

March 9, 2011

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

FROM: Tom Tai, Senior Project Manager **/RA/**
BWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: MARCH 14 - 18, 2011, AUDIT OF NUCLEAR INNOVATION NORTH
AMERICA, LLC, COMBINED LICENSE APPLICATION SEISMIC
DESIGN AND SUPPORTING ANALYSES

By letter dated September 24, 2008, STP Nuclear Operating Company (STPNOC, applicant) submitted Revision 2 of the South Texas Project (STP) Units 3 and 4 Combined License Application (COLA). The staff has identified a need to audit the seismic design and supporting analyses that support STP Units 3 and 4 COLA. The audit will take place at the Sargent and Lundy office in Chicago, Illinois from March 14 - 18, 2011. A copy of the audit plan is enclosed.

Docket Nos.: 52-012
52-013

Enclosure:
As stated

CONTACT: Tom Tai, NRO/DNRL
301-415-8484

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ADAMS Accession No: ML110670406

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DATE	3/9/11	3/9/11	3/9/11	3/9/11	3/9/11

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**AUDIT PLAN TO REVIEW SEISMIC DESIGN AND SUPPORTING ANALYSES
STP UNITS 3 AND 4 COMBINED LICENSE APPLICATION**

APPLICANT: Nuclear Innovation North America, LLC

APPLICANT CONTACT: Scott Head
John Price
Bill Mookhoek, et. al.

DATE/TIME: March 14 -18, 2011
8:30 a.m. - 5:00 p.m.

LOCATION: 55 E. Monroe St.
Chicago, IL 60603

REVIEWERS: Kimberly Hawkins (NRO/DE/SEB2)
Samir Chakrabarti (NRC/DE/SEB2)
Manas Chakravorty (NRC/DE/SEB2)
Mansour Tabatabaie (NRC Consultant)
Peter Arnold (NRC Consultant)
M. K. Ravindra (NRC Consultant)
Basilio Sumodobila (NRC Consultant)

BACKGROUND

On September 20, 2007 STP Nuclear Operating Company (STPNOC) submitted to the U.S. Nuclear Regulatory Commission (NRC), a Combined License Application (COLA) Final Safety Analysis Report (FSAR) to construct and operate two additional units (Units 3 and 4) based on the U.S. Advanced Boiling Water Reactor (ABWR) Certified Design Control Documents (DCD) at the South Texas Project Nuclear Power Plant (STPNPP) site located in the County of Matagorda near Bay City, Texas.

The NRC staff is reviewing the STP Units 3 and 4 combined license (COL) application that incorporates by reference the design certification for the ABWR. Due to the number of open items and the need to perform a comprehensive review, the Structural Engineering Branch 2 (SEB2) proposes to conduct an audit in support of the review of Chapters 3.7 and 3.8. The NRC staff will perform the audit at the Sargent & Lundy office in Chicago, Illinois. The NRC staff will follow the guidance in NRO Office Instruction NRO-REG-108, "Regulatory Audits," in performing this audit.

Enclosure 1

PURPOSE AND APPROACH

The purpose of this audit is to review analyses performed to support the seismic design and analyses for the STP Units 3 and 4 COL application. Some of these calculations are proprietary. Any significant findings during the audit will be documented in the audit report and requests for additional information may be issued for scheduled action.

AUDIT ACTIVITIES AND SCHEDULE

The NRC staff will conduct the audit from March 14 -18, 2011. The NRC staff may request an ad-hoc extension of the audit if deemed necessary. Such an extension will be requested before the meeting is adjourned on March 18, 2011 by the NRC staff responsible for the audit.

Following the audit, the NRC staff responsible for the audit will assemble and prepare a final audit report. The final report will be made available to all contributors.

The audit agenda is provided as Enclosure 2. Please contact Tom Tai at 301-415-8484 or at Tom.Tai@nrc.gov if you have any questions related to the audit.

**Proposed Agenda
U. S. Nuclear Regulatory Commission
South Texas Project Combined License Application
Seismic Design and Supporting Analyses Audit
March 14 - 18, 2011**

Monday, March 14, 2011: AUDIT - Proprietary

8:30 a.m. - 9:00 a.m.	Entrance/ Introduction	NRC/STPNOC
9:00 a.m. - 12:00 p.m.	Development of acceleration time-histories matched to 0.3g RG 1.60 for seismic SSI analysis of site-specific structures (Ch 3.7)	
	Review of findings and action items from previous audit. Discuss RAI responses to 03.08.01-9, 03.08.04-17, -18, -28, -29, -31, and -32 and any supporting documents. (Ch 3.8)	NRC
12:00 p.m. - 1:00 p.m.	Lunch	
1:00 p.m. - 4:30 p.m.	Site-specific seismic analyses of UHS basin and RSW Pump House (Ch 3.7).	NRC
	Review calculations for foundation bearing pressure for wind and tornado loadings for UHS/PH. Review of design calculations for DGFOVS design input, structural analysis model, design of walls, floors, foundations, and other structural components, stability evaluation. (Ch 3.8)	
4:30 p.m. - 5:00 p.m.	Summary for the Day and Actions	NRC/STPNOC

Tuesday, March 15, 2011: AUDIT - Proprietary

8:30 a.m. - 9:00 a.m.	Review Plan and Scope of the Day	NRC/STPNOC
9:00 a.m. - 12:00 p.m.	Site-specific seismic analyses of UHS basin and RSW Pump House (Ch 3.7)	
	Design of DGFOVS (Ch 3.8)	NRC
12:00 p.m. - 1:00 p.m.	Lunch	
1:00 p.m. - 4:30 p.m.	Site-specific seismic analyses of UHS basin and RSW Pump House (Ch 3.7) Design of DGFOVS including design considerations for seismic wave propagation (Ch 3.8)	NRC
4:30 p.m. - 5:00 p.m.	Summary for the Day and Actions	NRC/STPNOC
		Enclosure 2

Wednesday, March 16, 2011: AUDIT - Proprietary

8:30 a.m. - 9:00 a.m.	Review Plan and Scope of the Day	NRC/STPNOC
9:00 a.m. - 12:00 p.m.	Site-specific seismic analyses of DGFO vault (Ch 3.7)	
	Design of DGFO including design considerations for seismic wave propagation (Ch 3.8)	NRC
12:00 p.m. - 1:00 p.m.	Lunch	
1:00 p.m. - 4:30 p.m.	Site-specific seismic analyses of DGFO tunnel (Ch 3.7) Design of RSW piping tunnel including design considerations for seismic wave propagation (Ch 3.8)	NRC
4:30 p.m. - 5:00 p.m.	Summary for the Day and Actions	NRC/STPNOC

Thursday, March 17, 2011: AUDIT - Proprietary

8:30 a.m. - 9:00 a.m.	Review Plan and Scope of the Day	NRC/STPNOC
9:00 a.m. - 12:00 p.m.	Computer software validation and verification and structural Mesh Refinement Sensitivity Studies (Ch 3.7)	NRC
	Validation and verification of computer codes (TEMCO, GT STRUDL, DYNAS, SAFE, APLAN, PCACOLUMN, PLAXIS, ANSYS, and SAP2000) (Ch 3.8)	NRC
12:00 p.m. - 1:00 p.m.	Lunch	
1:00 p.m. - 4:30 p.m.	Site specific seismic analyses of radwaste building (Ch 3.7)	NRC
	V&V of computer programs (Ch 3.8)	
4:30 p.m. - 5:00 p.m.	Summary for the Day and Actions	NRC/STPNOC

Friday, March 18, 2011: AUDIT – Proprietary

8:30 a.m. - 9:00 a.m.	Review Plan and Scope of the Day	NRC/STPNOC
9:00 a.m. - 11:00 a.m.	Review of Non-Category I CB Annex (Ch 3.7) V&V of computer programs (Ch 3.8)	NRC
11:00 a.m. - 12:00 p.m.	NRC Caucus	
12:00 p.m. – 1:00 p.m.	Lunch	
1:00 p.m. – 2:00 p.m.	Exit Meeting	