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Your ref: Project Number 740
Our ref: DCP/NRC1741

May 29, 2006

Subject: AP1000 COL Standard Design Change Submittal

In support of Combined License application pre-application activities, Westinghouse is submitting an AP1000 Standard Combined License technical report. These reports complete and document, on a generic basis, activities required for COL information items in the AP1000 Design Control Document. 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 projects referencing the AP1000 Design Certification.

The purpose for the submittal of this report and the expected pre-application review was explained in a March 5, 2006 letter from NuStart to the NRC.

Pursuant to 10 CFR 50.30(b), APP-GW-GLR-019, Rev. 0, "Fire Resistance Test Data," Technical Report Number 46 is submitted as Enclosure 1 under the attached Oath of Affirmation.

It is expected that when the NRC review of these reports is complete, the subject COL Information Items will be considered complete for COL applicants referencing the AP1000 Design Certification.

Questions or requests for additional information related to the content and preparation of these reports 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

DO79

/Attachment

1. "Oath of Affirmation," dated May 30, 2006

/Enclosure

1. APP-GW-GLR-019, Rev. 0, "Fire Resistance Test Data," (Technical Report Number 46)

cc:	S. Bloom	- U.S. NRC	1E
	G. Curtis	- TVA	1E
	L. Dudes	- U.S. NRC	1E
	P. Grendys	- Westinghouse	1E
	P. Hastings	- Duke Power	1E
	C. Ionescu	- Progress Energy	1E
	D. Lindgren	- Westinghouse	1E
	A. Monroe	- SCANA	1E
	C. Pierce	- Southern Company	1E
	E. Schmiech	- Westinghouse	1E
	G. Zinke	- NuStart/Entergy	1E

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)

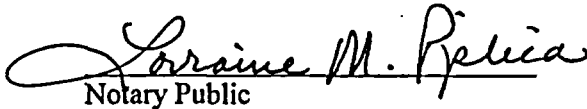
APPLICATION FOR REVIEW OF
"API1000 GENERAL COMBINED LICENSE INFORMATION"
FOR COL APPLICATION PRE-APPLICATION REVIEW

Daniel S. Lipman, being duly sworn, states that he is Senior Vice President 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.



Daniel S. Lipman
Senior Vice President

Subscribed and sworn to
before me this 30th day
of May 2006.



Notary Public

COMMONWEALTH OF PENNSYLVANIA

Notarial Seal
Lorraine M. Piplica, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Dec. 14, 2007

Member, Pennsylvania Association Of Notaries

DCP/NRC1741
May 29, 2006

ENCLOSURE 1

APP-GW-GLR-019, Rev. 0

“New Fuel Rack Design & Structural Analysis”

Technical Report Number 46

AP1000 DOCUMENT COVER SHEET

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

AP1000 DOCUMENT NO. APP-GW-GLR-019	REVISION NO. 0	Page 1 of	ASSIGNED TO W-Sterdis
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ALTERNATE DOCUMENT NUMBER:

WORK BREAKDOWN #:

ORIGINATING ORGANIZATION:

TITLE: **Fire Resistance Test Data**

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

ELECTRONIC FILENAME	ELECTRONIC FILE FORMAT	ELECTRONIC FILE DESCRIPTION
	MS Word	

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*Reviewed
W. Blum*

ORIGINATOR D. McDermott	SIGNATURE/DATE <i>D. J. McDermott</i> 5/25/06	
REVIEWERS	SIGNATURE/DATE	
VERIFIER D. HUTCHINGS	SIGNATURE/DATE <i>D. J. Hutchings</i>	VERIFICATION METHOD Pg 67 Pg review
AP1000 RESPONSIBLE MANAGER P. R. Mandava	SIGNATURE <i>P. R. Mandava</i>	APPROVAL DATE 5-25-06

* 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.

APP-GW-GLR-019
Revision 0

May 2006

AP1000 Standard Combined License Technical Report

Fire Resistance Test Data

Revision 0

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INTRODUCTION

The purpose of this report is to provide closure of a COL information item by providing additional information relative to fire resistance rating for identified building materials. The identified building materials confirmation involves the escape routes and access routes for firefighting and in particular the stairwell towers within the auxiliary building identified in the DCD. The documentation of the fire resistance test data is identified as COL Information Item 9.5-7 (FSER {Reference 2} Action Item 9.5.1-7) in DCD Subsection 9.5.1.8 to be completed by the Combined License applicant.

COL item from the DCD reads: The Combined License applicant will provide 2-hour fire resistance test data in accordance with ASTM E-119 and NFPA 251 for the composite material selected for stairwell fire barriers.

With the following information provided and modifications to the DCD, the NRC should consider the COL item requiring additional test data to be complete and applicable to all COL applications referencing the AP1000 design certification.

TECHNICAL BACKGROUND

The DCD currently reads that "Buildings outside primary containment generally have two enclosed stairways for emergency access. Stairwells serving as escape routes, access routes for firefighting, or access routes to areas containing equipment necessary for safe shutdown of the plant are equipped with emergency lighting. Such stairwells, and elevator shafts, which penetrate fire barrier floors, are enclosed in towers. The majority of the stairwell towers in the auxiliary building contain both concrete structural walls and nonstructural walls, consisting of a concrete/steel composite material having a fire resistance rating of at least 2 hours."

The FSER action item identifies Regulatory Position C.5.a.6 of BTP CMEB 9.5.1 as the criteria against which to judge stairwell fire barriers fire resistance performance test results. The regulatory position within BTP CMEB 9.5.1 specifies: "Personnel access routes and escape routes should be provided for each fire area. Stairwells outside primary containment serving as escape routes, access routes for firefighting, or access routes to areas containing equipment necessary for safe shutdown should be enclosed in masonry or concrete towers with a minimum fire rating of 2 hours and self-closing Class B fire doors."

Westinghouse has reviewed the test data results and confirmed that the concrete/steel composite material proposed for the subject non-structural walls has at least a 2 hour fire resistance rating. The tests for the composite material selected for stairwell fire barrier were performed by Factory Mutual Research Corp., a Nationally Recognized Testing Laboratory (NRTL), in accordance with ASTM E-119 and NFPA 251 and met or exceeded requirements. The results of the testing are reported in Factory Mutual's Report J.I. 1R7Q3 and are available for review at Westinghouse. Therefore, the statement in the DCD will be revised to indicate "... consisting of a concrete/steel composite material having a fire resistance rating of at least 2 hours. The fire resistance rating is based on material testing conducted in accordance with ASTM E 119 and NFPA 251." See the revised section of the DCD, attached

REGULATORY IMPACT

The use of concrete/steel composite material as a fire barrier material to enclose stairwells is discussed in Subsections 9.5.1.5 and 9.5.1.9 of the NRC Final Safety Analysis Report (FSER, Reference 2). Providing the fire resistance test data is identified in the FSER as COL Action Item 9.5.1-7. Documenting the fire resistance test data will impact these write-ups. The conclusions in the FSER about the fire protection are not altered.

The proposed change to the DCD Tier 2 has been evaluated using the 10 CFR 50.59 screening criteria. The following are the results of that review.

- The proposed change to the DCD and confirmation of design capability of the stairwell fire barrier material does not involve a change to a structure, system, or component (SSC) that adversely affects a DCD described design function.
- The proposed change to the DCD and confirmation of design capability of the stairwell fire barrier material does not involve a change to a procedure that adversely affects how a DCD-described SSC design function are performed or controlled.
- The proposed change to the DCD and confirmation of design capability of the stairwell fire barrier material does not involve revising or replacing a DCD-described evaluation methodology used in establishing the design bases or in the safety analyses.
- The proposed change to the DCD and confirmation of design capability of the stairwell fire barrier material does not involve a test or experiment not described in the DCD, where an SSC is utilized or controlled in a manner that is outside the reference bounds of the design for that SSC or is inconsistent with analyses or descriptions in the DCD.

The changes to the DCD presented in this report do not represent an adverse change to the design function or to how design functions are performed or controlled. The changes to the DCD do not involve revising or replacing a DCD-described evaluation methodology nor involve a test or experiment not described in the DCD. The DCD change does not require a license amendment per the criteria of VIII. B. 5.b. of Appendix D to 10 CFR Part 52.

Severe accident change criteria

The proposed change to the DCD and confirmation of design capability of the stairwell fire barrier material has also been evaluated against severe accident change criteria. The change does not result in an impact on features that mitigate severe accidents. The severe accident change criteria are not applicable because mitigation features are not impacted by the change.

Security

The closure of the COL Information Item will not alter barriers or alarms that control access to protected areas of the plant. The closure of the COL Information Item will not alter requirements for security personnel. Therefore, the closure of the COL Information Item does not have an adverse impact on the security assessment of the AP1000.

DCD MARK-UP

Revise the third paragraph of Subsection 9.5.1.2.1.1 as follows:

Buildings outside primary containment generally have two enclosed stairways for emergency access. Stairwells serving as escape routes, access routes for firefighting, or access routes to areas containing equipment necessary for safe shutdown of the plant are equipped with emergency lighting. Such stairwells, and elevator shafts, which penetrate fire barrier floors, are enclosed in towers. The majority of the stairwell towers in the auxiliary building contain both concrete structural walls and nonstructural walls, consisting of a concrete/steel composite material having a fire resistance rating of at least 2 hours. The fire resistance rating is based on material testing conducted in accordance with ASTM E 119 and NFPA 251. These auxiliary building stairwells are protected from potential missiles by other structures or by the selection of the location of the stairwell remote from potential missile

sources. Openings are protected with approved automatic or self-closing doors having a rating of 1.5 hours.

Revise the eighth paragraph of 9.5.1.8 as follows:

Complete. The 2-hour fire resistance test data in accordance with ASTM E-119 and NFPA 251 for the composite material selected for stairwell fire barriers is summarized in Reference 22.

Revise Section 9.5.5 to add the following Reference:

22. APP-GW-GLR-019, Rev 0 "Fire Resistance Test Data"

Revise Item 55 of Table 9.5.1-1 as follows:

Table 9.5.1-1 (Sheet 8 of 33)

AP1000 FIRE PROTECTION PROGRAM COMPLIANCE WITH BTP CMEB 9.5-1

BTP CMEB 9.5-1 Guideline	Paragraph	Comp ⁽¹⁾	Remarks
<p>55. Stairwells serving as escape routes, access routes for firefighting, or access routes to areas containing equipment necessary for safe shutdown should be enclosed in masonry or concrete towers with a minimum fire resistance rating of 2 hours and self-closing Class B fire doors.</p>	<p>C.5.a(6)</p>	<p>AC WA</p>	<p>AP1000 deviates from this guideline with a design that meets applicable building codes and fire protection requirements. Auxiliary building stairwells are enclosed in towers constructed using both concrete structural walls and nonstructural walls, consisting of a concrete/steel composite material, having a fire resistance rating of at least 2 hours, and self-closing doors, having a rating of 1.5 hours.</p> <p>The two hour fire-resistance test data for the concrete/steel composite material is in accordance with the ASTM E-1999 NFPA 251 acceptance criteria to ensure that stairwell fire-related enclosure will be maintained in accordance with Regulatory Position C.5.a.6 of BTP CMEB 9.5-1.</p> <p>There are no missile hazards in the vicinity of such stairwells. This alternative protection provides an equivalent level of safety as that prescribed in the BTP.</p>