

June 2, 2016

Ms. Jill S. Monahan, Manager  
Specialized Seismic Option Licensing  
1000 Westinghouse Drive  
Cranberry Township, PA 16066

SUBJECT: AUDIT PLAN FOR REVIEW OF HSP-GW-GLR-001, "THE SPECIALIZED SEISMIC OPTION REPORT"

Dear Ms. Monahan:

The U.S. Nuclear Regulatory Commission (NRC) staff has prepared an audit plan related to the review of the HSP-GW-GLR-001, "The Specialized Seismic Option Report." The audit plan describes the scope and purpose of the audit, identifies the audit team, and describes the documents requested by the NRC staff. The audit plan is enclosed.

The audit will take place at the Westinghouse Rockville Office located at 11333 Woodglen Drive, Suite 202, Rockville, Maryland 20852, on June 7–9, 2016.

If you have any questions, please contact the Project Manager, Bruce Baval, at (301) 415-6715 or [Bruce.Baval@nrc.gov](mailto:Bruce.Baval@nrc.gov).

Sincerely,

***/RA/***

John McKirgan, Acting Chief  
Licensing Branch 4  
Division of New Reactor Licensing  
Office of New Reactors

Project No. 0813

Enclosure:  
As stated

cc: See next page

Ms. Jill S. Monahan, Manager  
Specialized Seismic Option Licensing  
1000 Westinghouse Drive  
Cranberry Township, PA 16066

June 2, 2016

SUBJECT: AUDIT PLAN FOR REVIEW OF HSP-GW-GLR-001, "THE SPECIALIZED SEISMIC OPTION REPORT"

Dear Ms. Monahan:

The U.S. Nuclear Regulatory Commission (NRC) staff has prepared an audit plan related to the review of the HSP-GW-GLR-001, "The Specialized Seismic Option Report." The audit plan describes the scope and purpose of the audit, identifies the audit team, and describes the documents requested by the NRC staff. The audit plan is enclosed.

The audit will take place at the Westinghouse Rockville Office located at 11333 Woodglenn Drive, Suite 202, Rockville, Maryland 20852, on June 7-9, 2016.

If you have any questions, please contact the Project Manager, Bruce Baval, at (301) 415-6715 or [Bruce.Baval@nrc.gov](mailto:Bruce.Baval@nrc.gov).

Sincerely,

*/RA/*

John McKirgan, Acting Chief  
Licensing Branch 4  
Division of New Reactor Licensing  
Office of New Reactors

Project No. 0813

Enclosure:  
As stated

cc: See next page

Enclosure:  
As stated

cc: See next page

DISTRIBUTION:

Public	RidsNroDnrl	RRoche	RidsNroDnrlLB4
RidsAcrcsAcnwMailCenter	RButler	MVera	JMcKirgan
RidsOgcMailCenter	TLupold	RKaras	ANeuhausen
RidsRgn2MailCenter	SSamaddar	TLe	CWu

ADAMS Accession No.: ML16145A284 NRO-002

OFFICE	DNRL/LB4:LA	DNRL/LB4:PM	DE/MEB: BC
NAME	RButler	BBaval	TLupold
DATE	05/26/16	05/31/16	05/18/16
OFFICE	DE/SEB:BC (A)	DSRA/SRSB:BC (A)	DNRL/LB4:BC (A)
NAME	SSamaddar	RKaras	JMcKirgan
DATE	05/31/16	05/31/16	06/2/16

OFFICIAL RECORD COPY

**AUDIT PLAN FOR REVIEW  
OF AP1000 SPECIALIZED SEISMIC OPTION  
June 7–9, 2016**

**A. LOCATION**

This audit will be conducted at:

Westinghouse Electric Company  
11333 Woodglen Drive, Suite 202  
Rockville, Maryland 20852  
Telephone: 301-881-7040

**B. BACKGROUND**

The Westinghouse Electric Company (Westinghouse) AP1000 plant design [Design Control Document (DCD) Revision 19] was certified by the United States Nuclear Regulatory Commission (NRC) on December 30, 2011. A Specialized Seismic Option (SSO) for AP1000 standard design has been developed by Westinghouse for use in locations with seismic levels typically seen in portions of the western United States and certain other countries. The purpose of the SSO is to extend the range of applicability of the AP1000 standard design, by including a different seismic spectrum into the AP1000 plant design.

On December 18, 2015, the staff accepted for review, a Westinghouse topical report addressing the SSO. This topical report provides approach, methods, and changes to adapt the AP1000 plant design to a future combined operating license (COL) applicant's site. Moreover, the topical report provides specific exemptions and departures to support a future COL application in locating an AP1000 plant on a site that meets the appropriate site conditions.

In support of the staff's ongoing review, the staff plans to audit documents that support Westinghouse's SSO topical report evaluations and conclusions.

**C. REGULATORY AUDIT BASES**

- Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criterion 2, "Design Bases for Protection Against Natural Phenomena"
- 10 CFR Part 50, Appendix S, "Earthquake Engineering Criteria for Nuclear Power Plants"
- 10 CFR 52.47(a)(27) and SECY-93-087, "Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs," dated April 2, 1993
- Standard Review Plan Sections 3.7, 3.8, 3.9.2, 3.9.3, 3.12, and 19

## **D. REGULATORY AUDIT SCOPE**

The audit team will review calculations and design information associated with the SSO topical report for the AP1000 plant. The specific scope of this audit will include reviewing calculations and design information within the following review areas:

### **Structural Engineering Branch**

- Generation of Spectra and Time Histories
- Building Models (N110)
- Seismic System Analysis
- Stability Analysis
- Demand/Capacity Evaluations
- Seismic Margin Assessment

### **Mechanical Engineering Branch**

- HVAC and Cable Tray evaluations
- Stress Analyses of the following piping and components:
- Components and component supports
- Piping and pipe supports
- Equipment Seismic Qualifications

### **Reactor Systems Branch**

- Documentation supporting applicable conclusions in the analysis

## **E. INFORMATION AND OTHER MATERIAL NECESSARY FOR THE REGULATORY AUDIT**

The staff requires access to calculations and design information as well as knowledgeable personnel regarding the review areas identified under Section D above, pertaining to the SSO for the AP1000 plant. A complete list of these calculations and supporting documents should be made available to the staff prior to the start of the audit. Two hard copies of the calculations and supporting documents should be made available for review during the audit.

## **F. AUDIT TEAM**

Bruce Baval, Project Manager, NRO  
BP Jain, Senior Structural Engineer, NRO  
Alissa Neuhausen, Structural Engineer, NRO  
Jinsuo Nie, Structural Engineer, NRO  
Robert Roche, Structural Engineer, NRO  
Sujit Samaddar, Senior Structural Engineer, NRO  
Joseph Braverman, NRC Consultant (BNL)  
Richard Morante, NRC Consultant (BNL)  
Cheng-Ih Wu, Mechanical Engineer, NRO  
Tuan Le, Mechanical Engineer, NRO  
Chris Van Wert, Senior Reactor Engineer, NRO

## **G. LOGISTICS**

This audit will take place on June 7–9, 2016, from 8:30 a.m. to 3:00 p.m., and will be conducted at the Westinghouse facility in Rockville Maryland. The entrance briefing is scheduled for 8:30 a.m. on June 7, 2016, and an exit briefing is scheduled for the end of the day on June 9, 2016.

Following the entrance meeting on June 7, 2016, the applicant is to provide an overview of the SSO. Following the applicant's overview the staff will commence the audit of calculations and design information. The NRC Project Manager will coordinate any changes to the audit schedule with Westinghouse. Arrangements should be made to keep applicable audit information at the Westinghouse location for a period of 1.5 weeks following the audit exit as a follow-up reference.

## **H. SPECIAL REQUESTS**

Please support the audit with:

1. A conference room for the NRC staff audit of calculations
2. A small private conference room for NRC internal discussions
3. Telephones to support teleconferencing (i.e., with microphone and speaker)
4. Access to a secure Wi-Fi network or Ethernet

## **I. DELIVERABLES**

The audit team will issue a regulatory audit summary within 90 days after completing the audit. The summary will provide a summary of progress toward resolution of technical issues, and a description of any new outstanding issues that emerge during the audit. If information evaluated during the audit is needed to support a regulatory decision, the staff will identify it in a Request for Additional Information (RAI).

## **J. REFERENCES**

NRO-REG-108, "Regulatory Audits," Agencywide Documents Access and Management System (ADAMS) Accession Number ML081910260, dated April 2, 2009.

HSP-GW-GLR-001, "The Specialized Seismic Option Report," Revision 0, dated September 20, 2015.

DC Westinghouse - AP1000 Mailing List  
cc:

(Revised 10/01/2015)

Paul M. Bessette  
Morgan, Lewis & Bockius LLP  
1111 Pennsylvania Avenue, NW  
Washington, DC 20004

Mr. Barton Z. Cowan, Esquire  
Eckert Seamans Cherin & Mellott, LLC  
600 Grant Street, 44th Floor  
Pittsburgh, PA 15219

Mr. Paul Gaukler  
Pillsbury, Winthrop, Shaw, Pittman  
2300 N Street, NW  
Washington, DC 20037

Mr. Paul A. Russ  
Director, AP1000 Licensing  
Westinghouse  
1000 Westinghouse Drive  
Cranberry Township, PA 16066

Mr. Gary Wright, Director  
Division of Nuclear Facility Safety  
Illinois Emergency Management Agency  
1035 Outer Park Drive  
Springfield, IL 62704

## DC Westinghouse - AP1000 Mailing List

### Email

pshastings@generationmpower.com (Peter Hastings)  
agaughtm@southernco.com (Amy Aughtman)  
amonroe@scana.com (Amy Monroe)  
APH@NEI.org (Adrian Heymer)  
awc@nei.org (Anne W. Cottingham)  
benjamja@westinghouse.com  
Bill.Jacobs@gdsassociates.com (Bill Jacobs)  
collinlj@westinghouse.com (Leslie Collins)  
CumminWE@Westinghouse.com (Edward W. Cummins)  
cwaltman@roe.com (C. Waltman)  
david.hinds@ge.com (David Hinds)  
david.lewis@pillsburylaw.com (David Lewis)  
easterr@westinghouse.com (Rick Easterling)  
eddie.grant@excelservices.com (Eddie Grant)  
erg-xl@cox.net (Eddie R. Grant)  
ewallace@nuscalepower.com (Ed Wallace)  
fbelser@regstaff.sc.gov  
George.Madden@fpl.com (George Madden)  
George\_Stramback@Charter.net (George Stramback)  
james1.beard@ge.com (James Beard)  
jannina.blanco@pillsburylaw.com (Jannina Blanco)  
jcsaldar@bechtel.com (James Saldarini)  
jerald.head@ge.com (Jerald G. Head)  
jflitter@regstaff.sc.gov  
jim@ncwarn.org (Jim Warren)  
john.elnitsky@pgnmail.com (John Elnitsky)  
Joseph\_Hegner@dom.com (Joseph Hegner)  
jrappe@nuscalepower.com (Jodi Rappe)  
kinneyrw@dhec.sc.gov (Ronald Kinney)  
kmstacy@southernco.com (Kara Stacy)  
KSutton@morganlewis.com (Kathryn M. Sutton)  
kwaugh@impact-net.org (Kenneth O. Waugh)  
lchandler@morganlewis.com (Lawrence J. Chandler)  
lindg1da@westinghouse.com (Don Lindgren)  
marilyn.kray@exeloncorp.com  
maurerbf@westinghouse.com (Brad Maurer)  
media@nei.org (Scott Peterson)  
MSF@nei.org (Marvin Fertel)  
nirsnet@nirs.org (Michael Mariotte)  
nscjiangguang@sina.com (Jiang Guang)  
Nuclaw@mindspring.com (Robert Temple)  
patriciaL.campbell@ge.com (Patricia L. Campbell)  
paul.gaukler@pillsburylaw.com (Paul Gaukler)  
Paul.Jacobs@fpl.com (Paul Jacobs)

DC Westinghouse - AP1000 Mailing List

Paul@beyondnuclear.org (Paul Gunter)  
pbessette@morganlewis.com (Paul Bessette)  
Raymond.Burski@fpl.com (Raymond Burski)  
rgrumbir@gmail.com (Richard Grumbir)  
Richard.Orthen@fpl.com (Richard Orthen)  
ritterse@westinghouse.com (Stanley E. Ritterbusch)  
RJB@NEI.org (Russell Bell)  
robert.kitchen@pgnmail.com (Robert H. Kitchen)  
rong-pan@263.net (Pan Rong)  
sabinski@suddenlink.net (Steve A. Bennett)  
Sandra@sandrakgoss.com (Sandra Goss)  
sara@cleanenergy.org (Sara Barczak)  
sfrantz@morganlewis.com (Stephen P. Frantz)  
shudson@regstaff.sc.gov (Shannon Hudson)  
sisk1rb@westinghouse.com (Rob Sisk)  
smsloan@babcock.com (Sandra Sloan)  
stephan.moen@ge.com (Stephan Moen)  
Steve.Franzone@fpl.com (Steve Franzone)  
Tansel.Selekler@nuclear.energy.gov (Tansel Seleklek)  
timothy.beville@nuclear.energy.gov (Timothy Beville)  
tom.miller@hq.doe.gov (Tom Miller)  
tomccall@southernco.com (Tom McCallum)  
TomClements329@cs.com (Tom Clements)  
trsmith@winston.com (Tyson Smith)  
Vanessa.quinn@dhs.gov (Vanessa Quinn)  
vijukrp@westinghouse.com (Ronald P. Vijuk)  
Wanda.K.Marshall@dom.com (Wanda K. Marshall)  
wayne.marquino@ge.com (Wayne Marquino)  
weave1dw@westinghouse.com (Doug Weaver)  
whorin@winston.com (W. Horin)