

February 21, 2012

MEMORANDUM TO: Ronaldo Jenkins, Chief
Licensing Branch 3
Division of New Reactor Licensing
Office of New Reactors

FROM: Tom Tai, Senior Project Manager */RA/*
Licensing Branch 3
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: FEBRUARY 27 TO MARCH 3, 2012, AUDIT OF NUCLEAR
INNOVATION NORTH AMERICA, LLC, COMBINED LICENSE
APPLICATION SEISMIC ANALYSES

By letter dated September 20, 2007, South Texas Project (STP) Nuclear Operating Company submitted a combined license application (COLA) for two new units designated STP Units 3 and 4. On January 24, 2011, Nuclear Innovation North America, LLC became the primary applicant for the license for these two units.

The staff has identified a need to audit the seismic design analyses that support STP Units 3 and 4 COLA to address the additional analyses resulting from the compliance to Regulatory Guide 1.221, and Department of Energy's discovery of technical problems with the computer code, system for analysis of soil structure interaction. The audit will take place at the Sargent and Lundy office in Chicago, Illinois from February 27 to March 3, 2012. A copy of the audit plan is enclosed.

Docket Nos.: 52-012
52-013

Enclosure: As stated

cc w/encl.: See next page

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

MEMORANDUM TO: George Wunder, Chief
Licensing Branch 3
Division of New Reactor Licensing
Office of New Reactors

FROM: Tom Tai, Senior Project Manager */RA/*
Licensing Branch 3
Division of New Reactor Licensing
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CONTACT: Tom Tai, NRO/DNRL
301-415-8484

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ADAMS Accession No: ML120470531

NRO-002

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DATE	02/17/12	02/17/12	02/21/12	02/21/12	02/21/12

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**AUDIT PLAN TO REVIEW SEISMIC ANALYSES
SOUTH TEXAS PROJECT 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: February 27 – March 3, 2012
8:30 a.m. - 5:00 p.m.

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

REVIEWERS: Brian Thomas (NRO/DE/SEB2)
Manas Chakravorty (NRC/DE/SEB2)
Samir Chakrabarti (NRC/DE/SEB2)
George Wunder (NRC/NRO/LB3)
Mansour Tabatabaie (NRC Consultant)
Peter Arnold (NRC Consultant)
M. K. Ravindra (NRC Consultant)

BACKGROUND

On January 20, 2007 South Texas Project (STP) Nuclear Operating Company 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, STP Units 3 and 4 based on the U.S. Advanced Boiling-Water Reactor (ABWR) Certified Design Control Documents (DCD) at the STP Nuclear Power Plant site located in the County of Matagorda near Bay City, Texas. On January 24, 2011, Nuclear Innovation North America, LLC (NINA) became the primary applicant for the license for these two units.

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 technical issue of system for analysis of soil structure interaction identified by the Department of Energy (DOE), supporting analysis has been prepared by NINA's staff to address this technical issue. In addition, as a result of the new Regulatory Guide, 1.221, on hurricane wind, NINA conducted an evaluation of this new parameter on existing design. The Structural Engineering Branch 2 (SEB2) proposes to conduct an audit of these analyses 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 Office of New Reactors (NRO) Office Instruction NRO-REG-108, "Regulatory Audits," in performing this audit.

PURPOSE AND APPROACH

The purpose of this audit is to review analyses performed to address hurricane wind and the technical issue of SASSI that was identified by DOE. This effort is to support the seismic design and analyses for the STP Units 3 and 4 COL application. 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 February 27, 2012 to March 3, 2012. 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 3, 2012 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 Analyses Audit
February 27 – March 3, 2011**

Monday, February 27, 2012: AUDIT - Proprietary

<u>TIME</u>	<u>TOPIC</u>	<u>LEAD</u>
8:30 a.m.	Entrance / Introduction	NRC/NINA
9:00 a.m.	Benchmark Study of Calculation of Section Cut Forces and Moments from SASSI2000 versus SAP2000 (Ch 3.7 & 3.8) Review of calculations to verify design vs. SSI margins for section cut forces (3.8).	
12:00 p.m.		Lunch
1:00 p.m.	Project-Specific Verification of Modified Subtraction Method versus Direct Method (Ch 3.7) Presentation by NINA on lateral soil pressures explaining the soil pressure diagrams for all structures in the FSAR and how H, H', driving soil pressures, and resisting soil pressures are determined (PLI 189, 190, 191) (3.8) Discussions with NINA stability evaluation issues (PLI 192 and 193) (3.8)	
4:30 p.m.	Summary for the Day and Actions	NRC/NINA

Tuesday, February 28, 2012: AUDIT - Proprietary

8:30 a.m.	Review Plan and Scope of the Day	NRC/NINA
9:00 a.m.	Site Specific Seismic analyses of UHS Basin & RSW Pump House to address Subtraction Method Issues (Ch 3.7)	
	Review of lateral soil pressures used in design of Cat I structures (3.8)	
12:00 p.m.		Lunch
1:00 p.m.	Site Specific Seismic analyses of UHS Basin & RSW Pump House to address Subtraction Method Issues (Ch 3.7)	

	Continue review of lateral soil pressures. (3.8) Discussion with NINA regarding PLI 187 and associated items (including in FSAR plans, sections, and dimensions of major elements, etc) (3.8)	
4:30 p.m.	Summary for the Day and Actions	NRC/NINA

Wednesday, February 29, 2012: AUDIT - Proprietary

8:30 a.m.	Review Plan and Scope of the Day	NRC/NINA
9:00 a.m.	Site-Specific Seismic Analyses of RSW Piping Tunnel to address Subtraction Method Issues (Ch 3.7) NINA presentation on hurricane wind design (3.8) Review of calculations for hurricane wind design. (3.8)	
12:00 p.m.		Lunch
1:00 p.m.	Site-Specific Seismic Analyses of DGFOV to address Subtraction Method Issues (Ch 3.7) Continue review of calculations for hurricane wind design. (3.8)	
4:30 p.m.	Summary for the Day and Actions	NRC/NINA

Thursday, March 1, 2012: AUDIT - Proprietary

8:30 a.m.	Review Plan and Scope of the Day	NRC/NINA
9:00 a.m.	Development of Amplified Soil Motions for SSI and II/I Evaluations of Site-Specific Structures Impacted by Subtraction Method Issues (Ch 3.7) Review of Punch List Items and comments on latest FSAR. (3.8)	
12:00 p.m.		Lunch
1:00 p.m.	Site Specific Seismic Analyses of RWB, TB, CBA and SB for II/I Evaluations (Ch 3.7) Review of SER sections with NINA and resolution of open issues. (3.8)	
4:30 p.m.	Summary for the Day and Actions	NRC/NINA

Friday, March 2, 2012: AUDIT - Proprietary

8:30 a.m.	Review Plan and Scope of the Day	NRC/NINA
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9:00 a.m.	Site Specific Seismic Analyses of RWB, TB, CBA and SB for II/I Evaluations (Ch 3.7) Review of SER sections with NINA and resolution of open issues (3.8)
12:00 p.m.	
1:00 p.m.	Review of SER sections with NINA and resolution of open issues (3.7, 3.8)

Lunch

Saturday, March 3, 2012: AUDIT - Proprietary

8:30 a.m.	Review Plan and Scope of the Day
9:00 a.m.	Review of SER sections with NINA and resolution of open issues (3.7, 3.8)
12:00 p.m.	
1:00 p.m.	Discussion of miscellaneous issues with NINA (3.7, 3.8)
3:00 p.m.	NRC Caucus
4:00 p.m.	Exit

NRC/NINA

Lunch

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(Revised 01/26/2012)

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