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U.S. Nuclear Regulatory Commission
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Your ref: Project Number 740
Our ref: DCP/NRC2032

November 2, 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, "Compliance with 10CFR20.1406". 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-SEB1-01 through RAI-TR98-SEB1-07, as sent in an email from Dave Jaffe to Sam Adams, dated September 26, 2007. These responses complete all requests received to date for Technical Report 98.

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

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D079

NRO

/Attachment

1. "Oath of Affirmation," dated November 2, 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
	M. Moran	-	Florida Power & Light	1E	1A
	C. Pierce	-	Southern Company	1E	1A
	E. Schmiech	-	Westinghouse	1E	1A
	G. Zinke	-	NuStart/Entergy	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

A. D. Greco, being duly sworn, states that he is Senior Vice President, Human Resources & Corporate Relations, 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.

A. D. Greco
Senior Vice President
Human Resources & Corporate Relations

Subscribed and sworn to
before me this 2nd day
of November 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-SEB1-01
Revision: 0

Question:

Table TR98-1, item 5, states that the nuclear island basemat is monolithic without expansion joints, and this helps to preclude radioactive material from leaking out to the environment.

Expansion joints in structures are used to relive or reduce stress generated due to thermal expansion or contraction. Describe how the thermal stress in the basemat is handled without expansion joints.

Provide information on whether there are construction joints in the basemat. If there are construction joints, describe how to preclude radioactive material from leaking out through the construction joints in the basemat to the enviroment.

Westinghouse Response:

The plant grade level is at EL100'-0". The top of the basemat is at EL 66'-6". Therefore, the basemat is not subjected to thermal stresses due to outside temperature and expansion / contraction joints are not required.

Construction joints will exist in the basemat and in the exterior walls. These joints will be constructed to meet American Concrete Institute requirements and will minimize the discontinuity in the concrete. Furthermore, a waterproofing membrane will be provided on the outside surface of the concrete, as described in DCD section 3.4.

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-SEB1-02
Revision: 0

Question:

Table TR98-1, item 5, states that the walls are built as a single monolithic structure with the basemat, without expansion joints or other building joints.

Describe what constitute "other building joints." State whether there are construction joints between the walls and the basemat. If there is no construction joint between the walls and the basemat, describe the construction technique and sequence for the walls so that they would result in a single monolithic structure with the basemat. If there are construction joints between the walls and the basemat, provide your justification for claiming that they are monolithic and would preclude radioactive material from leaking out through the construction joints between the walls and the basemat to the environment.

Westinghouse Response:

Expansion joints are not required, but construction joints will exist between the walls and the basemat. These joints will be constructed to meet ACI-349 requirements. Furthermore, a waterproofing membrane is provided on the outside of the concrete as described in DCD Section 3.4.

Typical connections between the walls and the basemat are shown in DCD Figures 3H.5-3.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:

5	The nuclear island basemat, extending beneath the containment and the auxiliary building, is made using techniques which result in a monolithic basemat, without expansion joints. The walls are built as a single monolithic structure with the basemat, without expansion joints ~~or other building joints~~. The concrete used for building construction is thick and extensively waterproofed, including a waterproofing membrane on the exterior surface. This precludes leakage from the radioactive equipment located in this building to the environment.	3.4.1.1.1, 3.4.1.2.2.2

AP1000 TECHNICAL REPORT REVIEW

Response to Request For Additional Information (RAI)

RAI Response Number: RAI-TR98-SEB1-03
Revision: 0

Question:

Table TR98-1, item 5, states that the concrete used for building construction is thick and extensively waterproofed, and this precludes leakage from the radioactive equipment located in this building to the environment.

State whether the thickness of concrete members or walls of the buildings was established by a criterion that involves radioactive leakage. If yes, provide the criterion. Identify the material, which would be used for waterproofing the building, that would help preclude radioactive material from leaking out of the building to the environment. Describe how the waterproofing material is used for the building, such as waterproofing the entire interior walls or/and exterior walls.

Westinghouse Response:

Nuclear Island exterior walls are at least 2'-0" thick, which is considered adequate to preclude leakage from the radioactive equipment (which is generally protected by additional interior walls also). Exterior walls (segments below grade level) are waterproofed.

The thickness of the auxiliary building walls and other concrete members was determined in accordance with building loadings, including seismic requirements, not by a criterion for radioactive leakage.

Waterproofing features for external walls are discussed in DCD Section 3.4.1.1.1. Internal walls are not specifically waterproofed, but are sealed as discussed in DCD Section 6.1.2.1.4.

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-SEB1-04
Revision: 0

Question:

Table TR98-1, item 7, states that where masonry walls are used in radiological service, they are grouted solid and fully sealed, including at the ceiling or top of the block in order to prevent liquid incursion.

Identify the sealing material and provide information for the sealing material that it would help prevent liquid incursion.

Westinghouse Response:

No masonry block walls are currently used in the radiological areas of AP1000.

If application of such wall is considered for specific purposes during plant operation, the sealing material will be selected in accordance with the discussion in DCD section 6.1.2.1.4, and would be anticipated to be epoxy top coat applied over an epoxy surfacer.

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-SEB1-05
Revision: 0

Question:

Table TR98-1, item 9, states that the left-in-place steel will be coated with paints and sealants to minimize the potential for contamination to penetrate.

State whether the paint and sealant are on both faces of a steel plate or not. Identify the paint and sealant that are to be used. Describe how the sealant is applied to the steel and its locations. If the paint and sealant are in contact with concrete, provide information that they will not create adverse chemical reactions with concrete.

Westinghouse Response:

Coating selection is generally as described in DCD Section 6.1.2.1.4. The detailed design of the modules, including coating selections, is currently in progress.

Stainless steel plate is used in areas which are normally wetted. Stainless steel will not be painted on the outer wetted surfaces. Since the inner surfaces (i.e., those which will be filled with concrete) have carbon steel studs and angle stiffeners attached, a pre-construction primer such as Ameron 3207 is being considered as a rust preventative.

Where carbon steel plate is used, parts of the plate which are exposed in their final configuration in the plant will be surface prepared and primed with an inorganic zinc primer, and then top-coated with a high build epoxy or epoxy phenolic coating. As mentioned above, for the inner surfaces (concrete filled), a pre-construction primer such as Ameron 3207 is being considered as a rust preventative.

In accordance with the prohibitions of ACI 349, coatings containing zinc will not be applied to surfaces in contact with concrete.

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-SEB1-06
Revision: 0

Question:

Table TR98-1, item 15, states, "The walls of these pools will be constructed using modular construction techniques, allowing higher quality than typical 'in the hole' construction."

Provide a typical cross-section of the spent fuel pool wall and the basemat, and justifications for the modular construction resulting in a higher quality than the traditional spent fuel pool structure construction.

Westinghouse Response:

Modular construction, and its advantages, is discussed in detail in DCD Section 3.8.3.1. This section includes references to several module figures.

A typical module cross section is shown in DCD figure 3.8.3-16.

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-SEB1-07
Revision: 0

Question:

Table TR98-1, item 15, states "To the extent possible, these pools are located entirely inside the auxiliary and containment building, so that any theoretical leakage from the tanks would be into the building rather than to the environment. Specifically, for pools other than a portion of the fuel transfer canal, the concrete support structure of the pools may be inspected from rooms adjacent to or below (i.e., outside) the pool."

The above description indicates that the spent fuel pool and connected pools are elevated structures within the auxiliary and containment building so that the exterior face of the base slab of these pools can be inspected. Provide a description on the support structures for these elevated spent fuel pool and connected pools, and a drawing of these support structures to these pools.

Westinghouse Response:

As stated in the Technical Report, the spent fuel pool and connected pools are elevated structures within the auxiliary and containment building so that the exterior face of the base slab of these pools can be inspected.

A description of the support structures is included in DCD section 3.8.3.1.

Design Control Document (DCD) Revision:
None

PRA Revision:
None

Technical Report (TR) Revision:
None