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Your ref: Project Number 740
Our ref: DCP/NRC1789

October 6, 2006

Subject: AP1000 COL Standard Technical Report Submittal

In support of Combined License application pre-application activities, Westinghouse is submitting Revision 0 of AP1000 Standard Combined License Technical Report Number 11a. The purpose of this report is to provide partial closure of COL information item 3.9-2 by completing the core makeup tank design specification and making it available for audit after November 13, 2006. This report is submitted as part of the NuStart Bellefonte COL Project (NRC Project Number 740). The information included in this report is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification.

The purpose for submittal of this report was explained in a March 8, 2006 letter from NuStart to the U.S. Nuclear Regulatory Commission.

Pursuant to 10 CFR 50.30(b), APP-GW-GLR-048, Revision 0, "Core Makeup Tank Design Specification and Reports Summary," Technical Report Number 11a, is submitted as Enclosure 1 under the attached Oath of Affirmation.

It is expected that when the NRC review of Technical Report 11a is complete, the NRC should consider the COL item to make the design specifications and design reports for ASME Section III components available for audit to be closed relative to the CMT, and the design generically applicable to all COL applications referencing the AP1000 Design Certification.

D079

Questions or requests for additional information related to the content and preparation of this report 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 & Customer Interface
Regulatory Affairs and Standardization

/Attachment

1. "Oath of Affirmation," dated October 6, 2006

/Enclosure

1. APP-GW-GLR-048, Revision 0, "Core Makeup Tank Design Specification and Reports Summary," Technical Report Number 11a, dated October 2006.

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

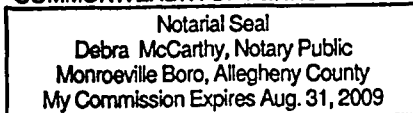
B. W. Bevilacqua, being duly sworn, states that he is Vice President, New Plants Engineering, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set forth therein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

Bruce W. Bevilacqua

B. W. Bevilacqua
Vice President
New Plants Engineering

Subscribed and sworn to
before me this 6th day
of October 2006.

COMMONWEALTH OF PENNSYLVANIA



Member, Pennsylvania Association of Notaries

Notary

ENCLOSURE 1

APP-GW-GLR-048, Revision 0

“Core Makeup Tank Design Specification and Reports Summary”

Technical Report Number 11a

AP1000 DOCUMENT COVER SHEET

TDC:

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APY

RFS#:

RFS ITEM #:

AP1000 DOCUMENT NO. APP-GW-GLR-048	REVISION NO. 0	Page 1 of 5	ASSIGNED TO W-Sterdis
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ALTERNATE DOCUMENT NUMBER:

WORK BREAKDOWN #:

ORIGINATING ORGANIZATION: Westinghouse Electric Co. - NPP

TITLE: Core Makeup Tank Design Specification and Design Report Summary

ATTACHMENTS:		DCP #/REV. INCORPORATED IN THIS DOCUMENT REVISION:
CALCULATION/ANALYSIS REFERENCE:		
ELECTRONIC FILENAME APP-GW-GLR-048 R0.doc	ELECTRONIC FILE FORMAT MS-WORD	ELECTRONIC FILE DESCRIPTION

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PATENT REVIEW Mike Corletti	SIGNATURE/DATE <i>Mike Corletti</i> 10/6/06

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REVIEWERS Don Lindgren	SIGNATURE/DATE <i>D. L. Lindgren</i> 10/6/2006	
VERIFIER John Solenski <i>See Following Page</i>	SIGNATURE/DATE	VERIFICATION METHOD
AP1000 RESPONSIBLE MANAGER Ken Quinn	SIGNATURE* <i>D.A. Wiseman for Ken Quinn</i>	APPROVAL DATE 10/6/06

* Approval of the responsible manager signifies that document is complete, all required reviews are complete, electronic file is attached and document is released for use.

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ORIGINATOR Dale Wiceman	SIGNATURE/DATE <i>Dale A. Wiceman</i> 10/6/06	
REVIEWERS Don Lindgren	SIGNATURE/DATE <i>D. Lindgren</i> 10/6/2006	
VERIFIER John Solenski	SIGNATURE/DATE <i>John Solenski</i> 10/6/06	VERIFICATION METHOD Ind. Review
AP1000 RESPONSIBLE MANAGER Ken Quinn	SIGNATURE*	APPROVAL DATE

* Approval of the responsible manager signifies that document is complete, all required reviews are complete, electronic file is attached and document is released for use.

AP1000 Standard Combined License Technical Report

Core Makeup Tank Design Specification and Design Report Summary

Revision 0

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INTRODUCTION

The purpose of this report is to provide partial closure of a Combined Operating License (COL) information item by completing the core makeup tank design specification and design report and making them available for audit.

The completion of the core makeup tank design specification and design report for audit is identified as COL Information Item 3.9-2 (FSER Action 3.9.2.4-1) in DCD Subsection 3.9.8.2 to be completed by the Combined License applicant.

The COL item from the DCD reads:

“Combined License applicants referencing the AP1000 design will have available for NRC audit the design specifications and design reports prepared for ASME Section III components. Combined License applicants will address consistency of the reactor vessel core support materials relative to known issues of irradiation-assisted stress corrosion cracking or void swelling (see subsection 4.5.2.1). *[The design report for the ASME Class 1, 2, and 3 piping will include the reconciliation of the as-built piping as outlined in subsection 3.9.3. This reconciliation includes verification of the thermal cycling and stratification loadings considered in the stress analysis discussed in subsection 3.9.3.1.2.]***”

There are several ASME Section III components. In order to facilitate the review process, the design specifications and design reports are being made available for audit as they are completed for each individual component. The accumulator design specification and design report have been made available for audit via APP-GW-GLR-049 (October 2006). The remaining eight ASME Section III component design specifications and design reports are scheduled for completion between January and July 2007.

The consistency of the reactor vessel core support materials relative to known issues of irradiation-assisted stress corrosion cracking or void swelling was addressed in WCAP-16620, Consistency of Reactor Vessel Internals Core Support Structure Materials Relative to Known Issues of Irradiation-Assisted Stress Corrosion Cracking (IASSC) and Void Swelling for the AP1000 Plant (July 2006). The as-built COL items were addressed generically in APP-GW-GLR-021 (June 2006).

With the completion of the design specification and design report as outlined in this report, the NRC should consider the COL item to make the design specifications and design reports for ASME Section III components available for audit to be closed relative to the core makeup tank.

TECHNICAL BACKGROUND

The core makeup tank is a safety-related tank which is part of the passive core cooling system (PXS). The PXS is designed to provide sufficient core cooling during design basis events. There are two core makeup tanks in the PXS.

The core makeup tanks are vertical, cylindrical tanks with hemispherical upper and lower heads. They are made of alloy steel, clad on the internal surfaces with stainless steel. The core makeup tanks are supported by columns and are located inside containment above the direct vessel injection line connections to the reactor vessel, which are located at an elevation near the bottom of the hot leg. Nozzle connections are provided for makeup water, sampling, and instrumentation.

During normal operation the core makeup tanks are completely filled with borated water and are maintained at reactor coolant system pressure by the cold leg pressure balance line. The temperature of

the borated water in the core makeup tanks is about the same as the containment ambient temperature since the tanks are not insulated or heated.

The design pressure and temperature for the core makeup tanks are 2485 psig and 650 °F, respectively.

The core makeup tank is an AP1000 Equipment Class A component which is designed to meet seismic Category I requirements and analyzed to meet the applicable criteria of the ASME Boiler and Pressure Vessel Code, Section III, 1998 Edition with 2000 Addenda. The criteria of Subsection NB are used for the tank verification and Subsection NF criteria are used for verification of the support columns.

Detailed stress analyses were completed for the tank shell, manway assembly including cover and bolts, inlet/outlet nozzles, 1-inch nozzles, and support columns. The results of the analyses show compliance with the structural requirements of the design specification and the allowable stresses as given in the appropriate ASME Code subsection. The analytical work documented in the design report is sufficient to conclude that the final margins of safety will comply with the applicable requirements of the ASME Code, as well as the additional structural requirements of the design specification.

The final, complete ASME Code stress report will be made available to the NRC for audit as required by Tier 1 Inspections, Tests, Analyses, and Acceptance Criteria 2a in Table 2.2.3-4, after the fabrication of the core makeup tanks is completed and as-built dimensions are reconciled.

REGULATORY IMPACT

The completion of ASME Section III component design specifications and design reports for audit are discussed in Subsection 3.9 of the NRC Final Safety Evaluation Report (FSER) for the AP1000. Making the core makeup tank design specification and design report available for audit is part of COL Action Item 3.9.2.4-1 as identified in the FSER. The completion of the core makeup tank design specification and design report for audit does not alter the conclusions in the FSER.

DCD MARKUP

As a result of the completion of the core makeup tank design specification and design report for audit, the text in DCD Tier 2, Subsection 3.9.8.2 is modified and Reference 23 is added to DCD Subsection 3.9.9. See below for changes to these two subsections.

3.9.8.2 Design Specifications and Reports

Combined License applicants referencing the AP1000 design will have available for NRC audit the design specifications and design reports prepared for ASME Section III components. The design specification and design report for the core makeup tank are made available for NRC audit via APP-GW-GLR-048 (Reference 23). Combined License applicants will address consistency of the reactor vessel core support materials relative to known issues of irradiation-assisted stress corrosion cracking or void swelling (see subsection 4.5.2.1). [*The design report for the ASME Class 1, 2, and 3 piping will include the reconciliation of the as-built piping as outlined in subsection 3.9.3. This reconciliation includes verification of the thermal cycling and stratification loadings considered in the stress analysis discussed in subsection 3.9.3.1.2.*]*

3.9.9 References

23. APP-GW-GLR-048, Core Makeup Tank Design Specification and Design Report Summary, Westinghouse Electric Company, LLC, October 2006.