



babcock & wilcox nuclear energy

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January 13, 2011

BW-JAH-2011-238

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Babcock & Wilcox Nuclear Energy, Inc.
Docket Number-PROJ0776
Project Number-776

Subject: Submittal of Babcock & Wilcox Nuclear Energy, Inc. (B&W NE) mPower™ Reactor Physical Security Design and Program Considerations Technical Report, R0003-08-002708-000 (P) and (NP)

Ref: NRC Letter, Michael E. Mayfield, to B&W (Christofer Mowry), dated October 15, 2010, Subject: Preparation for Design Certification Reviews (ML102861195)

Ref: B&W NE Letter BW-JAH-2010-235 to U. S. Nuclear Regulatory Commission (NRC) Document Control Desk, dated November 18, 2010, Subject: October 15, 2010 NRC Letter: "Preparations for Design Certification Reviews" (ML103280519)

This letter provides both a proprietary version and a redacted, non-proprietary version of the subject Technical Report. Attached is an affidavit that provides the justification for withholding information that is considered to be B&W NE Commercial Confidential Information.

Additionally, the attached Technical Report contains sensitive, unclassified, non-safeguards information (SUNSI), and affected pages are marked in the header and footer with "Security-Related Information – Withhold Under 10 CFR 2.390."

Since the issuance of SECY-10-034 on March 28, 2010, NRC has encouraged the small modular reactor (SMR) industry to propose alternative methods of complying with current security requirements, which we consider one of the high priority policy issues for our mPower Reactor design. B&W NE is responding to this SECY request with this Technical Report.

This Technical Report is also, in part, a response to the referenced October 15, 2010 NRC letter to B&W, which requested information on B&W NE's approach to physical security and security force staffing as early as possible in order for the NRC staff to prepare for an efficient review of the mPower Reactor design certification application. In B&W NE's referenced November 18, 2010 response to the October 15, 2010 NRC letter (BW-JAH-2010-235), we discussed our intent to submit to the NRC a separate white paper on B&W NE's approach to physical security and security force staffing. We also requested in that letter to meet with the Office of New Reactors (NRO) and the Office of Nuclear Security and Incident Response (NSIR) staff to discuss this upcoming

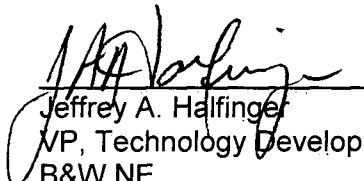
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submittal. We considered this meeting to be a very important first step in sharing information about our strategy and planning. We completed that meeting with NRO and NSIR staff on December 20, 2010.

The subject Technical Report provides conceptual and preliminary security design information for the B&W mPower Reactor and a general introduction to the physical layout of security barriers relative to the nuclear island and balance of plant. Further, the subject report describes the conceptual approach to security manning for access control and contingency response.

B&W appreciated the opportunity to discuss these concepts in our December 20, 2010 meeting. We welcome your feedback, comments or questions regarding the content of the subject report and consider NRC staff's feedback on our concept and approach to be critical as we continue to further develop and implement these concepts into the design process. We look forward to continuing these discussions with NRC staff sometime in early February, as agreed to during our recent meeting.

Questions concerning this submittal may be directed to T. J. Kim at 434-382-9791 (email: tjkim@babcock.com) or to J. A. Halfinger at 434-316-7507 (email: jahalfinger@babcock.com).



Jeffrey A. Halfinger
VP, Technology Development
B&W NE

JAH/jlr

cc: James T. Wiggins, Director, NSIR, TWFN 4-D-22A
Joelle L. Starefos, NRC, TWFN 9-F-27
Stewart L. Magruder, Jr., NRC, TWFN 9-F-27

AFFIDAVIT OF Jeffrey A. Halfinger

STATE OF VIRGINIA

CITY OF LYNCHBURG

I, Jeffrey A. Halfinger, being duly sworn, do hereby depose and say:

1. I am a citizen of the United States of America. I am a resident of Lynchburg, Virginia.

My birth date is November 4th, 1961.

2. I am the Vice President for Babcock & Wilcox Nuclear Energy, Inc. (B&W NE), located in Lynchburg, Virginia. I have held this position since June 1, 2010. I have personal knowledge of the facts set forth in this affidavit, and if called and sworn as a witness in a deposition or before any court, I could and would testify competently under oath to these facts.

3. B&W NE requests that the NRC withhold from public disclosure the information marked as "B&W Confidential Commercial Information" regarding the B&W mPower™ reactor design discussed in the B&W NE letter dated January 13, 2011. This information is included Revision 0 of the B&W mPower™ Reactor Physical Security Design and Program Considerations Technical Report R0003-08-002708-000.

4. I have personal knowledge of the criteria and procedures used by B&W NE in designating confidential commercial or financial information as proprietary and have been delegated the function to review the information to identify proprietary information and authorized to apply for its withholding. The need for confidentiality is driven by the following:

- a) The information requested to be withheld reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) whose use by any of B&W NE's competitors, without a license from the submitter, would constitute a competitive economic disadvantage to B&W NE.
- b) Use by a competitor of the information requested to be withheld would reduce a competitor's expenditure of resources, or improve its competitive position, in the

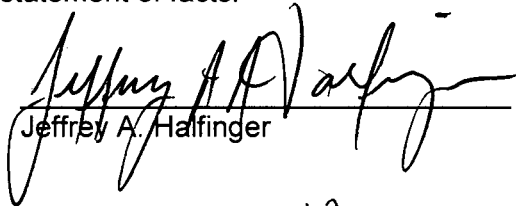
design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

c) The information requested to be withheld reveals aspects of privately funded development plans or programs of commercial value to B&W NE.

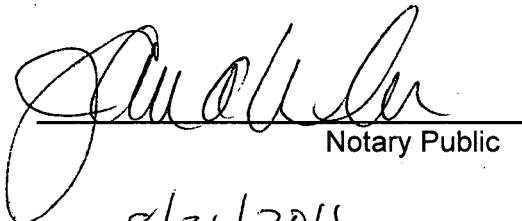
d) The information requested to be withheld consists of patentable ideas.

5. Specifically, the information identified in paragraph 3 above, is classified as proprietary because B&W NE has developed the conceptual and technical approaches regarding details of the B&W mPower™ reactor design features, disclosure of which could adversely affect B&W NE's competitive position by informing competitors of the degree of maturity and viability of the program, thereby motivating them to increase efforts to develop competing technologies. These features of the reactor design were privately funded by B&W NE and are of commercial value to B&W NE because of their nature in providing key elements of the B&W mPower™ reactor design analysis. All or parts of the approach described in the withheld material is patentable.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is a true and correct statement of facts.


Jeffrey A. Halfinger

Subscribed and sworn to before me this 13 day of January 2011.


Notary Public

My commission expires: 8/31/2011

Redacted Non-Proprietary and Non-Security Related Version



babcock & wilcox nuclear energy

**B&W *mPower*[™] Reactor
Physical Security Design and Program
Considerations
Technical Report
R0003-08-002708-000 (NP)
January 2011**



B&W *mPower*[™] Reactor Program
Babcock & Wilcox Nuclear Energy, Inc.
109 Ramsey Place
Lynchburg, VA 24501

Confidential Commercial Information and/or Security Related Information Is Enclosed in Square Brackets; and Reasons for Withholding the Identified CCI from Public Disclosure Are Provided in an Accompanying Affidavit

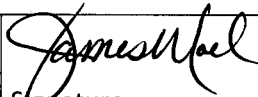
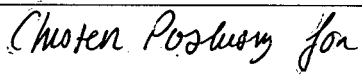
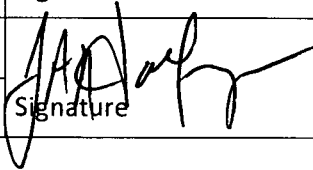
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Babcock & Wilcox Nuclear Energy, Inc.

B&W mPower Reactor™
Physical Security Design and Program Considerations

SIGNATURES			
Prepared By:	James L. Noel	 Signature	1/12/2011 Date
	Security Design Team Leader		
Reviewed By:	T. J. Kim	 Signature	1/13/2011 Date
	Licensing Director		
Approved By:	Jeff A. Halfinger	 Signature	1/13/11 Date
	Vice President, Technology Development		

This Report Contains 33 Pages Including the Cover Page

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REVISION HISTORY

Revision	Section(s) or Page(s)	Description of Change
0		Initial Issue

Document No. R0003-08-002708-000(NP)	Title: Physical Security Design and Program Considerations
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ACRONYMS

BBRE	Blast- and Bullet-Resistant Enclosure
CAS	Central Alarm Station
NRC	Nuclear Regulatory Commission
OCA	Owner Controlled Area
PA	Protected Area
PIDAS	Perimeter Intrusion Detection and Alarm System
SAS	Secondary Alarm Station
SCA	Security Controlled Area
VA	Vital Area
VBIED	Vehicle-Borne Improvised Explosive Device
VBS	Vehicle Barrier System

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1.0 INTRODUCTION

This report provides information related to physical security design and program considerations for a B&W mPower™ reactor facility. It includes a discussion of facility layout, physical barriers and security force staffing considerations to be addressed during the design approval process. As such, the report is intended to further the dialogue with various stakeholders, including the U.S. Nuclear Regulatory Commission (NRC), regarding the subject topic. [

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

This report does not contain any commitments and is not intended to present a detailed proposed physical security system for a B&W mPower reactor facility, but does highlight specific physical security attributes under consideration as an integral part of the design phase. The report also identifies several of the inherent safety features of the plant that can be optimized for their physical protection value, and discusses the rationale for the subject physical security design and program considerations.

The details of the security program will be included in the Physical Protection Plan, Safeguards Contingency Plan, Cyber Security Plan, and Security Training, Qualification and Equipment Plan to be provided as part of the B&W mPower reactor design certification application. These documents will describe the security program elements designed to conform to applicable current NRC regulations, licensing acceptance criteria, and regulatory guidance to meet the protection requirements for defense against the existing design basis threat described in 10 CFR 73.1. Specifically, B&W believes that the current design basis threat and the protection requirements contained in the existing regulatory framework are adequate to address the physical security needs of a B&W mPower reactor facility, and that no new rule-making or regulatory action is required.

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2.0 REACTOR OVERVIEW

The B&W mPower reactor is a simplified, passive, modular, light-water-cooled, pressurized water reactor that uses an integral arrangement in which the reactor core, steam generator and pressurizer are combined into a common pressure vessel. The control rod drive mechanisms and reactor coolant pumps are also located inside the pressure vessel. See Figure 1.

[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

The above features of the B&W mPower reactor design and other related aspects of the design are discussed in greater detail in the “B&W mPower™ Reactor Design Overview Technical Report,” Report Number 08-00000341(P), dated May 2010.

[

Information Withheld per Affidavit 4(a) – 4(d) and/or Under 10 CFR 2.390

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Affidavit 4(a) – 4(d), and/or SRI]

] [CCI per

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3.0 PLANT LAYOUT

The conceptual layout for a two-unit B&W mPower reactor plant is shown in Figures 2 and 3.

[

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– 4(d), and/or SRI]

] [CCI per Affidavit 4(a)

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4.0 SECURITY DESIGN OBJECTIVE

[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

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5.0 ACCESS CONTROL

5.1 Owner Controlled Area

[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

5.2 Security Controlled Area

[

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] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

5.3 Protected Area

[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

5.4 Vital Areas

[

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6.0 SECURITY RESPONSE

The primary design goal of the security response component for a B&W mPower reactor facility will be to achieve a robust posture to support a defensive strategy to deny forced access into the PA. [

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Affidavit 4(a) – 4(d), and/or SRI] [CCI per

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7.0 OPERATOR ACTIONS

[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

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8.0 CONCLUSION

[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

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Table 1 – Prospective B&W mPower Reactor Facility Security Force Staffing

[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

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[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

Figure 1– B&W mPower Reactor (Integral Arrangement)

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[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

Figure 2 – Conceptual Plant Layout (Plan View)

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[

] [CCI per Affidavit 4(a) – 4(d), and/or SRI]

Figure 3 – Conceptual Plant Layout (Elevation View)