

November 16, 2007

Mr. Mark McBurnett, Vice President
Regulatory Affairs
South Texas Project Nuclear Operating Company
P.O. Box 289
Wadsworth, TX 77483

SUBJECT: ACCEPTANCE REVIEW OF THE COMBINED LICENSE APPLICATION FOR
SOUTH TEXAS PROJECT (STP), UNITS 3 AND 4

Dear Mr. McBurnett:

By letter dated September 20, 2007, the STP Nuclear Operating Company submitted a combined license (COL) application to the U.S. Nuclear Regulatory Commission (NRC) to construct and operate two Advanced Boiling Water Reactors. The NRC Staff is in the process of completing its acceptance review for that application. Enclosed is a list of issues that we have come across during the course of our acceptance review. These issues, except for those relating to load bearing capacity of the soil, were discussed with your staff in telephone conferences conducted during the course of our review. This information is being provided for your review and future action as appropriate. A decision on the acceptance of the COL application for docketing will be issued upon the conclusion of our review.

On November 13, 2007, STP provided supplemental information. We recognize that this information may address some of the issues set forth in the enclosure, and we will revise the status of these issues and provide you with an update when we have completed our review of the supplemental information.

Should you have any questions, please contact George Wunder, the lead project manager for the STP COL application, at (301) 415-1494 or gfw@nrc.gov.

Sincerely,

/RA/

David B. Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Project No. 0749

Enclosure:
As Stated

ISSUES IDENTIFIED IN THE ACCEPTANCE REVIEW OF THE STP COL APPLICATION

- Departure Evaluations: Twelve departures are identified in the COL application as requiring staff approval. These departures were not evaluated against the March, 2007 version of the Standard Review Plan (SRP) as required by 10 CFR 52.79(a) (41).
- Missing Departures: Staff has identified nine departures related to Auxiliary Systems that were not included in the departures report. These departures were under Sections 9.1.2 - Spent-Fuel Storage and 9.1.3 - Fuel Pool Cooling and Cleanup System. A complete report containing a brief description of all plant-specific departures from the DCD, including a summary of the evaluation of each as required by 10 CFR Appendix A, X.B.1 needs to be provided.
- Digital Instrumentation and Control: Standard Departure STD DEP T1 3.4-1 addresses Tier 1, and Tier 2 safety-related instrumentation and control (I&C) architecture. This departure is not adequately described in that a) the justification for this departure does not provide a discussion of the compliance of the ABWR I&C architecture with current requirements (i.e., IEEE-603-1991) as required by 10 52.79(a)(41); b) the departure does not include a sufficient level of detail for the staff to reach its safety conclusion as required by 10 CFR 52.79(a)(5); and, c) the departure does not provide a plan and schedule for the implementation of the I&C design acceptance criteria (DAC) which, though not a regulatory requirement, was requested by Section C.III.5.1 of RG 1.206.
- Structural: The staff found the following potential Tier 1 changes. These changes were not identified in the COL application, nor were exemptions sought under 10 CFR 52.63(b)(1).
 - a. the required shear wave velocity for the Reactor Building design was changed from a lower bound of 1000 ft/sec to an average shear wave velocity of greater than 1000 ft/sec.
 - b. the required shear wave velocity for the Radwaste building design changed from a lower bound of 1000ft/sec to a minimum of 743 ft/sec; and
 - c. the peak ground acceleration for the Radwaste building design changed from the required value of 0.3 g to 0.15 g.
- Radwaste Building: No design information was provided. This was identified as a Tier 2 change that did not require prior NRC approval.
- Ultimate Heat Sink: The COL application did not provide a design for the ultimate heat sink, reactor service water pump houses, or reactor service water piping tunnel; therefore, COL information items 3.3, 3.4, and 3.24 are left inadequately addressed, and the staff cannot determine whether or not your application is in conformance with 10 CFR 52.79(a)(5).

- Hydrological Engineering: The COL application does not contain the information in the level of detail recommended by Regulatory Guide (RG) 1.206, Section C.I.2.4 in regard to a) effects of sediment deposition caused by main cooling reservoir breach, b) effects from tsunamis caused by potential marine landslides, or c) identification of potential critical groundwater pathways. Without this information, the staff cannot determine whether or not the requirements of 10 CFR Part 50, Appendix A, General Design Criterion 2; 10 CFR 52.17(a)(1)(vi); 10 CFR 100.20(c); and 10 CFR 100.23(d)(3) are met.
- Technical Specifications: The COL application Technical Specification and Technical Specification Bases contain a large quantity of bracketed information and a significant number of empty brackets. Though some of this information (e.g., that associated with design acceptance criteria) is not available, much of the bracketed information will be required before issuance of a COL. Without this information, the staff cannot determine whether or not the application meets the requirements of 10 CFR 52 Appendix A, IV.A.2.c for COL information item 16-1, neither can we determine whether or not the Technical Specifications meet the requirements of 10 CFR 50.36.
- Physical Security and Fitness for Duty: The COL application did not contain all necessary information; for example, a physical security plan, training and qualification plan, and the safeguards contingency plan specific for Units 3 and 4. The Physical Security Plan should address the requirements of 10 CFR Parts 11 and 73 and the fitness-for-duty program should address those of 10 CFR Parts 52.79(a)(44) and 26.
- Operational Program : The application does not fully describe the Inservice Inspection and Inservice Testing Programs for Pumps and Valves as required by 10 CFR 52.79(a). These operational programs are described in 10 CFR 50.55a(f) and (g). STP may fully describe these programs by addressing the items in RG 1.206, Section C. I. 3.9.6, "Functional Design, Qualification, and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints."
- Seismology and Geotechnical Engineering: Without the following information, the staff cannot determine whether or not the application meets the requirements of 10 CFR 52.79(a)(1) and 10 CFR 100.23. STP may provide the necessary information by addressing the elements of RG 1.206, Section C. I. 2.5
 - (a) The COL application presented limited soil dynamic testing data, and did not incorporate this data as part of the soil amplification calculation. The limited data deviates from the generic soil degradation curves for soil modulus reduction and damping ratio used in the calculation. The COL application did not follow either RG 1.206 or the limited sampling option, (endorsed with comments through "NRC Staff Draft Interim Staff Guidance on Seismic Issues" dated August 15, 2007).
 - (b) No subsurface exploration (borings) was conducted at the proposed site for the Radwaste Building for STP Unit 4 or within the footprint of either of the UHS

pump houses, which are all Category 1 structures, and are required to have subsurface exploration completed and submitted in the COL application.

(c) The application deviates from SRP 2.5.4.3 in that no boring logs or lab test data related to foundation interfaces were provided.

(d) Dewatering plans for the excavation were not provided.

(e) There is a discrepancy between the shear wave velocity cited in the ABWR Design Certification Document and that cited in the COL application. This was not identified by STP as a Tier 1 departure, and does not meet the ABWR DCD site design parameter requirement for the minimum shear wave velocity of 1000 ft/s.

(f) Settlement and differential settlement of Category 1 structures greatly exceed settlement criteria for this class of structure.

(g) Bearing Capacity of several Category 1 structures does not appear to meet the minimum required 15 KSF in the ABWR DCD. For example, Unit 3 is 8.9 KSF with clay soil, or 14.3 KSF for sand. This appears to be a Tier 1 departure.

Environmental Report (ER): The staff found that some sections of the ER do not provide the detail (or tell the story) to understand the decision-making process that lead to the conclusions in the ER. The following paragraphs detail the sections of the ER in which the required level of detail has not yet been provided.

- The discussion of the alternative site selection process is not sufficiently detailed to allow the staff to understand the decision-making process in accordance with Environmental SRP (ESRP) Section 9.3.
- STP did not conduct an adequate cultural resources survey in accordance with ESRP Sections 2.5.3, 4.1.3, and 5.1.3. The ER relies heavily on the survey conducted in 1973 for existing units 1 and 2, and did not provide the necessary information to bring this section current.
- The ER provides information on aquatic species in the Colorado River before 1991. Current aquatic species can only be determined by way of an adequate aquatic monitoring program established in accordance with ESRP Sections 5.3.1.2 and 6.5.2, and RG 4.2, Part B, Section 6. The current program, begun in June of 2007, does not specify Colorado River intake and discharge structures as monitoring points; furthermore, it is unclear how many months of monitoring have been completed.

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Sincerely,

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David B. Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Project No. 0749

Enclosure:

As Stated

Distribution: See next page

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