



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: 412-374-6206
Direct fax: 412-374-5005
e-mail: sisk1rb@westinghouse.com

Your ref: Docket No. 52-006
Our ref: DCP/NRC2120

April 14, 2008

Subject: AP1000 COL Response to Request for Additional Information (SRP3.2)

Westinghouse is submitting a response to the NRC request for additional information (RAI) on Standard Review Plan (SRP) Section 3.2. This RAI response is submitted in support of the AP1000 Design Certification Amendment Application (Docket No. 52-006). The information included in the response is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification and the AP1000 Design Certification Amendment Application.

A response is provided for RAI-SRP3.2-EMB2-01 as sent in an email from Bill Gleaves to Sam Adams dated December 13, 2007. This response completes all requests received to date for SRP Section 3.2.

Pursuant to 10 CFR 50.30(b), the response to the request for additional information on SRP Section 3.2, is submitted as Enclosure 1 under the attached Oath of Affirmation.

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,

A handwritten signature in black ink, appearing to read 'Robert Sisk'.

Robert Sisk, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Attachment

1. "Oath of Affirmation," dated April 14, 2008

/Enclosure

1. Response to Request for Additional Information on SRP Section 3.2

cc:	M. Miernicki	- U.S. NRC	1E	1A
	E. McKenna	- U.S. NRC	1E	1A
	P. Ray	- TVA	1E	1A
	P. Hastings	- Duke Power	1E	1A
	R. Kitchen	- Progress Energy	1E	1A
	A. Monroe	- SCANA	1E	1A
	J. Wilkinson	- Florida Power & Light	1E	1A
	C. Pierce	- Southern Company	1E	1A
	G. Zinke	- NuStart/Entergy	1E	1A
	R. Grumbir	- NuStart	1E	1A
	E. Schmiech	- Westinghouse	1E	1A
	C. Brockhoff	- Westinghouse	1E	1A

ATTACHMENT 1

“Oath of Affirmation”

ATTACHMENT 1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of:)
AP1000 Design Certification Amendment Application)
NRC Docket Number 52-006)

APPLICATION FOR REVIEW OF
"AP1000 GENERAL INFORMATION"
FOR DESIGN CERTIFICATION AMENDMENT 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.



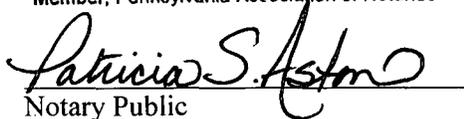
W. E. Cummins
Vice President
Regulatory Affairs & Standardization

Subscribed and sworn to
before me this *14th* day
of April 2008.

COMMONWEALTH OF PENNSYLVANIA

Notarial Seal
Patricia S. Aston, Notary Public
Murrysville Boro, Westmoreland County
My Commission Expires July 11, 2011

Member, Pennsylvania Association of Notaries


Notary Public

ENCLOSURE 1

Response to Request for Additional Information on SRP Section 3.2

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP3.2-EMB2-01
Revision: 0

Question:

During the staff's review of the DCD Rev. 16 Amendment, the staff identified questions regarding the RTNSS SSCs to withstand a seismic event. RTNSS is addressed in DCD Chapter 19 and evaluated under Chapter 22 of the FSER. DCD Rev.16 Tier 1 Table 3.7-1 identifies non-safety related risk-significant SSCs, but it is not clear how these SSCs are evaluated to determine their ability to withstand a seismic event. RTNSS non-safety related risk-significant SSCs are currently classified as non-seismic (NS) in AP1000 DCD Table 3.2-3. NRC EDO memo dated 6/23/97 combined with SECY 94-084 and SECY-95-132 address seismic requirements for AP600 RTNSS SSCs regarding equipment availability needed post-72 hr. Risk-significant SSCs are to be identified by the RTNSS process with appropriate seismic requirements for non-safety related SSCs to be identified by the applicant for those risk-significant SSCs that need to be functional.

This RAI on seismic for RTNSS SSCs is related to TR 62 dated May 2007 that states, equipment designated as Non-seismic does not require seismic qualification. Although at first this statement seems logical, it raises the question identified in commission documents as to what seismic requirements are applicable to non-safety-related, but risk-significant SSCs.

The staff desires to discuss whether risk-significant SSCs will be seismically analyzed and clarify if augmented seismic design requirements are applied to ensure that they will withstand the effects of a safe shutdown earthquake (SSE).

Westinghouse Response:

The RTNSS process established in SECY-94-084 and SECY-95-132 were followed as part of the RTNSS evaluation of nonsafety-related SSCs for both AP600 and AP1000. Generally the RTNSS process uses PRA insights and deterministic criteria to identify risk-important nonsafety SSCs. For the identified risk-important SSCs, the process requires that regulatory oversights be proposed commensurate with their risk-important mission. As a result, seismic capability is not automatically applied to these risk-important SSCs.

The RTNSS process as described in Section I.B of SECY-95-132 includes a determination of those "SSC functions relied upon to resolve long-term safety (beyond 72 hours) and to address seismic events."

Section 22.5.6 of NUREG-1793 discussed the staff evaluation of post-72-hour actions that was based on the position developed during the AP600 review and described in SECY-96-128. This requires that "the equipment needed for post-72-hour support...must be readily available for connection and protected from natural phenomena, including seismic events..."

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

The AP1000 RTNSS seismic evaluation discussed in Sections 2 and 9 of WCAP-15985, as well as the staff evaluation of this aspect of the RTNSS process in Section 22.5.3 of NUREG-1793 concludes that "The seismic margins analysis used to perform the AP1000 seismic evaluation does not credit non-safety-related SSCs. Therefore, no non-safety-related SSC is identified as RTNSS important. Since the SSCs relied upon to address design-basis events are designed in accordance with the AP1000 seismic design criteria provided in DCD Tier 2, Section 3.7, the staff has determined that they are acceptable."

Therefore, consistent with the RTNSS process and philosophy, RTNSS-important SSCs are classified as AP1000 safety Class D and are not designed as AP1000 Seismic Class I as a result of the RTNSS seismic evaluation.

The staff also evaluated the AP1000 RTNSS process described in Section 6 of WCAP-15985 and "the staff concludes that the post-72-hour actions for AP1000 comply with the staff-approved positions, as stated in SECY-96-128, and are therefore acceptable."

The post-72 hour support equipment for AP1000 is appropriately protected from natural phenomena, including seismic events.

As discussed in Section 10.1.6 of WCAP-15985 (which is provided in Table 1 below), the following nonsafety-related SSCs are identified as important for post-72 hour support:

- PCS ancillary water makeup for containment cooling and spent fuel pool cooling
- MCR ancillary cooling
- Instrumentation room ancillary cooling
- Onsite AC ancillary power supply (to supply post-accident monitoring and above functions)

Section 10.2 provides the missions for these nonsafety-related systems. Section 10.3 provides the proposed regulatory oversight recommendations for these systems, which includes recommendations related to seismic classification for these specific post-72 hour support function.

Therefore, these identified risk-significant nonsafety-related SSCs to support post-72 hour actions are seismically analyzed and their construction is augmented to Seismic Category II requirements that provide additional design margin to support their RTNSS missions.

The second table below is an extraction of the DCD Tier 2 Table 3.2-3 that identifies the classification of the post-72 hour action support SSCs that are consistent with the WCAP-15985 recommendations.

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

In addition, the information from DCD Subsection 8.3.1.1.3 is provided to describe the ancillary ac diesel generators and confirm that their seismic classification for these components is also consistent with the seismic classification for the ancillary diesel generator fuel tank in Table 3.2-3, which is consistent with the WCAP-15985 recommendations that were evaluated to support the FSER findings.

Therefore, the seismic classification for the risk-significant nonsafety-related SSCs that support the post-72 hour actions has been evaluated as part of the RTNSS process and appropriate seismic requirements have been incorporated into the AP1000 design as described in the DCD.

This RTNSS evaluation and seismic evaluations has been approved by the NRC staff as part of the AP1000 Design Certification and as a result should not be subject to additional questioning at this time.

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

Table 1

**WCAP-15985
AP1000 Implementation of the Regulatory Treatment of
Nonsafety-Related Systems Process**

Seismic Classification Recommendations for Post-72 Hour Support SSCs

Section	Plant Systems	Seismic Classification	DCD Tier 1 Description
10.3.2 pg 10-13	<p>PCS and spent fuel pool water makeup (long-term shutdown)</p> <p>Makeup to the PCS water supply and spent fuel pool post-72 hours is provided by the PCS recirculation pumps taking suction from the PCS ancillary water storage tank. A description of this arrangement is provided in DCD subsections 6.2.2 and 9.1.3. ITAACs are provided in DCD Tier 1 subsections 2.2.2 and 2.3.7.</p>	<p>This equipment should be available following seismic and high wind events that may make procurement of offsite equipment more difficult. Therefore, as a minimum, the supports for this equipment are Seismic Category II as shown in DCD Table 3.2-3. In addition, the ancillary water storage tank (which is <u>located outdoors</u>) is designed and analyzed for Seismic II criteria and for Category 5 hurricanes, including the effects of sustained winds, maximum gusts, and associated wind-borne missiles (DCD subsection 6.2.2).</p>	Tier 1 Table 3.7-1 PCS-MP-01A/B
10.3.2 pg 10-13	<p>MCR cooling (long-term shutdown)</p> <p>MCR cooling post-72 hours is provided by opening doors and using the MCR ancillary fans. A description of this cooling capability is provided in DCD subsection 9.4.1. ITAACs are provided in subsection 2.7.1.</p>	<p>This equipment should be available following seismic and high wind events that may make procurement of offsite equipment more difficult. Therefore, as a minimum, the supports for this equipment are Seismic Category II as shown in DCD Table 3.2-3. In addition, this equipment is <u>located in the auxiliary building, which is a Seismic Category I structure</u>. This provides more than adequate protection for Seismic II criteria and for Category 5 hurricanes, including the effects of sustained winds, maximum gusts, and associated wind-borne missiles (DCD subsection 9.4.1).</p>	Tier 1 Table 3.7-1 VBS-MA-10A/B

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

Section	Plant Systems	Seismic Classification	DCD Tier 1 Description
10.3.2 pg 10-14	<p>Instrumentation room cooling (long-term shutdown)</p> <p>Instrumentation room cooling post-72 hours is provided by opening doors and using the instrumentation room ancillary fans. A description of this cooling capability is provided in DCD subsection 9.4.1. ITAACs are provided in subsection 2.7.1.</p>	<p>This equipment should be available following seismic and high wind events that may make procurement of offsite equipment more difficult. Therefore, as a minimum, the supports for this equipment are Seismic Category II as shown in DCD Table 3.2-3. In addition, this equipment is <u>located in the auxiliary building, which is a Seismic Category I structure</u>. This provides more than adequate protection for Seismic II criteria and for Category 5 hurricanes, including the effects of sustained winds, maximum gusts, and associated wind-borne missiles (DCD subsection 9.4.1).</p>	Tier 1 Table 3.7-1 VBS-MA-11, -12
10.3.3 pg 10-15	<p>AC power supply (long-term shutdown)</p> <p>The ancillary diesel generators provide power for post-accident monitoring, PCS water makeup (recirculation pumps), MCR cooling (MCR ancillary fans), and instrumentation room cooling (instrumentation room ancillary fans). A description of the ancillary diesel generators is included in DCD subsection 8.3.1. The AP1000 D-RAP includes the ancillary diesel generators in DCD Table 17.4-1. ITAACs are provided in subsection 2.6.1.</p>	<p>This equipment should be available following seismic and high wind events, which may make procurement of offsite equipment more difficult. Therefore, as a minimum, the supports for this equipment are Seismic Category II as shown in DCD Table 3.2-3. In addition, this equipment is <u>located in a portion of the Annex Building that is a Seismic II structure</u>. Features of this structure that protect the function of this equipment are designed and analyzed for Category 5 hurricanes, including the effects of sustained winds, maximum gusts, and associated wind-borne missiles (DCD subsection 8.3.1).</p>	Tier 1 Table 3.7-1 ECS-MS-01, -02

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

DCD TABLE 3.2-3

**AP1000 CLASSIFICATION OF MECHANICAL AND
FLUID SYSTEMS, COMPONENTS, AND EQUIPMENT**

Tag Number	Description	AP1000 Class	Seismic Category	Principal Construction Code	Comments
PCS-MT-05	Passive Containment Cooling Ancillary Water Storage Tank	D	II	API 650	
PCS-MP-01A	PCS Recirculation Pump	D	NS	Hydraulic Institute Standards	Equipment anchorage is Seismic Category II
VBS-MA-10A	Ancillary Fan	D	NS	ANSI/AMCA 210, 211, 300	Equipment anchorage is Seismic Category II
VBS-MA-10B	Ancillary Fan	D	NS	ANSI/AMCA 210, 211, 300	Equipment anchorage is Seismic Category II
VBS-MA-11	Ancillary Fan	D	NS	ANSI/AMCA 210, 211, 300	Equipment anchorage is Seismic Category II
VBS-MA-12	Ancillary Fan	D	NS	ANSI/AMCA 210, 211, 300	Equipment anchorage is Seismic Category II
n/a	Ancillary Diesel Generator Fuel Tank	D	II	UL 142	

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

DCD 8.3.1.1.3 Ancillary ac Diesel Generators

Power for Class 1E post-accident monitoring, MCR lighting, MCR and divisions B and C I&C room ventilation and for refilling the PCS water storage tank and the spent fuel pool when no other sources of power are available is provided by two ancillary ac diesel generators located in the annex building. The ancillary generators are not needed for refilling the PCS water storage tank, spent fuel pool makeup, post-accident monitoring or lighting for the first 72 hours following a loss of all other ac sources.

The generators are classified as AP1000 Class D. The generators are commercial, skid-mounted, packaged units and can be easily replaced in the event of a failure. Generator control is manual from a control integral with the diesel skid package. These generators are located in the portion of the Annex Building that is a Seismic Category II structure. Features of this structure which protect the function of the ancillary generators are analyzed and designed for Category 5 hurricanes, including the effects of sustained winds, maximum gusts, and associated wind-borne missiles.

The fuel for the ancillary generators is stored in a tank located in the same room as the generators. The tank is Seismic Category II and holds sufficient fuel for 4 days of operation.

Design Control Document (DCD) Revision:

None

PRA Revision:

None

Technical Report (TR) Revision:

None