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/NRC2210

July 18, 2008

Subject: AP1000 Response to Request for Additional Information (SRP13.3)

Westinghouse is submitting a response to the NRC request for additional information (RAI) on SRP Section 13.3. 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-SRP13.3-LIB-01 as sent in an email from Perry Buckberg to Sam Adams dated June 11, 2008. This response completes all requests received to date for SRP Section 13.3.

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,

for/ John DeBlasio

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

/Enclosure

1. Response to Request for Additional Information on SRP Section 13.3

D063
NRO

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

ENCLOSURE 1

Response to Request for Additional Information on SRP Section 13.3

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-SRP13.3-LIB-01
Revision: 0

Question:

TR 122 Section III, "DCD MARK-UP," states the following, in regard to proposed DCD changes relating to the Nuclear Island Nonradioactive Ventilation System (VBS).

> The VBS operating cases in DCD 6.4.4 were removed since they assumed continuing VBS operation after VES actuation, which is not realistic based on actual VBS operation. The VBS normally operates in a mode that provides conditioned outside air to the main control room. If high radioactivity is detected in the VBS main control room air supply duct, the VBS automatically shifts into a recirculation / supplemental air filtration mode that pressurizes the main control room. On a high-high radioactivity in the VBS main control room air supply duct or if ac power is unavailable, the main control room is isolated from the VBS and the VES is actuated to pressurize the main control room. Therefore, it is unnecessary to evaluate doses for the second set of VBS operating cases since VBS does not operate in parallel with VES.

The proposed changes to DCD (Rev. 16) Tier 2 Section 6.4.4, "System Safety Evaluation," address the protection of personnel in the main control room, in relation to the Main Control Room Emergency Habitability System (VES), deleting the language that discusses VBS availability.

DCD (Rev. 16) Tier 2 Section 9.4.1.2.3.1, "Main Control Room/Control Support Area HVAC Subsystem," states (in part) in the second paragraph under the subheading "Abnormal Plant Operation" the following.

> If "high" gaseous radioactivity is detected in the main control room supply air duct and the main control room/control support area HVAC subsystem is operable, both supplemental air filtration units automatically start to pressurize the main control room and control support area to at lease 1/8 inch wg with respect to the surrounding areas and the outside environment using filtered makeup air. . . . The main control room/control support area pressure boundary limit the overall infiltration (negative operating pressure) and exfiltration (positive operating pressure) rates to those values shown in Table 9.4.1-1. Based on these values, the system is designed to maintain personnel doses within allowable General Design Criteria (GDC) 19 limits during design basis accidents in both the main control room and the control support area.

(Emphasis added.) The references to the control support area (or CSA) reflect a separate DCD change associated with the Technical Support Center (TSC), which is addressed in Westinghouse TR 107. The TSC is still identified in the DCD (Rev. 16) as being located in the

CSA (as Tier 2* material). In Westinghouse's July 31, 2003, letter (reference: DCP/NRC1606), entitled "Transmittal of Westinghouse Response to Open Items Identified in the AP1000 Draft Safety Evaluation Report," they state (on pages 6 and 7) that "Habitability of the main control room is provided by the main control room/technical support center HVAC subsystem of the nonsafety-related nuclear island nonradioactive ventilation system (VBS)" (emphasis added). That is, the 'HVAC subsystem' is a subsystem of the VBS. Finally, the staff's detailed evaluation of the TSC habitability for the AP1000 DCD (Rev. 14) is provided in Section 13.3, "Emergency Planning," of NUREG-1793, Vol. 2, "Final Safety Evaluation Report Relating to Certification of the AP1000 Standard Design." This evaluation provides a close examination of the VBS and VES, as they relate to supporting TSC habitability, and includes detailed requests for additional information (RAIs) and Westinghouse responses (including the July 31, 2003, letter, referenced above).

Please address the following questions:

1. Explain why the proposed DCD changes associated with the VBS in TR 122 only address the main control room and not the Control Support Area (TSC).

2. Discuss whether the statement in DCD Section 9.4.1.2.3.1 (discussed above), which states in part that ". . . the [HVAC subsystem of the VBS] is designed to maintain personnel doses within allowable General Design Criteria (GDC) 19 limits during design basis accidents in both the main control room and the control support area," is still valid, and why this is so.

3. What effect will the proposed DCD changes (in TR 122), associated with the VBS, have on the habitability of the CSA (TSC) during all design basis accidents?

4. With the proposed DCD changes (in TR 122), will the VBS (HVAC subsystem) maintain personnel doses within the GDC 19 limits during all design basis accidents in both the main control room and control support area (TSC)? If yes, explain why. If no, explain why, and address how this comports with conflicting statements in other DCD sections (e.g., DCD Section 9.4.1.2.3.1).

5. Should a COL action (information) item be added to the AP1000 certified design (e.g., in Section 13.3, "Emergency Planning") to address the COL applicant's need to ensure TSC habitability (including the adequacy of the ventilation system), if the TSC is located other than in the CSA? The following is an example:

   "Combined License applicants referencing the AP1000 certified design, and proposing a Technical Support Center (TSC) location other than in the Control Support Area (CSA), will address the adequacy of the TSC ventilation system to support the radiological habitability of the TSC; including whether the TSC

ventilation system functions in a manner comparable to the control room ventilation system for the AP1000 design basis accidents (DBAs)."

If a COL action item is needed, propose one. Also, discuss how the requirements for the CSA ventilation system are applicable to a TSC that is located other than in the CSA. If a COL action item is not appropriate, explain why; and specifically address the AP1000 design basis accidents (DBAs).

Westinghouse Response:

1. None of the changes identified in TR122 have any impact on the operation or operability of the VBS system. While the changes to DCD Section 6.4.4 included the deletion of the control room doses associated with the assumption of operation of the non-safety grade VBS following a design basis accident, this information is re-inserted to the DCD by TR 134 Revision 5. The VBS operating case was removed from the DCD since the limiting design basis case presented was unrealistic by assuming continued operation of VBS to supply air to the MCR envelope after VES actuation. While operation with the VBS operating is not the safety-related design basis case, the resulting MCR dose with VBS operating in the supplemental air filtration mode for the duration of the accident provided in RAI-TR122-SPCV-01 demonstrates that the VBS satisfies the requirements of GDC 19 during design basis events.

With the VBS operating in the supplemental filtration mode, the control room doses are within the acceptance limits for each of the design basis accidents. Since the VBS continues to operate and supply the CSA / TSC once MCR isolation occurs during an accident, the VBS operating case also satisfies the requirements for GDC 19 for this area and doses to occupants of the CSA / TSC would be about the same as those calculated for the control room, assuming that the same occupancy factors are applied.

2. Normal VBS operation for the CSA / TSC is unaffected by isolation of the MCR upon actuation of the VES, so the DCD statement, "...the [HVAC subsystem of the VBS] is designed to maintain personnel doses within allowable General Design Criteria (GDC) 19 limits during design basis accidents in both the main control room and the control support area," is still valid.

3. The TR122 changes have no impact on the CSA habitability during a design basis accident.

4. During all times when the VBS is in operation, the airborne doses in the MCR and CSA are maintained within the GDC limits. None of the changes identified in TR122 have any impact on the operation or operability of the VBS. While the changes to the DCD Section 6.4.4 included the deletion of the control room doses associated with the assumption of operation of the non-safety grade VBS following a design basis accident, this information is re-inserted to the DCD by TR 134 Revision 5.

With the VBS operating in the supplemental filtration mode, the control room doses are within the acceptance limits for each of the design basis accidents. Doses to occupants of the TSC

would about be the same as those calculated for the control room, assuming that the same occupancy factors are applied.

5. For COL Applicants that select a TSC location that is not located in the CSA as identified in DCD Subsection 18.8.3.5, a DCD Departure must be identified in the COL Application and a departure justification must be provided. The departure is clearly identified in Part 7 of the COL Application. This is the recommended licensing action to address DCD Departures. NUREG-0737 indicates that the technical support center shall be designed for continuous occupancy, as is the control room. It is up to the COL Applicant to provide information on the TSC location if it is not in the CSA, and how the habitability requirements of a TSC will be met.

Even if a TSC is located in an alternate location than the Control Support Area (CSA) (standard design), Table 3.1-1 of the DCD contains Tier 1 requirements that must be met which confirms that the TSC design satisfies the requirements of GDC 19 during design basis accidents DBAs). The requirements are independent of the location.

Part 10 of a COL includes Emergency Planning ITAAC. All COL applicants are required to identify the location of the TSC. An additional ITAAC is included that confirms the TSC includes radiation monitors and a ventilation system with a high efficiency particulate air (HEPA) and charcoal filter.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:
None