



babcock & wilcox nuclear energy

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May 6, 2011

BW-JAH-2011-250

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

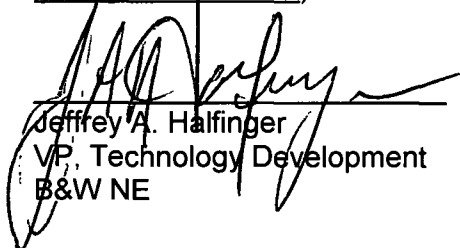
Babcock & Wilcox Nuclear Energy, Inc. (B&W NE)
Docket Number-PROJ0776
Project Number-776

Subject: Submittal of B&W NE Proprietary and Non-Proprietary Slides for the May 26, 2011 Integrated Systems Testing (IST) Facility and Test Plan Update, IST PIRT Insight and Results, and I&C Software Quality Assurance (QA) Program Description Meeting

A partially closed meeting has been scheduled by the Nuclear Regulatory Commission (NRC) on May 26, 2011 where B&W NE will provide an update on the IST test facility and test plan, insight and results from the IST phenomena identification and ranking table (PIRT). During the open part of the meeting, B&W NE will provide a description of the I&C Software QA program for the mPower™ Reactor. In preparation for this meeting, we are providing an advance copy of the presentation slides that will be used during this meeting.

Attachment 1 contains slides with B&W NE Confidential Commercial Information (CCI) in brackets that is requested to be withheld from public disclosure in accordance with the requirements of 10 CFR Section 2.390. Attachment 2 is an affidavit that provides the justification for withholding the CCI information in that slide package. Attachment 3 is a redacted, non-proprietary version of the slides that can be made available to the public.

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



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

JAH/jlr

Attachments: 1: Meeting Slides (Proprietary Version)
2: Affidavit
3: Meeting Slides (Redacted Version)

cc: Joelle L. Starefos, NRC, TWFN 9-F-27
Stewart L. Magruder, Jr., NRC, TWFN 9-F-27

DOOF
NRD

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 IST Test Facility and Test Plan and IST PIRT Insight and Results, submitted by B&W NE letter dated May 6, 2011. This information is included in Attachment 1 to that letter. Specifically, this attachment consists of a set of slides for presentation at a closed meeting with the NRC staff scheduled for May 26, 2011.

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.

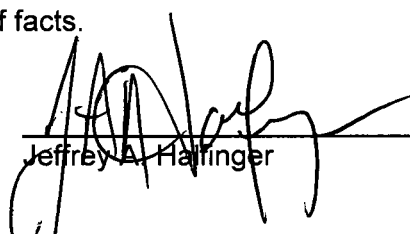
b) Use by a competitor of the information requested to be withheld would reduce a competitor's expenditure of resources, or improve its competitive position, in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.

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 IST test facility and test plan, 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 a part of the information 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.

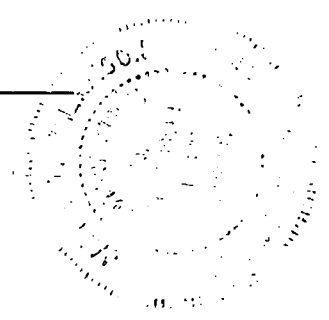


Jeffrey A. Hallinger

Subscribed and sworn to before me this 6 day of May, 2011.



Notary Public



My commission expires: 8/31/2011

generation

mPower

*B&W mPower™ Reactor Software
Development and Quality Assurance Program*

May 26, 2011



Agenda

- Meeting goals
- Discussion of software lifecycle plans to be developed
- Applicable regulatory requirements
- Discussion of key software lifecycle issues
- Closing comments/adjourn



Meeting Goals

- Discuss development and submittal of a software quality assurance program (SQAP) topical report for the B&W mPower™ reactor program.
- Obtain a clear picture of the level of detail to be included in the submittal.
- Gain an understanding of the needs of the NRC review staff prior to submitting the topical report.
- Engage NRC staff in the pre-application phase to optimize quality and content of submittal.



Software Quality Assurance Program Topical Report

- Northrop Grumman is under contract with B&W for the design of the instrumentation and control system associated with the B&W mPower™ reactor.
- Plant protection, control and monitoring layers will be digital.
- Software will be designed, developed, installed and maintained in accordance with NRC regulatory requirements.
- Topical report associated with software lifecycle plans will be submitted to NRC prior to DCA submittal.



Software Lifecycle Plans Under Development

- The following plans are being developed in accordance with NUREG-0800 BTP 7-14.
 - Software Management Plan (SMP)
 - Software Development Plan (SDP)
 - Software Quality Assurance Plan (SQAP)
 - Software Integration Plan (SIntP)
 - Software Installation Plan (SInstP)
 - Software Maintenance Plan (SMaintP)
 - Software Training Plan (STrngP)
 - Software Operations Plan (SOP)
 - Software Safety Plan (SSP)
 - Software Verification and Validation Plan (SVVP)
 - Software Configuration Management Plan (SCMP)
 - Software Test Plan (STP)



Scope of SQAP Topical Report

- Existing Northrop Grumman software procedures developed in accordance with DoD requirements. Not structured in accordance with BTP 7-14 requirements.
 - NGC is CMMI Level 5 and ISO certified.
 - While NGC intends to leverage these procedures as much as possible, the submitted plan will be fully compliant with NRC regulatory requirements.
- Software plans to be developed will not be hardware/platform specific.
- Plans will demonstrate compliance with Regulatory Guides 1.28, 1.152 1.168 -1.173.
- BTP 7-14 versus DI&C-ISG-6 Guidance
 - DI&C-ISG-6 states that the SInstP, SMaintP, StrngP and SOP are not part of the licensing process. Do these plans need to be included in the topical report for B&W mPower™ reactor?



Scope of SQAP Topical Report (cont.)

- NRC software life cycle topical report format requirements:
 - Summary of software lifecycle plans versus actual plans.
 - Level of detail needed to demonstrate regulatory compliance.
 - Feedback from previous vendor submittals.



Software Lifecycle Regulatory Requirements

- NUREG-0800, BTP 7-14
 - NGC software life plans will conform with this BTP.
 - Feedback on format and content of topical report to ensure compliance.
 - DI&C-ISG-6 guidance on software plans that are not part of the licensing process.
 - Unendorsed later revisions on industry standards.
 - Regulatory Guide 1.28, “Quality Assurance Program Requirements for Nuclear Facilities,” Rev. 4 or Rev. 3 (referenced by BTP 7-14).
 - DI&C-ISG-6 SMP guidance on secure development operational environment references RG 1.152 Draft Rev. 3, DG 1249. BTP 7-14 references RG 1.152 Rev. 2.
- NUREG/CR-6101
 - Guidance contained in this document will be used in the development of the lifecycle plans.

Key Software Lifecycle Topics

Pre-Developed Software (PDS)

- ▶ Most systems or tools to develop software contain PDS
- ▶ If the PDS was not developed under an Appendix B QA program and will be used as a basic component, it must be commercially dedicated.
- ▶ DI&C-ISG-6 states that a high quality software development process is a critical characteristic.
- ▶ NRC concurrence that audits, examinations and tests are acceptable methods to verify critical characteristics.
- ▶ Is review and approval of the commercial dedication procedure required to use PDS?

Key Software Lifecycle Topics (cont.)

Secure Development Operating Environment (SDOE)

- ▶ BTP 7-14 references Regulatory Guide 1.152, Revision 2.
- ▶ DI&C-ISG-6 references Regulatory Guide 1.152, Draft Revision 3, DG-1249.
- ▶ Should software management plan incorporate the guidance contained in DG-1249?
- ▶ What are the SDOE requirements with respect to PDS?
- ▶ Discuss the level of detail with respect to SDOE without hardware selected and incomplete I&C design.

Key Software Lifecycle Topics (cont.)

Software Pedigree

- ▶ Regulatory Guide 1.168 endorses IEEE Std 1012-1998.
 - Applies to safety-related systems.
- ▶ GDC applies to systems “important to safety.”
- ▶ Software associated with safety-related systems will be assigned integrity level 4 per IEEE Std 1012.
- ▶ Discuss the integrity level associated with respect to systems “important to safety.”

Key Software Lifecycle Topics (cont.)

Discussion of previous software lifecycle plan submittals

- Compliance with BTP 7-14.
- Level of detail required.
- Format of topical report.
- Lessons learned.



Summary and Conclusions

- Software lifecycle plans are currently being developed in accordance with BTP 7-14.
- A topical report associated with this effort will be submitted to the NRC prior to DCA submittal.