Westinghouse Electric Company
Nuclear Power Plants
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, D.C. 20555

Direct tel: 412-374-6306
Direct fax: 412-374-5005
e-mail: sterdia@westinghouse.com

Your ref: Project Number 740
Our ref: DCP/NRC1875

May 3, 2007

Subject: AP1000 COL Response to Request for Additional Information (TR #44)

In support of Combined License application pre-application activities, Westinghouse is submitting a response to the NRC request for additional information (RAI) on AP1000 Standard Combined License Technical Report 44, APP-GW-GLR-026, Rev. 0, New Fuel Storage Rack Structural/Seismic Analysis. This RAI response is submitted as part of the NuStart Bellefonte COL Project (NRC Project Number 740). The information included in the responses is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification.

The response is provided for Request for Additional Information TR44-11, transmitted in NRC letter dated April 6, 2007 from Steven D. Bloom to Andrea Sterdis, Subject: Westinghouse AP1000 Combined License (COL) Pre-application Technical Report 44 – Request for Additional Information (TAC NO. MD2104).

Pursuant to 10 CFR 50.30(b), the responses to requests for additional information on Technical Report 44 are submitted as Enclosure 1 under the attached Oath of Affirmation.

It is expected that when the RAIs on Technical Report 44 are complete, the technical report will be revised as indicated in the responses and submitted to the NRC. The RAI responses will be included in the document.

Questions or requests for additional information related to the content and preparation of this response should be directed to Westinghouse. Please send copies of such questions or requests to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Very truly yours,

D. J. Hutchings for

A. Sterdis, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

00117-psa.doc

D079

/Attachment

1. "Oath of Affirmation," dated May 4, 2007

/Enclosure

1. Response to Requests for Additional Information on Technical Report No. 44, RAI-TR44-11

cc:	S. Bloom	-	U.S. NRC	1E	1A
	S. Coffin	-	U.S. NRC	1E	1A
	G. Curtis	-	TVA	1E	1A
	P. Grendys	-	Westinghouse	1E	1A
	P. Hastings	-	Duke Power	1E	1A
	C. Ionescu	-	Progress Energy	1E	1A
	D. Lindgren	-	Westinghouse	1E	1A
	A. Monroe	-	SCANA	1E	1A
	M. Moran	-	Florida Power & Light	1E	1A
	C. Pierce	-	Southern Company	1E	1A
	E. Schmiech	-	Westinghouse	1E	1A
	G. Zinke	-	NuStart/Entergy	1E	1A

ATTACHMENT 1

"Oath of Affirmation"

ATTACHMENT 1

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:	)
NuStart Bellefonte COL Project	)
NRC Project Number 740	)

APPLICATION FOR REVIEW OF
"AP1000 GENERAL COMBINED LICENSE INFORMATION"
FOR COL APPLICATION PRE-APPLICATION REVIEW

W. E. Cummins, being duly sworn, states that he is Vice President, Regulatory Affairs & Standardization, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Debra McCarthy, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Aug. 31, 2009
Member, Pennsylvania Association of Notaries

W. E. Cummins
Vice President
Regulatory Affairs & Standardization

Subscribed and sworn to
before me this 4th day
of May 2007.

Debra McCarthy
Notary Public

ENCLOSURE 1

Response to Request for Additional Information on Technical Report No. 44

RAI-TR44-11

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-TR44-11
Revision: 0

Question:

Insufficient data is provided regarding the input loads used for the seismic analysis of the new fuel rack. The following information is requested:

(a) Floor response spectra (X, Y, and Z - vertical directions) at or the near the elevation of the top of the fuel rack and near the bottom of the fuel rack or vault floor corresponding to the damping value used for the analysis.

(b) Explain why the envelope of these two sets of spectra was not used.

(c) The current DCD is applicable for the hard rock site. Therefore, provide further explanation for the range of soil and rock properties used in enveloping the seismic floor spectra. Where are these range of soil/rock properties specified for confirmation by future COL applicant?

(d) For the synthetic time histories, provide plots of the three time histories, the cross correlation coefficients, the comparisons of the spectra from the synthetic time histories to the enveloped target response spectra, and the comparisons of the power spectral density plots to the target power spectral density function associated with the target response spectra.

(e) Which time history was used (displacement, velocity, or acceleration)? Were all three directions input simultaneously? Was gravity included in the time history analysis?

Westinghouse Response:

a) Floor response spectra (X, Y, and Z - vertical directions) near the elevation of the bottom of the new fuel storage vault corresponding to the damping value used for the analysis are provided in the PDF attachment RAI TR44-11a. No floor response spectra are provided near or at the elevation of the top of the new fuel rack (See response to TR44-11b).

The ASB99 floor response spectra (FRS) represents the enveloping response spectra for the auxiliary and shield building (ASB) at elevation 99 feet for a range of soil/rock condition. FRS of various soil/rock analyses were first enveloped for various locations of the ASB. All of the ASB locations at elevation 99 were then grouped and enveloped to develop the ASB99 floor response spectra.

b) It is probable that the floor response spectra will be revised for various reasons and that a revision to the new fuel storage rack structural/seismic analysis will be required. The methodology of developing the spectra is described in TR-44-11 a, d and e responses.

c) The range of soil and rock conditions for which the seismic floor spectra applies is described in Westinghouse Technical Report 03, APP-GW- S2R-010 Revision 0, "Extension of NI Structures Seismic Analysis to Soil Sites."

d) The synthetic time histories, the response spectrum curves, and the power spectral density plots for the Auxiliary and Shielding Building (ASB) at Elevation 99 feet are provided in Figures TR44-11.1 through TR44-11.9. The cross correlation coefficients for the three orthogonal components (East-West, North-South, and Vertical) of the ASB99 synthetic time histories are summarized in the table below.

Description	Cross Correlation Coefficient
East-West to North-South	-0.0414
East-West to Vertical	0.0088
North-South to Vertical	0.0536

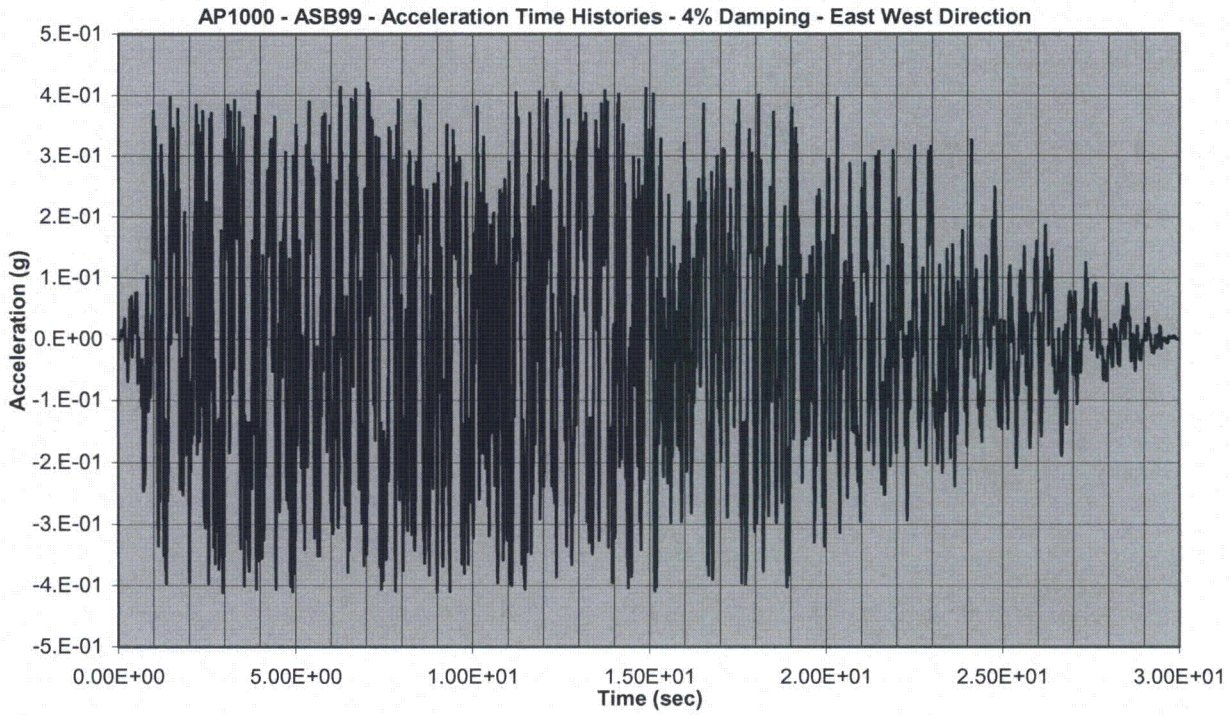

Figure TR44-11.1 ASB99 Acceleration Time History for EW Direction

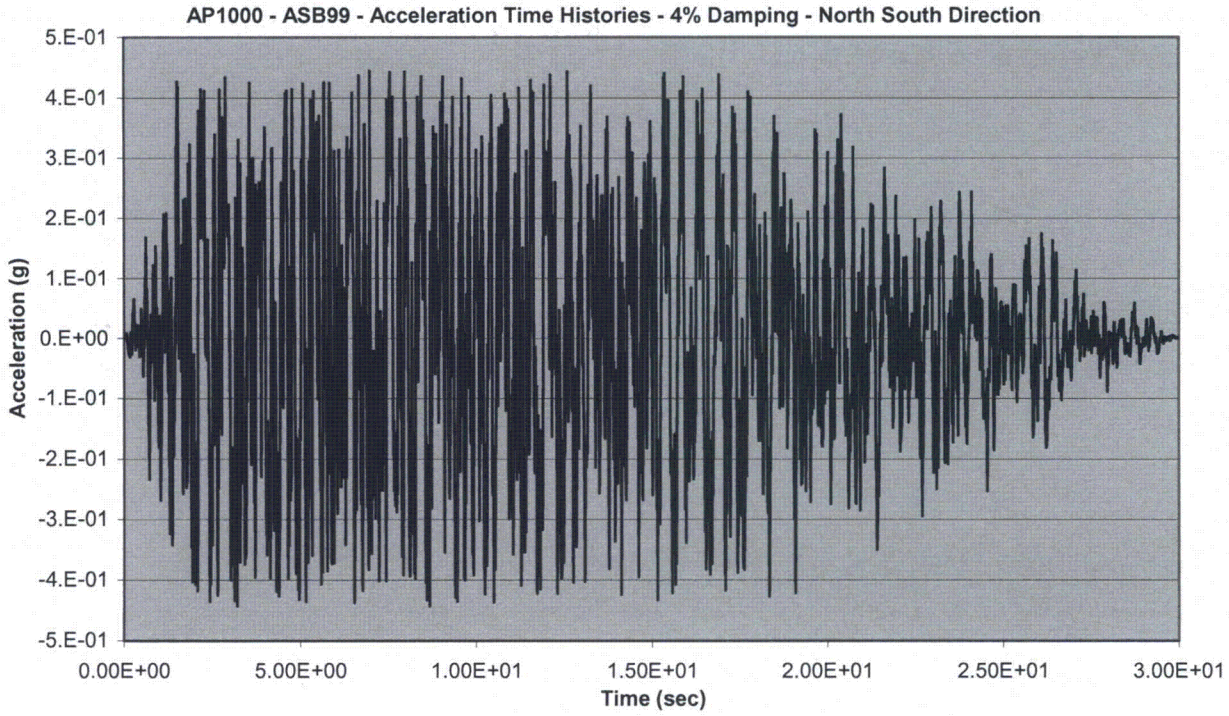

Figure TR44-11.2 ASB99 Acceleration Time History for NS Direction

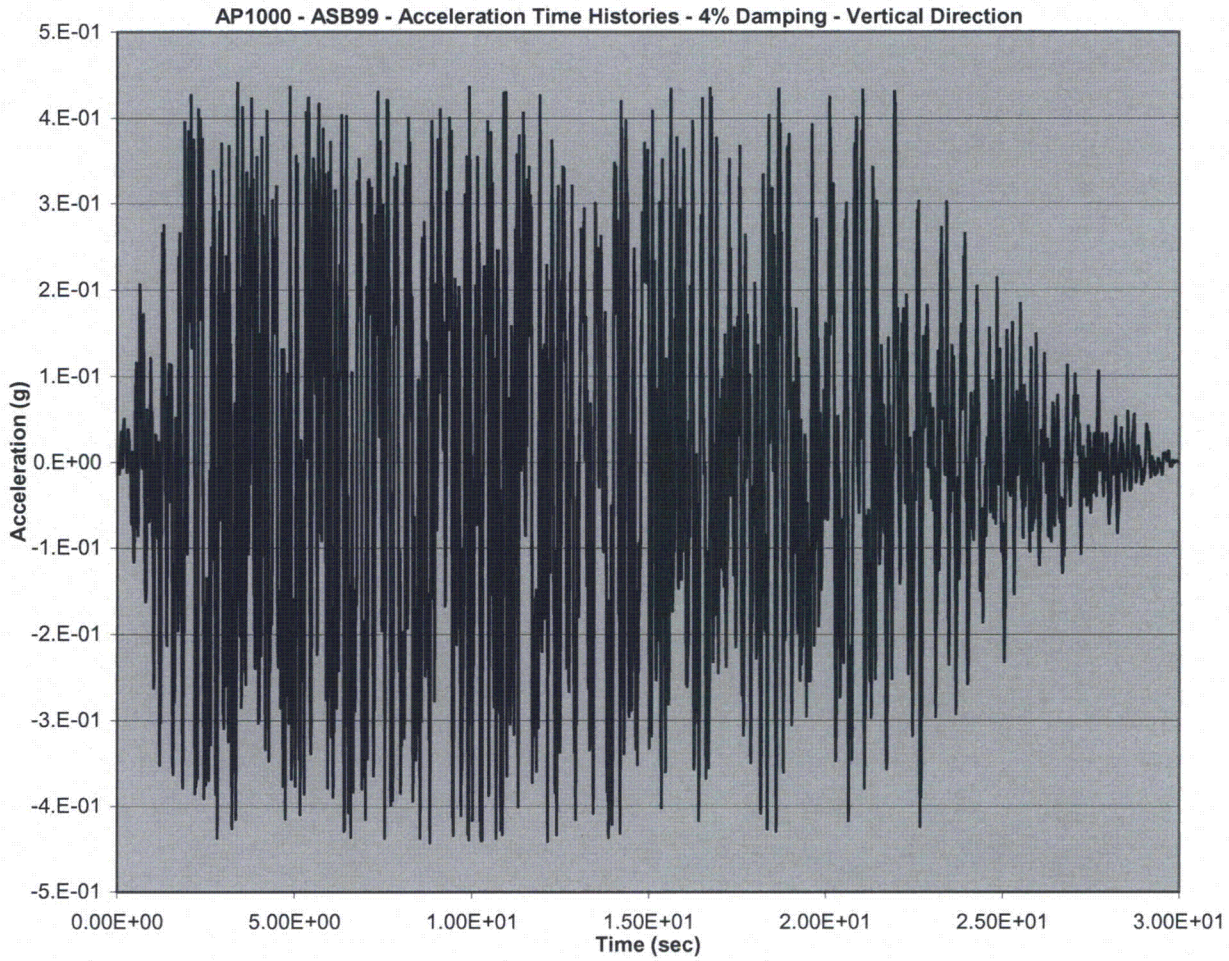

Figure TR44-11.3 ASB99 Acceleration Time History for VT Direction

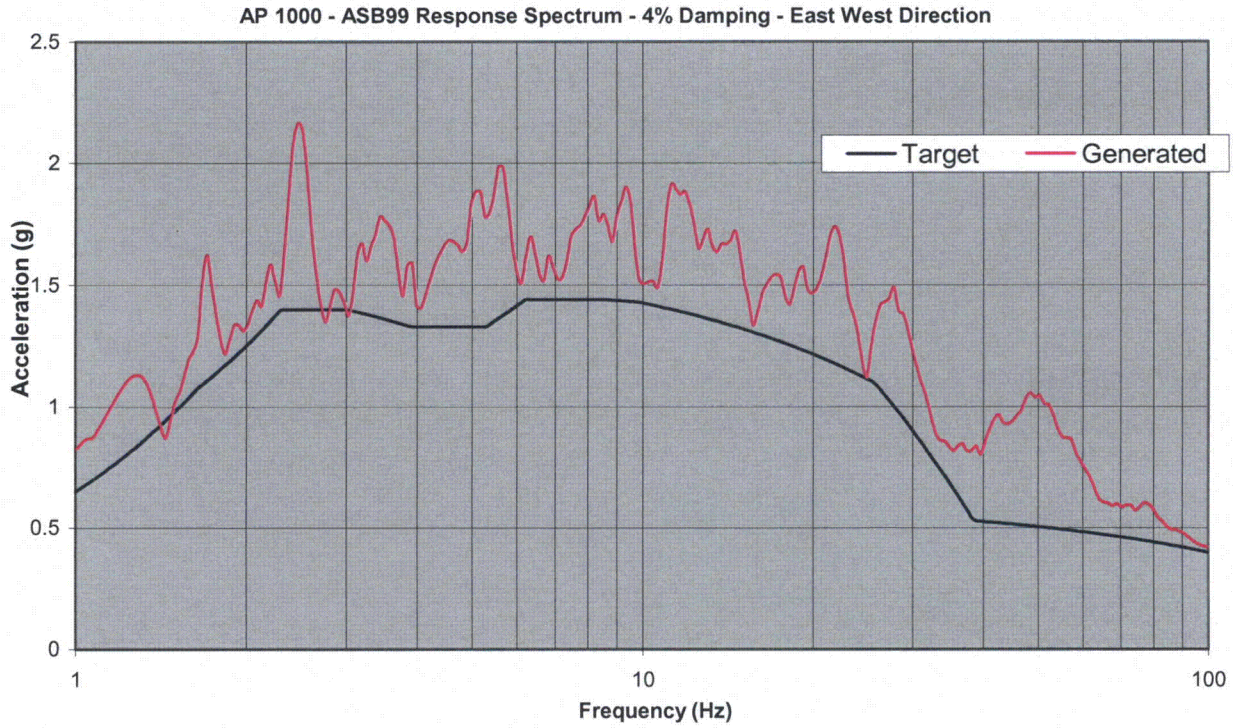

Figure TR44-11.4 ASB99 Response Spectrum for EW Direction

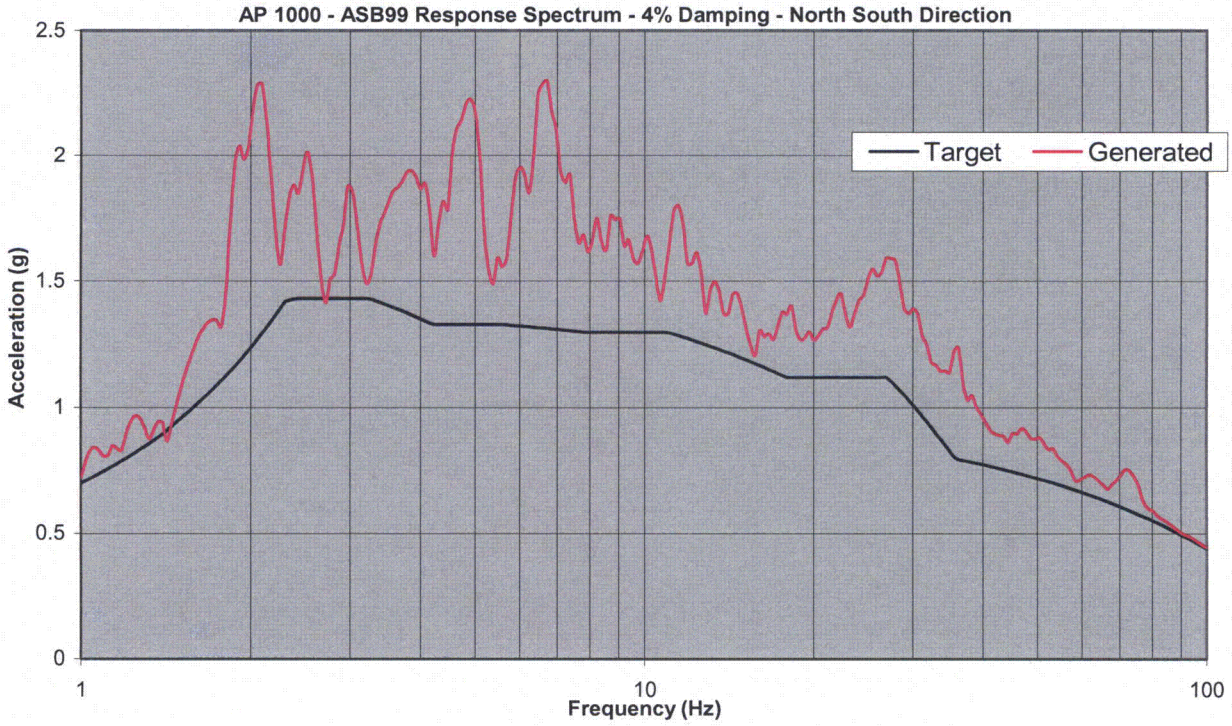

Figure TR44-11.5 ASB99 Response Spectrum for NS Direction

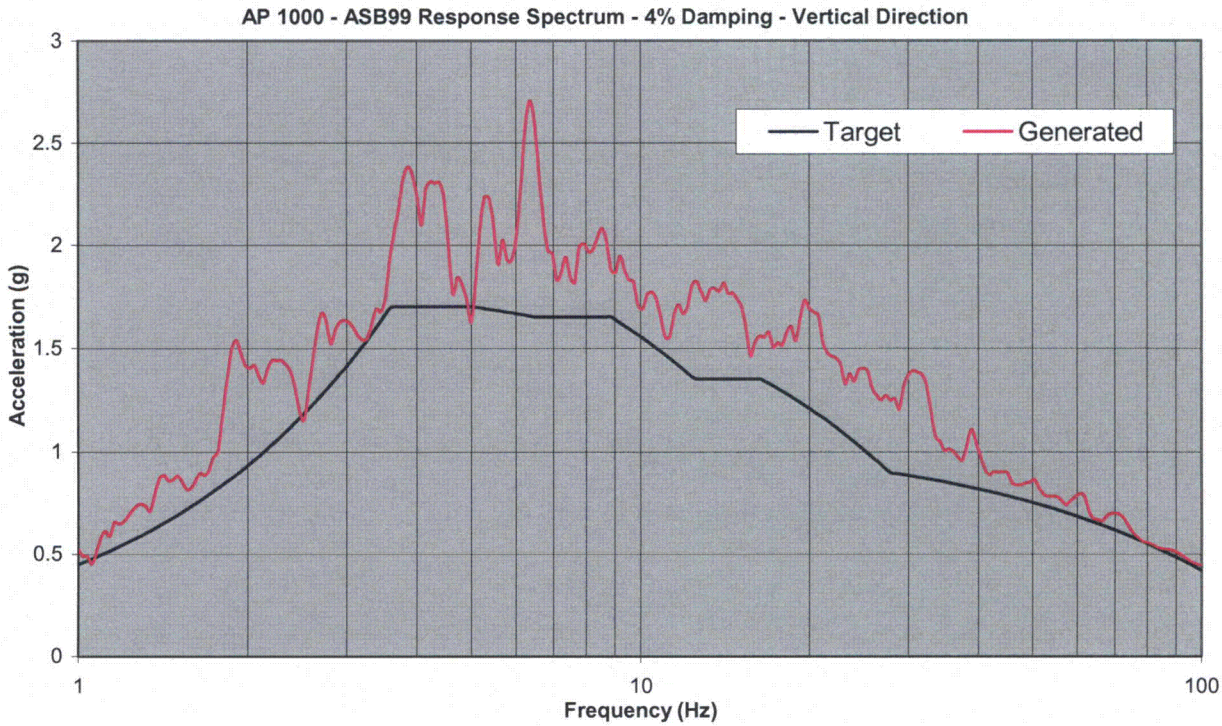

Figure TR44-11.6 ASB99 Response Spectrum for VT Direction

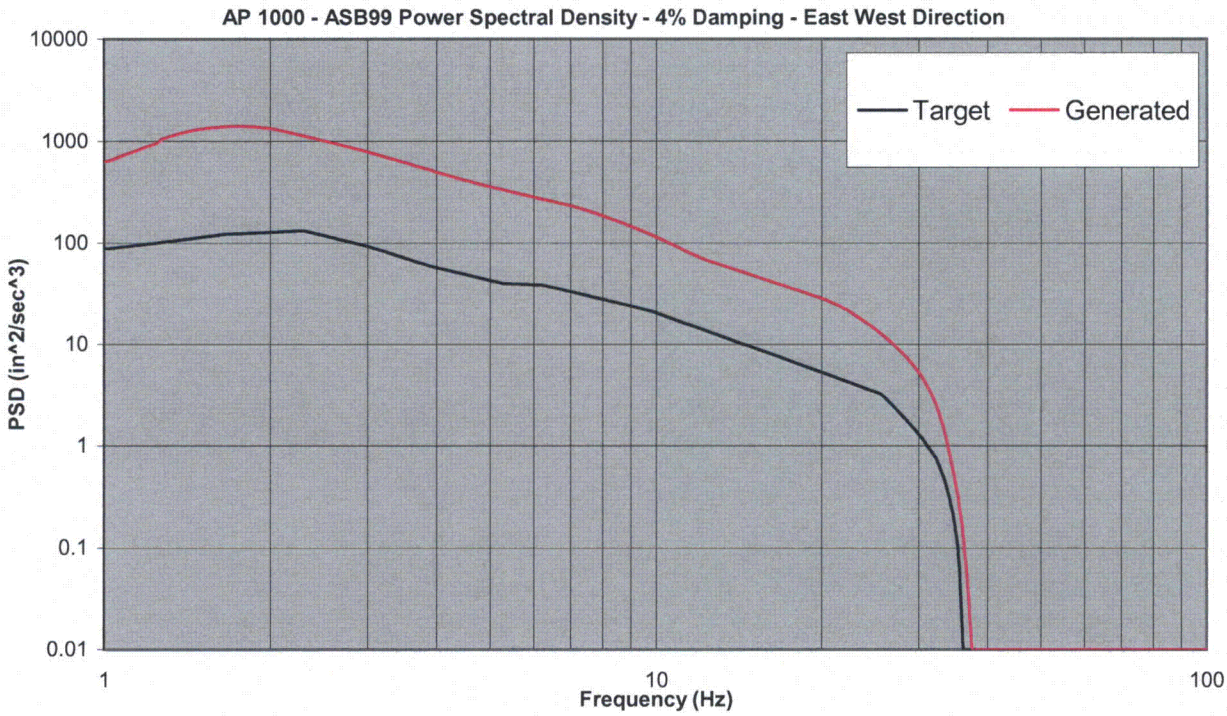

Figure TR44-11.7 ASB99 Power Spectral Density for EW Direction

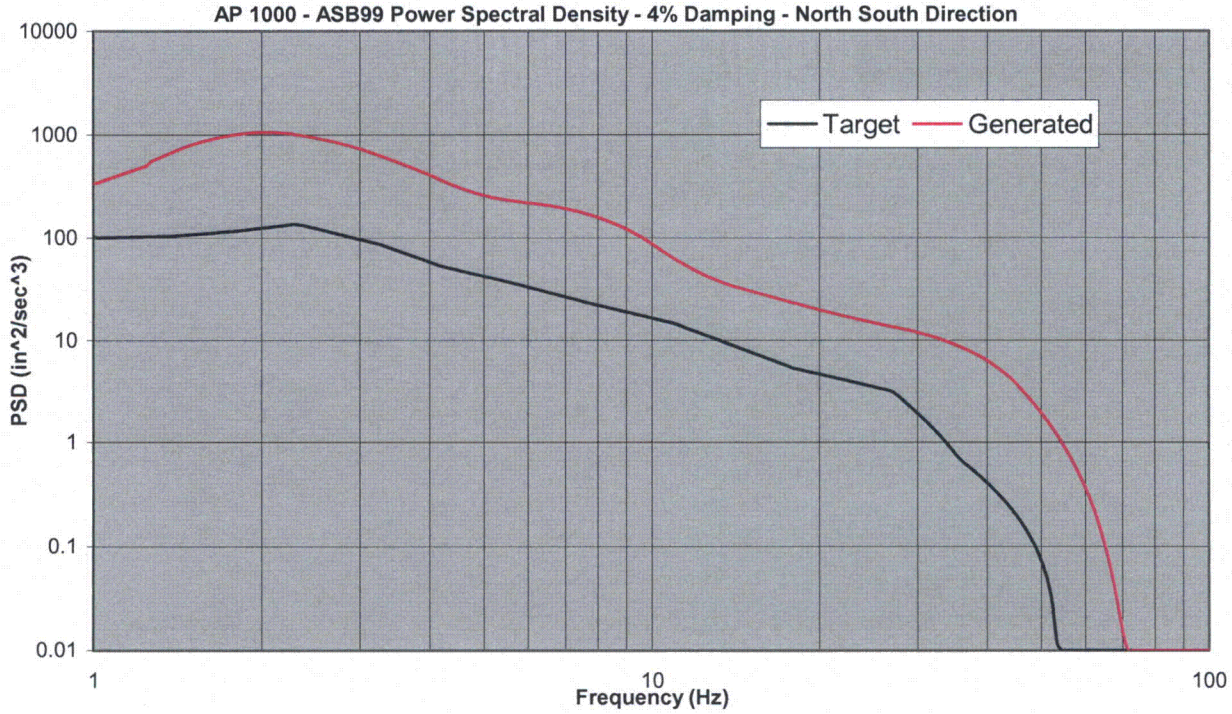

Figure TR44-11.8 ASB99 Power Spectral Density for NS Direction

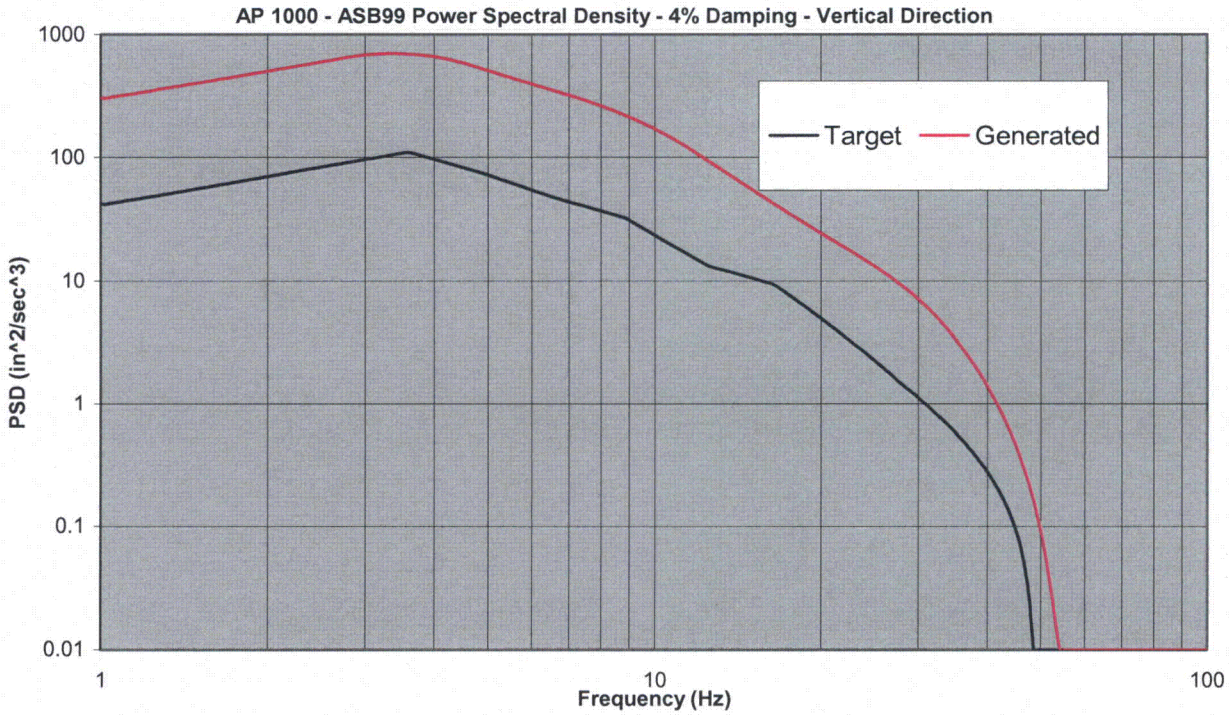

Figure TR44-11.9 ASB99 Power Spectral Density for VT Direction

e) Acceleration time histories are used as the input motion for the seismic analysis of the spent fuel racks. The acceleration input is defined by three orthogonal components, which are input and solved simultaneously. Gravity is also included in the time history analysis.

References:

1. APP-GW-GLR-026, Revision 0, "New Fuel Storage Rack Structural/Seismic Analysis," (Technical Report Number 44)
2. APP-GW- GW-S2R-10,Revision 0, "Extension of NI Structures Seismic Analysis to Soil Sites," (Technical Report Number 03)

Design Control Document (DCD) Revision:
The DCD will be revised to reflect the revision of Technical Report 44 (APP-GW-GLR-026, Revision 0)

PRA Revision:
None

Technical Report (TR) Revision:
Technical Report Number 44 (APP-GW-GLR-026, Revision 0 will be revised to reflect the probable change in floor response spectra.