

June 3, 2009

Mr. Scott Head, Manager  
Regulatory Affairs  
STP Nuclear Operating Company  
P. O. Box 289  
Wadsworth, TX 77483

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 116 RELATED TO SRP  
SECTION 02.05.04 FOR THE SOUTH TEXAS PROJECT COMBINED LICENSE  
APPLICATION

Dear Mr. Head

By letter dated September 20, 2007, STP Nuclear Operating Company (STP) submitted for approval a combined license application pursuant to 10 CFR Part 52. The U. S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed application.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

To support the review schedule, you are requested to respond within **45** days of the date of this letter. If changes are needed to the safety analysis report, the staff requests that the RAI response include the proposed wording changes.

S. Head

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If you have any questions or comments concerning this matter, I can be reached at 301-415-6197 or by e-mail at [Tekia.Govan@nrc.gov](mailto:Tekia.Govan@nrc.gov) or you may contact George Wunder at 301-415-1494 or [George.Wunder@nrc.gov](mailto:George.Wunder@nrc.gov).

Sincerely,

**/RA/**

Tekia V. Govan, Project Manager  
ABWR Projects Branch  
Division of New Reactor Licensing  
Office of New Reactors

Docket Nos.: 52-012  
52-013

eRAI Tracking No. 2623

Enclosure:  
Request for Additional Information

cc: William Mookhoek  
Richard Bense

S. Head

-2-

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NRO-002

OFFICE	RGS1/TR	RGS1/BC	NGE2/PM	OGC	NGE2/L-PM
NAME	WBieganousky	CMunson	TGovan	SBrock	GWunder
DATE	04/21/2009	04/21/2009	06/03/2009	04/21/2009	05/05/2009

**\*Approval captured electronically in the electronic RAI system.**

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## Request for Additional Information No. 2623 Revision 2

**South Texas Project Units 3 and 4  
South Texas Project Nuclear Operating Co  
Docket No. 52-012 and 52-013  
SRP Section: 02.05.04 - Stability of Subsurface Materials and Foundations  
Application Section: 2.5.4**

QUESTIONS for Geosciences and Geotechnical Engineering Branch 1 (RGS1)

### **02.05.04-22**

There is very little information in the FSAR regarding the presence of fissures and slickensides in the Beaumont clay, whereas FSAR reference 2.5S.4-14A by Mahar and O'Neil address the difficulties of measuring soil properties of stiff fissured clays both in the lab and insitu. Since the referenced work is based on Beaumont clay, and is the basis for some of your assumptions regarding engineering properties of the site soils, the staff believes it would be helpful that you address more fully the nature and distribution of fissures and slickensides with respect to that presented in reference 2.5S.4-14A.

Please provide a thorough discussion regarding the dessication features you encountered in the Beaumont clay. Please discuss how the dessication features compare to that presented in the reference 2.5S.4-14A. Please indicate how the various laboratory and insitu test results are conservative in the evaluation of the engineering properties used for bearing capacity, slope stability and settlement analyses.

### **02.05.04-23**

The FSAR supplemental exploration data contains CPT soundings that show high pore water pressure response in a zone of silt (based on soil behavior type) in the depth range of 48 feet to 60 feet and 80 feet to 100 feet (reference CPT soundings C-304 and C-305s, for example). Similar high pore water pressure response is observed in other soundings across the site occurring at various depths, but typically below 48 feet. This appears to correspond to layers D and F in FSAR Section 2.5.4.2. The staff understand that high pore water pressure response is normally associated with contractive behavior, and more near normally consolidated soils. OCR average values determined from site-wide CPT soundings for the depths under consideration are shown to range from 4.2 to 1.7, as shown on FSAR Figure 2.5S.4-33. The range of individual OCR predictions from CPT measurement are very widely spread between approximate depths of 40 and 65 feet in this figure.

Please discuss how you interpret the high pore water pressure response measured in the over-consolidated clay soils. Since your strength determinations for layers D and F use OCR relationships to evaluate insitu shear strength, is there concern that the high pore water pressure response observed in the CPT data may indicate lower OCR values and consequently lower undrained shear strength? Please justify your strength parameters for layers D and F in light of the CPT pore water pressure response.

Enclosure