

January 31, 2011

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

SUBJECT: REGULATORY AUDIT SUMMARY OF SOUTH TEXAS PROJECT, UNITS 3  
AND 4 COMBINED LICENSE APPLICATION REVISION 4 – EQUIPMENT  
QUALIFICATION PROGRAM

Dear Mr. McBurnett:

By letter dated September 20, 2007, STP Nuclear Operating Company (STPNOC) submitted to the U.S. Nuclear Regulatory Commission (NRC) a Combined License (COL) application to construct and operate two reactor units (Units 3 and 4) based on the U.S. Advanced Boiling Water Reactor (ABWR) Design Certification at the South Texas Project (STP) Nuclear Power Plant. The NRC Office of New Reactors (NRO) is reviewing the STP COL application that incorporates by reference the ABWR Design Control Document (DCD). As part of this review, the NRO Electrical Engineering Branch (EEB) conducted an audit of documentation supporting the STP COL application on December 7, 2010, at the Westinghouse office in Rockville, Maryland. The NRC staff followed the guidance in NRO Office Instruction NRO-REG-108, "Regulatory Audits," in performing this audit. Enclosure 1 is the detailed results of the audit. Enclosure 2 is a list of the NRC and STPNOC team participating in the audit.

Please contact Tom Tai at (301) 415-8484 or [Tom.Tai@nrc.gov](mailto:Tom.Tai@nrc.gov) if you have any questions related to the audit.

Sincerely,

*/RA/*

Mark Tonacci, Chief  
BWR Projects Branch  
Division of New Reactor Licensing  
Office of New Reactors

Docket Nos.: 52-012  
52-013

cc: See next page

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**ACCESSION NO. ML103550420**

**NRO-002**

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# **DETAILED AUDIT RESULTS FOR EQUIPMENT QUALIFICATION PROGRAM**

**DECEMBER 7, 2010**

## **1. Introduction**

On September 20, 2007, STP Nuclear Operating Company (STPNOC) submitted to the U.S. Nuclear Regulatory Commission (NRC) a Combined License (COL) application to construct and operate two reactor units (Units 3 and 4) based on the U.S. Advanced Boiling Water Reactor (ABWR) Design Certification at the South Texas Project (STP) Nuclear Power Plant. The NRC Office of New Reactors (NRO) is reviewing the STP COL application that incorporates by reference the ABWR Design Control Document (DCD). As part of this review, the NRO Electrical Engineering Branch (EEB) conducted an audit of documentation supporting the STP COL application on December 7, 2010, at the Westinghouse office in Rockville, Maryland. The NRC staff followed the guidance in NRO Office Instruction NRO-REG-108, "Regulatory Audits," in performing this audit. Participants in this audit are in Attachment 2.

## **2. Background**

On November 10, 2009, and August 2, 2010, the NRC staff conducted audits of the environmental qualification program at the Westinghouse office in Rockville, Maryland. The purpose of the audits was to confirm the implementation of the ABWR DCD provisions for the Equipment Qualification operational program by the COL applicant. As discussed in NRC memorandums dated December 7, 2009 and September 1, 2010 (ADAMS Accession No. ML093220094 and ML102230215, respectively), the NRC staff reviewed the description of the STP Units 3 and 4 EQ program in Toshiba Project Document No. 7A10-0301-0025, "Environmental Qualification Program." In addition, NRC staff also reviewed the equivalency evaluation report (EER) developed to ensure that the requirements in NEDE-24326-1-P are properly captured in the EQP, and several pump and valve design and procurement specifications. Based on the audits, NRC staff concludes that the EQ Program for mechanical components is clearly and sufficiently described in terms of scope and level of detail to allow a reasonable assurance finding of acceptability. In the September 1, 2010 audit report, NRC staff identified that Toshiba Project Document No. 7A10-0301-0025, "Environmental Qualification Program," should be placed on the docket. Furthermore, the staff also found that the EER needed clarification because the applicant did not have sufficient documentations to demonstrate how and why some of the NEDE-24326-1-Requirements are different from the EQP.

## **3. Objectives and Approach**

The NRC staff performed the audit with three objectives. First, the audit provided for NRC review of information that supports the description of the operational programs for inservice testing (IST), motor-operated valve (MOV) testing, and environmental qualification (EQ) to be developed for STP Units 3 and 4. Second, the audit provided for NRC review of the new design for the turbine-pump used in the reactor core isolation cooling (RCIC) system. Third, the audit provided for NRC review of a sample of STP departures from the ABWR DCD related to the IST program. The audit approach involved detailed discussions of the STP responses to requests for additional information (RAIs) related to these technical areas, and review of plant-specific design and procurement specifications made available by STP personnel.

Enclosure 1

#### **4. Technical Review**

On December 7, 2010, the staff conducted an audit of the equivalency evaluation report (EER) developed by Toshiba, and the equipment qualification program (EQP) of STP Units 3 and 4, at the Westinghouse office in Rockville, MD. The staff found that the EQP (7A10-0301-0025) is in general consistent with GE NEDE-24326-1-P with few observations (see below in "Conclusion"). The staff noted that the EQP used RG 1.89, Rev.1; RG 1.100, Rev. 2; IEEE Std 344-1987, and 10 CFR 50.49 as reference whereas GE NEDE-24326-1-P used RG 1.89, Rev.0; RG 1.100, Rev. 1; and IEEE Std 344-1974 as reference. The staff finds that the use of later revision of regulatory guides, IEEE Standards, and 10 CFR 50.49 makes the EQP improved. During a teleconference call on December 13, 2010, the applicant stated that STP will revise the STP FSAR to reference the STP EQP and EER that establishes an EQ bridge to proprietary GE EQ Program document NEDE-24326 referenced in the ABWR DCD. STP will submit the EQP and EER for docketing as proprietary documents, and will provide a non-proprietary version to be made available to the public.

#### **5. Conclusion**

The NRC staff considers the audit to have been successful. Based on the review and discussion with the STP EPC team, the staff has the following observations:

- 1) "Qualification by Analysis" section needs to identify and evaluate potential failure modes of the product. Extrapolation that is part of analytical techniques is not consistent GE NEDE document.
- 2) EQP needs to discuss how it meets the requirements of GDC 1, 2, 4, and 23 OF 10 CFR 50, Appendix A and Criterion III, XI, and XVII of 10 CFR 50, Appendix B.
- 3) EQP Section 10.1.5 needs to be revised to address test accuracy and calibration information.
- 4) EQP Section 10.1.6 needs to be revised to include submergence.
- 5) EQP, Table B-2 used "short duration" without any definition.

**AUDIT PARTICIPANTS  
DECEMBER 7, 2010**

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Amar Pal	NRC
Peter Kang	NRC
Caroline Schlaseman	MPR/TANE
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James Parelo	WEC
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1. Participated part-time via computer connection

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(Revised 01/25/2011)

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