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Your ref: Project Number 740
Our ref: DCP/NRC2062

December 19, 2007

Subject: AP1000 COL Response to Requests for Additional Information (TR 98)

In support of Combined License application pre-application activities, Westinghouse is submitting responses to the NRC requests for additional information (RAIs) on AP1000 Standard Combined License Technical Report 98, APP-GW-GLN-098, "AP1000 Compliance with 10 CFR 20.1406". These RAI responses are 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.

Responses are provided for RAI-TR98-RHEB-01 through -03, as sent in an email from Dave Jaffe to Sam Adams, dated November 9, 2007. These responses complete all requests received to date for Technical Report 98. Responses to RAI-TR98-SEB1-01 through -07 were submitted under Westinghouse letter DCP/NRC2032, dated November 2, 2007.

Pursuant to 10 CFR 50.30(b), the responses to the requests for additional information on Technical Report 98, are submitted as Enclosure 1 under the attached Oath of Affirmation.

Questions or requests for additional information related to the content and preparation of these responses 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 'A. Sterdis'.

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

DO63
DO79

NR0

/Attachment

1. "Oath of Affirmation," dated December 19, 2007

/Enclosure

1. Responses to Requests for Additional Information on Technical Report No. 98

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



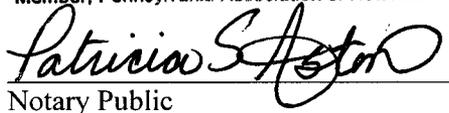
W. E. Cummins
Vice President
Regulatory Affairs & Standardization

Subscribed and sworn to
before me this 19th day
of December 2007.

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

Responses to Requests for Additional Information on Technical Report No. 98

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-TR98-RHEB-01
Revision: 0

Question:

(Minimum Floor Elevation and Exterior Concrete Sloping): Item 6 describes a system of drains and floor and exterior concrete slope that are to prevent surface water from entering the building through doors between the radiologically controlled area and the environment. In order to implement the proposed flood preventive features during the COL or detailed structural design stage, Westinghouse should specify a minimum relative floor level from the plant grade and a minimum exterior concrete slope as plant design parameters.

Westinghouse Response:

Protection from external flooding, including the factors cited in this question, is discussed in DCD section 3.4.1.1.1, "Protection from External Flooding."

The height above grade elevation is site specific based on flood zones, but will be greater than or equal to 6 inches. The slope of the external concrete will be at least 2% (0.25" in 12") away from the building to prevent puddle formation.

Table TR98-1 Item 6 will be revised as shown below.

Design Control Document (DCD) Revision:

None

PRA Revision:

None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

Technical Report (TR) Revision:

Table TR98-1 Item 6 will be revised as shown.

Table TR98-1 AP1000 Features Applicable to 10CFR20.1406		
Item	Feature	DCD Reference
6	The number of passageways (doors) between the radiologically controlled area and the environment has been minimized. Where such doors are incorporated, systems of drains and floor and exterior concrete sloping are used to prevent (potentially radioactive) fluid from the interior of the buildings from exiting the buildings, and also to prevent surface water from entering the buildings. <u>The grade level building floor height will be above grade elevation by a minimum of 6 inches. The slope of the external concrete will be at least 2% (0.25" in 12") away from the building.</u>	1.2, <u>3.4.1.1.1</u> , 3.4.1.2.2.2, 12.3.1.1.2 (as revised below)

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-TR98-RHEB-02
Revision: 0

Question:

(Alternative Leakage Scenario): Item 31 identifies four potential leakage areas, namely the fuel transfer canal, the radwaste building, the auxiliary building rail bay, and the radwaste building truck doors. The corresponding contamination scenario from these areas will be quite different from the most severe tank failure scenario that was defined by SRP 11.2 and BTP 11-6. Moreover, at some sites, it is possible to have multiple contamination pathways to different directions due to the blockage of an original groundwater flow by the nuclear island basemat and backfill. To identify potential pathways and to set up a reasonable groundwater monitoring program during the COL stage, Westinghouse needs to provide an alternative potential leakage scenario by specifying the exact location and elevation of the potential leakages as well as the postulated maximum volume, species, and their concentrations of potential leakage at each contamination area identified by this item.

Westinghouse Response:

Leakage is not anticipated through any known or identified mechanisms out of any point of the AP1000 nuclear unit, including those cited in Item 31 of Table TR98-1. The areas mentioned in Item 31 are considered to be at the highest risk for leakage at some point in the plant life, but the mechanism for leakage is unidentified. Therefore, it is impossible to specify exact information or create specific scenarios for these hypothetical leaks.

For all of these hypothetical leak locations, the potential source would be either refueling water (for the area of the fuel transfer canal) or processed coolant (for the case of the radwaste building or the rail bay doors). Given overall industry trends of excellent fuel performance and improved coolant chemistry, the gross isotopic contamination of either of these sources will be very small. Therefore, the groundwater monitoring programs will primarily review for tritium, since tritium generation is largely independent of both fuel leakage and corrosion product generation.

Design Control Document (DCD) Revision:

None

PRA Revision:

None

Technical Report (TR) Revision:

None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-TR98-RHEB-03

Revision: 0

Question:

(Additional Monitoring Areas): The monitoring program should cover the potential leakage areas identified in Item 26, including the process piping to and from the radwaste building, drain lines from the radwaste building and annex building back to the auxiliary building, and radwaste discharge pipeline. Therefore, the second part of Item 31 should be revised to incorporate these requirements.

Westinghouse Response:

As discussed in Items 26 and 27, radioactive pipelines connecting buildings which are not on a common basemat are designed to ~~be~~ allow for visual inspection. Any inter-building leakage from these pipes would be into an associated piping pit, and could be detected, and thus mitigated before the potential for groundwater contamination. Therefore, leakage in these areas is somewhat different from the hypothetical leakage addressed in Item 31.

However, it is appropriate to ensure inspection of inter-building piping which may contain radioactive fluids; therefore, Table 98-1 of TR98 will be revised as shown below.

Design Control Document (DCD) Revision:

None

PRA Revision:

None

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

Technical Report (TR) Revision:

Revise Table TR98-1 Item 31 as shown.

Table TR98-1		
AP1000 Features Applicable to 10CFR20.1406		
Item	Feature	DCD Reference
31	<p>As discussed above, particularly in items 5, 6, 9, 15, and 22 through 27, the potential for leakage of radioactive fluid into the groundwater has been minimized. Nevertheless, the potential for leakage should be evaluated:</p> <ul style="list-style-type: none"> ▪ From the fuel transfer canal (which includes an outside wall), ▪ From the radwaste building (which incorporates a curbed basemat, but does not have the monolithic basemat / wall nature of the auxiliary building), and ▪ From the auxiliary building truck / rail bay doors. <p>Therefore, the COL applicant will establish a groundwater monitoring program beyond the normal radioactive effluent monitoring program. If and as necessary to support this groundwater monitoring program, the Combined License applicant will install groundwater monitoring wells during the plant construction process. Areas of the site to be specifically considered in this groundwater monitoring program are:</p> <ul style="list-style-type: none"> ▪ West of the auxiliary building in the area of the fuel transfer canal; ▪ West and south of the radwaste building; and ▪ East of the auxiliary building rail bay and the radwaste building truck doors. <p><u>Additionally, as part of the program discussed in section 12.3.5.3 or section 12.3.5.4, the COL applicant will provide monitoring and leakage mitigation requirements to avoid groundwater contamination which might arise from:</u></p> <ul style="list-style-type: none"> ▪ <u>Piping containing radioactive liquids between the auxiliary building and the radwaste building;</u> ▪ <u>Radioactive drain piping from the annex building to the auxiliary building; and</u> ▪ <u>The portion of the radwaste discharge line which is inside the radwaste or auxiliary buildings.</u> 	12.3.5 (as revised below)