



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

July 22, 2016

Mr. Randall K. Edington
Executive Vice President Nuclear/
Chief Nuclear Officer
Mail Station 7602
Arizona Public Service Company
P.O. Box 52034
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 –
REQUEST TO CHANGE THE QUALITY ASSURANCE PROGRAM
DESCRIPTION (CAC NOS. MF6537, MF6538, AND MF6539)

Dear Mr. Edington:

By letter dated July 28, 2015, as supplemented by letter dated January 29, 2016, Arizona Public Service Company (the licensee) submitted a change to the Quality Assurance Program Description (QAPD) for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The proposed change would revise the PVNGS QAPD to adopt a standardized QAPD format based upon the guidance of Nuclear Energy Institute (NEI) 11-04A, "Nuclear Generation Quality Assurance Program Description." The NEI 11-04A Quality Assurance Program template format was reviewed and endorsed by the U.S. Nuclear Regulatory Commission (NRC) by letter dated May 9, 2013. The NRC used the acceptance criteria of 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," dated March 2007, as the basis for acceptance in meeting Title 10 of the *Code of Federal Regulations* (10 CFR), Appendix B to Part 50.

The licensee submitted the QAPD based on a determination that the proposed change could be considered a reduction in the program's commitments pursuant to 10 CFR 50.54(a)(4) and warrants an NRC review and approval prior to implementation of the QAPD. The key areas that the licensee addressed in its submittal include:

- Regulatory Basis for Revised Quality Assurance Program Description.
- Proposed PVNGS Operations QAPD Based Upon NEI 11-04A.
- Mark-Ups of Existing QA-Related Updated Final Safety Analysis Report Pages.
- Comparison of Existing NRC Regulatory Guide (RG) Commitments to the NRC RG Commitments Adopted in the Proposed QAPD.
- Specific Deviations from the NEI 11-04A Template and the Basis for Deviations.
- Comparison of Current QAPD to Proposed QAPD Based Upon NEI 11-04A and NQA-1-2008/NQA-1a-2009.
- NEI 11-04A, Revision 0, Appendix 1, RG 1.33, Rev. 2, ANSI N18.7-1976, NQA-1- 2008/NQA-1a-2009 Standards, and NEI 11-04 QAPD Compliance Matrix.

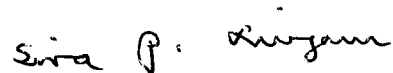
R. Edington

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The NRC staff has completed the review of the proposed changes to the QAPD and concludes that the proposed changes to the QAPD, meet the criteria of Appendix B to 10 CFR Part 50 and, therefore, are acceptable.

If you have any questions, please contact Siva P. Lingam at 301-415-1564 or via e-mail at Siva.Lingam@nrc.gov.

Sincerely,

A handwritten signature in black ink that reads "Siva P. Lingam". The signature is written in a cursive style with a distinct loop for the letter 'P'.

Siva P. Lingam, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-528, STN 50-529,
and STN 50-530

Enclosure:
Safety Evaluation

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST TO CHANGE THE QUALITY ASSURANCE PROGRAM DESCRIPTION

ARIZONA PUBLIC SERVICE COMPANY

PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3

DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

1.0 INTRODUCTION

By letter dated July 28, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15212A718), as supplemented by letter dated January 29, 2016 (ADAMS Accession No. ML16029A506), Arizona Public Service Company (the licensee) submitted a change to the Quality Assurance Program Description (QAPD) for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The proposed change involves an entire rewrite and extraction of the PVNGS QAPD from the Updated Final Safety Analysis Report (UFSAR) in order to adopt a standardized QAPD based upon the guidance of Nuclear Energy Institute (NEI) 11-04A, Revision 0, "Nuclear Generation Quality Assurance Program Description," August 2013 (ADAMS Accession No. ML13235A267). The NEI 11-04A quality assurance program (QAP) template format was reviewed and endorsed as an acceptable format by the U.S. Nuclear Regulatory Commission (NRC or Commission) in the letter dated May 9, 2013 (ADAMS Accession No. ML13023A051). The licensee submitted the QAPD based on a determination that the proposed change could be considered a reduction in the program's commitments pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.54, "Conditions of licenses," Paragraph 50.54(a).

2.0 REGULATORY EVALUATION

The Commission's regulatory requirements related to QA programs are set forth in 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and 10 CFR 50.54(a).

The regulations in 10 CFR 50.54(a)(3) state, in part, that licensees may make a change to a previously accepted QAP description included or referenced in the safety analysis report without prior NRC approval, provided the change does not reduce the commitments in the program description as accepted by the NRC. The regulations in 10 CFR 50.54(a)(4) state, in part, that changes to the QAP description that do reduce the commitments must be submitted to the NRC and receive NRC approval prior to implementation.

Appendix B to 10 CFR Part 50 establishes QA requirements for the design, construction, and operation of structures, systems, and components (SSCs) of the facility. The pertinent

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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.

3.0 EVALUATION

The QAPD is based on the guidance of the American Society of Mechanical Engineers [Nuclear Quality Assurance] NQA-1-2008 and NQA-1a-2009 Addenda, "Quality Assurance Requirements for Nuclear Facility Applications," Parts I and II, with specific reference to selected Part III appendices, as identified in this document. Regulatory Guide (RG) 1.28, "Quality Assurance Program Criteria (Design and Construction)," Revision 4, June 2010 conditionally found ASME NQA-1-2008 and NQA-1a-2009 Addenda as an acceptable method of complying with 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The NRC staff reviewed all changes in the QAP commitments for conformance with the provisions of 10 CFR 50.54(a).

The content of the QAPD was evaluated in accordance with the acceptance criteria of NUREG-0800, "Standard Review Plan [SRP] for the Review of Safety Analysis Reports for Nuclear Power Plants: [Light-Water Reactor] LWR Edition," Section 17.5, March 2007 "Quality Assurance Program Description – Design Certifications Early Site Permit and New License Applicants" (ADAMS Accession No. ML063190019), which provides guidelines for the NRC staff review of QA programs.

During the NRC's review of PVNGS's proposed QAPD changes, the NRC staff determined that additional information was required to complete its review. The staff issued requests for additional information (RAIs) by letter dated January 6, 2016 (ADAMS Accession No. ML16006A366). PVNGS responded to the NRC staff's RAIs in letter dated January 29, 2016. The NRC reviewed the RAI page changes submitted by PVNGS during the review of the PVNGS proposed QAPD. The approval for the RAIs are included in the review for those applicable sections. Also, as part of this review, any PVNGS analysis reviewed are included in the evaluation for that particular section.

PVNGS QAPD is also intended to satisfy the QAP requirements of other regulations under 10 CFR Part 71, "Packaging and Transportation of Radioactive Material," Subpart H, "Quality Assurance," and 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste," Subpart G, "Quality Assurance." The NRC staff reviewed PVNGS's QAPD and concluded that it meets the requirements of 10 CFR Part 71 and 10 CFR Part 72.

In Sections 2.4, 2.7, 2.10, 2.12, 2.13, 2.15, 2.17, the PVNGS QAPD identified clarifications and exceptions to NQA-1-2008 and NQA-1-2009 Addenda or NEI 11-04A. Unless these clarifications or exceptions were not in accordance with the staff's guidance in SRP Section 17.5, no additional staff analysis is documented in this safety evaluation.

3.1 Format and Content of the QAPD

The format used for the following evaluation follows the sequence of the 18 criteria of Appendix B to 10 CFR Part 50 and the acceptance criteria of SRP Section 17.5.

3.1.1 Organization

The PVNGS QAPD organizational description provides an example of an organization with appropriate independence of working and checking organizations, and provides interrelationships of existing utility organizations. The PVNGS QAPD provides adequate guidance for an organizational structure that clearly delineates management positions responsible for establishing, maintaining, and implementing regulatory requirements from corporate through operating plant positions. The PVNGS QAPD provides guidance for describing functional responsibilities and position descriptions during the operations phase. The QAPD allows management to size the QA organization commensurate with its assigned duties and responsibilities.

In establishing its QAP, PVNGS commits to implementing the quality standards for control of its QA organization as described in NQA-1-2008, Requirement 1. The licensee's QAPD has a reliable means of adequately implementing PVNGS's control of its QA organization. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the control of the QA organization meets the acceptance criteria of SRP Section 17.5, Paragraph II.A, and, therefore, satisfies the requirements of Criterion I of Appendix B to 10 CFR Part 50.

3.1.2 Quality Assurance Program

The PVNGS QAPD establishes the necessary measures to implement a QAP for the operations phase of nuclear power plants in accordance with governing regulations and license requirements. The QAP comprises those planned and systematic actions necessary to provide confidence that SSCs will perform their intended safety function, including certain nonsafety-related SSCs and activities that are significant contributors to plant safety. A listing identifying SSCs and activities within the scope of the QAP is maintained by the licensee.

The PVNGS QAPD establishes the necessary measures to assess the adequacy of the QAPD and to ensure its effective implementation at least once each year or at least once during the life of a quality related activity, whichever is shorter. The period for assessing the QAPD during the operations phase may be extended to once every 2 years. The PVNGS QAPD describes the necessary measures to establish and maintain formal indoctrination and training programs for personnel performing, verifying, or maintaining activities within the scope of the QAPD to ensure task-related proficiency is maintained.

The NRC staff requested clarification on how PVNGS's lead auditor participates in at least one nuclear oversight audit within the year preceding the individual's effective date of qualification. PVNGS responded that intent of the sentence is that the prospective lead auditor participates in at least one nuclear assurance audit. The omission of "nuclear assurance" prior to the word "audit" has been included in the change to the PVNGS QAPD. The NRC staff reviewed PVNGS response and concluded that the guidance to be implemented satisfies Appendix B to 10 CFR Part 50.

In establishing its QAP, PVNGS commits to NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 2, and compliance with Appendix B to 10 CFR Part 50, Criterion II. The proposed alternative for Requirement 2, Section 303.3 of NQA-1, regarding lead auditor qualification was based on a previously approved NRC safety evaluation report dated March 27, 1998, for the San Onofre Nuclear Generating Station (ADAMS Legacy Accession No. 9803310346).

Therefore, the proposed alternative is acceptable in accordance with 10 CFR 50.54(a)(3)(iv). The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the QAP controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.B, and, therefore, satisfies the requirements of Criterion II of Appendix B to 10 CFR Part 50.

3.1.3 Design Control

The PVNGS QAPD establishes the necessary measures to control design, design changes, and temporary modifications (e.g., temporary bypass lines, electrical jumpers and lifted wires, and temporary setpoints) of items within the scope of the QAPD. The PVNGS QAPD includes measures to control design inputs, outputs, changes, interfaces, records, and organizational interfaces among the applicant and its suppliers. The PVNGS QAPD has established provisions to ensure that the 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). In addition, the PVNGS QAPD provides for individuals knowledgeable in QA principles to review design documents to ensure that they contain the necessary QA requirements.

In establishing its QAP, PVNGS commits to implementing the design controls described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 3, Subpart 2.7, for computer software, and Subpart 2.14 for dedication of commercial grade items and services. The licensee's QAPD has a reliable means of adequately implementing PVNGS's design controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the design controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.C, and, therefore, satisfies the requirements of Criterion III of Appendix B to 10 CFR Part 50.

3.1.4 Procurement Document Control

The PVNGS QAPD establishes the necessary administrative controls and processes to ensure that procurement documents include or reference applicable regulatory, technical, and QAP requirements (such as specifications, codes, standards, tests, inspections, special processes, and the regulation at 10 CFR Part 21, "Reporting of Defects and Noncompliance") are invoked for procurement of items and services.

In establishing its QAP, PVNGS commits to implementing the quality standards for procurement document control as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 4. The licensee's QAPD has a reliable means of adequately implementing PVNGS's procurement document controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the procurement document controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.D, Paragraphs II.U.1.c and II.U.1.d, and, therefore, satisfies the requirements of Criterion IV of Appendix B to 10 CFR Part 50.

3.1.5 Instructions, Procedures, and Drawings

The PVNGS 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 where applicable and include quantitative or qualitative acceptance criteria to implement the QAP as described in the QAPD. Provisions are included for reviewing, updating, and canceling such procedures.

In establishing its QAP, PVNGS commits to implementing the quality standards for instructions, procedures and drawing controls as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 5. The licensee's QAPD has a reliable means of adequately implementing PVNGS's instructions, procedures and drawing controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the instructions, procedures and drawing controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.E, and, therefore, satisfies the requirements of Criterion V of Appendix B to 10 CFR Part 50.

3.1.6 Document Control

The PVNGS QAPD establishes the necessary measures and governing procedures to control the preparation, review, approval, issuance, and changes of documents that specify quality requirements or prescribe measures for controlling activities affecting quality, including organizational interfaces. The PVNGS QAPD provides measures to ensure that the same organization that performed the original review/approval also reviews and approves revisions or changes to documents. A listing of all controlled documents identifying the current approved revision or date is maintained so that personnel can readily determine and access current and applicable documents for specific applications. Temporary changes to procedures that do not alter the intent of the procedure are implemented, provided that two members of the operations staff knowledgeable in the areas affected by the procedure approve the changes. These changes include a specific period of time during which the revised procedure may be used.

In establishing its QAP, PVNGS commits to implementing the quality standards for document controls as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 6. The licensee's QAPD has a reliable means of adequately implementing PVNGS's document controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the document controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.F, and, therefore, satisfies the requirements of Criterion VI of Appendix B to 10 CFR Part 50.

3.1.7 Control of Purchased Material, Equipment, and Services

The PVNGS QAPD establishes 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. The PVNGS QAPD 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's or service's importance to safety, complexity, quantity, and the frequency of procurement. The PVNGS QAPD verification actions include testing, as appropriate, during design, fabrication, and operation activities. Verifications occur at the appropriate phases of the procurement process, including, as necessary, verification of activities of suppliers.

The NRC staff requested additional information on use of commercial grade dedication guidance in PVNGS's QAPD. On August 28, 2014, NEI submitted Revision 1 of NEI 14-05, "Guidelines for the Use of Accreditation in Lieu of Commercial Grade Surveys for Procurement of Laboratory Calibration and Test Services," to the NRC staff for review and

endorsement. The NRC staff reviewed and endorsed NEI 14-05 on February 9, 2015, in a safety evaluation report (SER) (ADAMS Accession No ML14322A535). The NRC staff requested clarification if PVNGS intends to use the guidance in NEI 11-04A, or the recently approved guidance provided in the NRC's SER for NEI 14-05, dated February 9, 2015. PVNGS commits to the guidance for NEI 11-04A. The NRC staff reviewed PVNGS's response and concluded that the guidance to be implemented satisfies Appendix B to 10 CFR Part 50.

In establishing its QAP, PVNGS commits to implementing the quality standards for the control of purchased material, equipment, and services as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 7. The licensee's QAPD has a reliable means of adequately implementing PVNGS's control of purchased material, equipment, and services. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the control of purchased material, equipment, and services meets the acceptance criteria of SRP Section 17.5, Paragraph II.G, and, therefore, satisfies the requirements of Criterion VII of Appendix B to 10 CFR Part 50.

3.1.8 Identification and Control of Materials, Parts, and Components

The PVNGS QAPD establishes the necessary measures for identification and control of items such as materials, including consumables, and items with limited shelf life, parts, components, and partially fabricated subassemblies. Identification of items is maintained throughout fabrication, erection, installation and use so that the item is traceable to its documentation.

In establishing its QAP, PVNGS commits to implementing the quality standards for the identification and control of materials, parts, and components as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 8. The licensee's QAPD has a reliable means of adequately implementing PVNGS's identification and control of materials, parts, and components. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the identification and control of materials, parts and components meet the acceptance criteria of SRP Section 17.5, Paragraph II.H, and, therefore, satisfies the requirements of Criterion VIII of Appendix B to 10 CFR Part 50.

3.1.9 Control of Special Processes

The PVNGS QAPD establishes and implements programs, procedures, and processes to ensure that special processes requiring interim process controls to ensure quality, such as welding, heat treating, chemical cleaning, and nondestructive examinations, are controlled in accordance with applicable codes, specifications, and standards for the specific application.

In establishing its QAP, PVNGS commits to implementing the quality standards for control of special processes as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 9. The licensee's QAPD has a reliable means of adequately implementing PVNGS's control of special processes. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the control of special processes meets the acceptance criteria of SRP Section 17.5, Paragraph II.I, and, therefore, satisfies the requirements of Criterion IX of Appendix B to 10 CFR Part 50.

3.1.10 Inspection

The PVNGS QAPD establishes the necessary measures to implement inspections that ensure items, services, and activities affecting safety meet established requirements and conform to documented specifications, instructions, procedures, and design documents. The inspection program establishes requirements for planning inspections, determining applicable acceptance criteria, setting the frequency of inspection, and identifying special tools needed to perform the inspection. Qualified personnel perform the inspections and are independent of those who performed or directly supervised the work.

In establishing its QAP, PVNGS commits to implementing the quality standards for inspection controls as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 10. The licensee's QAPD has a reliable means of adequately implementing PVNGS's inspection controls. PVNGS will remain committed to RG 1.94, "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants," Revision 1, in lieu of Subpart 2.5, "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete, Structural Steel, Soils, and Foundations for Nuclear Power Plants," of NQA-1-2008 to maintain its licensing basis. The NRC staff has reviewed the QA measures, clarifications, and exceptions to be implemented by PVNGS and concludes that the inspection controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.J, and, therefore, satisfies the requirements of Criterion X of Appendix B to 10 CFR Part 50.

3.1.11 Test Control

The PVNGS QAPD establishes the necessary measures and governing provisions to demonstrate that items within the scope of the QAPD will perform satisfactorily in service, that the plant can be operated safely as designed, and that the operation of the plant is satisfactory. The PVNGS QAPD establishes 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.

In establishing its QAP, PVNGS commits to implementing the quality standards for test controls as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 11, Requirement 3, and Subpart 2.7. The licensee's QAPD has a reliable means of adequately implementing PVNGS's test controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the test controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.K, and, therefore, satisfies the requirements of Criterion XI of Appendix B to 10 CFR Part 50.

3.1.12 Control of Measuring and Test Equipment

In establishing its QAP, PVNGS establishes the necessary measures to control the calibration, maintenance, and use of measuring and test equipment that provides information important to safe plant operation.

In establishing its QAP, PVNGS commits to implementing the quality standards for control of measuring and test equipment as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 12. The licensee's QAPD has a reliable means of adequately implementing PVNGS's control of measuring and test equipment. The NRC staff has reviewed the QA

measures to be implemented by PVNGS and concludes that the control of measuring and test equipment meets the acceptance criteria of SRP Section 17.5, Paragraph II.L, and, therefore, satisfies the requirements of Criterion XII of Appendix B to 10 CFR Part 50.

3.1.13 Handling, Storage, and Shipping

The PVNGS QAPD establishes the necessary measures and governing procedures to control the handling, storage, packaging, shipping, cleaning, and preservation of items to prevent inadvertent damage or loss, and to minimize deterioration. These provisions include specific procedures, when required to maintain acceptable quality of the items important to the safe operation of the plant. Items are appropriately marked and labeled during packaging, shipping, handling, and storage to identify, maintain, and preserve the item's integrity and indicate the need for special controls.

In establishing its QAP, PVNGS commits to implementing the quality standards for handling, storage, and shipping controls as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 13. PVNGS also commits to Part II, Subpart 2.1, for cleaning of fluid systems and associated components; Subpart 2.2, for packing, shipping, receiving, storage and handling of items; Subpart 2.3, for housekeeping requirements; Part III, Subpart 3.2, for decommissioning guidelines; and Appendix 2.1, for additional guidance on cleaning of fluid systems and associated components. The licensee's QAPD has a reliable means of adequately implementing PVNGS's handling, storage, and shipping controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the handling, storage, and shipping controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.M, and, therefore, satisfies the requirements of Criterion XIII of Appendix B to 10 CFR Part 50.

3.1.14 Inspection, Test, and Operating Status

The PVNGS QAPD establishes the necessary measures to identify the inspection, test, and operating status of items and components within the scope of the QAPD to maintain personnel and reactor safety and avert inadvertent operation of equipment.

In establishing its QAP, PVNGS commits to implementing the quality controls for inspection, test, and operating status as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 14. The licensee's QAPD has a reliable means of adequately implementing PVNGS's controls for inspection, test, and operating status. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the controls for inspection, test, and operating status meet the acceptance criteria of SRP Section 17.5, Paragraph II.N, and, therefore, satisfies the requirements of Criterion XIV of Appendix B to 10 CFR Part 50.

3.1.15 Nonconforming Materials, Parts, or Components

The PVNGS QAPD establishes necessary measures to control items and services that do not conform to specified requirements to prevent inadvertent installation or use. Nonconformances are evaluated for their impact on operability of quality SSCs to ensure that the final condition does not adversely affect safety, operation or maintenance of the item or service. The PVNGS QAPD provides for establishing the necessary interfaces between the QA program for identification and control of nonconforming material, parts, and components that satisfy the applicable requirements of 10 CFR Part 21.

In establishing its QAP, PVNGS commits to implementing the quality controls for nonconforming materials, parts, or components as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 15. The licensee's QAPD has a reliable means of adequately implementing PVNGS's nonconforming materials, parts, or components controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the nonconforming materials, parts, or components controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.O, and, therefore, satisfies the requirements of Criterion XV of Appendix B to 10 CFR Part 50.

3.1.16 Corrective Action

The PVNGS QAPD establishes the necessary measures to promptly identify, control, document, classify, and correct conditions adverse to quality. The PVNGS QAPD requires personnel to identify known conditions adverse to quality. Reports of conditions adverse to quality are analyzed to identify trends. Significant conditions adverse to quality are documented and reported to responsible management. In the case of suppliers working on safety-related activities or similar situations, PVNGS may delegate specific responsibility for the corrective action program, but maintains responsibility for the program's effectiveness. In addition, the PVNGS QAPD provides for establishing the necessary interfaces between the QA corrective action program to identify, evaluate, and report defects and noncompliances to satisfy the applicable requirements 10 CFR Part 21.

In establishing its QAP, PVNGS commits to implementing the quality standards for corrective action controls as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 16. The licensee's QAPD has a reliable means of adequately implementing PVNGS's corrective action controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the corrective action controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.P, and, therefore, satisfies the requirements of Criterion XVI of Appendix B to 10 CFR Part 50.

3.1.17 Quality Assurance Records

The PVNGS QAPD establishes the necessary measures to ensure that sufficient records of items and activities affecting quality are generated, identified, retained, maintained, and retrievable. The PVNGS QAPD measures ensure sufficient records of completed items and activities affecting quality are appropriately stored. Records of activities and their retention times are defined in appropriate procedures for design, engineering, procurement, manufacturing, construction, inspection and testing, installation, preoperation, startup, operations, maintenance, modification, decommissioning, and audits.

In establishing its QAP, PVNGS commits to implementing the quality standards for control of quality assurance records as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 17. The licensee's QAPD has a reliable means of adequately implementing PVNGS's control of QA records. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the QA records controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.Q, and, therefore, satisfies the requirements of Criterion XVII of Appendix B to 10 CFR Part 50.

3.1.18 Audits

The PVNGS QAPD establishes the necessary measures to implement audits to verify that activities covered by the QAPD are performed in conformance with the established requirements. The effectiveness of the audit program is reviewed as part of the overall audit process. The QAPD provides for PVNGS to conduct periodic internal and external audits. Internal audits are conducted to determine the adequacy of the program and its procedures and to determine if they are meaningful and comply with the QAPD requirements. Internal audits are performed with a frequency commensurate with safety significance and in such a manner as to ensure that an audit of all applicable QAP elements is completed for each functional area within a period of 2 years. External audits determine the adequacy of a supplier's or contractor's QAP. Responsible management reviews audit results; these reviews are documented. Management responds to all audit findings and initiates corrective action where indicated. Where corrective actions are indicated, documented follow-up of applicable areas through inspections, review, re-audits, or other appropriate means is conducted to verify that corrective actions have been effective.

In establishing its QAP, PVNGS commits to implementing the quality standards for audit controls as described in NQA-1-2008 and NQA-1a-2009 Addenda, Requirement 18. The licensee's QAPD has a reliable means of adequately implementing PVNGS's audit controls. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the audit controls meet acceptance criteria of SRP Section 17.5, Paragraph II.R, and, therefore, satisfies the requirements of Criterion XVIII of Appendix B to 10 CFR Part 50.

3.2 Nonsafety-Related SSC Quality Control

3.2.1 Nonsafety-Related SSCS – Significant Contributors to Plant Safety

Specific program controls are applied to nonsafety-related SSCs, for which Appendix B to 10 CFR Part 50 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 program controls clarify the applicability of the QAP to the nonsafety-related SSCs and related activities described in QAPD Sections 2.1 through 2.18 that are taken for nonsafety-related SSCs.

3.2.1.1 Organization

The verification activities described in this part may be performed by the PVNGS line organization. The QA organization described in QAPD Section 2.1.3 is not required to perform these functions.

3.2.1.2 QA Program

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

3.2.1.3 Design Control

PVNGS has 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.

3.2.1.4 Procurement Document Control

Procurement documents for items and services obtained by or for PVNGS 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.

3.2.1.5 Instructions, Procedures, and Drawings

PVNGS provides documents such as, but not limited to, written instructions, plant procedures, drawings, vendor 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.

3.2.1.6 Document Control

PVNGS 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.

3.2.1.7 Control of Purchased Items and Services

PVNGS 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.

3.2.1.8 Identification and Control of Purchased Items

PVNGS employs measures where necessary, to identify purchased items and preserve their functional performance capability. Storage controls take into account appropriate environmental, maintenance or shelf life restrictions for the items.

3.2.1.9 Control of Special Processes

PVNGS employs process and procedure controls for special processes, including welding, heat treating, and nondestructive testing. These controls are based on applicable codes, standards, specifications, criteria or other special requirements for the special process.

3.2.1.10 Inspection

PVNGS 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, but did not perform the work.

3.2.1.11 Test Control

PVNGS employs measures to identify required testing that demonstrates 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.

3.2.1.12 Control of Measuring and Test Equipment

PVNGS employs measures to control measuring and test equipment use, and calibration and adjustment at specific intervals or prior to use.

3.2.1.13 Handling, Storage, and Shipping

PVNGS employs measures to control the handling, storage, cleaning, packaging, shipping, and preservation of items to prevent damage or loss and to minimize deterioration. These measures include appropriate marking or labels, and identification of any special storage or handling requirements.

3.2.1.14 Inspection, Test, and Operating Status

PVNGS employs measures to identify items that have satisfactorily passed required tests and inspections and to indicate the status of inspection, test, and operability, as appropriate.

3.2.1.15 Control of Nonconforming Items

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

3.2.1.16 Corrective Action

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

3.2.1.17 Records

PVNGS 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.

3.2.1.18 Audits

PVNGS 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 the applicable quality requirements (design and procurement documents, instructions, procedures, drawings, and inspection, and test activities). Where the measures of QAPD Section 3.0 are implemented by the same programs, processes, or procedures as the comparable activities of QAPD Section 2.0, the audits performed under the provisions of QAPD Section 18.0 may be used to satisfy the review requirements.

In establishing its QAP, PVNGS commits to implementing the specific program controls applied to nonsafety-related SSCs that are significant contributors to plant safety. The licensee's QAPD has a reliable means of adequately implementing PVNGS's program controls applied to nonsafety-related SSCs that are significant contributors to plant safety. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the audit controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.U.1.

3.3 Nonsafety-Related SSCs Credited For Regulatory Events

The following criteria apply to fire protection (10 CFR 50.48), anticipated transients without scram (ATWS) (10 CFR 50.62), and the station blackout (SBO) (10 CFR 50.63) SSCs that are not safety-related:

- PVNGS implements quality requirements for the fire protection system in accordance with Section C to Appendix A of Branch Technical Position 9.5-1. Implementation is described in UFSAR 9B.3.1.
- PVNGS implements the quality requirements for ATWS equipment in accordance with QAPD Section 3.1.
- PVNGS implements quality requirements for SBO equipment in accordance with QAPD Section 3.1.

In establishing its QAP, PVNGS commits to implementing the specific program controls applied to nonsafety-related SSCs that are significant contributors to plant safety. The QAPD has a reliable means of adequately implementing PVNGS's program controls applied to nonsafety-related SSCs to plant safety. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the controls meet the acceptance criteria of SRP Section 17.5, Paragraph II.U.2.

4.0 REGULATORY COMMITMENTS

NRC Regulatory Guides and Quality Assurance Standards

This section identifies the NRC RGs and the other QA standards which have been selected to supplement and support the PVNGS QAPD. PVNGS 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.

RG 1.8, Revision 1-R, September 1975, "Personnel Selection and Training."

RG 1.8, Revision 1-R, was issued for comment in September of 1975. This same RG was reissued in May of 1977 without any changes except the words "For Comment" were deleted. For the purposes of conformance to this guide, the 1975 and 1977 versions are considered identical.

The NRC staff requested additional information on PVNGS's use of the bachelor's degree equivalency requirements. PVNGS provided a table demonstrating the bachelor's degree equivalency as provided in American Nuclear Standards Institute/American Nuclear Society (ANSI/ANS) 3.1-1993. The bachelor's degree equivalency in the QAPD is applicable only to the Site Radiation Protection Director, and is comparable to the staff's guidance in SRP Section 17.5. The NRC staff reviewed PVNGS's response and concluded that the guidance to be implemented satisfies Appendix B to 10 CFR Part 50.

PVNGS relocated its current commitment to RG 1.8, Revision 1-R, from its UFSAR, Revision 17, to the PVNGS QAPD. PVNGS will maintain its existing commitment to RG 1.8, Revision 1-R, in lieu of the option of updating to RG 1.8, Revision 3, in the NEI 11-04A template to maintain its licensing basis. The NRC staff has reviewed the relocation of the RG commitment from the UFSAR to the QAPD to be implemented by PVNGS and concludes that the controls to be implemented are acceptable in meeting Appendix B to 10 CFR Part 50.

RG 1.26, Revision 1, September 1974, "Quality Group Classifications and Standards for Water, Steam and Radioactive-Waste-Containing Components of Nuclear Power Plants."

The NRC staff requested an RAI regarding a commitment to RG 1.28 under the RG 1.26 section. PVNGS responded that this was a typographical error, and was corrected. The NRC staff found the change acceptable.

PVNGS relocated its current commitment to RG 1.26, Revision 1, from its UFSAR, Revision 17, to the PVNGS QAPD. PVNGS will maintain its existing commitment to RG 1.26, Revision 1 in lieu of the option of updating to RG 1.26, Revision 4, in the NEI 11-04A template to maintain its licensing basis. The NRC staff has reviewed the relocation of the RG commitment from the UFSAR to the QAPD to be implemented by PVNGS and concludes that the controls to be implemented are acceptable in meeting Appendix B to 10 CFR Part 50.

RG 1.28, Revision 4, June 2010, "Quality Assurance Program Criteria (Design and Construction)."

RG 1.28 describes a method acceptable to the NRC staff for complying with the provisions of Appendix B to 10 CFR Part 50, with regard to establishing and implementing the requisite QAP for the design and construction phase of nuclear power plants. RG 1.28, Revision 4,

conditionally endorses NQA-1-2008 and NQA-1a-2009 Addenda as a basis for the quality assurance program meeting the requirements of Appendix B to 10 CFR Part 50.

- **Nuclear Information and Records Management Association, Inc. (NIRMA) Technical Guides** - RG 1.28, Revision 4, Regulatory Position C.1.(b), provides guidance on managing records in electronic media and refers to Regulatory Information Summary (RIS) 2000-18, "Guidance on Managing Quality Assurance Records in Electronic Media," dated October 23, 2000. RIS 2000-18 refers to NIRMA Technical Guides as an acceptable method for maintaining records in electronic media.

PVNGS proposes using the NIRMA 2011 guidelines in lieu of the NEI 11-04A's NIRMA 2008 guidelines. This QA alternative was approved by an NRC safety evaluation (ADAMS Accession No. ML15138A347). Conformance with the NIRMA Technical Guides is as described in the pertinent sections of the PVNGS Operations Quality Assurance Program Description. Therefore, the NRC staff finds this as an acceptable alternative method of meeting Appendix B to 10 CFR Part 50, in accordance with 10 CFR 50.54(a)(3)(ii).

RG 1.29, Revision 3, September 1978, "Seismic Design Classification."

PVNGS relocated its current commitment to RG 1.29, Revision 3, from its UFSAR, Revision 17, to the PVNGS QAPD. PVNGS will maintain its existing commitment to RG 1.29, Revision 3 in lieu of the option of updating to RG 1.29, Revision 4, in the NEI 11-04A template to maintain its licensing basis. The NRC staff has reviewed the relocation of the RG commitment from the UFSAR to the QAPD to be implemented by PVNGS and concludes that the controls are acceptable in meeting Appendix B to 10 CFR Part 50.

RG 1.33, Revision 2, February 1978, "Quality Assurance Program Requirements (Operation)."

RG 1.33 describes a method acceptable to the NRC staff for complying with the Commission's regulations with regard to overall QAP requirements for the operations phase of nuclear power plants. RG 1.33, Revision 2, conditionally endorses ANSI N18.7-1976 as providing acceptable methods for satisfying NRC regulations for operations phase quality assurance.

In lieu of adopting ANSI N18.7-1976, PVNGS adopts the guidance of NEI 11-04A in conjunction with a commitment to RG 1.28, Revision 4, which conditionally endorses NQA-1-2008 and NQA-1a-2009 Addenda. Adopting a QAP consistent with the guidance of NEI 11-04A has been determined by NRC SER dated May 9, 2013 (ADAMS Accession No. ML13023A051), to be an acceptable alternative to adopting the guidance of ANSI N18.7-1976.

PVNGS's proposed QAPD satisfies Appendix B to 10 CFR Part 50 requirements during the operations phase by demonstrating that its QAPD has incorporated all of the administrative controls not included in NQA-1-2008 and NQA-1a-2009 Addenda by addressing the provisions in NEI 11-04A, Appendix 1, and also implementing Part V of the NEI 11-04A QAPD template. The NRC staff has reviewed the applicable sections of PVNGS's QAPD for its alternative to RG 1.33, and concludes that the implementation of PVNGS's QAPD meets Appendix B to 10 CFR Part 50.

RG 1.37, Revision 1, March 2007, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants."

In lieu of adopting RG 1.37, Revision 1, PVNGS adopts RG 1.28, Revision 4, and the guidance of NQA-1-2008 and NQA-1a-2009 Addenda, as modified by NEI 11-04A. Conformance to NQA-1-2008 and NQA-1a-2009 Addenda, is as described in the pertinent sections of the PVNGS Operations Quality Assurance Program Description.

RG 1.37 has been withdrawn because its guidance and regulatory positions have been incorporated into the NQA-1a-2009 Addenda, which PVNGS is committed to through RG 1.28, Revision 4. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that it meets Appendix B to 10 CFR Part 50.

RG 1.54, Revision 0, June 1973, "Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants."

PVNGS relocated its current commitment to RG 1.54, Revision 0, from its UFSAR, Revision 17, to the PVNGS QAPD. PVNGS will maintain its existing commitment to RG 1.54, Revision 0, in lieu of the option of updating to RG 1.54, Revision 2 in the NEI 11-04A template to maintain its licensing basis. The NRC staff has reviewed the relocation of the RG commitment from the UFSAR to the QAPD to be implemented by PVNGS and concludes that the controls are acceptable in meeting Appendix B to 10 CFR Part 50.

RG 1.94, Revision 1, April 1976, "Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants."

For operations phase activities that are comparable to activities during the construction phase, PVNGS will maintain its existing commitment to RG 1.94, Revision 1.

The NRC staff has reviewed the relocation of the RG commitment from the UFSAR to the QAPD to be implemented by PVNGS and concludes that the controls are acceptable in meeting Appendix B to 10 CFR Part 50.

5.0 PLANT MAINTENANCE

PVNGS establishes controls for the maintenance or modification of items and equipment subject to this QAPD to ensure quality at least equivalent to that specified in original design bases requirements, such that safety-related SSCs are maintained in a manner that assures their ability to perform their intended safety function(s). Maintenance activities (both corrective and preventive) are scheduled and planned so as not to unnecessarily compromise the safety of the plant. In establishing controls for plant maintenance, PVNGS commits to compliance with NQA-1-2008 and NQA-1a-2009, Subpart 2.18, with the following clarifications and exceptions:

The NRC staff requested an RAI for PVNGS to provide clarification on what PVNGS's intentions are for the changes proposed in Section 5.5, "Plant Maintenance." PVNGS responded that the intention was to remain committed to RG 1.94 in lieu of adopting NQA-1-2008 Part II, Subpart 2.18, Section 207, and its reference to Subpart 2.5, for inspections. PVNGS intends to change the page of the QAPD and add a bullet to clearly describe the deviation and the continued commitment to RG 1.94 for inspection activities.

In establishing its QAP, PVNGS commits to NQA-1-2008 and NQA-1a-2009 Addenda, Subpart 2.18. PVNGS's proposed alternative for Section 207 refers to Subpart 2.5 for inspection. In lieu of using Subpart 2.5, PVNGS will apply the commitment to NRC RG 1.94, Revision 1, identified in Section 4.0 of the PVNGS QAPD for inspection activities. The NRC staff has reviewed the QA measures to be implemented by PVNGS and concludes that the QAP controls meet the acceptance criteria of Appendix B to 10 CFR Part 50. The NRC staff reviewed PVNGS response and concluded that the guidance to be implemented satisfies Appendix B to 10 CFR Part 50.

6.0 CONCLUSION

Based on the NRC's evaluation of PVNGS's submittal and the referenced correspondence, the NRC staff concludes that the QAP described in the PVNGS QAPD satisfies the Commission's requirements for QA programs as established by Appendix B to 10 CFR Part 50. The program description adequately describes how the requirements of Appendix B will be implemented. Therefore, the staff concludes that the proposed PVNGS QAPD is therefore acceptable.

Principal Contributor: A. Armstrong, NRO

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R. Edington

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The NRC staff has completed the review of the proposed changes to the QAPD and concludes that the proposed changes to the QAPD, meet the criteria of Appendix B to 10 CFR Part 50 and, therefore, are acceptable.

If you have any questions, please contact Siva P. Lingam at 301-415-1564 or via e-mail at Siva.Lingam@nrc.gov.

Sincerely,

/RA/

Siva P. Lingam, Project Manager
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Office of Nuclear Reactor Regulation

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