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Your ref: Project Number 740
Our ref: DCP/NRC1825

February 1, 2007

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 11c. This report completes and documents, on a generic basis, activities required for partial closure of COL Information Item 3.9-2 in the AP1000 Design Control Document. Changes to the Design Control Document identified in Technical Report Number 11c are intended to be incorporated into FSARs referencing the AP1000 design certification or incorporated into the design certification using supplemental rulemaking if Part 52 is revised to permit revision of the design certification. 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-050, Revision 0, "Reactor Internals Design Specification and Design Report Summary," Technical Report Number 11c, is submitted as Enclosure 1 under the attached Oath of Affirmation.

It is expected that when the NRC review of Technical Report Number 11c is complete, COL Information Item 3.9-2 will be considered partially complete for COL applicants referencing the AP1000 Design Certification.

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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 and Customer Interface
Regulatory Affairs and Standardization

/Attachment

1. "Oath of Affirmation," dated February 2, 2007

/Enclosure

1. APP-GW-GLR-050, Revision 0, "Reactor Internals Design Specification and Design Report Summary," Technical Report Number 11c, dated January 2007.

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

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.



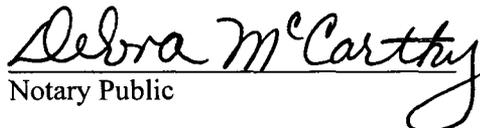
W. E. Cummins
Vice President
Regulatory Affairs & Standardization

Subscribed and sworn to
before me this ^{15th} day
of February 2007.

COMMONWEALTH OF PENNSYLVANIA

Notarial Seal
Debra McCarthy, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Aug. 31, 2009

Member, Pennsylvania Association of Notaries


Notary Public

ENCLOSURE 1

APP-GW-GLR-050, Revision 0

Reactor Internals Design Specification and Design Report Summary

Technical Report Number 11c

AP1000 DOCUMENT COVER SHEET

TDC: _____ Permanent File: _____ APY: _____

RFS#: _____ RFS ITEM #: _____

AP1000 DOCUMENT NO. APP-GW-GLR-050	REVISION NO. 0	Page 1 of 5	ASSIGNED TO W-Quinn
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ALTERNATE DOCUMENT NUMBER: LTR-ARIDA-07-3 WORK BREAKDOWN #:

ORIGINATING ORGANIZATION: Westinghouse Electric Co. - NPP

TITLE: **Reactor Internals Design Specification and Design Report Summary**

ATTACHMENTS:	DCP #/REV. INCORPORATED IN THIS DOCUMENT REVISION:
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CALCULATION/ANALYSIS REFERENCE:

ELECTRONIC FILENAME	ELECTRONIC FILE FORMAT	ELECTRONIC FILE DESCRIPTION
APP-GW-GLR-050 Rev 0	MS-Word	

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PATENT REVIEW M. M. Corletti	SIGNATURE/DATE <i>SIGNATURE ON FILE 1/31/2007</i>

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REVIEWERS John M. Iacovino	SIGNATURE/DATE <i>(Signed) J M IACOVINO JR</i> 1/31/07	
Donald A. Lindgren	<i>D. A. Lindgren</i> 1/31/07	
VERIFIER David A. Altman	SIGNATURE/DATE <i>David A. Altman</i> 1-31-07	VERIFICATION METHOD
AP1000 RESPONSIBLE MANAGER David R. Forsyth	SIGNATURE* <i>David R. Forsyth</i>	APPROVAL DATE 1/31/07

* 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.

APP-GW-GLR-050
Revision 0

January 2007

AP1000 Standard Combined License Technical Report

Reactor Internals Design Specification and Design Report Summary

Revision 0

Westinghouse Electric Company LLC
Nuclear Power Plants
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Pittsburgh, PA 15230-0355

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INTRODUCTION

The reactor internals are part of the reactor system as defined in the AP1000 reactor system specification document (Reference [1]). The internals consist of two basic assemblies: an upper internals assembly that is removed during each refueling operation to obtain access to the reactor core, and a lower internals assembly that can be removed, if desired, following a complete core unload. The function of the reactor internal components is to:

- Support, orient, and guide the core components, namely the fuel assemblies and control rod assemblies.
- Direct the main coolant flow to and from the fuel assemblies.
- Absorb control rod dynamic loads, fuel assembly loads, and other loads, and transmit these loads to the reactor vessel.
- Support incore instrumentation within the reactor vessel.
- Convey cooling water to the core for a postulated loss-of-coolant accident (LOCA).
- Provide protection for the reactor vessel against excessive irradiation exposure from the core.
- Position and support reactor vessel irradiation surveillance specimens.

Reactor internal components are classified as either Core Support Structures (CSS) or Internal Structures (IS) in accordance with the designations defined in Section III, Subsection NG of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code. The internals core support structures are structures whose boundary is within the confines of the reactor vessel, and provide the direct support and restraint of the fuel assemblies, control rod assemblies, and other core components. The internal structures are defined as all those other structures within the reactor vessel that are not core support structures and excludes fuel assemblies, control rod assemblies, other core components and instrumentation. Internal structures are not permitted to adversely affect the integrity of the core support structures.

The purpose of this report is to provide partial closure of a Combined Operating License (COL) item from the DCD Subsection 3.9.8.2 which 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 completion of the reactor internals design specification and design report 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.

Previous Section III component reports addressing this COL item are found in References [2] and [3]. Since there are additional primary components requiring design reports and design specifications, this technical report only provides for partial completion of COL item 3.9-2. The consistency of the reactor

internals component materials relative to known issues of irradiation-assisted stress corrosion cracking (IASCC) or void swelling was addressed in Reference [4].

TECHNICAL BACKGROUND

The reactor internals are designed to meet the applicable criteria of the ASME Boiler and Pressure Vessel Code, Section III, Subsection NG, 1998 Edition with 2000 Addenda. Detailed stress analyses for the core support structures have been performed and 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 is sufficient to conclude, for the core support structures, 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. These analyses, summarized in Reference [5], along with the reactor internals design specification (Reference [6]) are available for audit by the NRC. The generic design report for the reactor internals includes the core support structures and the internals structures. The internals structures report sections remain to be developed.

The final, complete plant-specific reactor internals ASME Code stress report (which includes core support structures and internals structures) is required by Tier 1 Inspections, Tests, Analyses, and Acceptance Criteria 2a in Table 2.2.3-4, after the fabrication of the reactor internals is completed and the as-built dimensions are reconciled.

REFERENCES

- 1) APP-RXS-M3-001, Rev. A, "Reactor System System Specification Document"
- 2) APP-GW-GLR-048, "Core Makeup Tank Design Specification and Design Report Summary"
- 3) APP-GW-GLR-049, "Accumulator Design Specification and Design Report Summary"
- 4) APP-GW-GLR-035 Rev. 0, (WCAP-16620-NP Rev. 0), "Consistency of Reactor Vessel Internals Core Support Structure Materials Relative to Known Issues of Irradiation-Assisted Stress Corrosion Cracking (IASCC) and Void Swelling for the AP1000 Plant"
- 5) APP-MI01-GLR-001, "Reactor Internals Core Support Structures Design Report Summary"
- 6) APP-MI01-Z0-101 Rev. 0, "AP1000 Reactor Internals Design Specification"

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. Availability of the reactor internals design specification and design report is part of FSER Action Item 3.9.2.4-1 as identified in the FSER. The completion of the reactor internals design specification and design report for audit does not alter the conclusions in the FSER.

DCD MARKUP

Upon completion of the reactor internals design specification and generic ASME Code design report for audit, the text in DCD Tier 2, Subsection 3.9.8.2 will be modified and Reference 22 can be added to DCD Subsection 3.9.9. These changes for these two subsections are provided below:

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. 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.]**

The design specification and design report for the reactor internals core support structures are available for NRC audit via APP-GW-GLR-050, Rev. 0 (Reference 22). 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) are addressed by APP-GW-GLR-035 (WCAP-16620) (Reference 21).

*NRC Staff approval is required prior to implementing a change in this information; see DCD Introduction Section 3.5.

3.9.9 References

22. APP-GW-GLR-050, Rev. 0, "Reactor Internals Design Specification and Design Report Summary", Westinghouse Electric Company, LLC.