



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

November 15, 2010  
U7-C-STP-NRC-100249

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
One White Flint North  
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Rockville, MD 20852-2738

South Texas Project  
Units 3 and 4  
Docket Nos. 52-012 and 52-013  
Response to Request for Additional Information

Attached is a revised response to an NRC staff question included in Request for Additional Information (RAI) letter number 364 related to Combined License Application (COLA) Part 2, Tier 2, Appendix 6C.

The Attachment addresses the response to the RAI question listed below:

RAI 06.02.02-28

There are no commitments in this response.

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

D091  
NRO

STI 32784752

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

Executed on 11/15/10



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

jet

Attachment:

RAI 06.02.02-28 Revision 1

cc: w/o attachment except\*  
(paper copy)

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**RAI 06.02.02-28 Revision 1****QUESTION:**

The June 10, 2010, response, to RAI 06.02.02-27 states that the sodium pentaborate from the Standby Liquid Control (SLC) System will be initiated during a LOCA in order to control the suppression pool pH. Please provide the calculated post-LOCA 30-day pH profile and describe the administrative controls that will be in place to ensure initiation of the SLC System injection.

**REVISED RESPONSE:**

This provides a revised response to the original response provided in STPNOC Letter No. U7-C-STP-NRC-100234 dated October 25, 2010. Changes from the original response are identified with revision bars in the margin.

The 30-day pH profiles for the STP 3&4 suppression pool following a LOCA are provided in the proprietary Toshiba Report No. SCO-2010-000050, dated September 14, 2010. This report is currently available for NRC review.

The Toshiba report evaluates the post-LOCA suppression pool pH both for Alternate Source Term (AST) and Design Basis Event (DBE) cases. The DBE cases do not assume fuel damage, and therefore include only production of nitric acid in the Reactor Pressure Vessel (RPV) as a contributor to changes in suppression pool pH. The AST cases, which assume that a severe accident results in release of radioactive inventory to the suppression pool, are not currently part of the STP 3&4 licensing basis, and would not apply to an assessment of the capability of the ECCS to prevent core damage.

For the DBE cases, the Toshiba report shows that suppression pool pH would gradually trend downward due to postulated nitric acid formation in the reactor pressure vessel, if sodium pentaborate is not injected via the Standby Liquid Control (SLC) system. For the AST (non-licensing basis) cases, the Toshiba report shows that the suppression pool pH would begin to drop much more quickly if sodium pentaborate is not injected via the SLC system. For both the DBE and AST cases, if sodium pentaborate is injected, the suppression pool pH would remain at about 8.4-8.6 for the 30-day post-LOCA period.

Post-LOCA pH control actions will be performed in accordance with plant procedures to maintain pH levels within the licensing basis limits of 5.3 to 8.9 as stated in DCD Tier 2, Subsection 3I.3.2.3. Technical Support Center (TSC) actions will be based on containment parameters, including the initial pH in the Suppression Pool and/or any sample results obtained post-LOCA and will be included in the procedures to be used by the technical staff in the TSC during an emergency response.

As discussed in previous RAI responses, the suppression pool pH profile is important to the evaluation of chemical effects on ECCS system components and fuel. Specifically, the licensing

bounding values of pH (5.3 and 8.9) are used as appropriate to predict maximum corrosion rates of latent aluminum and zinc due to destroyed inorganic zinc primer from the coatings system. Additionally, in order to resolve NRC concerns about the use of solubility data, which is a function of post-LOCA suppression pool pH, STPNOC will conservatively take no credit for solubility of aluminum in either the form of aluminum oxyhydroxide or sodium aluminum silicate. (STPNOC previously stated that it would take no credit for solubility of zinc corrosion products.) See revised RAI Response 06.02.02-30 for the impact of not crediting aluminum solubility for the post-LOCA suppression pool. Also, note that this change in chemical effects evaluation approach bounds the chemical effects within the licensing limits of 5.3 and 8.9 pH.

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