



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: 412-374-6306
Direct fax: 412-374-5005
e-mail: sterdia@westinghouse.com

Your ref: Project Number 740
Our ref: DCP/NRC1833

February 16, 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 11j. 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 11j are intended to be incorporated into FSARs referencing the AP1000 design certification or incorporated into the design certification when Part 52 is revised to permit amendment 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-057, Revision 0, "Control Rod Drive Mechanism Design Specification and Design Report Summary," Technical Report Number 11j, is submitted as Enclosure 1 under the attached Oath of Affirmation.

It is expected that when the NRC review of Technical Report Number 11j is complete, COL Information Item 3.9-2 will be considered partially complete for COL applicants referencing the AP1000 Design Certification. Westinghouse will have the Technical Report 11j supporting technical information available for audit after March 16, 2007.

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 16, 2007

/Enclosure

1. APP-GW-GLR-057, Revision 0, "Control Rod Drive Mechanism Design Specification and Design Report Summary," Technical Report Number 11j, dated February 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)

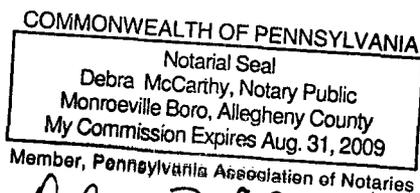
APPLICATION FOR REVIEW OF
"AP1000 GENERAL COMBINED LICENSE INFORMATION"
FOR COL APPLICATION PRE-APPLICATION REVIEW

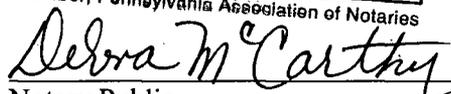
W. E. Cummins, being duly sworn, states that he is Vice President, Regulatory Affairs & Standardization, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set 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 16th day
of February 2007.




Notary Public

ENCLOSURE 1

APP-GW-GLR-057, Revision 0

Control Rod Drive Mechanism Design Specification and Design Report Summary

Technical Report Number 11j

AP1000 DOCUMENT COVER SHEET

TDC: _____ Permanent File: _____ APY _____
 RFS#: _____ RFS ITEM #: _____

AP1000 DOCUMENT NO. APP-GW-GLR-057	REVISION NO. 0	Page 1 of 4	ASSIGNED TO W-Quinn
----------------------------------------------	--------------------------	-------------	-------------------------------

ALTERNATE DOCUMENT NUMBER: TR 11j WORK BREAKDOWN #:

ORIGINATING ORGANIZATION: Westinghouse

TITLE: **Control Rod Drive Mechanism Design Specification and Design Reports Summary**

ATTACHMENTS: NONE	DCP #/REV. INCORPORATED IN THIS DOCUMENT REVISION: N/A
CALCULATION/ANALYSIS REFERENCE: APP-MV11-S3C-002	

ELECTRONIC FILENAME	ELECTRONIC FILE FORMAT	ELECTRONIC FILE DESCRIPTION
APP-GW-GLR-057.doc	MS Word	TEXT

(C) WESTINGHOUSE ELECTRIC COMPANY LLC - 2007

WESTINGHOUSE CLASS 3 (NON PROPRIETARY)
 Class 3 Documents being transmitted to the NRC require the following two review signatures in lieu of a Form 36.

LEGAL REVIEW Tom White Eric S. Gillan	SIGNATURE/DATE <i>Eric S. Gillan</i> 2/15/07
PATENT REVIEW Mike Corletti	SIGNATURE/DATE <i>Mike Corletti</i> 2/15/07

WESTINGHOUSE PROPRIETARY CLASS 2
 This document is the property of and contains Proprietary Information owned by Westinghouse Electric Company LLC and/or its subcontractors and suppliers. It is transmitted to you in confidence and trust, and you agree to treat this document in strict accordance with the terms and conditions of the agreement under which it was provided to you.

ORIGINATOR M. McCullough	SIGNATURE/DATE <i>Michael McCullough</i> 2/15/07	
REVIEWERS D. Wiseman	SIGNATURE/DATE <i>D. A. Wiseman</i> 2/15/07	
VERIFIER J. Iacovino	SIGNATURE/DATE <i>(Signed) J. Iacovino</i> 2/15/07	VERIFICATION METHOD Page by Page
AP1000 RESPONSIBLE MANAGER K. Quinn	SIGNATURE <i>K. Quinn</i>	APPROVAL DATE 2/15/07

* 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-057
Revision 0

February 2007

AP1000 Standard Combined License Technical Report

Control Rod Drive Mechanism Design Specification and Design Reports Summary

Revision 0

Westinghouse Electric Company LLC
Nuclear Power Plants
Post Office Box 355
Pittsburgh, PA 15230-0355

©2007 Westinghouse Electric Company LLC
All Rights Reserved

INTRODUCTION

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

The completion of the control rod drive mechanism design specification and design report for audit is identified as COL Information Item 3.9-2 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.”

Because there are several ASME Section III components, the design specifications and design reports are being made available for audit as each individual component is completed in order to facilitate the review process.

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 control rod drive mechanism.

TECHNICAL BACKGROUND

The control rod drive mechanism is an electromechanical drive which is used to position a control rod drive assembly inside the core. By altering or maintaining the vertical orientation of the control rod assembly, the control rod mechanism aids in the start-up and shut down of the reactor, adjusts or maintains the power level of the core during normal plant operations, and can quickly shut down the core in the event of a reactor trip.

The control rod drive mechanism can be divided into four sub-assemblies consisting of the pressure housings, latch assembly, coil stack and drive rod. The pressure housings form the pressure boundary between the reactor coolant and the containment environment. The latch assembly interfaces with the drive rod to change or maintain the control rod assembly vertical orientation. The coil stacks provide the magnetic field necessary to move the latch assembly components to interface with the drive rod. The drive rod is mechanically coupled to the control rod assembly to permit movement of the assembly into and out of the reactor core.

The design pressure and temperature for the control rod drive mechanisms is 2500 psia and 650 °F, respectively.

The control rod drive mechanism pressure housing 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 pressure housing assembly is considered a Class 1 Appurtenance and shall be governed by the General Requirements contained in Section III Subsection NB of the ASME Code as directed by Paragraph NCA-2131.

A detailed stress analysis was completed for the pressure housings, the latch housing and rod travel housing. The result of the analysis shows 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 2.2.1-3, after the fabrication of the control rod drive mechanisms is completed.

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 control rod drive mechanism design specification and report available for audit is part of COL action item 3.9.2.4-1 as identified in the FSER. The completion of the control rod drive mechanism 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 control rod drive mechanism design specification and design report for audit, the text in DCD Tier 2, Subsection 3.9.8.2 is modified and Reference 24 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 control rod drive mechanism are made available for NRC audit via APP-GW-GLR-057 (Reference 24).** 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

24. APP-GW-GLR-057, Control Rod Drive Mechanism Design Specification and Design Report Summary, Westinghouse Electric Company, LLC, February 2007