1, 2009
U7-C-STP-NRC-090053

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Response to Request for Additional Information

Attached are the responses to the NRC staff questions included in Request for Additional Information (RAI) letter number 105 related to Combined License Application (COLA) Part 2, Tier 2, Section 5.4. This submittal completes the response to this RAI letter.

The attachments address the responses to the RAI questions listed below:

RAI 05.04.07-1
RAI 05.04.07-2
Rai 05.04.07-3

RAI 05.04.07-4
RAI 05.04.07-5
RAI 05.04.07-6

There are no commitments in this letter.

If you have any questions, please contact me at (361) 972-7136, or Bill Mookhoek at (361) 972-7274.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 6/1/09



Scott Head
Manager, Regulatory Affairs
South Texas Project Units 3 & 4

rhs

Attachments:

1. Question 05.04.07-1
2. Question 05.04.07-2
3. Question 05.04.07-3
4. Question 05.04.07-4
5. Question 05.04.07-5
6. Question 05.04.07-6

cc: w/o attachment except*
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RAI 05.04.07-1**QUESTION:**

In conjunction with Subsection 5.4.7.1.1.6, the staff reviewed sheet 11 of Figure 7.3-4 and the logic sequencing of the various RHR modes in FSAR Subsection 7.3.1.1, Systems Descriptions, to assist in clarifying STD DEP 5.4-3 departure, and it was noted that the wetwell spray mode logic sequencing did not mention or reference that wetwell spray mode “must be used in conjunction with the suppression pool (S/P) cooling mode” to support the description in Subsection 5.4.7.1.1.6. The applicant states that the wetwell and drywell operating logic sequencing most commonly occurs after LPFL initiation and proceeds through step (viii) which describes the wetwell spray valve alignment without including the suppression pool mode valve alignment. Provide an explanation for excluding the suppression pool mode valve alignment in this logic sequence or provide a wetwell spray mode function “only” logic sequence which includes the suppression pool valve alignment.

RESPONSE:

Manual initiation of wetwell spray without operating drywell spray is performed in conjunction with the suppression pool cooling mode to achieve rated flow through the RHR heat exchanger for containment cooling, as recommended for the performance of a required surveillance, and as stated in FSAR Subsections 5.4.7.2.6 and 5.4.7.1.1.6.

The RHR/Wetwell and Drywell Spray Cooling Mode logic sequencing is described in COLA Rev 2 Subsection 7.3.1.1.3(3)(b)(viii). In this mode of operation, the corresponding loop suppression pool return valves will be closed (Figure 7.3-4, Sh. 20a) so that rated flow in the RHR loop will not be exceeded.

Initiation of suppression pool cooling in conjunction with wetwell cooling is a manual operation and is not a result of any instrumentation or control logic. Therefore, the suppression pool mode valve alignment is not applicable to Section 7.3.1.1.3 and does not need to be described in that section.

No COLA revision is required as a result of this response.

RAI 05.04.07-2**QUESTION:**

During the review of Section 5.4.7, the staff referred to Subsection 7.3.1.1.3 to supplement the review of STD DEP 5.4-3 departure and found several editorial errors in (b) Logic Sequencing subsection. In the first editorial, the applicant refers to “LPCF initiation”; however, the acronym LPCF is not listed in Tier 1 Appendix B, Abbreviations and Acronyms. The staff believes this acronym should be LPFL. Correct the acronym or provide justification for using it and add it to Appendix B. Also, in (b) Logic Sequencing subsection (ii), there are two “to” string together in the sentence. Remove one of the “to”.

RESPONSE:

The editorial errors as noted in the question will be corrected in the next revision of the COLA. These corrections to Section 7.3.1.1.3 of Rev 2 of the COLA are shown below with the changed portions highlighted in gray.

7.3.1.1.3 RHR/Wetwell and Drywell Spray Cooling Mode—Instrumentation and Controls*(b) Logic Sequencing*

Wetwell and or Drywell Spray Modes can be entered separately or by initiating the Containment Spray Mode (which activates both). Most commonly this occurs after ~~LPCF~~ LPFL initiation.

The operating sequence of wetwell and drywell spray following receipt of the after LPFL initiating signals initiation is as follows:

- (i) The RHR pumps ~~are~~ continue operating.*
- (ii) Valves in other RHR modes are automatically repositioned to LPFL injection ~~to~~ the Wetwell / Drywell Spray Modes.*
- (iii) The service water emergency pumps ~~are signaled to start.~~ continue running.*

RAI 05.04.07-3**QUESTION:**

In STD Departure 5.4-3 Table 5.4-5, the RHR relief valves E11-F028A-C and E11-F051A-C lift pressure was changed from 3.44 MPaG to 3.43 MPaG to be consistent with DCD Tier 2 Figure 5.4-10 Sheets 3, 4 and 6. The staff concludes that change is conservative; however, since the change represents a difference of approximately 1.5 psi, the staff is concerned whether the revised values affected the outcome of any analysis. Discuss the change in the calculated peak reactor pressure as a result of the set point change.

RESPONSE:

The change from 3.44 MPaG to 3.43 MPaG based on STD DEP 5.4-3 was intended to correct a typographical error in DCD Tier 2 Table 5.4-5 which incorrectly showed a setpoint value of 3.44 MPaG. The correct setpoint which is reflected in DCD Figure 5.4-10 sheets 3, 4 and 6 is 3.43 MPaG. The analyses performed in the DCD for determination of peak reactor pressure are unaffected by this setpoint change because it is not used in the analyses. Therefore, there is no change in the peak calculated reactor pressure as a result of this setpoint change in Table 5.4-5.

There is no COLA change required for this response.

RAI 05.04.07-4**QUESTION:**

In STP DEP 6C-1 departure, the applicant stated that the new ECCS strainer design affects the available net positive suction head (NPSH). Provide the reference or discussion of the evaluation performed to determine the effects on the RHR system performance due to a reduction of approximately 16 percent in NPSH. Include a comparison of the available NPSH to the required NPSH. Also, provide the reference to the experimental data that verifies the calculated head loss overestimates the actual head loss in respect to NUREG/CR-6224.

RESPONSE:

The reduction of approximately 16 percent in NPSH as noted in the RAI applies to the required NPSH for the RHR pump and not the available NPSH. This is a result of the change reflected in Section 5.4.7.2.2 and Figure 5.4-11 Note 7 in Part 2 Tier 2 of COLA Rev 2 which reduces the required NPSH for the RHR pump from 2.4m to 2.0m.

The comparison of available NPSH to required NPSH was addressed in the response to RAI 06.02.02-1 which was transmitted from STP to the NRC via Letter No. U7-C-STP-NRC-090044 dated May 13, 2009. In the RAI 06.02.02-1 response, STPNOC committed to make available for NRC audit the strainer sizing evaluation for Hamaoka 5 (H5), which has CCI cassette-type ECCS strainers which are the same type being used on STP 3&4. The STP 3&4 strainer sizing evaluation has not yet been performed. The H5 ECCS suction strainer evaluation is expected to bound the STP 3&4 strainer sizing because the primary containment insulation materials that could cause the largest head loss are not in the STP 3&4 design. The H5 ECCS strainer sizing evaluation (which includes post-LOCA debris estimates, transport to strainer, head loss due to debris and confirmatory testing, in accordance with NUREG/CR-6224) will be available after May 31.

No COLA change is required in response to this RAI.

RAI 05.04.07-5**QUESTION:**

The staff noted that an editorial error of the acronym for net positive suction head was submitted in the FSAR Revision 2. In Subsection 5.4.7.2.2, under Part (1) System Main Pumps, the net positive suction head is recorded as HPSH. It should be corrected to NPSH.

RESPONSE:

The editorial error as noted in the question, as well as one additional editorial error in the same location in Section 5.4.7.2.2, will be corrected in the next revision of the COLA. These corrections to Section 5.4.7.2.2 of Rev 2 of the COLA are shown below with the changed portions highlighted in gray, and restore the text to as it appeared in the DCD.

5.4.7.2.2 Equipment and Component Description**(1) System Main pumps**

Net positive suction head ~~(HPSH)~~ (NPSH) 2.4m 2.0m
at 1m ~~about~~ above the pump floor
setting

RAI 05.04.07-6**QUESTION:**

In addition to RHR Subsection 5.4.7.2.2, the applicant stated that STD DEP 6C-1 changes were applied to RHR Figure 5.4-11. The staff was unable to identify these changes. Identify the STD DEP 6C-1 changes on Figure 5.4-11.

RESPONSE:

The change to Figure 5.4-11 as a result of STD DEP 6C-1 was to Note 7. Based on that departure, the Note in COLA Rev 2 reads: "The NPSH available in modes A and C-1, at a reference location 1 meter above the pump mounting floor must equal or exceed 2.0 meters...." The underlined value of 2.0 meters was changed from the DCD value of 2.4 meters. The Figure 5.4-11 mark-up provided in COLA Rev 2 mislocated the identification of the changed area in that note and as a result the change was not evident.

No COLA change is required in response to this RAI.