Enclosure 1

BANR-QAPD-001-A, “BWXT Advanced Nuclear Reactor Quality Assurance Program Description,” Revision 001

Contents

SECTION A

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

BWXT ADVANCED TECHNOLOGIES LLC – FINAL SAFETY EVALUATION OF TOPICAL REPORT, BANR-QAPD-001, "BWXT ADVANCED NUCLEAR REACTOR QUALITY ASSURANCE PROGRAM DESCRIPTION," REVISION 000 (EPID NO. L-2022-TOP-0022)

SPONSOR AND SUBMITTAL INFORMATION

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Brief Description of the Topical Report: By letter dated November 30, 2022, BWXT Advanced Technologies LLC (BWXT AT) submitted for NRC review and approval BWXT AT's Quality Assurance Program Description (QAPD) topical report (TR) for the BWXT Advanced Nuclear Reactor (BANR) project. The introduction section to the QAPD Part I states:

> The QAPD describes the methods and establishes quality assurance (QA) and administrative control requirements that meet 10 CFR 50, Appendix B and 10 CFR 52. The QAPD is based on the requirements and guidance of ASME NQA-1-2015, "Quality Assurance Requirements for Nuclear Facility Applications," Parts I and II as identified in [the QAPD].

The NRC staff limited the scope of the review to the QA activities associated with technology development and high-level design. Any BWXT AT activities outside of those for technology development and high-level design will not be covered by the NRC staff approval of the BANR QAPD without additional supplements or submittals.

REGULATORY EVALUATION

Regulatory Bases: Appendix B to 10 CFR Part 50

The NRC's regulatory requirements related to QA programs are set forth in Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." Appendix B to 10 CFR Part 50 establishes QA requirements for the design, fabrication, construction, and testing of structures, systems, and components (SSCs) for

the facility. The pertinent requirements of Appendix B to 10 CFR Part 50 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.

RG 1.28, "Quality Assurance Program Criteria (Design and Construction)," Revision 5, (Reference 3) endorses, with certain clarifications and regulatory positions, various versions of the American Society of Mechanical Engineers (ASME) NQA-1 standard; the standards included are the NQA-1b-2011 Addenda to ASME NQA-1-2008, NQA-1-2012, and NQA-1-2015 (Reference 4). This endorsement means, as applicable to this safety evaluation (SE), that the NRC staff views the application of NQA-1-2015 as one acceptable way to meet the regulations in Appendix B to 10 CFR Part 50.

TECHNICAL EVALUATION

In evaluating the adequacy of the BANR QAPD, the NRC staff utilized the guidance contained in Section 17.5, "Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants," of NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Revision 1, dated August 2015 (Reference 5), which provides guidance to the NRC staff for the review of a QAPD for design certification, early site permit, combined license, construction permit, and operating license applicants. Section 17.5 of the SRP is based on Appendix B to 10 CFR Part 50 and describes regulatory and industry guidance determined to be acceptable methods for meeting the requirements of Appendix B to 10 CFR Part 50. Although the SRP is written for NRC reviews of light water reactors (LWRs), QA criteria associated with technology development and high-level design activities of BANR and LWRs are similar; therefore, the guidance in Section 17.5 of the SRP is applicable to the BANR QAPD.

1.0 Introduction

TR BANR-QAPD-001, Revision 000, provides for the control of BWXT AT activities affecting the quality and performance of SSCs including, but not limited to designing, procuring, inspecting, and fuel performance testing. The following sections correspond to QA criteria in Appendix B to 10 CFR Part 50 and parallel sections in the BANR QAPD. The BANR QAPD is based on NQA-1-2015 and evaluated with Section 17.5 of the SRP.

1.1 Organization

The NRC staff reviewed Part II, Section 1, "Organization," of the BANR QAPD. During the review, the staff found that the BANR QAPD provides an organizational description that includes the organizational structure, functional responsibilities, levels of authority, and interfaces for establishing, executing, and verifying the implementation of BWXT AT's QA program. For the organizations performing QA functions, the BANR QAPD establishes organizations with sufficient authority and organizational freedom where independence is maintained between the organization performing the checking (QA and control) functions and the organization performing the functions.

The NRC staff found that the BWXT AT organization is responsible for technology development, engineering, and testing activities. The BANR QAPD provides for applicable management to be responsible to size the QA organization commensurate with the duties and responsibilities assigned. The BANR QAPD provides the authority and responsibility to stop work in progress

not being done in accordance with approved procedures or where safety or SSC integrity may be jeopardized. Finally, responsibility and authority for planning, establishing, and implementing an effective overall QA program are clearly described and defined. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.A.

Additionally, the NRC staff found that the BANR QAPD commits to implement the quality standards described in NQA-1-2015, Requirement 1, without further clarifications or exceptions.

Because BWXT AT's organization controls, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.A, and BWXT also commits to comply with NQA-1-2015, Requirement 1, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion I, "Organization," of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT's organizational controls are acceptable.

1.2 Quality Assurance Program

The NRC staff reviewed Part II, Section 2, "Quality Assurance Program," of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures to implement a QA program in order to ensure that the technology development and high-level design activities of the BWXT AT is in accordance with governing regulations and license requirements. The QA program applies to those quality-related activities that involve the functions of safety-related SSCs associated with the design and testing of the facility. Managerial and administrative controls to be used to assure safe operation will be applied conceptually to the technology development and high-level design activities of BWXT AT's BANR since BWXT AT is not presently an applicant for either an OL or COL.

The NRC staff found that the BANR QAPD specifies that a list or system be maintained that identifies SSCs and activities to which the QA program applies. BWXT AT may delegate all or part of the activities for which they are responsible to others but retains overall responsibility for QA program effectiveness. The BANR QAPD provides measures to assess the adequacy of the QA program and to ensure its effective implementation at least once each year or at least once during the life of the activity, whichever is shorter. In addition, consistent with SRP Section 17.5, Paragraph II.B.10, the BANR QAPD applies a grace period of 90 days to activities that must be performed on a periodic basis. The grace period does not allow the "clock" for a particular activity to be reset forward. However, the "clock" for an activity is reset backwards by performing the activity early. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.B.

Additionally, the NRC staff found that the BANR QAPD describes the necessary measures to establish and maintain formal indoctrination, training, and qualification for personnel performing, verifying, or managing activities within the scope of the QAPD to achieve initial proficiency, maintain proficiency, and adapt to technology changes, method, or job responsibilities. The BANR QAPD provides measures to provide qualification programs for: (1) inspection and test personnel; (2) audit personnel; (3) and personnel performing, verifying, or maintaining activities within the scope of the QAPD to assure that proficiency is achieved and maintained. Inspection and test personnel are required to be trained and qualified in accordance with Section 302, "Inspection and Test," of Requirement 2, "Quality Assurance Program," of NQA-1-2015. Audit personnel are required to be trained and qualified in accordance with Sections 303, "Lead Auditors," of Requirement 2 of NQA-1-2015, as modified by the regulatory positions in Revision 5 of RG 1.28. The BANR QAPD provides the minimum training requirements for orientation, training and qualification processes for Auditors and Technical Specialists to meet

the requirements specified in NQA-1-2015 Requirement 2, Sections 304 and 305. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraphs II.S and II.T.

Finally, the NRC staff found that the BANR QAPD commits to implement the quality standards described in NQA-1-2015, Requirement 2, without further clarifications or exceptions.

Because BWXT AT's QA program, as described above, meets the guidance contained in SRP Section 17.5, Paragraphs II.B, II.S, and II.T and BWXT also commits to comply with NQA-1-2015, Requirement 2, as endorsed by RG 1.28, the NRC staff determined that it comply with the requirements of Criterion II, "Quality Assurance Program," of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT's QA program is acceptable.

1.3 Design Control

The NRC staff reviewed Part II, Section 3, "Design Control," of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary design control measures to ensure design inputs are correctly translated into design outputs. In addition, the BANR QAPD provides for design documents to specify appropriate quality standards and for deviations from those standards to be controlled. These design documents are to be reviewed by individuals knowledgeable in QA to ensure that the documents contain the necessary QA requirements. BWXT AT design processes ensure that items and activities are selected and independently verified to be suitable for their intended application. Design changes are subject to these controls, which include verification measures commensurate with those applied to original plant design. Verification methods include, but are not limited to, design reviews, alternative calculations, and qualification testing. Where design adequacy is verified by qualification tests, the tests are performed under conditions that simulate the most adverse design conditions.

The NRC staff found that the BANR QAPD governs the development, procurement, testing, maintenance, and use of computer application and digital equipment software when used in safety-related applications and designated nonsafety-related applications. The BANR QAPD contains measures to ensure computer programs used for design analysis are verified to be acceptable and changes are documented and controlled by authorized personnel. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.C.

Additionally, the NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 3, "Design Control," Subpart 2.7, "Quality Assurance Requirements for Computer Software for Nuclear Facility Applications," and Subpart 2.14, "Quality Assurance Requirements for Commercial-Grade Items and Services," without further clarifications or exceptions.

Because BWXT AT's design controls as described above meet the guidance contained in SRP Section 17.5, Paragraph II.C, and BWXT also commits to comply with NQA-1-2015, Requirement 3, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT's design controls are acceptable.

1.4 Procurement Document Control

The NRC staff reviewed Part II, Section 4, “Procurement Document Control,” of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary administrative controls and processes to ensure that applicable regulatory, technical, and QA program requirements are included or referenced in procurement documents. The applicable technical, regulatory, administrative, quality, and reporting requirements (such as specifications, codes, standards, tests, inspections, special processes, and 10 CFR Part 21, "Reporting of Defects and Noncompliance") are invoked for the procurement of items and services. To the extent necessary, procurement documents shall require suppliers to have a documented QA program that is determined to meet the applicable requirements of Appendix B to 10 CFR Part 50, as appropriate to the circumstances of procurements (or the supplier may work under BWXT AT’s approved QA program). The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.D.

The NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 4, “Procurement Document Control,” with the following clarifications to NQA-1-2014, Requirement 4:

- With regard to service performed by a supplier, BWXT AT procurement documents may allow the supplier to work under the BWXT AT QA program, including implementing procedures, in lieu of the supplier having its own QA program.

The NRC staff evaluated this proposed clarification and determined that it provides adequate control for establishing and executing the responsibilities for the QA program. Criterion IV, “Procurement Document Control,” of Appendix B to 10 CFR Part 50, requires suppliers to have a QA program consistent with the regulations. In Section 3.2.4 of the “Final Safety Evaluation for Technical Report NEI 06-14, ‘Quality Assurance Program Description,’ Revision 7,” dated November 3, 2009 (Reference 6), the NRC staff determined this clarification to be acceptable. The bases of the BANR QAPD are applicable to the QAPD described in NEI 06-14, and therefore, the NRC staff finds that this clarification is acceptable.

- Sections 300 and 400 of NQA-1-2015, Requirement 4, require the review of technical and QA program requirements of procurement documents prior to award of a contract and for procurement document changes. BWXT AT may satisfy this requirement through the review of the procurement specification when the specification contains the technical and QA requirements of the procurement.

Also, in the Final Safety Evaluation for Technical Report NEI 06-14, 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, and therefore, the NRC staff finds that this alternative is acceptable.

- Procurement documents for Commercial Grade Items that will be procured by BWXT AT for use as safety-related items shall contain technical and quality requirements such that the procured item can be appropriately dedicated in accordance with the BANR QAPD, Section 7, “Control of Purchased Material, Equipment and Services.”

The NRC staff evaluated this proposed clarification and determined that it meets the NRC staff guidance provided in Generic Letter (GL) 89-02, “Actions to Improve the detection of Counterfeit and Fraudulently Marked Products,” dated March 21, 1989 (Reference 7), and GL 91-05,

"Licensee Commercial-Grade Procurement and Dedication Programs," dated April 9, 1991 (Reference 8), as delineated in SRP Section 17.5, paragraphs II.V.1.d and II.V.1.e.

Because BWXT AT's procurement document controls, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.D, and BWXT also commits to comply with NQA-1-2015, Requirement 4, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion IV, "Procurement Document Control," of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT's procurement document controls are acceptable.

1.5 Instructions, Procedures, and Drawings

The NRC staff reviewed Part II, Section 5, "Instructions, Procedures, and Drawings," of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to ensure that activities affecting quality are prescribed by, and performed in accordance with instructions, procedures, or drawings of a type appropriate to the circumstances and which, where applicable, include quantitative or qualitative acceptance criteria to implement the QA program as described in the BANR QAPD. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.E.

The NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 5, "Instructions, Procedures, and Drawings," without further clarifications or exceptions.

Because BWXT AT's controls for instructions, procedures, and drawings, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.E, and BWXT also commits to comply with NQA-1-2015, Requirement 5, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion V, "Instructions, Procedures, and Drawings," of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT's controls for instructions, procedures, and drawings are acceptable.

1.6 Document Control

The NRC staff reviewed Part II, Section 6, "Document Control," of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to control the preparation, issuance, and revision of documents that specify quality requirements or prescribe affecting quality, including organizational interfaces, to ensure that correct documents are employed. The QAPD provides measures to assure that documents, including revisions or changes (other than those defined in implementing procedures as minor 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 that identifies the current approved revision or date is maintained so personnel can determine the appropriate document for use. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.F.

The NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 6, "Document Control," without further clarifications or exceptions.

Because BWXT AT's document controls, as described above, and BWXT also commits to comply with NQA-1-2015, Requirement 6, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion VI, "Document Control," of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT's document controls are acceptable.

1.7 Control of Purchased Material, Equipment, and Services

The NRC staff reviewed Part II, Section 7, "Control of Purchased Material, Equipment, and Services," of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to control purchased items and services to ensure conformance with specified requirements. These measures provide for source evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services.

The NRC staff found that the BANR QAPD establishes and implements measures to ensure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. The BANR QAPD provides measures for evaluating prospective suppliers to assess their effectiveness of quality controls at intervals consistent with the importance, complexity, and quantity of the product or services. The BANR QAPD includes provisions for ensuring that qualified suppliers continue to provide acceptable products and services. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.G.

Additionally, the NRC staff found that the BANR QAPD commits to implement the quality standards described in NQA-1-2015, Requirement 7, "Control of Purchased Items and Services," with the following clarifications and exceptions to NQA-1-2015, Requirement 7:

- BWXT AT considers that 10 CFR Part 50 and 10 CFR Part 52 licensees, authorized nuclear inspection (ANI) agencies, National Institute of Standards and Technology (NIST), or other State and Federal agencies, which may provide items or services to BWXT AT's plants, are not required to be evaluated or audited.

The staff's current regulatory position regarding this exception is documented in Section 3.1.7.1 of the SE dated December 12, 2023 (Reference 6) for the Tennessee Valley Authority (TVA) New Nuclear QAPD. The NRC staff verified that the TVA New Nuclear QAPD commitments associated with supplier oversight activities are the same as those provided by BWXT AT in its QAPD. Therefore, the NRC staff's position associated with this exception, as documented in the TVA QAPD SE, would apply to the BANR QAPD. The NRC staff concludes that the requested exception regarding audit and evaluation, as described above, is acceptable subject to the limitations described in the TVA New Nuclear QAPD SE, and as identified in Section 5.0 of this SE, for control of purchased material, equipment, and services.

- BWXT AT will implement the guidance from Nuclear Energy Institute (NEI) 14-05A, "Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys for Procurement of Laboratory Calibration and Test Services," Revision 1-A (Reference 9), for using the International Laboratory Accreditation (ILAC) accreditation process in lieu of performing commercial-grade surveys as part of the commercial-grade dedication process.

The NRC staff evaluated this proposed alternative and determined that it is consistent with the NRC's regulatory position regarding the acceptability of procuring commercial-grade calibration

and testing services from laboratories accredited by ILAC. The document, “Final Safety Evaluation for Technical Report NEI 14-05A, ‘Guidelines for the Use of Accreditation in Lieu of Commercial-Grade Surveys for Procurement of Laboratory Calibration and Test Services,’” Revision 1, dated November 23, 2020, (Reference 10) provides an evaluation of this alternative. The conditions of NRC safety evaluation for NEI 14-05A, Revision 1, are addressed in, “BWXT Advanced Technologies LLC’s Response to Request for Additional Information by the Office of Nuclear Reactor Regulation, BWXT BANR Quality Assurance Program Description,” dated June 1, 2023 (Reference 2). The bases are applicable to the conditions described in NEI 14-05A, Revision 1, and therefore, the NRC staff finds that this alternative is acceptable.

- In establishing commercial grade item requirements, BWXT AT commits to compliance with NQA-1-2015, Section 700 and Subpart 2.14, with the following clarification:

    - For commercial grade items, quality verification requirements are established and described in BWXT AT documents to provide the necessary assurance an item will perform satisfactorily in service. The BWXT AT documents address determining the critical characteristics that ensure an item is suitable for its intended use, technical evaluation of the item, receipt requirements, and quality evaluation of the item.

Establishment of quality verification requirements and processes for identification of critical characteristics of BWXT AT documents as part of the commercial grade dedication process is acceptable because this is consistent with the guidance in SRP Section 17.5, Subsection II, Item G, and is therefore acceptable.

    - BWXT AT will assume 10 CFR 21 reporting responsibility for all services that BWXT AT dedicates as safety-related.

In Section 3.1.7, “Control of Purchased Material, Equipment, and Services,” of the document, “U.S. Nuclear Regulatory Commission Final Safety Evaluation for X-Energy’s Topical Report XEQAPD-NP, ‘Quality Assurance Program Description,’ Revision 3,” (Reference 11) the NRC staff evaluated this clarification and determined that it ensures that 10 CFR Part 21 reportability requirements encompass all items that are dedicated as safety-related and does not remove the supplier’s responsibilities under 10 CFR Part 21. The regulations in 10 CFR Part 21 are applicable to the BANR QAPD, and therefore, the NRC staff finds that this clarification is acceptable.

Because BWXT AT’s controls for purchased material, equipment, and services, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.G, and BWXT also commits to comply with NQA-1-2015, Requirement 7, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion VII, of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT’s controls for purchased material, equipment, and services are acceptable.

1.8 Identification and Control of Materials, Parts, and Components

This element is not applicable to the BWXT AT’s technology development and high-level design activities and has not been reviewed or approved by the NRC staff.

1.9 Control of Special Processes

This element is not applicable to the BWXT AT's technology development and high-level design activities and has not been reviewed or approved by the NRC staff.

1.10 Inspection

The NRC staff reviewed Part II, Section 10, "Inspection," of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to implement inspections of activities affecting quality to verify conformance with the documented instructions, procedures, and drawings. These activities include source, in-process, final, and receipt inspections. These inspections are performed by individuals other than those who performed the activity being inspected and who are appropriately qualified.

The NRC staff found that the inspection program establishes measures for examinations, measurements, or tests of material or products processed for each work operation where necessary to ensure quality. Measures are established to ensure that inspection procedures and instructions are made available with necessary drawings and specifications for use prior to performing the inspections. Inspection results are documented by the inspector, reviewed by authorized personnel qualified to evaluate the technical adequacy of the inspection results, and controlled by instructions, procedures, and drawings. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.J.

Additionally, the NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 10, "Inspection," without further clarifications or exceptions.

Because BWXT AT's inspection controls, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.J, and BWXT also commits to comply with NQA-1-2015, Requirement 10, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion X, "Inspection," of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT's inspection controls are acceptable.

1.11 Test Control

The NRC staff reviewed Part II, Section 11, "Test Control," of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to ensure that testing is required to demonstrate that SSCs will perform satisfactorily in service. The test program is performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents and are executed by qualified personnel. Test procedures include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and performed under suitable environmental conditions. Test results will be documented and evaluated to ensure that test requirements have been satisfied. Test records contain results and actions taken in connection with any deviations.

The NRC staff found that the BANR QAPD establishes and implements provisions to assure that computer software used in applications affecting safety is prepared, documented, verified and tested, and used such that the expected output is obtained, and configuration control maintained. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.K.

Additionally, the NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 11, “Test Control,” and Subpart 2.7, “Quality Assurance Requirements for Computer Software for Nuclear Facility Applications,” without further clarifications or exceptions.

Because BWXT AT’s testing controls, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.K, and BWXT also commits to comply with NQA-1-2015, Requirement 11, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion XI, “Test Control,” of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT’s test controls are acceptable.

1.12 Control of Measuring and Test Equipment

The NRC staff reviewed Part II, Section 12, “Control of Measuring and Test Equipment,” of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to control the calibration, maintenance, and use of measuring and test equipment (M&TE) that provides data to verify acceptance criteria are met or information important to safe plant operation. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.L.

The NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 12, “Control of Measuring and Test Equipment,” without further clarifications or exceptions.

Because BWXT AT’s controls for M&TE, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.L, and BWXT also commits to comply with NQA-1-2015, Requirement 12, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion XII, “Control of Measuring and Test Equipment,” of Appendix B to 10 CFR Part 50.Therefore, the NRC staff concludes that BWXT AT’s controls for M&TE are acceptable.

1.13 Handling, Storage, and Shipping

This element is not applicable to the BWXT AT’s technology development and high-level design activities and has not been reviewed or approved by the NRC staff.

1.14 Inspection, Test, and Operating Status

This element is not applicable to the BWXT AT’s technology development and high-level design activities and has not been reviewed or approved by the NRC staff.

1.15 Nonconforming Materials, Parts, or Components

The NRC staff reviewed Part II, Section 15, “Nonconforming Materials, Parts, or Components,” of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to control materials, parts, or components which do not conform to requirements in order to prevent inadvertent use.

The NRC staff found that controls provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to

affected organizations. Nonconforming items are reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures. Nonconformances to design requirements which are dispositioned “repair” or “use-as-is” are subject to design control measures commensurate with those applied to the original design.

In addition, the NRC staff found that the BANR QAPD provides for establishing the appropriate interfaces between the QA program for identification and control of nonconforming materials, parts, or components, and the non-QA reporting program in order to satisfy the requirements of 10 CFR Part 21. Non-QA reporting program refers to notification requirements of 10 CFR Part 21, whereas QA reporting program is mentioned in paragraph above for “notification to affected organizations.” The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.O.

The NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 15, “Control of Nonconforming Items,” without further clarifications or exceptions.

Because BWXT AT’s controls for nonconforming materials, parts, or components, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.O, and BWXT also commits to comply with NQA-1-2015, Requirement 15, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion XV, “Nonconforming Materials, Parts, or Components,” of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT’s controls for nonconforming materials, parts, or components are acceptable.

1.16 Corrective Action

The NRC staff reviewed Part II, Section 16, “Corrective Action,” of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to promptly identify, control, document, classify, and correct conditions adverse to quality.

The NRC staff found that for significant conditions adverse to quality, the cause of the condition is determined and corrective actions to preclude recurrence are taken. In the case of suppliers working on safety-related activities or other similar situations, BWXT AT may delegate specific responsibilities for corrective actions, but maintains responsibility for the effectiveness of corrective action measures. Reports of conditions that are averse to quality are analyzed to identify trends in quality performance. Significant conditions and trends adverse to quality are reported to the appropriate level of management. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.P.

The NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 16, “Corrective Action,” without further clarifications or exceptions.

Because BWXT AT’s corrective action controls, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.P, and BWXT also commits to comply with NQA-1-2015, Requirement 16, as endorsed by RG 1.28, the NRC staff determined that they comply with the requirements of Criterion XVI, “Corrective Action,” of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT’s corrective action controls are acceptable.

1.17 Quality Assurance Records

The NRC staff reviewed Part II, Section 17, “Quality Assurance Records,” of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to ensure that sufficient records of completed items and activities affecting quality are appropriately stored and maintained to furnish evidence of activities affecting quality.

The NRC staff found that the BANR QAPD establishes measures to ensure that sufficient records of completed items and activities affecting quality are appropriately stored. The records and retention times are based on Regulatory Position C.3.a.(1) and C.3.a(2) of RG 1.28, Revision 5, for design. In all cases where state, local, or other agencies have more restrictive requirements for record retention, the BANR QAPD provides that those requirements will be met.

The NRC staff found that when using electronic records storage and retrieval systems, the BANR QAPD provides for compliance with the NRC guidance contained in NRC Generic Letter 88-18, “Plant Record Storage on Optical Disks” (Reference 12), Regulatory Issue Summary (RIS) 2000-18, “Guidance on Managing Quality Assurance Records in Electronic Media” (Reference 13), and the associated Nuclear Information and Records Management Association, Inc. (NIRMA) Technical Guidelines (TG), including TG 11-1998, “Authentication of Records and Media,” TG 15-1998, “Management of Electronic Records” (Reference 14), TG 16-1998, “Software Configuration Management and Quality Assurance” (Reference 15), and TG 21-1998, “Electronic Records Protection and Restoration” (Reference 16). The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.Q.

The NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 17, “Quality Assurance Records,” and the regulatory positions described in RG 1.28, Revision 5, without further clarifications or exceptions.

Because BWXT AT’s controls for QA records, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.Q, and BWXT also commits to comply with NQA-1-2015, Requirement 17, and the regulatory positions described in RG 1.28, Revision 5, the NRC staff determined that they comply with the requirements of Criterion XVII, “Quality Assurance Records,” of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT’s controls for QA records are acceptable.

1.18 Audits

The NRC staff reviewed Part II, Section 18, “Audits,” of the BANR QAPD. During the review, the staff found that the BANR QAPD establishes the necessary measures and governing procedures to implement audits to verify compliance with activities covered by the BANR QAPD and to determine the effectiveness of the program. Audits of suppliers of safety-related components and/or services are conducted as described in section 1.7 of this SE.

The NRC staff found that the BANR QAPD provides for conducting periodic internal audits. Internal audits are conducted to determine the adequacy of program and procedures, as well as to determine if they are meaningful and comply with the overall QAPD. Internal audits of organization and facility activities, conducted prior to placing the facility in operation, should be performed in such a manner as to assure that an audit of all applicable QA program elements is

completed for each functional area at least once each year or at least once during the life of the activity, whichever is shorter. These audits are performed in accordance with the written procedures or check lists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results are documented and reviewed by management having responsibility in the area audited, and follow-up action, including re-audit of deficient areas, shall be taken where indicated. 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. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.R.

The NRC staff found that the BANR QAPD commits to the quality standards described in NQA-1-2015, Requirement 18, "Audits," and the regulatory positions described in RG 1.28, Revision 5, without further clarifications or exceptions.

Because BWXT AT's QA controls for audits, as described above, meet the guidance contained in SRP Section 17.5, Paragraph II.R, and BWXT also commits to comply with NQA-1-2015, Requirement 18, and the regulatory positions described in RG 1.28, Revision 5, the NRC staff determined that they comply with the requirements of Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50. Therefore, the NRC staff concludes that BWXT AT's QA controls for audit are acceptable.

2.0 Nonsafety-Related SSCs - Significant Contributors to Plant Safety

The NRC staff reviewed Part III, Section 1, "Nonsafety-Related SSCs – Significant Contributors to Plant Safety," of the BANR QAPD. The NRC staff found that the BANR QAPD establishes specific program controls to be applied to nonsafety-related SSCs that are significant contributors to plant safety, but for which Appendix B to 10 CFR Part 50 is not applicable. The BANR QAPD applies specific program controls consistent with applicable sections of those items in a selected manner, targeted at those characteristics or critical attributes that render the SSC a significant contributor to plant safety. The NRC staff review determined that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.U.1.

Because BWXT AT's controls for nonsafety-related SSCs that are significant contributors to plant safety meet the guidance contained in Section 17.5, Paragraph II.U.1 of the SRP, the NRC staff concludes that they are acceptable.

3.0 Non-Safety-Related SSCs Credited for Regulatory Events

This element is not applicable to the QA activities associated with technology development and high-level design activities for the BANR project, and has therefore, not been reviewed or approved by the NRC staff.

4.0 Regulatory Commitments

The NRC staff reviewed Part IV, "Regulatory Commitments," of the BANR QAPD. The NRC staff found that the BANR QAPD follows the guidance of SRP Section 17.5, Paragraph II.V, for establishing QA program commitments. Because of the potential differences between BANR and a LWR design, the BANR QAPD commitments and exceptions to the RGs were not assessed by the NRC staff as part of this review; however, they will be addressed by the NRC staff as part of a future application review.

5.0 Limitations and Conditions

The approval of this TR is only for activities associated with technology development and high-level design. Any BWXT AT activities outside of those for technology development and high-level design will not be covered by the NRC staff approval of the BANR QAPD without additional supplements or submittals.

As referenced in Section 1.7 of this SE, the limitations on the use of this QAPD are:

- The exception to not perform audit or evaluation for procurements from other Parts 50 and 52 licensees only applies when BWXT AT procures from other Parts 50 and 52 power reactor licensees.

- When BWXT AT procures from manufacturing licensees where inspections during the fabrication or manufacturing process is required to assure quality, BWXT AT must establish measures for source verification for these procurements, as required by Criterion VII of Appendix B to 10 CFR Part 50.

CONCLUSION

The BANR QAPD delineates the policies, processes, and controls established by BWXT AT and associated implementing documents relative to U.S. domestic licensing requirements for QA at nuclear power plants. Together, the QA program documents defined in the BANR QAPD provide for control of BWXT AT's activities that affect the quality of safety-related nuclear plant SSCs and include all planned and systematic activities necessary to provide adequate confidence that such SSCs will perform satisfactorily in service. The BANR QAPD may also be applied to certain equipment and activities that are not safety-related where other NRC guidance establishes program requirements.

The BANR QAPD 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 compliance of the BANR QAPD with Appendix B to 10 CFR Part 50. On the basis of its review of the BANR QAPD, the NRC staff concludes that:

- The BANR QAPD adequately describes the authority and responsibility of management and supervisory personnel, performance and verification personnel, and self-assessment personnel, in relation to activities to which the BWXT AT's QA program is applicable.

- The BANR QAPD adequately provides for organizations and personnel to perform verification and self-assessment functions related to BWXT AT activities that affect the quality of safety-related nuclear plant SSCs, as well as select nonsafety-related SSCs, with these organizations and personnel having the authority and independence to conduct activities without undue influence from those directly responsible for costs and schedules.

- The BANR QAPD adequately applies to activities and items that are important to safety.

- The BANR QAPD adequately establishes controls that, when properly implemented, comply with the requirements of Appendix B to 10 CFR Part 50, and 10 CFR Part 21,

consistent with the criteria contained in SRP Section 17.5, as well as the relevant regulatory guidance.

On the basis of its review, the NRC staff determined that the BANR QAPD adequately describes the BWXT AT's QA program. Accordingly, the NRC staff concludes that the BWXT AT's QA program complies with the applicable NRC regulations and industry standards and can be used by BWXT AT for technology development and high-level design activities associated with the BANR.

REFERENCES

1. Letter from Steve W. Schilthelm, BWXT Advanced Technologies LLC, to the NRC Document Control Desk, "Quality Assurance Program Description Topical Report for BWXT BANR Project," dated November 30, 2022 (ML22335A417)

2. Letter from Steve W. Schilthelm, BWXT Advanced Technologies LLC, to the NRC Document Control Desk, "BWXT Advanced Technologies LLC's Response to Request for Additional Information by the Office of Nuclear Reactor Regulation, BWXT BANR Quality Assurance Program Description," dated June 1, 2023 (ML23152A260)

3. Regulatory Guide 1.28, "Quality Assurance Program Criteria (Design and Construction)," Revision 5, dated October 31, 2017 (ML17207A293)

4. American Society of Mechanical Engineers NQA-1-2015, "Quality Assurance Program Requirements for Nuclear Facility Applications," New York, NY, dated February 20, 2015

5. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 17.5, "Quality Assurance Program Description – Design Certification, Early Site Permit and New License Applicants," Revision 1, dated August 28, 2015 (ML15037A441)

6. Final Safety Evaluation by the Office of Nuclear Reactor Regulation Regarding the Topical Report on the Quality Assurance Program Description for the Tennessee Valley Authority New Nuclear Program," dated December 12, 2023 (ML23254A050)

7. Generic Letter 89-02, "Actions to Improve the detection of Counterfeit and Fraudulently Marked Products," dated March 21, 1989 (ML031140060)

8. Generic Letter 91-05, "Licensee Commercial-Grade Procurement and Dedication Programs," dated April 9, 1991 (ML031140508)

9. Revision 1-A of NEI 14-05A, "Guidelines for the Use of Accreditation in Lieu of Commercial-Grade Surveys for Procurement of Laboratory Calibration and Test Services," dated September 30, 2020 (ML21069A347)

10. Final Safety Evaluation for Technical Report NEI 14-05A, "Guidelines for the Use of Accreditation in Lieu of Commercial-Grade Surveys for Procurement of Laboratory Calibration and Test Services," Revision 1, dated November 23, 2020 (ML20322A019)

11. U.S. Nuclear Regulatory Commission Final Safety Evaluation for X-Energy's Topical Report XEQAPD-NP, "Quality Assurance Program Description," Revision 3, dated September 4, 2020 (ML20233A910)

12. Generic Letter 88-18, "Plant Record Storage on Optical Disks," dated October 20, 1988 (ML031130450)

13. Regulatory Issue Summary (RIS) 2000-18, "Guidance on Managing Quality Assurance Records in Electronic Media," dated October 23, 2000 (ML003739359)

14. Nuclear Information and Records Management Association, Inc. TG 111998, "Authentication of Records and Media"

15. Nuclear Information and Records Management Association, Inc. TG 16-1998, "Software Configuration Management and Quality Assurance"

16. Nuclear Information and Records Management Association, Inc. TG 21-1998, "Electronic Records Protection and Restoration"

Principal Contributor(s): Dong H. Park, NRR/DRO

Date: January 31, 2024

SECTION B

BWX Technologies, Inc.

Docket No. 99901469
BANR-LTR-23-0272

June 1, 2023

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

Subject: BWXT Advanced Technologies LLC's (BWXT AT) Responses to Request for Additional Information (RAI) by the Office of Nuclear Reactor Regulation, BWXT BANR Quality Assurance Program Description (QAPD)

Reference: Topical Report, BANR-QAPD-001, "BWXT Advanced Nuclear Reactor (BANR) Quality Assurance Program Description," Revision 000 (ML22335A417)

2023/05/03 NRR E-mail Capture – Transmittal of Requests for Additional Information – BWXT Topical Report Quality Assurance Program Description (ML23123A140)

This letter provides, with Enclosure 1, the BWXT AT response to the NRC Office of Nuclear Reactor Regulation's RAI on BWXT AT's topical report BANR quality assurance program description.

If you have any questions or need further information, please contact Don J. Statile at 434-316-7636 or djstatile@bwxt.com.

Sincerely,

Steve Schilthelm Digitally signed by Steve Schilthelm
Date: 2023.06.01 06:52:28 -06'00'

S.W. Schilthelm
Director, Regulatory & Mission Assurance, BWXT Advanced Technologies LLC

Enclosures:

1. Responses to Request for Additional Information (RAI), BWXT BANR Quality Assurance Program Description (QAPD)

CC:
Michael Orenak, NRC
Greg Oberson, NRC

NON-PROPRIETARY ENCLOSURE SUBMITTED ELECTRONICALLY AS A SEPARATE FILE

REQUEST FOR ADDITIONAL INFORMATION
BY THE OFFICE OF NUCLEAR REACTOR REGULATION
BWXT BANR QUALITY ASSURANCE PROGRAM DESCRIPTION (QAPD)
BWX TECHNOLOGIES, INC.
DOCKET NO. 99901469
ISSUE DATE: N/A

Question 1

The BANR QAPD addresses the activities associated with the technology development and design activities conducted by or for BWXT AT. However, since BWXT AT is not presently an applicant for a construction permit, operating license (OL), design certification, early site permit, combined license (COL), standard design approval, or manufacturing license activities as described in 10 CFR Part 50 and 10 CFR Part 52, the NRC staff will limit its review to the QA activities associated only with technology development and high-level design activities.

For example, the BANR QAPD did not establish quality requirements for nonsafety-related SSCs that are credited for regulated events, which the NRC staff reviews for OLs and COLs per the guidance in NUREG-0800, Section 17.5, Paragraph II.U.2. The NRC staff will not review the QAPD for this topic. Any BWXT AT activities outside of technology development and high level design activities will not be covered by NRC approval of the BANR QAPD without additional supplements or submittals.

Please confirm BWXT AT’s desired scope of review and if it aligns with the NRC staff's proposed scope of review.

Response

BWXT AT’s desired scope of review is limited to the QA activities associated only with technology development and high-level design activities. This aligns with the NRC staff’s proposed scope of review.

Question 2

Section 7.2 of the BANR QAPD states, “BWXT AT will implement the NRC endorsed guidance from NEI 14-05A, Rev. 1-A, “Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys in Procurement of Laboratory Calibration and Test Services” [ADAMS Accession No. ML21069A347] when procuring commercial grade calibration and testing services." In addition, Section 12 of the BANR QAPD states, “The suppliers of commercial-grade calibration services are controlled as described in Part II, Section 7,”

The NRC safety evaluation for NEI 14-05A, Revision 1, (ML20322A019) contains the following conditions in Section 3.4,

“2) The method the licensee and/or supplier of basic components needs to follow, and document in their QA program, consists of:

1. A documented review of the laboratory's accreditation is performed and includes a verification of the following:

- The calibration or test laboratory holds accreditation by an accrediting body recognized by the ILAC MRA. The accreditation encompasses ISO/IEC-17025:2017, "General Requirements for the Competence of Testing and Calibration Laboratories."
- For procurement of calibration services, the published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.
- For procurement of testing services, the published scope of accreditation for the test laboratory covers the needed testing services including test methodology and tolerances/uncertainty.
- The laboratory has achieved accreditation based on an on-site accreditation assessment by the selected AB within the past 48 months. The laboratory's accreditation cannot be based on two consecutive remote accreditation assessments."

Please confirm if these conditions are applicable to BWXT AT's proposed scope of review for the QAPD and/or applicable to the approach to supplier accreditation within the BANR QAPD. If they are applicable, discuss where these conditions will be listed to demonstrate how commercial-grade calibration services are controlled.

Response

Yes, the conditions of NRC safety evaluation for NEI 14-05A, Revision 1, are applicable to BWXT AT's proposed scope of review for the QAPD and applicable to the approach to supplier accreditation within the BANR QAPD.

These conditions are listed in the BWXT AT implementing procedures that control commercial-grade calibration services and the conditions will be added to the QAPD.

Question 3

Section 10.2 of the BANR QAPD states that "[inspection] qualification program requirements are described in [QAPD] Part II, Section 2," and Section 18.1 of the BANR QAPD references "a qualified lead auditor."

Part II, Section 2.6, of the BANR QAPD commits to implement the quality standards described in NQA-1-2015, "Quality Assurance Requirements for Nuclear Facility Applications," Requirement 2, however, the BANR QAPD does not specifically address the qualification program requirements for Inspection and Test, Lead Auditor, Auditors, and Technical Specialists. NQA-1-2015, Requirement 2, Section 302 through 305, provides Qualification Requirements (Section 300) for Inspection and Test (Section 302), Lead Auditor (Section 303), Auditors (Section 304), and Technical Specialists (Section 305). Additionally, RG. 1.28, "Quality Assurance Program Criteria (Design and Construction)," Revision 5, (ML17207A293) Regulatory Position C.1.a, contains a clarification regarding the qualifications of lead auditors.

Please provide additional information regarding the qualification program requirements for Inspection and Test, Lead Auditor, Auditors, and Technical Specialists.

Response

The following provides additional information regarding the qualification program requirements for Inspection and Test Personnel, Lead Auditor, Auditors, and Technical Specialists and will be added to Section 2 of the BANR QAPD:

2.6 Qualification of Inspection and Test Personnel

Personnel performing inspections or test activities shall be qualified in accordance with NQA-1-2015 Requirement 2, Section 302. Specific requirements for the qualification of inspection and test personnel are provided in implementing procedures.

2.7 Qualification of Quality Assurance Audit Personnel

Lead Auditors organize and direct audits, report audit findings, and evaluate corrective action. Lead Auditors shall be qualified in accordance with the requirements of NQA-1-2015, Requirement 2, Section 303. Orientation, training and qualification processes for Auditors and Technical Specialists are described in an implementing procedure and shall meet the requirements specified in NQA-1-2015 Requirement 2, Sections 304 and 305.

2.8 Records of Qualification

The qualification of inspection and test personnel, and Lead Auditors shall be certified in writing and shall include the information required by NQA-1-2015 Requirement 2, Section 400. These requirements are described in implementing procedures.

Question 4

The NRC staff observed a possible typographical error to the third bullet in Section 7.2, “NQA-1 Commitment / Exceptions” of the BANR QAPD. The NRC staff assumes that “2015” refers to NQA-1-2015.

Please confirm if this assumption is correct.

Response

Yes, “2015” refers to NQA-1-2015. The bullet should read “In establishing commercial grade item requirements, BWXT AT commits to compliance with NQA-1-2015, Section 700 and Subpart 2.14, with the following clarification:”

Question 5

Section 7.1 of the BANR QAPD states, “BWXT AT may utilize audits conducted by outside organizations for supplier qualification provided that the scope and adequacy of the audits meet

BWXT AT requirements. Documented annual evaluations are performed for qualified suppliers to assure they continue to provide acceptable products and services. Industry programs, such as those applied by the American Society of Mechanical Engineers (ASME), Nuclear Procurement Issues Committee (NUPIC), or other established utility groups, are used as input or the basis for supplier qualification whenever appropriate. The results of the reviews are promptly considered for effect on a supplier's continued qualification and adjustments made as necessary (including corrective actions, adjustments of supplier audit plans, and input to third party auditing entities, as warranted). In addition, results are reviewed periodically to determine if, as a whole, they constitute a significant condition adverse to quality requiring additional action."

The NRC staff understands that BWXT AT does not currently have access to supplier information from ASME (non-public), NUPIC (not a member), or other established utility groups. Please describe how BWXT AT intends to obtain input for the basis for supplier qualification, or edit Section 7.1 to remove reference to such industry programs.

BWXT Response

ASME and utility groups are not used as the basis for supplier qualification by BWXT AT at this time.

Section 7.1 of the BANR QAPD will be revised as follows:

BWXT AT may utilize audits conducted by outside organizations for supplier qualification provided that the scope and adequacy of the audits meet BWXT AT requirements. Documented annual evaluations are performed for qualified suppliers to assure they continue to provide acceptable products and services. The results of the reviews are promptly considered for effect on a supplier's continued qualification and adjustments made as necessary (including corrective actions, adjustments of supplier audit plans, and input to third party auditing entities, as warranted). In addition, results are reviewed periodically to determine if, as a whole, they constitute a significant condition adverse to quality requiring additional action.

SECTION C

BWX Technologies, Inc.

BWXT Advanced Technologies LLC

BWXT Advanced Nuclear Reactor (BANR) Quality Assurance Program Description

BANR-QAPD-001-A
Revision 001

BWXT ADVANCED TECHNOLOGIES LLC

BWXT Advanced Nuclear Reactor (BANR) Quality Assurance Program Description

BANR-QAPD-001-A

Revision 001

April 15, 2024

Originated By: DocuSigned by: Scott T. Fairburn 0B5D1F65CCCC43D... 4/18/2024

Scott T. Fairburn, Director, Quality Assurance

Reviewed By: DocuSigned by: Steve Schilthelm B66A3D535E8F4E1... 4/18/2024

Steve W. Schilthelm, Director, Regulatory and Mission Assurance

Reviewed By: DocuSigned by: EIN 59DF754966C4476... 4/18/2024

Erik T. Nygaard, Director, Director, Product Development

Approved By: DocuSigned by: Joe Miller 1FB05C3A237F4A9... 4/18/2024

Joseph K. Miller, President, Advanced Technologies LLC

REVISION HISTORY

Revision	Date	Section(s) or Page(s)	Description of Change
000	Nov. 30, 2022		Initial issue.
001	April 15, 2024	2.6	Added description of qualification of Inspection and Test Personnel
		2.7	Added description of qualification of Quality Assurance Audit Personnel
		2.8	Added description of records of qualification
		7.1	Deleted “Industry programs, such as those applied by the American Society of Mechanical Engineers (ASME), Nuclear Procurement Issues Committee (NUPIC), or other established utility groups, are used as input or the basis for supplier qualification whenever appropriate.”
		7.2	Added the conditions of NRC safety evaluation of NEI 14-05A, Revision 1 to the NQA-1 Commitment/Exceptions
		7.2	In third bullet, revised “2015” to “NQA-1-2015”

Quality Policy

BWXT Advanced Technologies (BWXT AT) shall design and test the nuclear plant in a manner that will ensure the health and safety of the public and workers. These activities shall be performed in compliance with the requirements of the Code of Federal Regulations (CFR) and applicable laws and regulations of the state and local governments.

The BWXT AT BWXT Advanced Nuclear Reactor (BANR) Quality Assurance Program (QAP) is the Quality Assurance Program Description (QAPD) provided in this document and the associated implementing documents. Together they provide for control of BWXT AT activities that affect the quality of safety-related nuclear plant structures, systems, and components (SSCs) and include all planned and systematic activities necessary to provide adequate confidence that such SSCs will perform satisfactorily in service. The QAPD may also be applied to certain equipment and activities that are not safety-related, but support safe plant operations, or where other NRC guidance establishes program requirements.

The QAPD is the top-level policy document that establishes the manner in which quality is to be achieved and presents BWXT AT's overall philosophy regarding achievement and assurance of quality. Implementing documents assign more detailed responsibilities and requirements and define the organizational interfaces involved in conducting activities within the scope of the QAP. The President establishes overall expectations for effective implementation of the quality assurance program and is responsible for obtaining the desired end result. Compliance with the QAPD and implementing documents is mandatory for personnel directly or indirectly associated with implementation of the BANR QAP.

Joseph K. Miller
President, BWXT Advanced Technologies LLC

TABLE OF CONTENTS

PART I Introduction

BWXT AT's Advanced Nuclear Reactor (BANR) Quality Assurance Program Description (QAPD) is the top-level policy document that establishes the quality assurance policy and assigns major functional responsibilities for BANR technology development and design activities conducted by or for BWXT AT. The QAPD describes the methods and establishes quality assurance (QA) and administrative control requirements that meet 10 CFR 50, Appendix B and 10 CFR 52. The QAPD is based on the requirements and guidance of ASME NQA-1-2015, "Quality Assurance Requirements for Nuclear Facility Applications," Parts I and II as identified in this document.

The QA Program (QAP) is defined by the NRC-approved regulatory document that describes the QA elements (i.e., the QAPD), along with the associated implementing documents. Procedures and instructions that control BANR organization activities will be developed prior to commencement of those activities. Policies establish high-level responsibilities and authority for carrying out important administrative functions which are outside the scope of the QAPD. Procedures establish practices for certain activities which are common to all BWXT AT organizations performing those activities so that the activity is controlled and carried out in a manner that meets QAPD requirements. Procedures specific to a site, organization, or group establish detailed implementation requirements and methods, and may be used to implement policies or be unique to particular functions or work activities.

1.1 Scope/Applicability

The QAPD applies to technology development and design activities affecting the quality and performance of safety-related structures, systems, and components, including, but not limited to designing, procuring, inspecting, and fuel performance testing.

Safety-related SSCs, under the control of the QAPD, are identified by design documents. The technical aspects of these items are considered when determining program applicability, including, as appropriate, the item's design safety function. The QAPD may be applied to certain activities where regulations other than 10 CFR 50 and 10 CFR 52 establish QA requirements for activities within their scope.

The policy of BWXT AT is to assure a high degree of availability and reliability of the nuclear plant while ensuring the health and safety of its workers and the public. To this end, selected elements of the QAPD are also applied to certain equipment and activities that are not safety-related, but support safe, economic, and reliable plant operations, or where other NRC guidance establishes quality assurance requirements. Implementing documents establish program element applicability.

The definitions provided in ASME NQA-1–2015, Part I, Section 400, apply to select terms as used in this document.

PART II Quality Assurance Manual Details

SECTION 1 ORGANIZATION

This section describes the BWXT AT organizational structure, functional responsibilities, levels of authority and interfaces for establishing, executing, and verifying QAPD implementation. The organizational structure includes corporate and support functions for the BANR organization including interface responsibilities for multiple organizations that perform quality-related functions. Implementing documents assign more specific responsibilities and duties, and define the organizational interfaces involved in conducting activities and duties within the scope of the QAPD. Management gives careful consideration to the timing, extent, and effects of organizational structure changes.

BWXT AT Director, Quality Assurance is responsible to size the Quality Assurance staff commensurate with the duties and responsibilities assigned.

The BANR organization is responsible for technology development, engineering, and testing activities. Several organizations within BWXT AT implement and support the QAPD. These organizations include, but are not limited to, Product Development, Manufacturing Development, Business Services, Regulatory and Mission Assurance, and Quality Assurance.

The following sections describe the reporting relationships, functional responsibilities, and authorities for organizations implementing and supporting the BANR QA Program. The BWXT AT organization is shown in Figures II.1-1.

1.1 President

The President is responsible for all aspects of design BWXT AT's nuclear plants. The President is also responsible for all technical and administrative support activities provided by BWXT AT and contractors. The President directs the Director, Product Development, Director, Business Services, Director, Manufacturing Development, and the Director, Regulatory and Mission Assurance in fulfillment of their responsibilities.

1.2 Product Development

BWXT AT Product Development organization is responsible for new nuclear plant engineering and technology development activities.

1.2.1 Director, Product Development

The Director, Product Development reports to the BWXT AT President and is responsible for the administration of the BWXT AT engineering organization and provides engineering and fuel development support to the BANR organization.

1.3 BANR Project Manager

The BANR Project Manager reports to the Director, Product Development and is responsible for the establishment and implementation of the BANR QAPD. The BANR Project Manager directs

the planning and development of the BANR staff and organization resources and the technology development for the BWXT Advanced Reactor.

1.4 Manufacturing Development

The Manufacturing Development organization is responsible for manufacturing development and delivery of products and prototypes as well as qualification and testing and provides support activities for the BANR organization. In addition, the Director, Manufacturing Development is responsible for administration of the chemical and material laboratory operations, measuring and test equipment, and maintenance of equipment and facilities.

1.4.1 Director, Manufacturing Development

The Director, Manufacturing Development reports to the President and is responsible for managing the overall Manufacturing Development organization including providing manufacturing, testing, and procurement support under the QAPD.

1.5 Business Services

The Business Services organization is responsible for support of the BANR organization by providing Procurement and Document Control support where applicable.

1.5.1 Director, Business Services

The Director, Business Services reports to the President and is responsible for the administration of procurement and document control and provides support activities for BANR organization under the QAPD

1.6 Regulatory and Mission Assurance

The Regulatory and Mission Assurance organization is responsible for supporting the BANR organization through performing activities related to Licensing, Safety, and Quality Assurance.

1.6.1 Director, Regulatory and Mission Assurance

The Director, Regulatory and Mission Assurance reports to the President and is responsible for managing the overall Regulatory and Mission Assurance organization including assuring that Safety, Licensing, Quality Assurance support BANR activities in accordance with the QAPD.

1.6.2 Quality Assurance

The BWXT AT Quality Assurance Organization is responsible for independently planning and performing activities to verify the development and effective implementation of the BWXT AT QAPD including but not limited to Engineering, Document Control, Corrective Action Program, and Procurement that support new nuclear plant generation.

1.6.2.1 Director, Quality Assurance

The Director, Quality Assurance (DQA) reports to the Director, Mission Assurance and is responsible for developing and maintaining the BWXT AT QAPD, evaluating compliance to Quality Assurance Program requirements, and managing Quality Assurance Organization resources.

The DQA is responsible for the development and verification of implementation of the QAPD described in this document. The DQA is responsible for assuring compliance with regulatory requirements and procedures through audits and technical reviews; monitoring organizational processes to ensure conformance to commitments and ensuring that vendors providing quality services, parts, and materials to BWXT AT are meeting the requirements of 10 CFR 50, Appendix B through BWXT vendor audits. The DQA has sufficient independence from other BANR project priorities to bring forward issues affecting safety and quality and makes judgments regarding quality in all areas regarding BWXT AT's BANR organization activities as appropriate. The DQA may make recommendations to the BANR Project management regarding improving the quality of work processes. If the DQA disagrees with any actions taken by the BANR organization and is unable to obtain resolution, the DQA shall inform the Director, Regulatory and Mission Assurance and bring the matter to the attention of the President who will determine the final disposition.

1.7 Authority to Stop Work

Quality Assurance and Quality Control Inspection personnel have the authority, and the responsibility, to stop work in progress which is not being done in accordance with approved procedures or where safety or SSC integrity may be jeopardized. This authority extends to off-site work performed by suppliers that furnish safety-related materials and services to BWXT AT.

1.8 Quality Assurance Organizational Independence

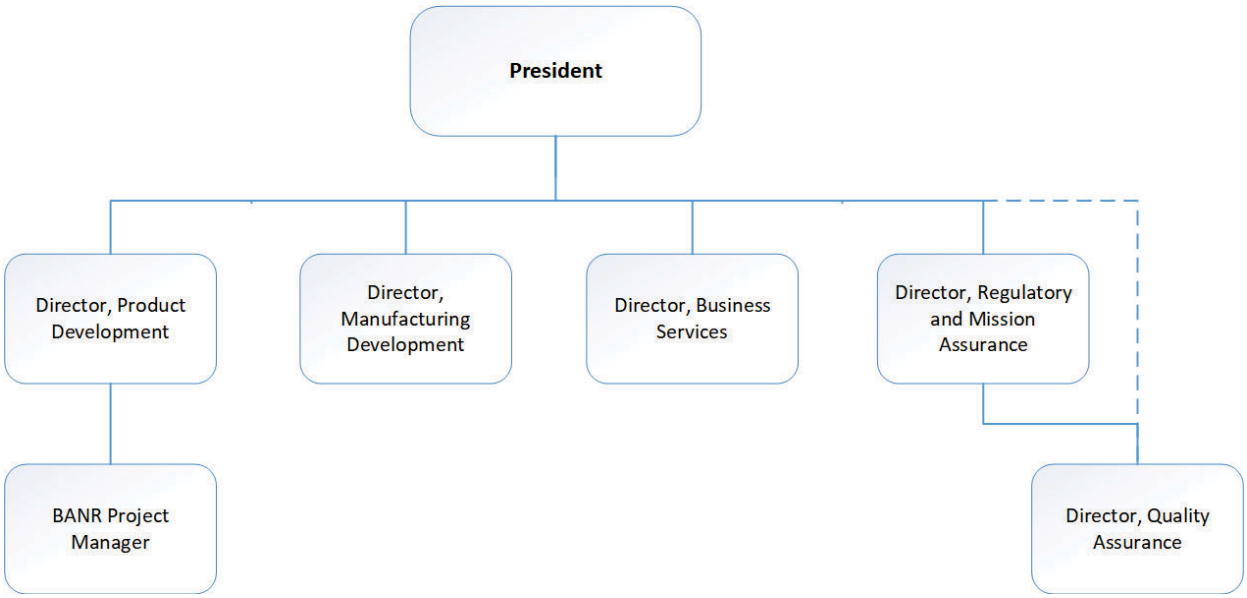
For the BANR program, independence shall be maintained between the organization performing the checking (quality assurance and control) functions and the organizations performing the functions. This provision is not applicable to design review/verification.

1.9 NQA-1 Commitment

In establishing its organizational structure, BWXT AT commits to compliance with NQA-1-2015, Requirement 1.

Figure II.1-1

BWXT AT Organization



SECTION 2 QUALITY ASSURANCE PROGRAM

BWXT AT has established the necessary measures and governing procedures to implement the QAP as described in the QAPD. BWXT AT is committed to implementing the QAP in all aspects of work that are important to the safety of the nuclear plants as described and to the extent delineated in the QAPD. The QAP shall include monitoring activities against acceptance criteria in a manner sufficient to provide assurance that the activities important to safety are performed satisfactorily. Further, BWXT AT ensures through the systematic process described herein that its suppliers of safety-related equipment or services meet the applicable requirements of 10 CFR 50, Appendix B. Senior management is regularly apprised of the adequacy of implementation of the QAP through the audit functions described in Part II, Section 18.

The objective of the QAP is to assure that BWXT AT's nuclear plant is designed in accordance with governing regulations and license requirements. The program is based on the requirements of ASME NQA-1-2015, "Quality Assurance Requirements for Nuclear Facility Applications," as further described in this document. The QAP applies to those quality-related activities that involve the functions of safety-related structures, systems, and components (SSCs) associated with the design and testing of the SSCs of the facility and to the managerial and administrative controls to be used to assure safe operations. A list or system that identifies SSCs and activities to which this program applies is maintained. Cost and scheduling challenges must be addressed; however, they do not prevent proper implementation of the QAP.

As described in Part III of the QAPD, specific program controls are applied to nonsafety-related SSCs that are significant contributors to plant safety, for which 10 CFR 50, Appendix B, is not applicable. The specific program controls, consistent with applicable sections of the QAPD, are applied to those items in a select manner, targeted at those characteristics or critical attributes that qualifies the SSC as a significant contributor to plant safety.

Delegated responsibilities may be performed under a supplier's or principal contractor's QAP, provided that the supplier or principal contractor has been approved as a supplier in accordance with the BWXT AT QAP. Periodic audits and assessments of supplier QA programs are performed to assure compliance with the supplier's or principal contractor's QAPD and implementing procedures. In addition, routine interfaces with the supplier's personnel provide added assurance that quality expectations are met.

In general, the program requirements specified herein are detailed in implementing procedures that are either BWXT AT implementing procedures, or supplier implementing procedures governed by a supplier quality assurance program.

A grace period of 90 days may be applied to provisions that are required to be performed on a periodic basis, unless otherwise noted. Annual evaluations and audits that must be performed on a triennial basis are examples where the 90 day general period could be applied. The grace period does not allow the "clock" for a particular activity to be reset forward. The "clock" for an activity is reset backwards by performing the activity early. Audit schedules are based on the month in which the audit starts.

2.1 Responsibilities

Personnel who work directly or indirectly for BWXT AT are responsible for achieving acceptable quality in the work covered by the QAPD. This includes the activities delineated in Part I, Section 1.1. BWXT AT personnel performing verification activities are responsible for verifying the achievement of acceptable quality. Activities governed by the QAPD are performed as directed by documented instructions, procedures, and drawings that are of a detail appropriate for the activity's complexity and effect on safety. Instructions, procedures and drawings specify quantitative or qualitative acceptance criteria as applicable or appropriate for the activity, and verification is against these criteria. Provisions are established to designate or identify the proper documents to be used in an activity, and to ascertain that such documents are being used. The Director, Quality Assurance is responsible to verify that processes and procedures comply with QAPD and other applicable requirements, that such processes or procedures are implemented, and that management appropriately ensures compliance.

2.2 Delegation of Work

BWXT AT retains and exercises the responsibility for the scope and implementation of an effective QAP. Positions identified in Part II, Section 1, may delegate all or part of the activities of planning, establishing, and implementing the program for which they are responsible to others, but retain the responsibility for the program's effectiveness.

Decisions affecting safety are made at the level appropriate based upon their nature and effect, with technical advice or review as appropriate.

2.3 Periodic Review of the Quality Assurance Program

Management of those organizations implementing the QA program, or portions thereof, shall assess the adequacy of that part of the program for which they are responsible to assure its effective implementation at least once each year or at least once during the life of the activity, whichever is shorter.

2.4 Issuance and Revision to Quality Assurance Program

Administrative control of the QAPD will be in accordance with 10 CFR 50.55(f) and 10 CFR 50.54(a). Changes to the QAPD are evaluated by the Director, Quality Assurance to ensure that such changes do not degrade safety for previously approved quality assurance controls specified in the QAPD. New revisions to the document will be reviewed, at a minimum, by the BWXT AT Director, Quality Assurance and approved by the President.

2.5 Personnel Training and Qualification

Personnel assigned to implement elements of the QAPD shall be capable of performing their assigned tasks. To this end, BWXT AT establishes and maintains formal indoctrination, training, and qualification as necessary for personnel performing, verifying, or managing activities within the scope of the QAPD to achieve initial proficiency, maintain proficiency, and adapt to technology changes, method, or job responsibilities. The indoctrination, training, and qualification programs are commensurate with scope, complexity, and importance of the activities; and include or address the following, as appropriate:

- Education, experience, and proficiency of the personnel receiving training
- General criteria, technical objectives, requirements of applicable codes and standards, regulatory commitments, company procedures, and quality assurance program requirements
- On-the-job training, if direct hands-on applications or experience is needed to achieve and maintain proficiency.

Sufficient managerial depth is provided to cover absences of incumbents. When required by code, regulation, or standard, specific qualification and selection of personnel is conducted in accordance with those requirements as established in the applicable BWXT AT procedures. Indoctrination includes the administrative and technical objectives, requirements of the applicable codes and standards, and the QAPD elements to be employed. Records of personnel training and qualification are maintained.

The minimum qualifications of the Director, Quality Assurance are an engineering or related science degree and a minimum of four years of related experience, one year of supervisory or management experience, and one year of the experience is in performing quality verification activities. Special requirements shall include management and supervisory skills and experience or training in leadership, interpersonal communication, management responsibilities, motivation of personnel, problem analysis and decision making, and administrative policies and procedures. Individuals who do not possess these formal education and minimum experience requirements should not be eliminated automatically when other factors provide sufficient demonstration of their abilities. These other factors are evaluated on a case-by-case basis and approved and documented by senior management.

The minimum qualifications for the individuals responsible for supervising QA or QC personnel is that each has a high school diploma or equivalent and has a minimum of one year of experience performing quality verification activities. Individuals who do not possess these formal education and experience requirements should not be eliminated automatically when other factors provide sufficient demonstration of their abilities. These other factors are evaluated on a case-by-case basis and approved and documented by senior management.

The minimum qualifications of individuals that are part of the Quality Assurance organization responsible for planning, implementing, and maintaining the programs for the QAPD are that each has a high school diploma or equivalent and has a minimum of one year of related experience. Individuals who do not possess these formal education and minimum experience requirements should not be eliminated automatically when other factors provide sufficient demonstration of their abilities. These other factors are evaluated on a case-by-case basis and approved and documented by senior management.

2.6 Qualification of Inspection and Test Personnel

Personnel performing inspections or test activities shall be qualified in accordance with NQA-1-2015 Requirement 2, Section 302. Specific requirements for the qualification of inspection and test personnel are provided in implementing procedures.

2.7 Qualification of Quality Assurance Audit Personnel

Lead Auditors organize and direct audits, report audit findings, and evaluate corrective action.

Lead Auditors shall be qualified in accordance with the requirements of NQA-1-2015, Requirement 2, Section 303. Orientation, training and qualification processes for Auditors and Technical Specialists are described in an implementing procedure and shall meet the requirements specified in NQA-1-2015 Requirement 2, Sections 304 and 305.

2.8 Records of Qualification

The qualification of inspection and test personnel, and Lead Auditors shall be certified in writing and shall include the information required by NQA-1-2015 Requirement 2, Section 400. These requirements are described in implementing procedures.

2.9 NQA-1 Commitment / Exceptions

In establishing qualification and training programs, BWXT AT commits to compliance with NQA-1-2015, Requirement 2.

SECTION 3 DESIGN CONTROL

BWXT AT has established and implements a process to control the design and design changes of items that are subject to the provisions of the QAPD. The design process includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces within BWXT AT and with suppliers. These provisions assure that design inputs (such as design bases and the performance, regulatory, quality, and quality verification requirements) are correctly translated into design outputs (such as analyses, specifications, drawings, procedures, and instructions) so that the final design output contains or references appropriate acceptance criteria that can be related to the design input in sufficient detail to permit verification by inspection and test, as required.

Design change processes and the division of responsibilities for design-related activities are detailed in BWXT AT and supplier procedures. Changes to design inputs and final designs are justified and subject to design control measures commensurate with those applied to the original design. The design control program includes interface controls necessary to control the development, verification, approval, release, status, distribution, and revision of design inputs and outputs. Design changes and disposition of nonconforming items as "use as is" or "repair" are reviewed and approved by the BWXT AT design organization or by other organizations so authorized by BWXT AT.

Design documents are reviewed by individuals knowledgeable in QA to ensure the documents contain the necessary QA requirements.

3.1 Design Verification

BWXT AT design processes provide for design verification to ensure that items, computer programs, and activities subject to the provisions of the QAPD are suitable for their intended application, consistent with their effect on safety. Design changes are subjected to these controls, which include verification measures commensurate with those applied to original plant design.

Design verifications are performed by competent individuals or groups other than those who performed the original design but who may be from the same organization. The verifier shall not have taken part in the selection of design inputs, the selection of design considerations, or the selection of a singular design approach, as applicable. This verification may be performed by the originator's supervisor provided the supervisor did not specify a singular design approach, rule out certain design considerations, and did not establish the design inputs used in the design, or if the supervisor is the only individual in the organization competent to perform the verification. If the verification is performed by the originator's supervisor, the justification of the need is documented and approved in advance by management.

The extent of the design verification required is a function of the importance to safety of the item or computer program under consideration, the complexity of the design, the degree of standardization, the state-of-the-art, and the similarity with previously proven designs. This includes design inputs, design outputs, and design changes. Design verification procedures are established and implemented to assure that an appropriate verification method is used, the appropriate design parameters to be verified are chosen, the acceptance criteria are identified, and the verification is satisfactorily accomplished and documented. Verification methods may

include, but are not limited to, design reviews, alternative calculations, and qualification testing. Testing used to verify the acceptability of a specific design feature demonstrates acceptable performance under conditions that simulate the most adverse design conditions expected for the item's intended use.

BWXT AT normally completes design verification activities before the design outputs are used by other organizations for design work, and before they are used to support other activities such as procurement, manufacture, or construction. When such timing cannot be achieved, the design verification is completed before relying on the item to perform its intended design or safety function.

3.2 Design Records

BWXT AT maintains records sufficient to provide evidence that the design was properly accomplished. These records include the final design output and any revisions thereto, as well as record of the important design steps (e.g., calculations, analyses and computer programs) and the sources of input that support the final output.

3.3 Computer Application and Digital Equipment Software

The QAPD governs the development, procurement, testing, maintenance, control, and use of computer applications and digital equipment software when used in safety-related applications and designated nonsafety-related applications. Computer program acceptability is pre-verified or the results verified with the design analysis for each application. Pre-verified computer programs are controlled using a software configuration management process. BWXT AT and suppliers are responsible for developing, approving, and issuing procedures, as necessary, to control the use of such computer application and digital equipment software. The procedures require that the application software be assigned a proper quality classification and that the associated quality requirements be consistent with this classification. Each application software and revision thereto is documented and approved by authorized personnel. The QAPD is also applicable to the administrative functions associated with the maintenance and security of computer hardware where such functions are considered essential in order to comply with other QAPD requirements such as QA records.

3.4 NQA-1 Commitment

In establishing its program for design control and verification, BWXT AT commits to compliance with NQA-1-2015, Requirement 3, Subpart 2.7 for computer software, NQA-1-2015, Requirement 3, Subpart 2.14 for Quality Assurance requirements for commercial grade items and services.

SECTION 4 PROCUREMENT DOCUMENT CONTROL

BWXT AT has established the necessary measures and governing procedures to assure that purchased items, computer programs, and services are subject to appropriate quality and technical requirements. Procurement document changes shall be subject to the same degree of control as utilized in the preparation of the original documents. These controls include provisions such that:

- Where original technical or quality assurance requirements cannot be determined, an engineering evaluation is conducted and documented by qualified staff to establish appropriate requirements and controls to assure that interfaces, interchangeability, safety, fit, and function, as applicable, are not adversely affected or contrary to applicable regulatory requirements.
- Applicable technical, regulatory, administrative, quality, and reporting requirements (such as specifications, codes, standards, tests, inspections, special processes, and 10 CFR 21) are invoked for procurement of items and services. 10 CFR 21 requirements for posting, evaluating, and reporting will be followed and imposed on suppliers when applicable. Applicable design bases and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services. To the extent necessary, procurement documents shall require suppliers to have a documented QA program that is determined to meet the applicable requirements of 10 CFR 50, Appendix B, as appropriate to the circumstances of procurements (or the supplier may work under BWXT AT's approved QA program).

Reviews of procurement documents shall be performed by personnel who have access to pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents.

4.1 NQA-1 Commitment / Exceptions

In establishing controls for procurement, BWXT AT commits to compliance with NQA-1-2015, Requirement 4, with the following clarifications and exceptions:

- With regard to service performed by a supplier, BWXT AT procurement documents may allow the supplier to work under the BWXT AT QAP, including implementing procedures, in lieu of the supplier having its own QAP.
- Section 300 and 400 of Requirement 4 require the review of technical and Quality Assurance Program requirements of procurement documents prior to award of a contract and for procurement document changes. BWXT AT may satisfy this requirement through the review of the procurement specification, when the specification contains the technical and quality assurance requirements of the procurement.

Procurement documents for Commercial Grade Items that will be procured by BWXT AT for use as safety-related items shall contain technical and quality requirements such that the procured item can be appropriately dedicated in accordance with the BWXT AT QAPD, Section 7, "Control of Purchased Material, Equipment and Services."

SECTION 5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

BWXT AT has established the necessary measures and governing procedures to ensure that activities affecting quality are prescribed by and performed in accordance with instructions, procedures, or drawings of a type appropriate to the circumstances and which, where applicable, include quantitative or qualitative acceptance criteria to implement the QAP as described in the QAPD. Such documents are prepared and controlled according to Part II, Section 6. In addition, means are provided to disseminate to the staff instructions of both general and continuing applicability, as well as those of short-term applicability. Provisions are included for reviewing, updating, and canceling such procedures.

5.1 Procedure Adherence

BWXT AT's policy is that procedures are followed, and the requirements for use of procedures have been established in administrative procedures. Where procedures cannot be followed as written, provisions are established for making changes in accordance with Part II, Section 6. Requirements are established to identify the manner in which procedures are to be implemented, including identification of those tasks that require: (1) the written procedure to be present and followed step-by-step while the task is being performed, (2) the user to have committed the procedure steps to memory, (3) verification of completion of significant steps, by initials or signatures or use of check-off lists. Procedures that are required to be present and referred to directly are those developed for extensive or complex jobs where reliance on memory cannot be trusted, tasks that are infrequently performed, and tasks where steps must be performed in a specified sequence.

5.2 Procedure Content

The established measures address the applicable content of procedures as described in the Introduction to Part II of NQA-1-2015. In addition, procedures governing tests will include as applicable, initial conditions and prerequisites for the performance of the activity.

5.3 NQA-1 Commitment

In establishing procedural controls, BWXT AT commits to compliance with NQA-1-2015, Requirement 5.

SECTION 6 DOCUMENT CONTROL

BWXT AT has established the necessary measures and governing procedures to control the preparation, issuance, and revision of documents that specify quality requirements or prescribe how activities affecting quality, including organizational interfaces, to ensure that correct documents are employed. The following controls, including electronic systems used to make documents available, are applied to documents and changes thereto:

- Identification of controlled documents
- Specified distribution of controlled documents for use at the appropriate location
- A method to identify the correct document (including revision) to be used and control of superseded documents
- Identification of individuals responsible for controlled document preparation, review, approval, and distribution
- Review of controlled documents for adequacy, completeness, and approval prior to distribution
- A method to ensure the correct documents are being used
- A method to provide feedback from users to improve procedures and work instructions
- Coordinating and controlling interface documents and procedures

The types of documents to be controlled include:

- Drawings
- Engineering calculations
- Design specifications
- Purchase orders and related documents
- Vendor-supplied documents
- Audit, surveillance, and quality verification/inspection procedures
- Inspection and test reports
- Instructions and procedures for activities covered by the QAPD including design, calibration, and testing
- Technical specifications
- Nonconformance reports and corrective action reports

6.1 Review and Approval of documents

Documents are reviewed for adequacy by qualified persons other than the preparer.

Prior to issuance or use, documents including revisions thereto, are approved by the designated authority. A listing of all controlled documents identifying the current approved revision, or date, is maintained so personnel can readily determine the appropriate document for use.

6.2 Changes to Documents

Changes to documents, other than those defined in implementing procedures as minor changes, are reviewed and approved by the same organizations that performed the original review and approval unless other organizations are specifically designated. The reviewing organization has access to pertinent background data or information upon which to base their approval. Minor changes to documents, such as inconsequential editorial corrections, do not require that the revised documents receive the same review and approval as the original documents. To avoid a possible omission of a required review, the type of minor changes that do not require such a review and approval and the persons who can authorize such a classification shall be clearly delineated in implementing procedures.

6.3 NQA-1 Commitment

In establishing provisions for document control, BWXT AT commits to compliance with NQA-1-2015, Requirement 6

SECTION 7 CONTROL OF PURCHASED ITEMS AND SERVICES

BWXT AT has established the necessary measures and governing procedures to control purchased items and services to assure conformance with specified requirements. Such control provides for the following as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services.

7.1 Acceptance of Item or Service

BWXT AT establishes and implements measures to assess the quality of purchased items and services, whether purchased directly or through contractors, at intervals and to a depth consistent with the item or service importance to safety, complexity, quantity, and the frequency of procurement. Verification actions include testing, as appropriate, during design activities. Verifications occur at the appropriate phases of the procurement process, including, as necessary, verification of activities of suppliers below the first tier.

Measures to assure the quality of purchased items and services include the following, as applicable:

- Prospective safety-related items and service suppliers are evaluated to assure only qualified suppliers are used. Qualified suppliers are audited on a triennial basis. In addition, if a subsequent contract or a contract modification significantly changes the scope, methods, or controls performed by a supplier, an audit of the changes is performed, thus starting a new triennial period.
- BWXT AT may utilize audits conducted by outside organizations for supplier qualification provided that the scope and adequacy of the audits meet BWXT AT requirements. Documented annual evaluations are performed for qualified suppliers to assure they continue to provide acceptable products and services. The results of the reviews are promptly considered for effect on a supplier's continued qualification and adjustments made as necessary (including corrective actions, adjustments of supplier audit plans, and input to third party auditing entities, as warranted). In addition, results are reviewed periodically to determine if, as a whole, they constitute a significant condition adverse to quality requiring additional action.
- Provisions are made for accepting purchased items and services, such as source verification, receipt inspection, certificates of conformance, and document reviews (including Certified Material Test Report/Certificate). Acceptance actions/documents should be established by the Purchaser with appropriate input from the Supplier and be completed to ensure that procurement, inspection, and test requirements, as applicable, have been satisfied before relying on the item to perform its intended safety function.
- Controls are imposed for the selection, determination of suitability for intended use (critical characteristics), evaluation, receipt, and acceptance of commercial-grade services or items to assure they will perform satisfactorily in service in safety-related applications.
- If there is insufficient evidence of implementation of a QA program, the initial evaluation is of the existence of a QA program addressing the scope of services to be provided.

The initial audit is performed after the supplier has completed sufficient work to demonstrate that its organization is implementing a QA program.

7.2 NQA-1 Commitment / Exceptions

In establishing controls for purchased items and services, BWXT AT commits to compliance with NQA-1-2015, Requirement 7, with the following clarifications and exceptions:

- BWXT AT considers that other 10 CFR Parts 50 and 52 licensees, Authorized Nuclear Inspection Agencies, National Institute of Standards and Technology, or other State and Federal agencies which may provide items or services to BWXT AT, are not required to be evaluated or audited.
- BWXT AT will implement the NRC endorsed guidance from NEI 14-05A, Rev. 1-A, “Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys in Procurement of Laboratory Calibration and Test Services” when procuring commercial grade calibration and testing services. A documented review of the laboratory’s accreditation is performed and includes a verification of the following:
  - The calibration or test laboratory holds accreditation by an accrediting body recognized by the ILAC MRA. The accreditation encompasses ISO/IEC-17025:2017, “General Requirements for the Competence of Testing and Calibration Laboratories.”
  - For procurement of calibration services, the published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.
  - For procurement of testing services, the published scope of accreditation for the test laboratory covers the needed testing services including test methodology and tolerances/uncertainty.
  - The laboratory has achieved accreditation based on an on-site accreditation assessment by the selected accrediting body within the past 48 months. The laboratory's accreditation cannot be based on two consecutive remote accreditation assessments.
- In establishing commercial grade item requirements, BWXT AT commits to compliance with NQA-1-2015, Section 700 and Subpart 2.14, with the following clarification:
  - For commercial grade items, quality verification requirements are established and described in BWXT AT documents to provide the necessary assurance an item will perform satisfactorily in service. The BWXT AT documents address determining the critical characteristics that ensure an item is suitable for its intended use, technical evaluation of the item, receipt requirements, and quality evaluation of the item.
  - BWXT AT will assume 10 CFR 21 reporting responsibility for all services that BWXT AT dedicates as safety-related.

SECTION 8 IDENTIFICATION AND CONTROL OF ITEMS

The scope of the BANR program does not include the identification and control of material, parts and components; therefore, this element is not applicable to the program.

SECTION 9 CONTROL OF SPECIAL PROCESSES

The scope of the BANR program does not include the identification and control of material, parts and components; therefore, this element is not applicable to the program.

SECTION 10 INSPECTION

BWXT AT has established the necessary measures and governing procedures to implement inspections that assure items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions, procedures, and design documents. Inspection may also be applied to items, services, and activities affecting plant reliability and integrity. Types of inspections may include those verifications related to procurement, such as source, in-process, final, and receipt inspection. Inspections are carried out by properly qualified persons independent of those who performed or directly supervised the work. Inspection results are documented.

10.1 Inspection Program

The inspection program establishes inspections (including surveillance of processes), as necessary to verify quality: (1) at the source of supplied items or services, (2) in-process during fabrication at a supplier's facility or at a BWXT AT facility, (3) for final acceptance of fabricated items, and (4) upon receipt of items.

The inspection program establishes requirements for planning inspections, such as the group or discipline responsible for performing the inspection, where inspection hold points are to be applied, determining applicable acceptance criteria, the frequency of inspection to be applied, and identification of special tools needed to perform the inspection. Inspection planning is performed by personnel qualified in the discipline related to the inspection and includes qualified inspectors or engineers. Inspection plans are based on, as a minimum, the importance of the item to the safety of the facility, the complexity of the item, technical requirements to be met, and design specifications. Where significant changes in inspection activities for the facilities are to occur, management responsible for the inspection programs evaluate the resource and planning requirements to ensure effective implementation of the inspection program.

Inspection program documents establish requirements for performing the planned inspections, and documenting required inspection information such as rejection, acceptance, and re-inspection results, and the person(s) performing the inspection.

Inspection results are documented by the inspector, reviewed by authorized personnel qualified to evaluate the technical adequacy of the inspection results, and controlled by instructions, procedures, and drawings.

10.2 Inspector Qualification

BWXT AT has established qualification programs for personnel performing quality inspections. The qualification program requirements are described in Part II, Section 2. These qualification programs are applied to individuals performing quality inspections regardless of the functional group where they are assigned.

10.3 NQA-1 Commitment / Exceptions

In establishing inspection requirements, BWXT AT commits to compliance with NQA-1-2015, Requirement 10.

SECTION 11 TEST CONTROL

BWXT AT has established the necessary measures and governing procedures to demonstrate that items subject to the provisions of the QAPD will perform satisfactorily in service, that the plant can be operated safely and as designed, and that the coordinated operation of the plant as a whole is satisfactory. These programs include criteria for determining when testing is required to demonstrate that performance of plant systems is in accordance with design. Programs also include provisions to establish and adjust test schedules, and to maintain status for periodic or recurring tests. Tests are performed according to applicable procedures that include, consistent with the effect on safety: (1) instructions and prerequisites to perform the tests, (2) use of proper test equipment, (3) acceptance criteria, and (4) mandatory verification points as necessary to confirm satisfactory test completion. Test results are documented and evaluated by the organization performing the test and reviewed by a responsible authority to assure that the test requirements have been satisfied. If acceptance criteria are not met, re-testing is performed as needed to confirm acceptability following correction of the system or equipment deficiencies that caused the failure.

Except for computer program testing, which is addressed in Section 11.1, tests are performed and results documented in accordance with applicable technical and regulatory requirements. Test programs ensure appropriate retention of test data in accordance with the records requirements of the QAPD. Personnel that perform or evaluate tests are qualified in accordance with the requirements established in Part II, Section 2.

11.1 NQA-1 Commitment for Computer Program Testing

BWXT AT establishes and implements provisions to assure that computer software used in applications affecting safety is prepared, documented, verified and tested, and used such that the expected output is obtained and configuration control maintained. To this end BWXT AT commits to compliance with the requirements of NQA-1 2015, Requirement 11 and Subpart 2.7 to establish the appropriate provisions in addition to the commitment to NQA-1-2015, Requirement 3.

11.2 NQA-1 Commitment

In establishing provisions for testing, BWXT AT commits to compliance with NQA-1 2015, Requirement 11.

SECTION 12 CONTROL OF MEASURING AND TEST EQUIPMENT

BWXT AT has established the necessary measures and governing procedures to control the calibration, maintenance, and use of measuring and test equipment (M&TE) that provides data to verify acceptance criteria are met or information important to safe plant operation. The provisions of such procedures cover equipment such as indicating and actuating instruments and gages, tools, reference and transfer standards, and nondestructive examination equipment. The suppliers of commercial-grade calibration services are controlled as described in Part II, Section 7.

12.1 NQA-1 Commitment / Exceptions

In establishing provisions for control of measuring and test equipment, BWXT AT commits to compliance with NQA-1-2015, Requirement 12.

SECTION 13 HANDLING, STORAGE AND SHIPPING

The scope of the BANR program does not include the fabrication, construction, installation or use; therefore, this element is not applicable to the program.

SECTION 14 INSPECTION, TEST AND OPERATING STATUS

The scope of the BANR program does not include the fabrication, construction, installation or use; therefore, this element is not applicable to the program.

SECTION 15 CONTROL OF NONCONFORMING ITEMS

BWXT AT has established the necessary measures and governing procedures to control items, including services that do not conform to specified requirements to prevent inadvertent use. Instructions require that the individual discovering a nonconformance identify, describe, and document the nonconformance in accordance with the requirements of Part II, Section 16. Controls provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations. Controls are provided to address conditional release of nonconforming items for use on an at-risk basis prior to resolution and disposition of the nonconformance, including maintaining identification of the item and documenting the basis for such release. Conditional release of nonconforming items for installation requires the approval of the designated management. Nonconformances are corrected or resolved prior to depending on the item to perform its intended safety function. Nonconformances are evaluated for impact on operability of quality structures, systems, and components to assure that the final condition does not adversely affect safety, operation, or maintenance of the item or service. Nonconformances to design requirements dispositioned repair or use-as-is are subject to design control measures commensurate with those applied to the original design. Nonconformance dispositions are reviewed for adequacy, analysis of quality trends, and reports provided to the designated management. Significant trends are reported to management in accordance with BWXT AT procedures, regulatory requirements, and industry standards.

15.1 Interface with the Reporting Program

BWXT AT has appropriate interfaces between the QAP for identification and control of nonconforming materials, parts, or components and the non-QA Reporting Program to satisfy the requirements of 10 CFR 21 during design.

15.2 NQA-1 Commitment

In establishing measures for nonconforming materials, parts, or components, BWXT AT commits to compliance with NQA-1-2015, Requirement 15.

SECTION 16 CORRECTIVE ACTION

BWXT AT has established the necessary measures and governing procedures to promptly identify, control, document, classify, and correct conditions adverse to quality. BWXT AT procedures assure that corrective actions are documented and initiated following the determination of conditions adverse to quality in accordance with regulatory requirements and applicable quality standards. BWXT AT procedures require personnel to identify known conditions adverse to quality. When complex issues arise where it cannot be readily determined if a condition adverse to quality exists, BWXT AT documents establish the requirements for documentation and timely evaluation of the issue. Reports of conditions adverse to quality are analyzed to identify trends. Significant conditions adverse to quality and significant adverse trends are documented and reported to responsible management. In the case of a significant condition adverse to quality, the cause is determined and actions to preclude recurrence are taken.

In the case of suppliers working on safety-related activities, or other similar situations, BWXT AT may delegate specific responsibilities for corrective actions but BWXT AT maintains responsibility for the effectiveness of corrective action measures.

16.1 NQA-1 Commitment

In establishing provisions for corrective action, BWXT AT commits to compliance with NQA-1-2015, Requirement 16.

SECTION 17 QUALITY ASSURANCE RECORDS

BWXT AT has the necessary measures and governing procedures to ensure that sufficient records of items and activities affecting quality are developed, reviewed, approved, issued, used, and revised to reflect completed work. The provisions of such procedures establish the scope of the records retention program for BWXT AT and include requirements for records administration, including receipt, preservation, retention, storage, safekeeping, retrieval, access controls, user privileges, and final disposition.

17.1 Record Retention

Measures are established that ensure that sufficient records of completed items and activities affecting quality are appropriately stored. Records of activities for design, engineering, procurement, and audits and their retention times are defined in appropriate procedures. The records and retention times are based on Regulatory Position C.3.a.(1) and C.3.a.(2) of Regulatory Guide 1.28, Revision 5 for design. In all cases where state, local, or other agencies have more restrictive requirements for record retention, those requirements will be met.

17.2 Electronic Records

When using optical disks for electronic records storage and retrieval systems, BWXT AT complies with the NRC guidance in Generic Letter 88-18, "Plant Record Storage on Optical Disks." BWXT AT will manage the storage of QA Records in electronic media consistent with the intent of RIS 2000-18 and associated NIRMA Guidelines TG 11-1998, TG15-1998, TG16-1998, and TG21-1998.

17.3 NQA-1 Commitment / Exceptions

In establishing provisions for records, BWXT AT commits to compliance with NQA-1-2015, Requirement 17, and regulatory positions stated in Regulatory Guide 1.28, Rev 5, October 2017.

SECTION 18 AUDITS

BWXT AT has established the necessary measures and governing procedures to implement audits to verify that activities covered by the QAPD are performed in conformance with the established requirements and performance criteria are met. The audit programs are themselves reviewed for effectiveness as a part of the overall audit process.

18.1 Performance of Audits

Internal audits of selected aspects of design and testing activities are performed with a frequency commensurate with safety significance and in a manner which assures that audits of safety-related activities are completed. During the early portions of BWXT AT activities, audits will focus on areas including, but not limited to, design, procurement, and corrective action. Functional areas of an organization's QA program for auditing include, at a minimum, verification of compliance and effectiveness of implementation of internal rules, procedures (e.g., design, procurement, and test), Technical Specifications, regulations, and corrective actions.

The audits are scheduled on a formal preplanned audit schedule and in a manner to provide coverage and coordination with ongoing activities, based on the status and importance of the activity. Additional audits may be performed as deemed necessary by management. The scope of the audit is determined by the quality status and safety importance of the activities being performed. These audits are conducted by trained personnel not having direct responsibilities in the area being audited and in accordance with preplanned and approved audit plans or checklists, under the direction of a qualified lead auditor and the cognizance of the Director, Quality Assurance.

BWXT AT is responsible for conducting periodic internal audits to determine the adequacy of programs and procedures (by representative sampling), and to determine if they are meaningful and comply with the overall QAPD.

The results of each audit are reported in writing to the responsible Director, Quality Assurance, or designee, as appropriate. Additional internal distribution is made to other concerned management levels and to management of the internal audited organizations or activities in accordance with approved procedures.

Management responds to all audit findings and initiates corrective action where indicated. 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.

Audits of suppliers of safety-related components and/or services are conducted as described in Section 7.1.

18.2 Internal Audits

Internal audits of organization and facility activities, conducted prior to placing the facility in operation, should be performed in such a manner as to assure that an audit of all applicable QA program elements is completed for each functional area at least once each year or at least once during the life of the activity, whichever is shorter.

Internal audits include verification of compliance and effectiveness of the administrative controls established for implementing the requirements of the QAPD; regulations; provisions for training, retraining, qualification, and performance of personnel performing activities covered by the QAPD; and, observation of the performance of design and testing activities including associated record keeping.

18.3 NQA-1 Commitment

In establishing the independent audit program, BWXT AT commits to compliance with NQA-1-2015, Requirement 18 and the regulatory positions stated in Regulatory Guide 1.28, Rev 5.

Part III Nonsafety-Related SSC Quality Control

SECTION 1 Nonsafety-Related SSCs - Significant Contributors to Plant Safety

Specific program controls are applied to nonsafety-related SSCs, for which 10 CFR Part 50, Appendix B is not applicable, that are significant contributors to plant safety. The specific program controls consistent with applicable sections of the QAPD are applied to those items in a selected manner, targeted at those characteristics or critical attributes that render the SSC a significant contributor to plant safety.

The following clarify the applicability of the QA Program to the nonsafety-related SSCs and related activities conducted by or for BWXT AT on behalf of its clients. These clarifications include the identification of exceptions to the QA Program described in Part II, Sections 1 through 18 taken for nonsafety-related SSCs.

1.1 ORGANIZATION

The verification activities described in this part may be performed by the BWXT AT line organization. The QA organization described in Part II is not required to perform these functions, but may do so.

1.2 QA PROGRAM

BWXT AT QA requirements for nonsafety-related SSCs are established in the QAP and appropriate procedures. Suppliers of these SSCs or related services describe the quality controls applied in appropriate procedures. A new or separate QA program is not required.

1.3 DESIGN CONTROL

BWXT AT has established design control measures to ensure that the contractually established design requirements are included in the design. These measures ensure that applicable design inputs are included or correctly translated into the design documents, and deviations from those requirements are controlled. Design verification is provided through the normal supervisory review of the designer's work.

1.4 PROCUREMENT DOCUMENT CONTROL

Procurement documents for items and services obtained by or for BWXT AT include or reference documents describing applicable design bases, design requirements, and other requirements necessary to ensure component performance. The procurement documents are controlled to address deviations from the specified requirements.

1.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

BWXT AT provides documents such as, but not limited to, written instructions, plant procedures, drawings, supplier technical manuals, and special instructions in work orders, to direct the performance of activities affecting quality. The method of instruction employed provides an appropriate degree of guidance to the personnel performing the activity to achieve acceptable functional performance of the SSC.

1.6 DOCUMENT CONTROL

BWXT AT controls the issuance and change of documents that specify quality requirements or prescribe activities affecting quality to ensure that correct documents

are used. These controls include review and approval of documents, identification of the appropriate revision for use, and measures to preclude the use of superseded or obsolete documents.

1.7 CONTROL OF PURCHASED ITEMS AND SERVICES

BWXT AT employs measures, such as inspection of items or documents upon receipt or acceptance testing, to ensure that all purchased items and services conform to appropriate procurement documents.

1.8 IDENTIFICATION AND CONTROL OF PURCHASED ITEMS

These requirements are not applicable to BANR project activities.

1.9 CONTROL OF SPECIAL PROCESSES

These requirements are not applicable to BANR project activities.

1.10 INSPECTION

BWXT AT uses documented instructions to ensure necessary inspections are performed to verify conformance of an item or activity to specified requirements or to verify that activities are satisfactorily accomplished. These inspections may be performed by knowledgeable personnel in the line organization. Knowledgeable personnel are from the same discipline and have experience related to the work being inspected.

1.11 TEST CONTROL

BWXT AT employs measures to identify required testing that demonstrates that equipment conforms to design requirements. These tests are performed in accordance with test instructions or procedures. The test results are recorded, and authorized individuals evaluate the results to ensure that test requirements are met.

1.12 CONTROL OF MEASURING AND TEST EQUIPMENT (M&TE)

BWXT AT employs measures to control M&TE use, and calibration and adjustment at specific intervals or prior to use.

1.13 HANDLING, STORAGE, AND SHIPPING

These requirements are not applicable to BANR project activities.

1.14 INSPECTION, TEST, AND OPERATING STATUS

These requirements are not applicable to BANR project activities.

1.15 CONTROL OF NONCONFORMING ITEMS

BWXT AT employs measures to identify and control items that do not conform to specified requirements to prevent their inadvertent installation or use.

1.16 CORRECTIVE ACTION

BWXT AT employs measures to ensure that failures, malfunctions, deficiencies, deviations, defective components, and nonconformances are properly identified, reported, and corrected.

1.17 RECORDS

BWXT AT employs measures to ensure records are prepared and maintained to furnish evidence that the above requirements for design, procurement, document control, inspection, and test activities have been met.

1.18 AUDITS

BWXT AT employs measures for line management to periodically review and document the adequacy of the process, including taking any necessary corrective action. Audits independent of line management are not required. Line management is responsible for determining whether reviews conducted by line management or audits conducted by any organization independent of line management are appropriate. If performed, audits are conducted and documented to verify compliance with design and procurement documents, instructions, procedures, drawings, and inspection and test activities. Where the measures of this part (Part III) are implemented by the same programs, processes, or procedures as the comparable activities of Part II, the audits performed under the provisions of Part II may be used to satisfy the review requirements of this Section (Part III, Section 1.18).

Part IV REGULATORY COMMITMENTS

NRC Regulatory Guides and Quality Assurance Standards

This section identifies the NRC Regulatory Guides (RG) and the other quality assurance standards which have been selected to supplement and support the BANR QAPD. BWXT AT complies with these standards to the extent described or referenced. Commitment to a particular RG or standard does not constitute a commitment to other RGs or standards that may be referenced therein.

Regulatory Guides:

Regulatory Guide 1.26, Revision 6, December 2021 - Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants

Regulatory Guide 1.26 defines classification of systems and components.

BWXT AT will implement this guidance and will identify exceptions to the applicable regulatory position guidance provided in this regulatory guide in any applicable license applications.

Regulatory Guide 1.28, Revision 5, October 2017, Quality Assurance Program Criteria (Design and Construction)

Regulatory Guide 1.28 describes a method acceptable to the NRC staff for complying with the provisions of Appendix B with regard to establishing and implementing the requisite quality assurance program for the design and construction of nuclear power plants.

BWXT AT will implement this guidance and will identify exceptions to the applicable regulatory position guidance provided in this regulatory guide in any applicable license applications.

Regulatory Guide 1.29, Revision 6, July 2021 - Seismic Design Classification for Nuclear Power Plants

Regulatory Guide 1.29 defines systems required to withstand a safe shutdown earthquake (SSE).

BWXT AT will implement this guidance and will identify exceptions to the applicable regulatory position guidance provided in this regulatory guide in any applicable license applications.

Standards:

ASME NQA-1-2015 - Quality Assurance Requirements for Nuclear Facility Applications

BWXT AT commits to NQA-1-2015, Parts I and II, as described in Part II of this document with specific identification of exceptions or clarification. BWXT AT commits to NQA-1-2015, and Part III only as specifically noted in Part II of this document.

Nuclear Information and Records Management Association, Inc. (NIRMA) Technical Guides (TGs)

BWXT AT commits to NIRMA TGs as described in Part II, Section 17.