September 23, 2010

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

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 407 RELATED TO THE SRP SECTION 12.02 FOR THE SOUTH TEXAS COMBINED LICENSE APPLICATION

Dear Mr. Head:

By letter dated September 20, 2007, South Texas Project Nuclear Operating Company (STPNOC) 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 30 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.

If you have any questions or comments concerning this matter, you may contact me at 301-415-1146 or Raj.Anand@nrc.gov, or you may contact George Wunder at 301-415-1494 or George.wunder@nrc.gov.

Sincerely,

**/RA/**

Raj Anand, Project Manager
BWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013
eRAI Tracking No: 5049

Enclosure:
Request for Additional Information

cc: William Mookhoek

If you have any questions or comments concerning this matter, you may contact me at 301-415-1146 or Raj.Anand@nrc.gov, or you may contact George Wunder at 301-415-1494 or George.wunder@nrc.gov.

Sincerely,

**/RA/**

Raj Anand, Project Manager
BWR Projects Branch
Division of New Reactor Licensing
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Docket Nos. 52-012
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Enclosure:
Request for Additional Information

cc: William Mookhoek

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

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**South Texas Project Units 3 and 4**
**South Texas Project Nuclear Operating Co**
**Docket No. 52-012 and 52-013**
**SRP Section: 12.02 - Radiation Sources**
**Application Section: 12.2 - Radiation Sources**

QUESTIONS for Health Physics Branch (CHPB)

12.02-20
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.