March 17, 2011

Mr. Jeff A. Halfinger, Vice President
Technology Development
Babcock and Wilcox Nuclear Energy
109 Ramsey Place
Lynchburg, VA 24501

SUBJECT: DRAFT SAFETY EVALUATION FOR BABCOCK & WILCOX COMPANY TOPICAL REPORT 08-00000320-000, REVISION 2, "QUALITY ASSURANCE PROGRAM FOR THE DESIGN CERTIFICATION OF THE BABCOCK & WILCOX MPOWER REACTOR" (TAC NO. RN6081)

Dear Mr. Halfinger:

By letter dated March 31, 2010, Babcock & Wilcox Nuclear Energy, INC., (B&W) submitted Topical Report 08-00000320-000, Revision 0, "Quality Assurance Program (QAP) for the Design Certification of the B&W mPower Reactor," to the U.S. Nuclear Regulatory Commission (NRC) staff for review (Agencywide Documents Access and Management System (ADAMS) ML100950132 and ML100950133). By letters dated October 4 and 14, 2010, and January 31, 2011, B&W responded to the NRC staff request for additional information, and transmitted Revisions 1 and 2 of Topical Report 08-00000320-000 (ADAMS ML102810230, ML102910243, and ML110330054, respectively). Enclosed for B&W review and comment is a copy of the NRC staff's draft safety evaluation (SE) for the Topical Report.

To support the review schedule, you are requested to provide your comments on any factual errors or clarity concerns contained in the draft SE by April 4, 2011. The final SE will be issued after making any necessary changes and will be made publicly available. The NRC staff's disposition of your comments on the draft SE will be discussed in the final SE.

To facilitate the NRC staff's review of your comments, please provide a marked-up copy of the draft SE showing proposed changes and provide a summary table of the proposed changes.

If you have any questions, please contact Yanely Malave at (301) 415-1519 or Joelle Starefos at (301) 415-6091.

Sincerely,

/RA/

Stewart L. Magruder, Branch Chief
Advanced Reactors Branch 2
Advanced Reactor Program
Office of New Reactors

Project No.: 0776

Enclosure:
Draft Safety Evaluation

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DATE	03/11/2011	03/14/2011	03/16/2011	03/16/2011	03/17/2011

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DRAFT SAFETY EVALUATION BY THE OFFICE OF NEW REACTORS

REGARDING THE BABCOCK & WILCOX TOPICAL REPORT

08-00000320-000, REVISION 2, "QUALITY ASSURANCE PROGRAM FOR THE DESIGN

CERTIFICATION OF THE B&W mPOWER REACTOR"

PROJECT NO.: PROJ0776

1.0 INTRODUCTION

By letter dated March 31, 2010 (Reference 1), Babcock & Wilcox Nuclear Energy, INC. (B&W NE), submitted Topical Report 08-00000320-000, Revision 0, "Quality Assurance Program (QAP) for the Design Certification of the B&W mPower Reactor." The B&W NE QAP topical report covers the activities associated with the Design Certification (DC) of a B&W mPower Reactor. The B&W NE QAP is based on the applicable portions of both Appendix B to Title 10 of the *Code of Federal Regulations* (CFR) Part 50 and the American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA) standard NQA-1-1994, "Quality Assurance Requirements for Nuclear Facilities Applications," (Reference 2) relevant to the B&W mPower Reactor DC project. By letters dated October 4 and October 14, 2010, and January 31, 2011 (References 3, 4, and 5), B&W NE responded to the U.S. Nuclear Regulatory Commission (NRC) staff request for additional information and provided Revision 2 of Topical Report 08-00000320-000.

2.0 REGULATORY EVALUATION

The Commission's regulatory requirements related to quality assurance programs for DC are set forth in 10 CFR 52.47(a)(19) and Appendix B to 10 CFR Part 50 (Appendix B).

10 CFR 52.47(a)(19) requires, in part, that a DC application contain the technically relevant information in a final safety analysis report (FSAR) that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components (SSCs) and of the facility as a whole, and must include a description of the quality assurance program to be applied to the design of the SSCs of the facility. 10 CFR 52.47(a)(19) further requires that the description of the quality assurance program for a nuclear power plant include a discussion of how the applicable requirements of Appendix B will be satisfied.

Appendix B establishes quality assurance requirements for the design, fabrication, construction, and testing of SSCs of the facility. The pertinent requirements of Appendix B apply to all activities affecting the safety-related functions of those SSCs and include designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying SSCs.

Enclosure

3.0 EVALUATION

In evaluating the adequacy of the B&W NE QAP, the NRC staff followed standard review plan (SRP) 17.5 (Reference 6), that provides guidance to NRC staff reviewers for evaluating QA program descriptions submitted under 10 CFR Part 52.

3.1 QAP Overview

Topical Report 08-00000320-000, Revision 2, applies to B&W mPower reactor design certification activities affecting quality and performance of safety-related SSCs including, but not limited to, designing, procuring, testing, and training.

3.1.1 Organization

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.A, for providing an organizational description that includes an organizational structure, functional responsibilities, levels of authority and interfaces for establishing, executing, and verifying B&W NE QAP implementation. The B&W NE QAP establishes independence between the organization performing checking functions and the organization responsible for performing the function. In addition, the B&W NE QAP provides for management to be responsible to size the QA organization commensurate with the duties and responsibilities assigned. Responsibility and authority for planning, establishing, and implementing an effective overall quality assurance program are clearly described and defined.

The B&W NE QAP commits to implement the quality standards described in NQA-1-1994, Basic Requirement 1 and Supplement 1S-1, for establishing supplemental requirements for organization, without further clarifications or exceptions.

3.1.2 Quality Assurance Program

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.B, for establishing the necessary measures to implement a quality assurance program to ensure that the design of B&W mPower reactor is in accordance with governing regulations and license requirements. The quality assurance program comprises those planned and systematic actions necessary for establishing the safety classification of SSCs, and for determining the quality group classification, applicable quality standards, and the seismic design classification of SSCs commensurate with their respective safety classification. A list identifying SSCs and activities to which the QAP applies is maintained for the design certification project. B&W NE may delegate all or part of these activities for which they are responsible to others but retains responsibility for the QA program.

The B&W NE QAP provides measures to assess the adequacy of the QAP and to ensure its effective implementation, at least once each year or at least once during the life of the activity, whichever is shorter.

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraphs II.S and II.T, for describing the necessary measures to establish and maintain formal indoctrination and training programs for personnel performing, verifying, or maintaining activities within the scope of the QAP to assure that suitable proficiency is achieved and maintained.

The B&W NE QAP provides the minimum training requirements for all personnel responsible for the implementation of the QAP.

The B&W NE QAP commits to implement the quality standards described in NQA-1-1994, Basic Requirement 2 and Supplements: 2S-1, for establishing supplemental requirements for qualification of inspection and test personnel; 2S-2, for establishing supplemental requirements for qualification of nondestructive examination personnel; 2S-3, for establishing supplemental requirements for qualification of quality assurance program audit personnel; and 2S-4, for establishing supplemental requirements for qualification for personnel indoctrination and training, without further clarifications or exceptions.

3.1.3 Design Control

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.C, for establishing the necessary measures to control the design, design verification, and analysis activities of safety-related items and services that are subject to the provisions of the QAP. The B&W NE QAP design process includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces. These provisions ensure that the design inputs (such as design bases, performance and regulatory requirements, and codes and standards) are correctly translated into design outputs (such as analyses, specifications, drawings, procedures, and instructions). In addition, the B&W NE QAP provides for design documents to be reviewed by individuals knowledgeable in QA to ensure that the documents contain the necessary QA requirements.

In the QAP, B&W NE commits to implement the quality standards described in NQA-1-1994, Basic Requirement 3 and Supplements: 3S-1, for establishing the program for design control and verification; 11S-2, for establishing supplemental requirements for computer program testing; and complies with Subpart 2.7 for the standards for computer software QA controls, without further clarifications or exceptions.

3.1.4 Procurement Document Control

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.D, for establishing the necessary administrative controls and processes to ensure that applicable regulatory, technical, and QAP requirements are included or referenced in procurement documents. Applicable technical, regulatory, administrative, quality and reporting requirements (such as specifications, codes, standards, tests, inspections, special processes, and 10 CFR Part 21) are invoked for procurement of items and services. The scope of procurement includes engineering, design and testing services as well as the procurement of safety-related software. No equipment or components are being procured as part of the design certification project.

In the QAP, B&W NE commits to implement the quality standards described in NQA-1-1994, Basic Requirement 4 and Supplement 4S-1, for establishing supplemental requirements for procurement document control, with the following alternatives and exceptions:

- As an alternative to NQA-1-1994, Supplement 4S-1, Section 2.3, which states that procurement documents must require suppliers to have a documented QAP that implements NQA-1-1994, Part I, the B&W NE QAP requires that suppliers have a documented QAP that is determined to meet Appendix B and the B&W NE

QAP, as applicable to the circumstances of the procurement. Appendix B, Criterion IV, "Procurement Document Control," requires suppliers to have a QA program consistent with Appendix B. The NRC staff finds this alternative is consistent with SRP Section 17.5, paragraph II.D.2.d. and therefore, acceptable.

- The B&W NE QAP provides for procurement documents to allow the supplier to work under the B&W NE QAP, including implementing procedures, in lieu of the supplier having its own QA program. Criterion IV of Appendix B requires suppliers to have a QAP consistent with Appendix B. The NRC staff finds this alternative is consistent with SRP Section 17.5, paragraph II.D.2.d. and therefore, acceptable.

- As an alternative to NQA-1-1994, Supplement 4S-1, Section 3, which requires procurement documents to be reviewed before award of the contract, the B&W NE QAP proposes to conduct the quality assurance (QA) review of procurement documents through review of the applicable procurement specification, including the technical and quality procurement requirements, prior to bid or award of contract. In addition, procurement document changes (e.g., scope, technical, or quality requirements) will also receive QA review. The NRC staff evaluated this proposed alternative and determined that it provides adequate QA review of procurement documents before awarding the contract and after any change. Therefore, the NRC staff concluded that this alternative is acceptable.

3.1.5 Instructions, Procedures, and Drawings

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.E, for establishing the necessary measures and governing procedures to ensure that activities affecting quality are prescribed by, and performed, in accordance with documented instructions, procedures, and drawings.

In the QAP, B&W NE commits to implement the quality standards described in NQA-1-1994, Basic Requirement 5 for establishing procedural controls without further clarifications or exceptions.

3.1.6 Document Control

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.F, for establishing the necessary measures and governing procedures to control the preparation, review, approval, issuance of, and changes to documents that specify quality requirements or prescribe how activities affecting quality, including organizational interfaces, are controlled. Measures are provided to assure that documents, including revisions or changes, are reviewed and approved by the same organization that performed the original review and approval unless other organizations are specifically designated. A list of all controlled documents identifying the current approved revision, or date, is maintained so personnel can readily determine the appropriate document for use.

In establishing provisions for document control, B&W NE, in the QAP, commits to implement the quality standards described in NQA-1-1994, Basic Requirement 6 and Supplement 6S-1, for

establishing supplemental requirements for document control, without further clarifications or exceptions.

3.1.7 Control of Purchased Material, Equipment, and Services

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.G, for establishing the necessary measures and governing procedures to control the procurement of items and services to ensure conformance with specified requirements. The program provides measures for evaluating prospective suppliers and selecting only qualified suppliers. In addition, the program provides for auditing and evaluating suppliers to ensure that qualified suppliers continue to provide acceptable products and services. The scope of procurement includes engineering, design and testing services as well as the procurement of safety-related software. No equipment or components are being procured as part of the design certification project. Therefore, the controls associated with this section of the B&W NE QAP are limited to the control of applicable services.

The program provides for acceptance actions, such as source verification, receipt inspection, post-installation tests, and review of documentation, such as certificates of conformance, to ensure that the procurement, inspection and test requirements have been satisfied before relying on the item to perform its intended safety function.

In establishing procurement verification control, B&W NE, in the QAP, commits to implement the quality standards described in NQA-1-1994, Basic Requirement 7 and Supplement 7S-1, for establishing supplemental requirements for control of purchased items and services, with the following clarifications and exceptions:

- The B&W QAP proposes that other 10 CFR Part 50 licensees, authorized nuclear inspection agencies, the National Institute of Standards and Technology (NIST), and other State and Federal agencies that may provide items or services are not be required to be evaluated or audited.

  The NRC staff acknowledges that 10 CFR Part 50 licensees, authorized nuclear inspection agencies, the NIST, and other State and Federal agencies perform work under acceptable quality programs, and no additional audit or evaluation is required. The NRC staff determined that this exception is acceptable as documented in a letter to Edwin Hatch Nuclear Power Station on March 20, 2000 (Reference 7). B&W NE is still responsible for ensuring that the items or services procured conform to the applicable Appendix B criteria, ASME Boiler and Pressure Vessel Code requirements, and other regulatory requirements and commitments. B&W NE is also responsible for ensuring that procured items or services are suitable for the intended application and for documenting an evaluation. To this extent on this basis, the NRC staff finds this proposed exception acceptable.

- The B&W NE QAP includes provisions consistent with the regulatory guidance provided in SRP 17.5, paragraph II.L.8, for the procurement of commercial-grade calibration services for safety-related applications. The B&W NE QAP proposes not to require procurement source evaluation and selection measures provided each of the following conditions are met:

(1) Purchase documents impose additional technical and administrative requirements to satisfy quality assurance program description and technical requirements.

(2) Purchase documents require reporting as-found calibration data when calibrated items are found to be out of tolerance.

(3) A documented review of the supplier's accreditation will be performed and will include a verification of the following:

- The calibration laboratory holds a domestic accreditation by any one of the following accrediting bodies, which are recognized by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA):
    - National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards & Technology,
    - American Association for Laboratory Accreditation (A2LA),
    - ACLASS Accreditation Services (ACLASS),
    - International Accreditation Service (IAS),
    - Laboratory Accreditation Bureau (L-A-B), and
    - Other NRC-recognized laboratory accrediting bodies.
- The accreditation is based on ANS/ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories."
- The published scope of the accreditation for the calibration laboratory covers the necessary measurement parameters, range, and uncertainties.

For this alternative, the NRC staff has approved the use of calibration laboratories that hold a domestic accreditation by certain accrediting bodies. This method for qualifying the calibration supplier and accepting its calibration services would applied only to when dedicating commercial grade calibration services as defined by 10 CFR Part 21. The current regulatory position regarding the acceptability of procuring commercial grade calibration services from NRC-recognized calibration laboratories is documented in SRP Section 17.5, paragraph II.L.8 and letters to these laboratories.

- As an alternative to NQA-1-1994, Supplement 7S-1, Section 10, requirements for the control of commercial-grade items and services, B&W NE commits to follow NRC guidance discussed in Generic Letter 89-02 and Generic Letter 91-05 as delineated in SRP 17.5, paragraphs II.U.1.c and II.U.1.d.

- Consistent with the guidance mentioned above for commercial-grade items and services, the commercial-grade dedication program provides for special quality verification requirements to be established and described in applicable documents to provide the necessary assurance that the item will perform satisfactorily in service. In addition, the documents provide for determining critical characteristics to ensure that an item is suitable for its intended use, technical evaluation of the item, receipt requirements, and quality evaluation of the item.

3.1.8 Identification and Control of Materials, Parts, and Components

This element is not applicable to the B&W mPower Reactor DC application and has not been reviewed or approved by the NRC staff.

3.1.9 Control of Special Processes

This element is not applicable to the B&W mPower Reactor DC application and has not been reviewed or approved by the NRC staff.

3.1.10 Inspection

This element is not applicable to the B&W mPower Reactor DC application and has not been reviewed or approved by the NRC staff.

3.1.11 Test Control

The B&W NE QAP describes the B&W NE requirements for suppliers who perform testing activities associated with the mPower Reactor DC application. B&W NE will not perform test activities as part of the mPower Reactor DC application, except for computer program testing which is addressed in section 3.1.3 “Design Control” of this SER.

In establishing provisions for testing, B&W NE, in the QAP, commits to comply with the quality standards described in NQA-1-1994, Basic Requirement 11 and Supplement 11S-1.

In establishing provisions to ensure that computer software used in applications affecting safety is prepared, documented, verified, tested, and used such that the expected outputs are obtained and configuration control maintained, B&W NE, in the QAP, commits to the quality standards described in NQA-1-1994, Supplements 11S-2 and Subpart 2.7, as described in Section 3 of the B&W NE QAP, without further clarifications or exceptions.

3.1.12 Control of Measuring and Test Equipment

The B&W NE QAP describes the B&W NE requirements for organizations that control measurement and test equipment associated with design verification of the mPower Reactor DC application. B&W will not control measuring and test equipment as part of the mPower Reactor DC application.

In establishing provisions for control of measuring and testing equipment, B&W NE, in the QAP, commits to implement the quality standards described in NQA-1-1994, Basic Requirement 12

and Supplement 12S-1, for establishing supplemental requirements for control of measuring and test equipment, with the following clarifications and exceptions:

- The B&W NE QAP clarifies that the out-of-calibration conditions, described in paragraph 3.2 of Supplement 12S-1 of NQA-1-1994, refer to cases where the measuring and test equipment are found to be out of the required accuracy limits (i.e., out of tolerance) during calibration. The NRC staff determined that the clarification for the out-of-calibration conditions is consistent with the objective outlines in supplement 12S-1 and, therefore, is acceptable.

- As an alternative to the NQA-1-1994, Subpart 2.4, Section 7.2.1, calibration labeling requirements, the B&W NE QAP proposes that the required calibration information be maintained in suitable documentation traceable to the device for measuring and testing equipment which is impossible or impractical to mark because of equipment size or configuration. This alternative is consistent with the NRC staff guidance provided in SRP 17.5, paragraph II.L.3, and, therefore, is acceptable.

3.1.13 Handling, Storage, and Shipping

This element is not applicable to the B&W mPower Reactor DC application and has not been reviewed or approved by the NRC staff.

3.1.14 Inspection, Test, and Operating Status

This element is not applicable to the B&W mPower Reactor DC application and has not been reviewed or approved by the NRC staff.

3.1.15 Nonconforming Materials, Parts, or Components

This element is not applicable to the B&W mPower Reactor DC application and has not been reviewed or approved by the NRC staff.

3.1.16 Corrective Action

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.P, for establishing the necessary measures to promptly identify, control, document, classify, and correct conditions adverse to quality. The B&W NE QAP requires personnel to identify known conditions adverse to quality. Reports of conditions adverse to quality are analyzed to identify trends. Significant conditions adverse to quality are documented and reported to responsible management. In case of suppliers working on safety-related activities, or similar situations, B&W NE may delegate specific responsibility for the corrective action program, but B&W NE maintains responsibility for the program's effectiveness.

In establishing a corrective action program, B&W NE, in the QAP, commits to implement the quality standards described in NQA-1-1994, Basic Requirement 16, without further clarifications or exceptions.

3.1.17 QA Records

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.Q, for establishing the necessary measures to ensure that sufficient records of items and activities affecting quality are developed, reviewed, approved, issued, used, and revised to reflect completed work. When using electronic records storage and retrieval systems, the B&W NE QAP provides for compliance with NRC guidance provided in NRC Generic Letter 88-18, "Plant Record Storage on Optical Disks," Regulatory Issue Summary 2000-18, "Guidance on Managing Quality Assurance Records in Electronic Media," and associated Nuclear Information and Records Management Association, Inc. (NIRMA) Technical Guidelines (TG) 11-1998, TG 15-1998, TG 16-1998, and TG 21-1998.

In establishing provisions for records, B&W NE, in the QAP, commits to implement the quality standards described in NQA-1-1994, Basic Requirement 17 and Supplement 17S-1, for establishing supplemental requirements for QA records, with the following clarification or exception:

- As an alternative to the NQA-1-1994, Supplement 17S-1, Section 4.2(b), requirements for records to be firmly attached in binders or placed in folders or envelopes for storage in steel file cabinets or on shelving in containers, the B&W NE QAP proposes that hard records be stored in steel cabinets or on shelving in containers, except that methods other than binders, folders, or envelopes may be used to organize records for storage. By letter dated September 1, 2005 (Reference 8), the NRC staff determined that this proposed alternative was acceptable for Nuclear Management Company, LLC. As such, the NRC staff finds this proposed alternative acceptable.

3.1.18 Audits

The B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.R, for establishing the necessary measures to implement audits to verify that activities covered by the QAP are performed in conformance with the requirements established. The audit program is also reviewed for effectiveness as part of the overall audit process. The B&W NE QAP provides for conducting periodic internal and external audits. Internal audits are conducted to determine the adequacy of program and procedures, and to determine if they are meaningful and comply with the overall QAP. Internal audits are performed with a frequency to assure that an audit of all applicable QA program elements is completed within a period of once per calendar year or at least once during the life of the activity, whichever is shorter. External audits determine the adequacy of supplier's or contractor's QAPs. Audit results are documented and reviewed by the responsible management. Management responds to all audit findings and initiates corrective action where indicated. In addition, where corrective action measures are indicated, documented follow-up of applicable areas through inspections, review, re-audits, or other appropriate means, is conducted to verify implementation of assigned corrective action.

In establishing the audit program, B&W NE, in the QAP, commits to implement the quality standards described in NQA-1-1994, Basic Requirement 18 and Supplement 18S-1, for establishing supplemental requirements for audits without further clarifications or exceptions.

3.2 Nonsafety-Related SSC QA Control

3.2.1 Nonsafety-Related SSCs - Significant Contributors to Plant Safety

The B&W QAP follows the guidance of SRP Section 17.5, paragraph II.V.1, for establishing specific program controls applied to nonsafety-related SSCs that are significant contributors to plant safety, for which Appendix B is not applicable. The B&W QAP applies specific controls to those items in a selected manner, targeted at those characteristics or critical attributes that render the SSCs a significant contributor to plant safety consistent with applicable sections of the QAP.

3.2.2 Nonsafety-Related SSCs Credited for Regulatory Events

In establishing the quality requirements for nonsafety-related SSCs credited for regulatory events, the B&W NE QAP follows the guidance of SRP Section 17.5, paragraph II.V.2, and B&W NE commits to implement the following regulatory guidance:

- The quality requirements for the fire protection system in accordance with Regulatory Position 1.7, "Quality Assurance," in Regulatory Guide 1.189, "Fire Protection for Operating Nuclear Power Plants," dated April 2001.

- The quality requirements for anticipated transient without scram (ATWS) equipment in accordance with Generic Letter 85-06, "Quality Assurance Guidance for ATWS Equipment That Is Not Safety Related," dated January 16, 1985.

- The quality requirements for station blackout (SBO) equipment in accordance with Regulatory Position 3.5, "Quality Assurance and Specific Guidance for SBO Equipment That Is Not Safety Related," and Appendix A, "Quality Assurance Guidance for Non-Safety Systems and Equipment," in Regulatory Guide 1.155," Station Blackout," dated August 1988.

3.3 Regulatory Commitments

The B&W NE QAP follows the guidance of SRP Section 17.5, Paragraph II.U, for establishing QA program commitments. Furthermore, B&W NE commits to comply with the following NRC Regulatory Guides and other QA standards to supplement and support the QAP:

- Regulatory Guide 1.26, Revision 4, "Quality Group Classification and Standards for Water-,Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," Rev. 4, dated March 2007.

- Regulatory Guide 1.28, "Quality Assurance Program Requirements (Design and Construction)," Rev. 3, August 1985.

- Regulatory Guide 1.29, Rev. 4, "Seismic Design Classification," dated March 2007.

- ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," Part I and II, as described above in Sections 3.1.1 through 3.1.18 of this Safety Evaluation Report (SER).

- NIRMA TGs, as described in Section 3.1.17 of this SER.

4.0 CONCLUSION

The B&W NE QAP follows the NRC guidance and conforms to the format of SRP Section 17.5. The NRC staff used the acceptance criteria of SRP Section 17.5 as the basis for evaluating the acceptability of the B&W QAP in conformance with the provisions of 10 CFR 52.47(a)(19) and Appendix B to 10 CFR Part 50. On the basis of the NRC staff's review of the B&W QAP, the NRC staff concludes that:

- The B&W NE QAP adequately describes the authority and responsibility of management and supervisory personnel, performance/verification personnel, and self-assessment personnel.

- The B&W NE QAP adequately provides for organizations and persons to perform verification and self-assessment functions with the authority and independence to conduct their activities without undue influence from those directly responsible for costs and schedules.

- The B&W NE QAP adequately applies to activities and items that are important to safety.

- The B&W NE QAP adequately establishes controls that, when properly implemented, comply with the requirements of 10 CFR Part 52, Appendix B to 10 CFR Part 50, and 10 CFR Part 21, consistent with the criteria contained in SRP Section 17.5, and in the relevant regulatory guidance.

On the basis of its review, the NRC staff concludes that the B&W NE QAP adequately describes the B&W NE QA program. Accordingly, the NRC staff concludes that the B&W NE QAP complies with the applicable NRC regulations and industry standards and can be used by B&W NE for DC activities associated with the mPower Reactor.

5.0 REFERENCES

1. Kim, T.J., B&W NE INC., "Submittal of Topical Report 08-00000320-000, Revision 0, Quality Assurance Program for the Design Certification of B&W mPower Reactor," March 31, 2010

2. American Society for Mechanical Engineers (ASME). NQA-1-1994 Edition, "Quality Assurance Requirements for Nuclear Facility Applications." New York. 1994.

3. Kim, T.J., B&W NE INC., "B&W NE INC. Response to NRC Request for Additional Information," October 4, 2010

4. Kim, T.J., B&W NE INC., “Submittal of Topical Report 08-00000320-000, Revision 1, Quality Assurance Program for the Design Certification of B&W mPower Reactor,” October 14, 2010

5. Halfinger, J. A., B&W NE INC, “Submittal of Babcock & Wilcox Nuclear Energy, Inc. (B&W NE) ‘Quality Assurance Program for the Design Certification of the B&W mPower Reactor’ Topical Report (Report Number 08-00000320-000), Revision 2,” January 31, 2011

6. NUREG-0800, " Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 17.5, A Quality Assurance Program Description – Design Certification, Early Site Permit and New License Applicants," March 2007

7. Letter from NRC to Southern Nuclear Operating Company; Edwin I. Hatch NuclearPower Station, Units 1 and 2 RE: Approval of Relief Request RR-27, Third 10-year Interval Inservice Inspection Program (TAC NOS. MA6163 and MA6164), March 20, 2000 (ADAMS Accession No. ML003693241).

8. Letter from NRC to Nuclear Management Company, LLC; Approval of Change to the Nuclear Management Company Quality Assurance Topical report (TAC NOS. MC7585, MC7587, MC7588, MC7589, MC7590, MC7591, MC7592), September 1, 2005 (ADAMS Accession No. ML052430024).