

June 24, 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. 129 RELATED TO
SRP SECTION 8.3.1 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 301-415-4093 or by e-mail at Adrian.Muniz@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Adrian Muñiz, Project Manager
ABWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013

eRAI Tracking No. 2389

Enclosure:
Request for Additional Information

cc: William Mookhoek
Richard Bense

S. Head

-2-

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NAME	BBhatia	RJenkins	AMuñiz	SKirkwood	GWunder
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***Approval captured electronically in the electronic RAI system.**

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Request for Additional Information No. 2389 Revision 2

**South Texas Project Units 3 and 4
South Texas Project Nuclear Operating Co.
Docket No. 52-012 and 52-013
SRP Section: 08.03.01 - AC Power Systems (Onsite)
Application Section: SRP 8.3.1**

QUESTIONS for Electrical Engineering Branch (EEB)

08.03.01-1

FSAR Subsection 8.3.1.1.1 describes the need for tripping the condensate pumps when a feedwater line break inside the drywell is detected and the use of dual trip coils to ensure that tripping will occur. The applicant stated that the breaker control power and trip circuits will not fully meet the RG 1.75 separation requirements. Discuss the separation guidance criteria of RG 1.75 that are not being met and why this is acceptable. Additionally, discuss the results of the reliability assessment performed in accordance with GDC 21.

08.03.01-2

FSAR Subsection 8.3.1.1.1 indicates the use of two circuit breakers in series, one safety-related and one non-safety-related, to assure the tripping of the condensate pumps in the event of a feedwater line break inside containment. The subsection also indicates the use of dual trip coils powered by redundant Class 1E sources for each breaker to assure the tripping of the circuit breakers. Since a non-safety-related component cannot be relied upon to perform a safety-related function, indicate why two safety-related breakers are not being used to assure conformance with the single failure criterion.

08.03.01-3

FSAR Subsection 8.3.1.1.4.1 describes the use of four 120 VAC "Class 1E instrument power systems", rather than the three identified in the corresponding DCD section. Discuss how the STP logic philosophy differs from the DCD philosophy and discuss the utilization difference between the 120 VAC Class 1E power of this subsection and the 120 VAC vital power in Figure 8.3-3 of the ABWR DCD. Additionally, discuss the impact of a loss of voltage to the instruments supplied by the "Class 1E instrument power systems" for a period of 10 minutes during a station blackout event.

08.03.01-4

In NUREG 0800, Standard Review Plan Section 8.3.1, Subsection 4.J., "SRP Acceptance Criteria," it is stated: "Acceptance criteria for the interface between the onsite ac power system and the offsite power system to satisfy the requirements of GDC 17 in evolutionary light water reactor design applications are documented in SECY-91-078, which states that the design should include at least one offsite circuit to each redundant safety division supplied directly from one of the offsite power sources with no intervening non-safety buses in such a manner that the offsite source can power the safety buses upon the failure of any non-safety bus." These guidance criteria are reflected in the DCD design where one winding of the reserve auxiliary transformer (RAT) is connected directly to a source breaker of each of the three safety-related buses. The offsite power circuit, as described in FSAR Section 8.3.1 and Figure 8.3-1, is connected to the safety buses through an intermediate bus that also supplies

non-safety loads. Discuss how the STP design meets the SRP and SECY-91-078 guidance and how is it consistent with the DCD design.

08.03.01-5

In FSAR Subsection 8.3.1.0.1 regarding the plant investment protection (PIP) buses, it is stated that on loss of normal or alternate preferred power, an automatic transfer of pre-selected buses occurs via dead bus transfer to the combustion turbine generator (CTG) which automatically starts on loss of power. Alternate power to the PIP buses is provided through 4.16 KV bus CTG3 and this same bus is normally supplied by RAT B. Describe the interlock that would prevent paralleling the CTG source with the RAT B source.

08.03.01-6

FSAR Subsection 8.3.1.1.1 describes the medium voltage Class 1E power distribution system. Explain why various bus ratings identified in the corresponding section of the ABWR DCD have been deleted.

08.03.01-7

FSAR subsection 8.3.1.1.8.2 (item 12) states that the maximum loads, expected to occur for each division, do not exceed 95% of the continuous power output rating of the diesel generator. Based on Table 8.3-1 for Diesel Generator B (Division II), the identified connected load exceeds the kW continuous rating of the diesel generator. Also, the operating loads exceed 92% of the generator continuous rating with an additional 677 kW in standby and short time loads. Confirm that the total diesel loading, including standby and short time loads, does not exceed the stated 95% of the continuous rating of the diesel generator in accordance with the guidance of RG 1.9.

08.03.01-8

As shown in various ABWR DCD 8.3 Figures, uninterruptible power supplies include rectifiers and inverters. Discuss the procedures that will be developed to address the periodic testing of these components.

Also, discuss the administrative controls that will be put in place to assure the proper control of Class 1E fuses used throughout the plant. Class 1E fuses are used throughout the plant, as required by 10 CFR 50, Appendix B, Criterion III, Design Control.

08.03.01-9

In FSAR subsection 8.3.4.4 it is stated that, "procedures include periodic testing and calibration of the protective devices (except for fuses which will be inspected) to demonstrate their functional capability for the safety-related circuits that pass through the containment electrical penetration assemblies." GDC 50 requires that penetrations be designed to assure containment integrity. Containment integrity can be compromised by short circuits affecting non-safety related circuits within the containment during a design basis accident. Confirm whether the above procedures will also include periodic testing and calibration of protective devices associated with the non-safety related circuits that pass through the containment electrical penetration assemblies. If not, provide justification for the omission and assess potential safety consequences.

08.03.01-10

In FSAR Subsection 8.3.4.30, Periodic Testing of Electrical Systems and Equipment, the applicant indicates that procedure will be developed for the periodic testing of electrical equipment in accordance with surveillance and test requirements of IEEE 308. Class 1E electrical equipment also includes isolation devices, as discussed in IEEE 384, endorsed by RG 1.75. Confirm that all electrical isolation devices used for achieving electrical independence will undergo periodic testing, in accordance with 10 CFR 50, Appendix B, Criterion XI, Test Control.

08.03.01-11

In FSAR Subsection 9.5.13.8 (item 3), the applicant refers to Subsection 8.3.4.2 for a discussion of diesel generator no-load or low-load operation. However, the referenced subsection does not address no-load or low-load operation. Clarify the statement and provide either an appropriate reference or discuss the issue in either subsection.

08.03.01-12

STP DEP T1 2.15-2 RBSRDG HVAC revises DCD Tier 1 Subsection 2.15.5 DG engine room maximum temperature limit during DG operation from 50°C to 60°C. Discuss the effect of temperature increase from 50°C to 60°C on (1) DG performance (DG rating, effects on electronic components associated DG control system, etc.), (2) Cable ampacity, (3) mild environment equipment qualification, and (4) operation of other equipment in the room if any.