ENCLOSURE B

OPERATIONS QUALITY ASSURANCE PLAN

REVISION 1

OPERATIONS QUALITY ASSURANCE PLAN

PALO VERDE

NUCLEAR GENERATING STATION

DECEMBER 1991

Revision 1

INTRODUCTION

Arizona Public Service Company (APS) is responsible for the operation and maintenance of the Palo Verde Nuclear Generating Station (PVNGS). The Quality Assurance Plan (the Plan) contained herein describes the formal and comprehensive plan which has been established to assure compliance with Title 10 of the Code of Federal Regulations (CFR) and commitments associated with those NRC Regulatory Guides cited in Appendix B to this Plan during the operation of PVNGS. This Plan serves as the PVNGS Updated Final Safety Analysis Report (UFSAR) Section 17.2 and supersedes all previous Quality Assurance Plans and manuals.

This Quality Assurance Plan describes how the Quality Assurance Program is to be implemented with due regard to the health and safety of the public and the personnel onsite.

Section 1 describes the organizations responsible for implementation of the Quality Assurance Program.

Section 2 provides an overview of the Quality Assurance Program.

Section 3 describes the Control of Station Activities. This section addresses quality related activities which are within the scope of the Quality Assurance Program.

Section 4 describes the Control of Quality Verifications and Self-Assessments.

Section 5 addresses the identification and disposition of conditions adverse to quality associated with all aspects of the QA Program. In addition, this section contains the controls provided for evaluating all conditions adverse to quality and determining what corrective actions should be taken to preclude their recurrence.

Section 6 describes the control of documents and records. Activities and items within the scope of the QA Plan will require documents which control activities and records which will serve as a historical reference.

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QUALITY ASSURANCE PROGRAM POLICY STATEMENT

One of the fundamental aspects of any Quality Assurance (QA) Program is that the individuals performing the work determine the level of quality that is achieved. Though plans, procedures, and instructions are a basic part of any quality program, it should be recognized that people make quality happen. Each individual, when properly trained and motivated, must achieve the highest quality of performance of which he or she is capable.

It is the policy of Arizona Public Service (APS) to maintain and operate PVNGS in such a manner as to ensure the health and safety of the public and the personnel onsite. One way to accomplish this critical objective is to have an aggressive and comprehensive quality assurance program in place for those activities which can impact nuclear safety and quality.

The Executive Vice President, Nuclear, has directed the establishment of a formal and comprehensive quality assurance program at PVNGS. This program places accountability for quality on all personnel at PVNGS. In addition, it emphasizes the creation of an atmosphere in the workplace where reporting and resolution of conditions adverse to quality is encouraged and expected at all levels.

The PVNGS Quality Assurance Program includes this QA Plan and the associated procedures and instructions which implement the Plan requirements. The QA Plan identifies those Quality Assurance Regulatory Guides, Standards, and Codes that shall be implemented to satisfy the requirements of 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Facilities."

Quality assurance objectives shall not be subordinate to cost or schedule objectives. To ensure compliance with the QA Plan requirements, independent verifications and assessments shall be conducted to provide management a measure of the program's effectiveness and adequacy in meeting the requirements of the QA Plan and its implementing procedures and instructions.

Conflicts involving implementation of the requirements of the Quality Assurance Program shall be resolved by the Director, Quality Assurance, or, if deemed necessary, the Executive Vice President, Nuclear. In those instances when APS has delegated responsibility for implementation of parts of the Quality Assurance Program to contractors, APS retains responsibility for adequacy of the overall program.

S. C. Guthrie
Director, Quality Assurance

W. F. Conway
Executive Vice President, Nuclear

1.0 ORGANIZATION

The general structure of the organizational elements responsible for the engineering, design, procurement, construction, repair, modification, maintenance, refueling, inservice inspection and operation of PVNGS is illustrated in Appendix A. The PVNGS Updated Final Safety Analysis Report (UFSAR) Chapter 13, Organizational Structure, sets forth specific responsibilities of the various organizations. The implementing procedures identify interface requirements and are presented in more depth than are necessarily described herein.

1.1 President and Chief Executive Officer

The President and Chief Executive Officer of APS has the overall responsibility for the engineering, design, procurement, construction, repair, modification, maintenance, refueling, inservice inspection and operation of PVNGS. Execution of these responsibilities including the responsibility for developing and ensuring the implementation of the Quality Assurance Program, is delegated to the Executive Vice President, Nuclear.

1.2 Executive Vice President, Nuclear

The Executive Vice President, Nuclear, reports to the President and Chief Executive Officer. The Executive Vice President, Nuclear, is responsible for the engineering, design, procurement, construction, repair, modification, maintenance, refueling, inservice inspection and operation of PVNGS, and ensures that appropriate policies are provided for these activities. As such, he has the authority to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material. The Executive Vice President, Nuclear, reviews the status and adequacy of the QA Program by reviewing reports prepared by the Director, Quality Assurance, at least annually. Responsibility for the operation of PVNGS, engineering and design support, construction of major modifications, records management during the operations phase, and proper implementation of the QA Program for these activities is delegated to the direct reports of the Executive Vice President, Nuclear. The responsibility to establish, maintain, and verify proper implementation of the Quality Assurance Program is delegated to the Director, Quality Assurance. The Executive Vice President, Nuclear, shall retain the responsibility for assuring that the authority and independence of the Director, Quality Assurance, are such that he can effectively assure the conformance to quality requirements and is independent of undue influences and responsibilities for schedules and costs.

1.3 Vice President, Nuclear Production

The Vice President, Nuclear Production, reports to the Executive Vice President, Nuclear and is responsible to ensure that PVNGS is operated and maintained in a safe, reliable, and efficient manner in accordance with corporate policies and all applicable laws, regulations, licenses, and technical requirements.

The Vice President, Nuclear Production is responsible for the following major functions:

a. Operating and maintaining PVNGS.

b. Planning and scheduling unit activities.

c. Providing functional support required for operation and maintenance, such as plant wide chemical, radiological services, waste disposal, maintenance planning, etc.

d. Assuring standardization of procedures and practices among the units.

e. Implementing the on-site security program.

f. Implementing programs in the area of fire protection.

g. Implementing programs in the area of emergency preparedness.

h. Material control.

i. Providing formal training.

j. Initiating unit shutdown when warranted..

k. Providing cost estimates, cost control, scheduling, and monitoring for engineering and construction projects.

It is the responsibility of the Vice President, Nuclear Production, to create an atmosphere in the workplace where reporting and resolution of conditions adverse to quality is encouraged at all levels.

The Vice President, Nuclear Production, has the responsibility to stop activities within his area of responsibility which are not accomplished in compliance with applicable license and/or regulatory requirements.

The Vice President, Nuclear Production, gives full support to the Quality Assurance Program described herein, thereby assuring that all work performed under his cognizance will conform to and support the requirements of the Plan.

This position is charged with the responsibility and authority to ensure that quality related activities are completed with the highest standards of safety, and has the authority to allocate resources in this area to achieve this objective. To execute these responsibilities, the Vice President, Nuclear Production, is supported by the following staff:

Unit Plant Managers
Director, Palo Verde Services
Director, Site Maintenance and Modification
General Manager, Site Radiation Protection
General Manager, Site Chemistry
General Manager, Nuclear Training
General Manager, Plant Support

1.4 Vice President, Nuclear Safety and Licensing

The Vice President, Nuclear Safety and Licensing, reports to the Executive Vice President, Nuclear, and is responsible for direct management of the safety and licensing activities that support the safe, reliable and efficient operation of PVNGS.

The Vice President, Nuclear Safety and Licensing, is responsible for the following major functions:

a. The self assessment activities of the off-site Nuclear Safety Department.

b. The self assessment activities of the on-site Independent Safety Engineering Department.

c. Maintaining the licensing basis and identifying new NRC requirements and PVNGS commitments. Tracking compliance with these requirements and commitments.

d. Disseminating technical and performance data from PVNGS.

e. The on-site Environmental Licensing activities.

f. Providing principal interface with the NRC and INPO.

g. The Off-Site Safety Review Committee.

h. Conducting PVNGS functional area program assessments.

i. The industry and in-house Operating Experience Programs.

j. Programs to comply with NRC reporting requirements.

k. The program of Safety Evaluations associated with changes to PVNGS.

l. Initiating unit shutdown recommendations when warranted by a safety concern.

m. Establishing lines of communication for recognition and evaluation of industry nuclear safety matters.

It is the responsibility of the Vice President, Nuclear Safety and Licensing, to create an atmosphere in the workplace where reporting and resolution of conditions adverse to quality is encouraged at all levels.

The Vice President, Nuclear Safety and Licensing, has the responsibility to stop PVNGS activities within his area of responsibility which are not accomplished in compliance with applicable license and/or regulatory requirements.

The Vice President, Nuclear Safety and Licensing, gives full support to the Quality Assurance Program described herein, thereby assuring that all work performed under his cognizance will conform to and support the requirements of the Plan.

This position is charged with the responsibility and authority to ensure that quality related activities are completed with the highest standards of safety and has the authority to allocate resources in this area to achieve this objective. To execute these responsibilities, the Vice President, Nuclear Safety and Licensing, is supported by the following staff:

Director, Nuclear Licensing and Compliance
Director, Nuclear Safety

1.5 Vice President, Engineering and Construction

The Vice President, Engineering and Construction, reports directly to the Executive Vice President, Nuclear, and is responsible to provide engineering and construction services to assure uniform technical and regulatory adequacy of all aspects of nuclear activities to provide safe, reliable, and efficient operations in accordance with corporate policies and all applicable laws, regulations, and licenses.

The Vice President, Engineering and Construction, is responsible for the following major functions:

a. Providing system, Inservice Inspection (ISI), Nondestructive Examination (NDE), component, and design engineering services.

b. Providing records management.

c. Providing technical engineering documents such as calculations, design drawings, and specification validation criteria.

d. Maintaining the engineering design bases for PVNGS.

e. Managing site related construction, modifications, and/or installation of structures, systems, and components that represent physical changes or additions to PVNGS facilities.

f. Tracking and evaluating equipment failures.

g. Providing technical and engineering support for PVNGS.

h. Providing nuclear fuel procurement and related engineering activities.

i. Developing and maintaining a Quality Classification List.

j. Developing and maintaining the equipment qualification program.

k. Providing configuration control.

It is the responsibility of the Vice President, Engineering and Construction, to create an atmosphere in the workplace where reporting and resolution of conditions adverse to quality is encouraged at all levels.

The Vice President, Engineering and Construction, has the responsibility to stop PVNGS activities within his area of responsibility which are not accomplished in compliance with applicable license and/or regulatory requirements.

The Vice President, Engineering and Construction, gives full support to the Quality Assurance Program described herein, thereby assuring that all work performed under his cognizance will conform to and support the requirements of the Plan.

This position is charged with the responsibility and authority to ensure that quality related activities are completed with the highest standards of safety and has the authority to allocate resources in this area to achieve this objective. To execute these responsibilities, the Vice President, Engineering and Construction, is supported by the following staff:

Director, Nuclear Engineering
Director, Site Nuclear Engineering & Construction
Director, Site Technical Support
General Manager, Nuclear Information Records Management
Manager, Nuclear Fuel Management

1.6 Director, Quality Assurance

The Director, Quality Assurance, has the functional authority, independence, and responsibility to assure the effective implementation of and compliance to the Quality Assurance Program. Consistent with this authority is the responsibility to document interpretations of those activities to which this Plan applies and the extent to which the Plan applies to those activities. The Director, Quality Assurance, has no unrelated duties that would preclude full attention to assigned responsibilities.

The Director, Quality Assurance, reports directly to the Executive Vice President, Nuclear, and is responsible to ensure that an appropriate Quality Assurance Program, the scope of which includes all the systems and activities that affect safety and quality, is established and implemented in accordance with the requirements of this Plan. The Director, Quality Assurance, reviews PVNGS activities with the goal of identifying areas where changes could lead to improvements in nuclear safety and/or quality. The Director, Quality Assurance, has the authority to cross organizational lines to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation.

The Director, Quality Assurance, is responsible for the following major functions:

a. Auditing, monitoring, inspecting, reviewing, and evaluating PVNGS activities.

b. Performing evaluations and self assessments on a planned and periodic basis to verify the Quality Assurance Program is being effectively implemented.

c. Assuring work is stopped on nonconforming materials or activities if:

- continued work may jeopardize nuclear safety;
- other corrective action processes are ineffective in protecting the health and safety of the public and/or plant personnel;
- continued work will require significant rework or repair to backfit corrective action; or
- an organization, department, group, section, or individual by a repetitive failure to comply with technical or administrative controls, contributes to a condition that is a significant QA program deficiency.

d. Initiating unit shutdown recommendations when warranted by a safety concern.

e. Providing for the review and acceptance of Contractor and Vendor Quality Assurance Programs.

f. Providing for the review and acceptance of procedures, instructions, and other quality related documents.

g. Providing a working interface and line of communication with other divisions, appropriate industry representatives, and regulatory groups for QA matters.

h. Establishing an indoctrination and training program for QA and QC personnel.

i. Providing input for QA indoctrination of personnel outside of the QA organization.

j. Issuing periodic reports to the Executive Vice President, Nuclear, and appropriate Senior Management on the status of quality activities.

k. Notifying the Executive Vice President, Nuclear, or appropriate Senior Management of any significant conditions adverse to quality.

l. Trending significant conditions adverse to quality.

m. Reviewing reports of significant conditions adverse to quality.

It is the responsibility of the Director, Quality Assurance, to create an atmosphere in the workplace where reporting and resolution of conditions adverse to quality is encouraged at all levels.

The Director, Quality Assurance, gives full support to the Quality Assurance Program described herein, thereby assuring that all work performed under his cognizance will conform to and support the requirements of the Plan.

This position is charged with the responsibility and authority to ensure that quality related activities are completed with the highest standards of safety and has the authority to allocate resources in this area to achieve this objective. To execute these responsibilities, the Director, Quality Assurance, is supported by the following staff:

Manager, Quality Systems
Manager, Quality Engineering
Manager, Quality Audits and Monitoring
Manager, Quality Control

Members of the QA staff routinely participate in Unit scheduling and Plant status meetings to ensure that the QA organization is apprised of activities being performed, and that adequate QA staffing is available to perform the necessary verifications consistent with their importance to safety.

1.7 All PVNGS Employees

All PVNGS employees are responsible for:

a. Achieving acceptable quality during the performance of work activities.

b. Accomplishing work activities in accordance with instructions, procedures, and drawings.

c. Stopping work activities and informing their supervisors when it appears that adherence to a procedure is not possible or may result in an unsafe condition.

d. Promptly identifying and reporting safety and quality deficiencies to their supervisors.

2.0 QUALITY ASSURANCE PROGRAM

2.1 General

The PVNGS Quality Assurance (QA) Program has been established to control the activities performed by or for PVNGS within the scope of the Quality Assurance Plan. The scope of the QA Program is defined by table 3.2-1 of the UFSAR and section 2.2 of this Plan. The Quality Assurance Plan is the highest level document which describes the Quality Assurance Program. The term "Program" as used herein includes subtier policies, program procedures, administrative control procedures, and implementing procedures and instructions. Adherence to the requirements of the Quality Assurance Program is mandatory for all PVNGS organizations and for all external organizations working under the direct control of the PVNGS Quality Assurance Program.

The Quality Assurance Plan is the primary document which establishes the policies, goals, and objectives of the Quality Assurance Program. Individuals throughout the PVNGS organization are responsible for the quality of items and/or activities within their area of accountability. The Quality Assurance Program describes the processes to measure the degree to which the quality level of an item or activity has been achieved.

The key elements of the QA program include a defined scope, a planned methodology of quality level management, a process for documenting nonconformances and corrective actions, an indoctrination and training program, and provisions for Quality and Safety Reviews. The principles which establish the QA Program will be controlled by this QA Plan which is authorized by the Executive Vice President, Nuclear, and approved by the NRC.

2.2 Quality Assurance Scope

The scope of the PVNGS Quality Assurance Plan includes, but is not limited to, items and activities related to safe nuclear plant operation, and protection of personnel and the public. To ensure consistency in identifying items and activities within the scope of this Plan, a classification process has been developed and is controlled through PVNGS Administrative Control Procedures. This process relies on the use of the terms "Quality Class Q", "quality augmented," "quality related," and "non-quality related."

2.2.1 Items

Items to which this Plan applies are designated as Quality Class Q (which includes safety related and additional items as designated by Senior Management) or quality augmented (QAG). The definitions of these terms are provided in Appendix C of this Plan. A quality classification process for items has been developed and is controlled through PVNGS Administrative Control procedures. This classification process produces a quality classification list which identifies the permanent plant structures, systems, and components that are within the scope of this Plan and their specific classifications. New items to which this Plan applies shall be added to the quality classification list.

The classification of parts, materials, and consumable items (such as chemicals, radwaste liners, diesel fuel, etc.) and the technical and quality requirements shall be specified, documented, and approved as part of the procurement process.

This Plan may be applied to items, parts, and materials other than those designated as "Quality Class Q" or "quality augmented" as specified by PVNGS Senior Management.

2.2.2 Activities

Activities to which this Plan applies are designated as "quality related." Quality related activities are performed under suitable environmental conditions using special equipment, skills, and processes as necessary. Activities within the scope of this Plan are those directly related to nuclear and radiological safety and protection of the public health and safety; they are delineated below.

a. Support activities such as, system/component/part classification; operating experience assessment; design, maintenance of environmental and fire protection qualification; core design and associated safety analysis; procurement; fabrication; handling; shipping; storage; cleaning; erecting; installing; testing; repairing; training; welding; inservice inspection; heat treatment; document control; and records management.

b. Operational activities, such as normal, abnormal, and emergency operation; chemistry control; core performance monitoring; operational advice; equipment control; surveillance testing; inservice testing; maintenance; housekeeping; fire protection; security; ALARA; radiological controls; radiological environmental monitoring; radwaste preparation for shipment; radwaste shipment; fuel handling/refueling; technical specification compliance; and emergency preparedness.

c. Assurance activities, such as audits; document reviews; inspections; monitors; nondestructive testing; and safety reviews.

d. Procedure compliance is considered within QA Plan scope regardless of quality classification.

The above activities are controlled through the use of approved documents which are, as a minimum, consistent with the requirements of this Plan, the Operating Licenses, the Updated Final Safety Analysis Report, specific Regulatory Guides (to the extent referenced in Appendix B of this Plan), and other regulatory commitments.

A specific task or tasks associated with the above activities shall be classified as either within the scope of this Plan or not depending upon:

- statements within the text and the Regulatory Guides identified in Appendix B of this Plan;

- the relationship of the task(s) to the safe operation of the facility;

- the relationship of the task(s) to the protection of personnel from the effects of radiation;
- the relationship of the task(s) to protection of the health and safety of the public;
- the relationship of the task(s) to regulatory requirements and commitments; and;
- other factors as may be specified by PVNGS Senior Management.

Documents that prescribe how to perform activities within the scope of this Plan shall be identified as stated in Section 6.2.1.1.

2.3 Graded Approach

The extent to which the requirements of this Plan and its implementing documents are applied to an item or activity shall be based upon the following:

a. The effect of a malfunction or failure of the item on nuclear safety or safe plant operation.

b. The design and fabrication complexity or uniqueness of the item.

c. The need for special controls, surveillance or monitoring of processes, equipment, and operational activities.

d. The degree to which functionality can be demonstrated by inspection or test.

e. The quality history and degree of standardization of the item.

The extent to which the requirements of this Plan apply to activities shall be based as a minimum on Operating License conditions and other plans previously approved by the NRC, other regulatory commitments as may have been made associated with activities, the text of this Plan, the Unit's Technical Specifications, and Appendix B of this Plan. Such other plans or regulatory commitments include, but are not limited to, those associated with emergency planning, physical plant security, safeguard contingency planning, radiological controls, radiological environmental controls, fire protection, inservice inspection, inservice testing, licensed operator qualification and requalification, process control, offsite dose calculation, shift technical advisor training, environmental qualification of equipment, security guard training and qualification, etc.

When the graded approach is utilized, the justification and basis for grading shall be documented and retrievable. Application of the graded approach shall be accomplished in accordance with procedures concurred with by the QA organization. These procedures shall clearly identify how the justification and basis for grading shall be documented and maintained.

Grading of Plan requirements applicable to items shall be the responsibility of the Vice President, Engineering and Construction.

Grading of Plan requirements applicable to activities shall be the responsibility of the organization responsible for performing the activity.

2.4 Three Level Assurance Approach

PVNGS is committed to a comprehensive assurance process consisting of a three level approach to assure consistent and complete implementation of this Plan.

2.4.1 Level I - Activities at this level consist of worker verifications, supervisory verifications, second party verifications, independent verifications, and independent inspections for the purpose of establishing acceptance of equipment, systems and activities within the QA scope. Level I activities are performed by organizations such as Quality Assurance, Licensing, Operations, Maintenance, Radiological Protection, Nondestructive Examination (NDE) personnel, Site Chemistry, and Contractor personnel.

Worker verifications are performed as an attestation to the quality of the work by the individual who performed the task.

Supervisory verifications are performed as an additional attestation of the quality of the work.

Supervisory verifications are performed by technically cognizant supervisory personnel.

Second party verifications are performed during activities where a second check of the work is desired to provide an additional measure of the quality of the work performed. Second party verifications are performed by individuals who are knowledgeable in the activity being validated and who may have responsibility for performing the work, but did not perform the specific activity being checked.

Independent verifications are performed on activities where an independent review of correct performance is desired. Independent verifications are performed by qualified individuals who do not have responsibility for performing or directly supervising the work.

Independent inspection is performed on activities in which a high degree of independence is desired to assure correct performance was accomplished or when required by code, standard, or regulatory commitment. Independent inspection is performed by ANSI N45.2.6 certified Quality Control inspectors, by organizations authorized by the QA organization to perform those activities and who meet the requirements of ANSI N45.2.6, and by NDE personnel certified in accordance with ASNT Recommended Practice No. SNT-TC-1A.

2.4.2 Level II - The activities at this level are primarily those of survey, surveillance, monitoring, and document review and are performed as deemed necessary by the Director, Quality Assurance. The level of surveillance or monitoring applied is consistent with the importance of the item to safety and the extent of administrative control utilized for the Level I activity. For activities where the Quality Assurance organization is performing first-level independent inspection, second-level activities may not always be required.

At this level, procedures and instructions are established, and surveillance and/or monitoring records shall be completed and maintained. Such surveillance/monitorings normally include observation of tests and inspections, observation of selected operations, review of records, verifications of test reports, and direct verification on a spot-check basis.

2.4.3 Level III - The purpose of this level of activity is to assure, through a comprehensive program of audit and assessment, that the first and second levels of the program are properly functioning, and that organizations conducting activities within the scope of this Plan are properly satisfying the requirements of the Quality Assurance Program.

At this level, procedures and instructions are established, including documentation requirements of the audit or third-level activity.

The audit program shall satisfy the requirements of ANSI N45.2.12. Qualified audit personnel, who satisfy the requirements of ANSI N45.2.23 shall be utilized. Additional technical experts, who administratively report outside the function that is being audited, may be included, as deemed necessary. The organization performing this activity has sufficient authority and lines of internal and external communications to obtain the necessary management direction.

Assessments are performed by the Quality Assurance organization and by Nuclear Safety and Licensing. Assessments are performance-based reviews designed to provide management a measure of the effectiveness of various programs in meeting management expectations and nuclear performance standards. The Director, Quality Assurance, and the Vice President, Nuclear Safety and Licensing, shall determine the need for assessments. The assessment scope shall be defined. The results of assessments shall be documented and any corrective action which may be deemed necessary as a result of these assessments shall be formally identified and tracked through resolution.

2.4.4 Where necessary, quality verifications are adjusted to compensate for the graded approach criteria. Adjustments include, but are not limited to, changes in frequency of verification, application of random or selective sampling techniques, redefining the scope of specific verification activities, or shifting of verification levels.

2.5 Control of the Quality Assurance Plan

The Director, Quality Assurance, with assistance from the Vice President, Nuclear Safety and Licensing shall, for each revision to this Quality Assurance Plan, determine if the proposed changes affect the program description previously accepted by the NRC.

Revisions to the Quality Assurance Plan that do not reduce the commitments in the program description previously accepted by the NRC shall be concurred with by affected Senior Management and approved by the Director, Quality Assurance. Revisions of this type do not require acceptance by the NRC prior to issuance, but shall be submitted to the NRC at least annually in accordance with the requirements of 10 CFR 50.71(e). The Director, Quality Assurance, shall approve all revisions to this Plan.

Revisions to the Quality Assurance Plan that reduce the commitments in the program description previously accepted by the NRC shall be concurred with by affected Senior Management, the Director, QA, and approved by the Executive Vice President, Nuclear. They shall be submitted to the NRC for acceptance prior to implementation. Such revisions shall be regarded as accepted by the NRC upon receipt of a letter to this effect from the appropriate reviewing office of the Commission or 60 days after submittal to the Commission, whichever comes first. The submittal of the revision to the Quality Assurance Plan shall include all pages affected by that change and shall be accompanied by a forwarding letter identifying the change, the reason for the change, and the basis for concluding that the revised program incorporating the change continues to satisfy the criteria of Appendix B to 10 CFR 50 and to provide a suitable level of control. The letter need not provide the basis for changes that correct spelling, punctuation, or editorial items. A copy of this letter shall be maintained as a record for three years. Revisions of this type may be identified by any PVNGS employee, but shall be originated by the Director, Quality Assurance.

2.5.1 Effective Date of Implementation

Changes to implementing procedures resulting from changes to this Plan shall be incorporated within 90 days of the Plan change approval date unless an interim action plan is defined and approved by the Director, Quality Assurance.

2.5.2 Regulatory Commitments

Conformance to NRC Regulatory Guides is documented in the Updated final Safety Analysis Report (UFSAR) which is maintained by Nuclear Safety and Licensing.

Appendix B of this Plan contains the Quality Assurance Regulatory Guides and standards that PVNGS shall utilize to meet 10 CFR 50, Appendix B.

The Vice President, Nuclear Safety and Licensing, is responsible for providing PVNGS positions and interpretations on the Regulatory Guides to which PVNGS is committed. Changes to these commitments shall be accomplished in accordance with regulatory requirements. The Director, Quality Assurance, shall concur with changes to the positions and interpretations affecting the Regulatory Guides and standards contained in Appendix B.

2.6 Quality Assurance Program Review

2.6.1 The effectiveness of the QA Program and its implementation is periodically reviewed by various organizations at various levels and the results of these reviews are documented in reports to the Executive Vice President, Nuclear, and Senior Management for evaluation and corrective action as required. The effectiveness of the QA Program is also evaluated and reported by the QA organization through the inspection, review, monitoring, auditing, and assessment functions. In addition, the QA organization periodically prepares evaluation reports on Program effectiveness. Other divisions provide additional information and evaluations as requested.

2.6.2 In addition to the reviews and evaluations performed above, the Executive Vice President, Nuclear, shall have an independent assessment of the QA Program implementation performed at least annually to ensure that activities meet the regulatory requirements and the policies of PVNGS. This assessment may be performed utilizing the safety review groups, an independent consultant, representatives of other utilities and/or his own staff. Any corrective action which may be deemed necessary as a result of these assessments shall be formally identified and tracked through resolution.

2.7 Training and Qualification

The PVNGS Quality Assurance Program includes requirements for the training (including indoctrination) and, when necessary, qualification of personnel involved in activities within the QA scope. These requirements establish and demonstrate that personnel assigned to implement elements of the QA Program are capable of performing their assigned task and that required job related knowledge and skills are maintained. The training department is responsible for planning, scheduling and providing training to PVNGS personnel. The specific needs, and the subject material to be covered in training and qualification programs are established by the organizational units responsible for the activities and by the Nuclear Training Department.

Programs and procedures shall be established to assure that personnel are properly trained and/or qualified to perform their assigned tasks. These programs and procedures shall define, address, or encompass the following features, as appropriate:

a. The organizational authority and responsibilities relative to the training and/or qualification of personnel.

b. Regulatory and accredited training, qualification, and certification requirements.

c. Indoctrination and training requirements for personnel performing activities affecting quality.

d. Methods for demonstrating proficiency.

e. Training program evaluation and improvement.

f. Methods used to verify completion of required training.

g. Instructor qualifications.

h. Retraining and requalification requirements, and frequency.

i. Methods of training.

j. Maintenance and control of training, certification, and qualification records.

Personnel performing activities within the QA scope shall be indoctrinated into the Quality Assurance Program. Indoctrination shall emphasize that the individual is responsible for quality and explain the programs that exist for reporting conditions believed to be in non-compliance with the QA Program.

Personnel performing activities within the QA scope shall be instructed as to the purpose, scope, and implementation of manuals, procedures, and instructions for the activities being performed. Training shall be required commensurate with the activities importance to safety. For those activities that require certification, proficiency shall be demonstrated and documented.

Training programs shall be revised as necessary to reflect job performance, plant modifications, procedure changes, industry events, and regulatory changes.

Required training and/or qualification shall be identified, satisfactorily completed, and documented prior to an individual being assigned to independently perform the task.

2.8 Quality Classification

The quality classifications for items and activities within the QA scope as described in Section 2.2 shall be established using approved procedures. The significance of an item's or activity's importance to safety shall be considered in its classification. Procedures shall be prepared that establish the requirements for the identification and control of the classification of quality related items and activities. These procedures and changes to them shall be reviewed and concurred with by the Quality Assurance organization prior to issuance.

Systems and major components shall be identified as either Quality Class Q, Quality Augmented (QAG), or Non-Quality Related (NQR) in accordance with PVNGS procedures. The classification of the systems and components shall be subject to independent verification. Where there is a change to a lower quality classification of systems, structures, and components, the classification shall be determined by Engineering and Construction and concurred with by Quality Assurance. The determinations shall be documented and retained as a permanent record.

Spare or replacement parts and materials are not necessarily classified the same as the component of which they are a part. Such parts and materials that perform or contribute to the performance of a safety related or Quality Augmented function are within the scope of this Plan and classified similarly as the component of which they are a part. The classification of spare or replacement parts and materials, that are of a different classification than the component of which they are a part, shall be determined by the Engineering and Construction organization. The determination shall be documented and reviewed by the Quality Assurance organization consistent with the requirements of this Plan.

Activities that are within the scope of this Plan are identified in Subsection 2.2.2. Subsection 2.3 provides further basis for grading the extent of application of the requirements of this Plan to these activities. Documents that prescribe methods for implementing the requirements of this Plan shall be identified as specified by Subsection 6.2.1.1.i.

2.9 Safety Reviews

The safety review program is comprised of five major elements:

2.9.1 The first element of the safety review program is the responsible Technical Reviewer. Technical Reviews shall be performed by someone other than the individual doing the work. This review shall be performed by a qualified responsible Technical Reviewer on activities within the QA scope. This includes, but is not limited to, design work or changes, plant operations procedures, emergency and alarm procedures, radiological protection procedures, and plant maintenance procedures. Individuals performing the review shall not have direct responsibility for the performance of the activities under review, but may be from the same functionally cognizant organization as the individual/group performing the original work. All design work or changes, test and experiments, and procedures as described in the Technical Specifications shall be assessed to determine whether a Safety Review is necessary.

2.9.2 The second element of the safety review program is the Plant Review Board (PRB). The PRB is composed of key management personnel whose function is to advise the Vice President, Nuclear Production, on all matters related to nuclear safety. The PRB reviews all proposed changes to Technical Specifications, investigates all violations of Technical Specifications, reviews reportable events, reviews unit operations to detect potential nuclear safety hazards,and performs reviews and investigations of other matters related to nuclear safety.

2.9.3 The third element of the safety review program is the Independent Safety Engineering Department (ISED). ISED has no line responsibilities and selectively assesses and evaluates safety matters. It is independent of the plant staff and reports to the Director, Nuclear Safety. It provides, on a selected basis, independent self-assessment evaluations from a technical perspective. ISED is staffed by a full-time group of engineers and is located onsite.

ISED shall have access to the unit and unit records as necessary to perform its evaluations and assessments. ISED reports of evaluations and assessments shall be prepared, approved, and transmitted to the Director, Nuclear Safety and the management positions responsible for the areas reviewed.

2.9.4 The fourth element of the safety review program is performed by the Nuclear Safety Group (NSG) which is an independent offsite organization reporting to the Director, Nuclear Safety. NSG provides an independent oversight of nuclear safety by continually reviewing the nuclear safety aspects of plant operation to ensure that high standards for the safe operation of PVNGS are met and that there are no undue risks to the health and safety of the public or employees.

2.9.5 The fifth element of the safety review program is the Off-Site Safety Review Committee. The Committee reports to and advises the Executive Vice President, Nuclear, on matters subject to its review. Committee members perform periodic reviews of selected PVNGS events and activities in order to identify areas involving nuclear safety where current and long term improvement can be realized. Additionally, the committee provides Executive Management with an overview and assessment of the adequacy of activities associated with meeting nuclear safety goals and objectives. This committee is comprised of the Vice President, Nuclear Safety and Licensing; Vice President, Nuclear Production; Vice President Engineering and Construction; and the Director, Quality Assurance as well as selected non-APS members with overall nuclear expertise.

2.10 Conditions Adverse to Quality and Corrective Actions

A program for identifying activity and hardware conditions adverse to quality within the QA scope shall be established. Conditions adverse to quality include, but are not limited to, failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances.

Conditions adverse to quality shall be identified, documented, and controlled in accordance with administrative control procedures to ensure that they are promptly corrected.

Significant conditions adverse to quality shall be promptly identified, evaluated for reportability, and corrected. The cause of significant conditions adverse to quality shall be determined and appropriate action taken to prevent recurrence. The identification, cause, and actions taken to correct significant conditions adverse to quality shall be documented and reported to the appropriate levels of management.

2.11 External Organizations

Suppliers who provide items, parts, materials, consummables, and/or services that are within the scope of this Plan shall have an appropriate QA program and implementing procedures. The supplier's QA program shall be subject to review and concurrence by the Director, Quality Assurance or his designee. The extent to which the supplier's QA program shall be applied shall be specified by procurement documents.

2.12 Resolution of Differences and Escalations

Differences of opinion involving quality between Quality Assurance personnel and other organization(s) (engineering, operation, maintenance, etc.) shall, if possible, be resolved at the level at which they occur. If this is not possible, the differences shall be escalated through supervisory/management levels until resolution is achieved.

The Director, Quality Assurance, shall make the decision on matters concerning the applicability of the Plan to activities.

The Vice President, Engineering and Construction, shall make the decision on matters related to classification of items, parts, materials, and technical requirements.

3.0 CONTROL OF STATION ACTIVITIES

3.1 Policy

3.1.1 Station activities within the QA scope shall be conducted in accordance with the requirements of this Plan. These activities include but are not limited to design changes, procurement, fabrication, handling, shipping, storage, cleaning, erecting, installation, inspection, testing, operation, maintenance, repair, refueling and modification.

3.1.2 The Quality Assurance requirements for station activities are contained in this Plan and conform with applicable NRC Regulatory Guides and associated ANSI Standards. The commitments to these Regulatory Guides and associated ANSI Standards shall be implemented in appropriate procedures governing station activities. The requirements of this Plan apply to all organizations performing functions within the QA scope which affect the quality of structures, systems, components, or activities.

3.1.3 The following subsections discuss typical activities which are representative of the broad scope of administrative controls and quality assurance requirements that are applicable to station activities. The organizational and functional responsibilities governing station activities shall be structured so that the objectives of this Plan are accomplished by those who have been assigned responsibility for performing the work. Conformance to established requirements is the responsibility of individuals performing the work. Quality Assurance Division activities such as independent inspection, monitoring, audits, and reviews are performed to independently verify conformance to this Plan, applicable station administration controls, and applicable regulatory and licensing commitments. These Quality Assurance organization independent verifications are applied to station activities to the extent necessary to provide adequate confidence that structures, systems, components, and personnel perform satisfactorily to maintain the safety of the station.

3.2 Design Control

3.2.1 Requirements

3.2.1.1 The organizational structure and responsibilities of personnel involved in preparing, reviewing, approving, and verifying design documents shall be defined.

3.2.1.2 The design bases, safety analyses, design criteria, codes and standards, and Plant Technical Specifications, including all amendments, shall be translated into design documents and reviewed during the design process. Changes shall be in accordance with regulatory requirements.

3.2.1.3 Materials, parts, and processes selected by design are reviewed to assure they are suitable for the intended application, including compatibility of materials; accessibility for inservice inspection; maintenance and repair; ALARA considerations; personnel safety; fire hazards analysis; associated computer programs; and quality standards. The review shall also evaluate suitability with regard to human factors which may affect safe operation; and the suitability of commercial grade materials, parts, and equipment to the application.

3.2.1.4 Internal and external design interface controls, procedures, and lines of communication, among participating design organizations and across technical disciplines, are established and described for the preparation, review, approval, release, distribution, and revision of documents involving design interfaces to assure structures, systems, and components are compatible geometrically, functionally, and with processes and the environment.

3.2.1.5 Errors and deficiencies in approved design documents, including design methods (such as computer software) that could adversely affect items and activities within the QA scope shall be documented. Action shall be taken to assure that these errors or deficiencies are corrected. In addition to correcting a deficiency (or error), corrective action also includes, for significant or recurring deficiencies (or errors), determining the cause and instituting appropriate changes in the design process to prevent similar types of deficiencies from recurring.

3.2.1.6 Deviations from specified quality standards shall be identified and procedures shall be established to assure their resolution and control.

3.2.1.7 Design verification methods (design review, alternate calculations, or qualification testing) shall be established to verify design adequacy.

3.2.1.8 Design documents shall be subject to procedural control. Controlled design documents include, but are not limited to, specifications, calculations, computer programs, system design descriptions, and drawings (including flow diagrams, piping and instrument diagrams, system diagrams, facility drawings showing equipment locations, and site arrangements).

3.2.1.9 Design verification procedures shall be established which assure the following:

a. The responsibilities of the verifier, areas and features to be verified, and the extent of documentation required are identified.

b. The verifier is qualified and is not directly responsible for the design.

c. Verifications are completed and documented prior to turnover of the component or system to Operations.

3.2.1.10 When verifications are to be accomplished solely by test:

a. Prototype, component, or feature testing shall be performed prior to installation of the equipment, or prior to the point when the installation would become irreversible.

b. Verification by test shall be performed, whenever practical, under conditions that simulate the most adverse design conditions as determined by analysis.

c. Procedures provide criteria that specify when verification should be by test.

3.2.1.11 Procedures shall be established to assure that computer codes, and changes thereto, are validated and controlled to prevent unauthorized changes.

3.2.1.12 Design and specification changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design. Design changes shall be reviewed and approved by the organization responsible for the original design or by another organization with comparable expertise designated to review and approve changes.

3.2.1.13 Measures shall be provided to assure that responsible plant personnel are informed of and/or trained on design changes and/or modifications which may affect the performance of their duties.

3.2.1.14 Work authorizing documents which control the installation of quality related modifications shall be clearly identified as quality related. New items shall be evaluated for quality classification determination and added to the Quality Classification list as applicable.

3.2.1.15 Design control procedures shall ensure that design documents for implemented design changes are issued in a timely manner to prevent inadvertent use of superseded design information.

3.2.2 Responsibilities

3.2.2.1 Vice President, Engineering & Construction

The Vice President, Engineering & Construction, is responsible for the development and implementation of the design control measures, maintenance and control of the PVNGS design bases, determination of the quality classification of systems, structures, and components, and delineating critical attributes requiring verification.

3.2.2.2 The Director, Nuclear Engineering

The Director, Nuclear Engineering, is responsible for providing qualified discipline engineers to perform design for major modifications, improvements, and additions to PVNGS. To fulfill these responsibilities, the Director, Nuclear Engineering shall:

a. Monitor operational performance data.

b. Provide technical assistance to other organizations.

c. Ensure design verifications are performed.

d. Ensure Quality Assurance review and concurrence of applicable design criteria documents, specifications, and changes.

3.2.2.3 The Director, Site Nuclear Engineering & Construction

The Director, Site Nuclear Engineering & Construction, is responsible for maintaining a quality classification list and for ensuring that construction, modification, and/or installation of major structures, systems and components are in compliance with technical and Quality Assurance requirements.

3.2.2.4 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.2.2.5 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible to incorporate into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.3 Procurement Control

3.3.1 Requirements

The requirements for the preparation, review, approval, and control of procurement documents shall be delineated in detailed procedures. These procedures shall comply with and require the incorporation of current APS QA program controls into procurement documents. Technical requirements for spare and replacement parts shall meet or exceed the original procurement requirements. Procedures shall also delineate requirements to assure that procurement documents contain the following, as applicable:

a. Specify technical, quality assurance, inspection, and acceptance criteria commensurate with the requirements of this Plan.

b. Impose applicable quality program requirements on vendors, subvendors, and contractors.

c. Specify or reference appropriate technical requirements, including applicable regulatory requirements, material, component identification requirements, drawings, specifications, codes and standards, test, calibration, inspection requirements, handling, storage, shipping requirements, and special process instructions.

d. Identify the documentation to be prepared, maintained, and submitted for review and approval.

e. Identify those items and activities within the QA scope.

f. Identify those records which vendors, subvendors, or contractors shall retain, maintain, and control; and those which vendors, subvendors, or contractors shall deliver prior to use or installation of the item.

g. Include right of access to vendor's, contractor's and their subtier vendor's and contractor's facilities and records for source inspection and/or audit.

h. Contain technical and quality requirements for spare or replacement parts at least equivalent to those applied to the original procurement. In those cases where the technical and quality requirements for the original item cannot be readily determined or when spare or replacement parts and materials are of a different classification than that of the component of which it is a part, an engineering evaluation shall be conducted and documented to establish the requirements and controls.

i. Include provisions that ensure PVNGS reviews of designated supplier procedures prior to implementation.

j. Require design organizations performing design activities for PVNGS to have and implement quality programs which include design control provisions consistent with those provided in this Plan.

k. Identify the programs, procedures, activities, and conditions that require PVNGS approval and/or release.

l. Include requirements for reporting and approving the disposition of nonconformances including the requirement for notification of significant conditions determined to be reportable under 10 CFR 21.

m. Provisions for extending applicable requirements to lower tier subcontractors and suppliers.

n. Require submittal of appropriate certification documentation identifying the purchased material and the specific procurement requirements met. For any procurement requirements that were not met, the vendor will be required to furnish documentation indicating how such nonconformances were resolved. Such certification must be attested to by a person responsible for this quality assurance function.

Measures shall be established for the review, approval, and release of procurement documents and subsequent revisions. Changes to technical and quality requirements specified in procurement documents shall be subject to at least the same level of review and approval as the original document. The reviews shall assure the inclusion of the applicable technical, quality, and administrative requirements in procurement documents prior to their use. Reviews shall be documented to provide objective evidence of approval prior to release.

3.3.2 Qualification and Selection of External Organizations

3.3.2.1 Procedures shall be established to accomplish the evaluation and selection of external organizations. Contracts or purchase orders for material, equipment or services covered by the scope of the Quality Assurance Program shall be awarded to organizations that have been evaluated by the QA organization and determined to have an acceptable Quality Program that is commensurate with the equipment or services to be provided, unless one or more of the following conditions apply:

a. The external organization shall be required in the procurement documents to accomplish their work under the direct control of the PVNGS Quality Assurance Program and in accordance with procedures that have been approved by PVNGS.

b. The external organization will be supplying commercial grade items or services as defined in 10 CFR 21 and the acceptability of these items or services can and shall be adequately verified by PVNGS through inspection or tests conducted following delivery of the item or service or through in-process surveillances conducted during the manufacture or performance of the item or service.

c. The external organization will be supplying an item or service for use in a Quality Augmented structure, system or component and the quality of the item or service can be assured to the extent required by this Plan by receipt inspection or in-process surveillances.

3.3.2.2 Documented evaluations of prospective suppliers shall be conducted. Qualifications shall be based upon one or more of the following criteria:

a. Capability to provide products or services based upon historical performance.

b. Capability to comply with the PVNGS Quality Assurance Program, as applicable to the items or services to be supplied.

c. Acceptable pre-award survey of the organization's facilities and quality assurance program to determine their capability to supply the items or services that meet the design and quality requirements of the specification.

3.3.2.3 When the approval of an external organization's quality assurance program by PVNGS is required, it shall be reviewed and approved by PVNGS prior to initiation of the activity affected by their program.

3.3.2.4 In the case where "commercial grade items," are to be used in safety related applications, evaluations are not required; however, critical characteristics of the items to be provided shall be established and verified for the purpose of item dedication and acceptance.

3.3.2.5 Material suppliers, not holding a quality systems certificate, shall be evaluated by PVNGS to assess compliance with ASME Section III, Subsection NCA-3800 quality program requirements.

3.3.3 Vendor Assurance

Measures shall be established to provide for control of vendor activities. These measures shall be described in detailed written procedures.

The attributes of the Vendor Assurance program shall include:

a. Provisions for the review and approval of appropriate vendor Quality Assurance documents prior to fabrication. When specified in procurement documents, vendors may not implement procedures until written notice of PVNGS approval is received.

b. Provisions for source verifications that delineate, as required, review, inspection, verification, and hold, witness, or test points in the manufacturing/design process.

c. Methods for resolution of nonconformances. Where the vendor's disposition of nonconformances against PVNGS accepted drawings/specifications is "Use-as-is" or "Repair," approval by the responsible engineer and the PVNGS Quality Assurance organization shall be required.

d. Planned and systematic audit and surveillance of vendor quality activities. Scope of coverage and frequency shall be determined by the criticality of the furnished items and the evaluated results of vendor qualifications, including pre-award surveys, quality program reviews, audits and industry experience, and quality procedure reviews. Revisions to audit and surveillance plans shall be made as warranted by vendor performance. Identified deficiencies shall be documented. The Quality Assurance organization shall also provide followup of corrective action implementation.

e. Control of vendor document packages, including reviews for completeness and acceptability. Inadequate records which render the quality status of item(s) furnished indeterminate shall be sufficient cause for rejection of the item(s).

f. Assessments of vendor quality. Assessments shall be made at a frequency commensurate with Regulatory requirements and the importance, complexity and quantity of the items furnished. These assessments shall utilize the qualitative and quantitative information provided by vendor noncompliance documents; industry experience, inspection, monitoring, and audit reports; and receiving inspection and test records.

g. Material acceptance procedures that assure:

1. The material, component, or equipment is clearly identified and the identification and quantity correspond to the information on the shipping documents and quality records.

2. The item's handling and shipping requirements have been met by the vendor and maintained by the carrier.

3. The item's quality record package or compliance certification is complete and adequate. Supplier certificates of conformance shall be periodically validated through audits, surveys, independent inspections, or tests when they are used as the basis for acceptance of a purchased item or service.

4. The material, component, or equipment meets the technical requirements specified in procurement documents, inspection plans, checklists, or other engineering documents.

5. Items delivered which are not in compliance with requirements are documented in accordance with the nonconformance procedure, tagged (as item configuration or storage conditions permit; additional administrative controls shall be used if tagging is not practical), segregated (if possible), and prevented from being inadvertently issued for installation or us.

6. Items are maintained in proper storage levels.

7. Items accepted are identified as to their inspection status prior to releasing them for installation or further work.

3.3.4 Responsibilities

3.3.4.1 Director, Palo Verde Services

The Director, Palo Verde Services, is responsible for the following:

a. Administration and operation of contracting, procurement, and warehousing activities of PVNGS.

b. Assurance that the contractual, legal, and commercial requirements are incorporated into the procurement documents in a manner which shall enforce the technical and quality requirements.

c. Assurance that documents and records, as required by procurement documents, are submitted to PVNGS in a timely manner and that they are complete and legible.

d. Assurance that purchase orders and contracts for items and services within QA scope are issued to external organizations that meet the requirements of this Plan.

3.3.4.2 Director, Site Nuclear Engineering and Construction

The Director, Site Nuclear Engineering and Construction, is responsible for:

a. Performing material evaluations and analysis.

b. Preparing replacement material procurement specifications.

c. Assurance that the technical and quality requirements are incorporated into contract/procurement documents.

3.3.4.3 Director, Quality Assurance

The Director, Quality Assurance, is responsible to:

a. Approve supplier Quality Assurance Programs to the extent required in the procurement documents.

b. Review and accept supplier documentation.

c. Establish and implement an adequate program of source inspection, surveillance, audit, and receipt inspection to assure supplier compliance with procurement document requirements.

d. Review procurement documents to assure that quality requirements are correctly stated, inspectable, and controllable; that there are adequate acceptance/rejection criteria; that source surveillance or receipt inspection is specified; that minimum documentation to be supplied is specified; and that the procurement documents have been processed in accordance with established requirements. This review may include sampling review of previously approved procurement documents or in-line reviews of selected purchase requisitions or orders prior to placement.

e. Establish and maintain an Approved Vendors List (AVL) which documents an acceptable quality program which meets PVNGS procurement requirements.

3.3.4.4 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible to incorporate into applicable policies, procedures and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.4 Identification and Control of Materials, Parts, and Components

3.4.1 Requirements

3.4.1.1 Identification and traceability requirements shall be included in specifications and drawings

3.4.1.2 Materials, parts, and components, including partially fabricated subassemblies or subdivided materials, shall be identified to preclude the use of incorrect or defective items.

3.4.1.3 Materials, parts, and components within the QA scope shall be identified so that they can be traced to the appropriate documentation. Appropriate documentation may include, but is not limited to:

a. Specifications

b. Drawings (including as-builts)

c. Procurement Documents

d. Physical and Chemical Test Reports

e. Nonconformance Reports

f. Inspection Reports and Checklists

g. Storage Maintenance Instructions

h. NDE Reports

i. Vendor Certificates of Compliance

3.4.1.4 The location and method of identification shall be specified so as not to affect the form, fit, function, or quality of the item being identified.

3.4.1.5 Identification of materials, parts and components shall be traceable through release for fabrication, shipping, installation, and testing.

3.4.1.6 Where physical identification is either impractical or insufficient, physical separation, procedural control, or other approved means shall be employed.

3.4.1.7 A receipt inspection shall be performed at the site to verify that identification for received items is complete and accompanied by appropriate documentation.

3.4.2 Responsibilities

3.4.2.1 Director, Palo Verde Services

The Director, Palo Verde Services, is responsible for assuring that materials, parts, and components are correctly identified prior to release for fabrication, shipping, installation, and testing.

3.4.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.4.2.3 Vice Presidents, Directors, Plant Managers and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible for:

a. Ensuring that procurement documents contain appropriate requirements for the identification and control of materials, parts, or components and that only materials, parts, or components which have been accepted in accordance with Quality Assurance Program requirements are used.

b. Incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.5 Control of Special Processes

3.5.1 Requirements

3.5.1.1 Special processes are those that require interim inprocess controls in addition to final inspection to assure quality. Special process include, but are not limited to, such processes as welding, heat treating, chemical cleaning, nondestructive examination, and coatings.

3.5.1.2 Measures shall be established and documented to assure that special processes are accomplished under controlled conditions in accordance with applicable codes, standards, applications criteria, and other requirements including the use of qualified personnel and procedures.

3.5.1.3 Procedures shall provide for recording evidence of acceptable completion of special processes. Procedures and instructions for the control of special processes shall be reviewed and approved by qualified personnel. Qualification records of personnel, equipment, and procedures associated with special processes shall be established and maintained. For special processes not covered by the existing codes or standards, or when item quality requirements exceed the requirements of established codes or standards, the necessary qualifications of personnel, procedures and equipment shall be defined in procedures.

3.5.2 Responsibilities

3.5.2.1 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers performing special processes are responsible for:

a. Assuring that the established program requirements for controlling and accomplishing special processes are implemented.

b. Assuring that the procedures, including changes, are reviewed, approved, and qualified prior to use.

c. Assuring that personnel and equipment used in the performance of special processes are qualified and the records of qualification are maintained.

d. Incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.5.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.6 Test Control

3.6.1 Requirements

3.6.1.1 A documented test program shall be established to assure that all testing required to demonstrate that the structures, systems, or components within QA scope will perform satisfactorily in service. The tests, including proof tests prior to installation, hydrostatic testing, Inservice Testing (IST), and preoperational tests, shall be performed in accordance with written, approved, and controlled test procedures which incorporate or reference the requirements and acceptance standards contained in the applicable design and procurement documents. The extent of testing shall be based on the complexity of the modification, replacement, or repair. These test procedures or instructions shall provide the following, as required:

a. A description of the test objective.

b. Instructions for performing the test, including caution or safety notes in sufficient detail to avoid operator interpretation.

c. Test prerequisites such as calibrated instrumentation, adequate test equipment and instrumentation including accuracy requirements, status of item to be tested, suitable and controlled environmental conditions, and personnel to be provided to conduct tests under the direction of a qualified test engineer.

d. Provisions for data collection and storage.

e. Acceptance and rejection criteria as specified in design and procurement documents.

f. Methods of documenting or recording test data and results, in sufficient detail to prevent misinterpretation.

g. Mandatory hold or witness points for inspection by PVNGS Quality Assurance and/or other designated personnel.

h. Provisions for control of jumpers, lifted leads, and jurisdictional or safety tags.

i. Provisions for returning a system to normal configuration upon completion of the test, including verification.

j. Provisions for assuring test prerequisites have been met.

3.6.1.2 Test results shall be documented, evaluated, and their acceptability determined by a qualified individual or group.

3.6.1.3 The test program shall cover all required tests including:

a. Preoperational test of components or systems to demonstrate that performance is in accordance with the design intent.

b. Tests during initial operation to demonstrate system performance (that could not be tested prior to operation) to confirm compliance to design criteria.

c. Tests during the operational phase to provide assurance that failures or substandard performance do not remain undetected and that the required reliability of systems within the QA scope is maintained.

d. Tests during activities associated with plant maintenance and modifications during the operational phase.

e. Tests to demonstrate satisfactory performance following plant maintenance, modifications, or procedural changes.

3.6.1.4 Tests performed following plant repairs or replacements shall be conducted in accordance with the original design and testing requirements or approved, documented alternatives. Testing shall be sufficient to confirm that the changes reasonably produce expected results and that the change does not reduce plant safety.

3.6.2 Responsibilities

3.6.2.1 Vice President, Nuclear Production

The Vice President, Nuclear Production, is responsible for assuring that testing is performed in accordance with the requirements of this Plan including, as a minimum, the following:

a. Assuring that testing is performed in accordance with written, approved, and controlled procedures.

b. Assuring that operations personnel have the required special training and skills.

c. Assuring that the test results are documented and are evaluated for acceptability by a qualified individual or group.

d. Assuring that identified discrepancies are addressed, resolved, and reported as required by the Operating Licenses, or other regulatory requirements.

3.6.2.2 The Director, Site Technical Support

The Director, Site Technical Support, is responsible to perform a startup and test function to assure new or substantially modified facilities and systems are tested. These responsibilities shall include:

a. Preparing test plans and implementing procedures.

b. Directing testing and assuring test engineers have the required special training and skills.

c. Ensuring that test documentation is completed, as required, and reviewed prior to turnover to Operations.

d. Coordinating technical assistance of testing.

3.6.2.3 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.6.2.4 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible to incorporate into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.7 Control of Measuring and Test Equipment

3.7.1 Requirements

3.7.1.1 Measures shall be established to assure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting the function or quality of structures, systems, and components covered under the scope of the QA Program, are properly controlled and calibrated or adjusted at specified periods to maintain accuracy within specified limits. Additional measures shall be established to ensure that the range, type, and accuracy of the measuring and test equipment conforms to the specified requirements.

3.7.1.2 Requirements for each control program shall include inspection and verification of accuracy upon receipt of equipment, identification of all gauges and instruments, calibration, and scheduled recall for calibration and traceability to an accepted Standard. Procedures shall be established to implement the following requirements:

a. Establish the calibration technique and frequency requirements, maintenance requirements, and controls for all measuring and test equipment which are used in the measurement, inspection, and monitoring of components, systems, and structures covered under the QA scope.

b. The identification of measuring and test equipment traceable to the calibration test data.

c. Installed plant instrumentation and operations measuring and test equipment requiring calibration shall be labelled, tagged or otherwise controlled in accordance with written, approved procedures to assure that approved calibration intervals are not exceeded. Portable measuring and test equipment may be similarly controlled, but shall, as a minimum, be clearly labelled to indicate the date on which the current calibration expires. Measuring and test equipment that has exceeded the approved calibration interval shall not be used for measurements or tests.

d. Establish calibration frequency for measuring and test equipment based on required accuracy, purpose, degree of usage, stability characteristics, and/or any other condition which may affect the measurement. A calibration recall system shall be implemented to assure recalibration within the required period for each piece of measuring and test equipment covered under the scope of this program.

e. Establish methods for determining the validity of previous inspections and tests performed when the measuring and test equipment is found to be out of calibration. Inspections or tests shall be repeated on items determined to be suspect. Such determination is to be documented in suitable form. If any calibration, testing or measuring device is consistently found to be out of calibration, it shall be repaired or replaced.

f. Measuring and Test equipment (M&TE) used to calibrate instruments and gauges (flowmeters, pressure gauges, level indicators, etc.) shall have been calibrated against working standards with accuracies at least four times greater than that of the M&TE equipment being calibrated. The instrument or gauge calibration accuracy in reference to the M&TE shall be at least 1:1.

In cases where the instrument or gauge is calibrated directly against working standards, the working standard shall have an accuracy of at least 1:1 and the secondary standards used to calibrate the working standards shall have an accuracy of four times greater than that of the working standards.

When the above requirements cannot be met, the standards used shall have a precision and repeatability that assures the equipment being calibrated will be within the required tolerance. The basis of acceptance shall be documented and authorized by the supervisor of the calibrating organization.

Some measuring tools, because of their construction or because they are not adjustable (such as rulers), may not require periodic calibration. However, they shall be maintained in good working condition.

g. A status of all measuring and test equipment under the calibration program is to be maintained.

h. Reference and transfer standards shall be traceable to nationally recognized standards. Where national standards do not exist, provisions shall be established to document the basis for the calibration.

i. NDE equipment shall be controlled and calibrated in accordance with the industry code governing its use.

j. Installed plant instrumentation and M&TE that is used to calibrate this instrumentation that is found out of calibration shall be evaluated to determine if the condition constitutes a reportable occurrence in accordance with Technical Specifications or other regulatory requirements.

3.7.2 Responsibilities

3.7.2.1 Vice President, Nuclear Production

The Vice President, Nuclear Production, is responsible for the development of the M&TE control program.

3.7.2.2 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers utilizing tools, gauges, instruments, and other measuring devices in activities affecting the function or quality of structures, systems, components, and activities are responsible for:

a. Assuring that the equipment is controlled in accordance with an approved calibration control program which complies with the requirements of this Plan.

b. Incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.7.2.3 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.8 Handling, Storage, and Shipping

3.8.1 Requirements

3.8.1.1 Measures shall be established and documented to control handling, storage, and shipping, including cleaning, packaging, and preservation of items within the QA scope in accordance with established instructions, procedures, and drawings to prevent damage, deterioration, or loss. The requirements for handling, storage, packaging, and shipping of radioactive wastes are contained in Section 3.14 of this Plan.

3.8.1.2 Procedures shall be established to control the cleaning, handling, storage, packaging, and shipping of materials, components, and systems in accordance with design and procurement requirements to preclude damage, loss, or deterioration by environmental conditions such as temperature or humidity. These procedures shall be implemented by trained individuals. The procedures shall include but not be limited to the following:

a. Packaging and preservation procedures to provide assurance of adequate protection against corrosion, contamination, physical damage, or any effect which would lower the quality of the items or cause deterioration during shipping, handling, or storage. Special protective environments, special coverings, inert gas atmospheres, moisture contents, and temperature controls shall be specified as required and their existence verified and documented.

b. Cleaning methods to provide assurance that necessary cleaning operations are carried out prior to packaging, storage, or installation. The level of cleanliness required, and verification and documentation requirements shall be specified in the procedures.

c. Detailed handling methods for all items that require special handling. Special handling tools and equipment shall be provided and controlled to ensure safe and adequate handling. These tools and equipment shall be maintained, inspected, and tested in accordance with written procedures at established intervals to ensure their reliability and availability for use.

d. Storage practices to provide for methods of storage and the control of items in storage which will minimize the possibility of damage or deterioration during storage. Periodic inspections of storage areas shall be performed and documented to verify compliance with storage procedures. Release of items for installation shall also be procedurally controlled.

e. Provisions to assure that proper marking and labelling of items and containers is accomplished to provide identification and necessary instructions during packaging, shipment, and storage.

f. Provisions for documenting and reporting nonconformances with handling, storage, and shipping requirements.

g. Provisions for the storage of chemicals, reagents, lubricants, and other consumable materials which will be used in conjunction with quality related systems.

h. Provisions for "Limited Life" requirements (including "Shelf Life" for applicable materials).

3.8.2 Responsibilities

3.8.2.1 Director, Palo Verde Services

The Director, Palo Verde Services, is responsible for:

a. Providing the procedures applicable to receiving and storage of materials, parts, and components.

b. Assuring that the personnel responsible for handling and storage of materials, parts, and components are trained in the performance of their duties and that they implement the procedures properly.

c. Providing adequate storage of materials, components, and parts within the QA scope

3.8.2.2 Vice President, Nuclear Production

The Vice President, Nuclear Production, is responsible for:

a. Assuring that the handling, cleaning, and storage activities associated with the operation and maintenance of PVNGS are performed in accordance with the requirements of this Plan.

b. Assuring that the handling, cleaning, and storage requirements of this Plan are incorporated in the procedures and are properly implemented for all maintenance and modification activities.

3.8.2.3 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.8.2.4 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible to incorporate into applicable policies, procedures, instructions, drawings, specifications, or procurement documents those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.9 Equipment Status and Control

3.9.1 Measures shall be established for the control and status of equipment, as necessary, to maintain personnel and reactor safety and to avoid unauthorized operation of equipment. In addition, measures shall be established and documented to ensure that required inspections and tests are performed and that the acceptability of these items is known throughout manufacturing, installation, and operation. These measures shall be documented in procedures and shall require that:

3.9.1.1 Control measures, such as locking or tagging to secure and identify equipment in a controlled status, are established.

3.9.1.2 Independent verifications, where appropriate, to ensure that necessary measures, such as tagging, have been correctly implemented.

3.9.1.3 The status of inspections and tests performed upon individual items shall be indicated by the use of markings such as stamps, tags, labels, routing cards, or other suitable means.

3.9.1.4 Items that have satisfactorily passed required inspections and tests, shall, where necessary, be identified to preclude inadvertent bypassing of required inspections and tests on other similar items which may not have been inspected or tested.

3.9.1.5 When required documentary evidence of passed inspections and tests is not available, the associated equipment or materials shall be considered nonconforming. Until suitable documentary evidence is available to show the equipment or material is in conformance, affected systems shall be considered to be inoperable and reliance shall not be placed on such systems to fulfill their intended safety functions.

3.9.1.6 Documented permission from the operations organization be obtained prior to releasing equipment or systems for maintenance or modification. Operations personnel shall verify that equipment or system can be released and determine how long it may be out of service. Attention shall be given to the potentially degraded degree of protection when one subsystem of a redundant safety system has been removed for maintenance.

3.9.1.7 After permission has been granted, equipment shall be made safe to work on. Equipment and systems in a controlled status shall be clearly identified. Measures shall provide for protection of equipment and workers.

3.9.1.8 When equipment is ready to be returned to service, operating personnel shall place the equipment in operation and verify and document its functional acceptability. Documentation of functional acceptability shall be traceable to the equipment. Attention shall be given to restoration of normal conditions.

3.9.1.9 Design documents or other appropriate documents address the requirements for the identification of inspection, test and operating status.

3.9.1.10 Bypassing or altering the sequence of inspections, tests, or other critical operations shall be procedurally controlled. These procedures require concurrence from the Quality Assurance organization.

3.9.1.11 Temporary modifications, such as temporary bypass lines, electrical jumpers, lifted electrical leads, and temporary trip point settings, shall be controlled and shall include a requirement for either independent verification or functional test which conclusively proves the installation and subsequent removal of the temporary modification. A log shall be maintained of the current status of such temporary modifications.

3.9.2 Responsibilities

3.9.2.1 Vice President, Nuclear Production

The Vice President, Nuclear Production, is responsible for assuring the appropriate requirements for control of equipment, inspection, test, and operating status, including independent verification, are incorporated in the procedures on all fabrication, installation, test, and operating activities.

3.9.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.9.2.3 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible for incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.10 Housekeeping and Cleanliness

3.10.1 Requirements

3.10.1.1 Good housekeeping practices shall be utilized at all times to maintain the facilities in a neat and clean condition. Housekeeping encompasses all activities related to the control of cleanliness of facilities, materials, and equipment; fire prevention and protection including disposal of combustible material and debris; control of access to areas, protection of equipment, and radioactive contamination control; and storage of solid radioactive waste.

3.10.1.2 Housekeeping practices shall assure that only proper materials, equipment, and processes, are utilized and that the quality of the item is not degraded as a result of housekeeping practices or techniques. During maintenance activities, certain portions of quality related systems or components may be subject to potential contamination with foreign materials. To prevent such contamination, control measures, including measures for access control, and tool accountability, shall be established. Additionally, immediately prior to closure of system(s) or component(s), a verification shall be conducted and documented to ensure cleanliness. Special housekeeping considerations shall be made for maintenance of radioactively contaminated systems and components.

3.10.2 Responsibilities

3.10.2.1 Vice President, Nuclear Production

The Vice President, Nuclear Production, is responsible for establishing and maintaining programs and practices for housekeeping and cleanliness control for work activities performed by the plant site staff, support organizations, and contractors in accordance with the requirements of the QA Program.

3.10.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.10.2.3 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible for incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.11 Control of Construction, Maintenance (Preventive/Corrective), and Modifications

3.11.1 Requirements

3.11.1.1 Construction, maintenance, or modifications which have the potential to affect the functioning of structures, systems, or components within the QA scope shall be performed in a manner to ensure quality at least equivalent to that specified in the original design bases and requirements, materials specification, and inspection requirements. A suitable level of confidence in structures, systems, or components on which maintenance or modifications have been performed shall be attained by appropriate inspection and performance testing. Construction, maintenance, or modification of equipment shall be preplanned and performed in accordance with written procedures, instructions, or drawings appropriate to the circumstances which conform to applicable codes, standards, specifications, and criteria. In this regard, modification type work in areas and systems of the plant, which are critical to the safe operation of the plant, shall not be performed without specific, advanced approval in each instance by the designated Operations management personnel. Maintenance shall be performed in a manner such that license limits are not violated.

3.11.1.2 Written procedures are subject to general administrative controls that govern or define the following areas:

a. Methods for obtaining permission and clearance from operations personnel to work and for appropriately logging such work.

b. Factors to be taken into account, including the necessity of maintaining occupational radiation exposure as low as is reasonably achievable (ALARA).

c. Method for identifying what procedural coverage is necessary for the maintenance, construction, and modification activity.

d. Considerations for system/equipment cleanliness control.

e. Method for identification of post maintenance, construction, or modification testing, including system/equipment functional capability to meet operational requirements in all respects.

f. Method for ensuring that maintenance, construction, or modification activities, performed either on-site or off-site, are properly reviewed.

g. Considerations for other activities already taking place in the general area.

3.11.1.3 Skills normally possessed by qualified maintenance personnel may not require detailed step-by-step delineation in a written procedure.

3.11.1.4 Means for assuring quality of maintenance, modifications, or construction activities and measures to document the performance thereof shall be established. Measures shall be established and documented to identify the inspection and test status of items to be used in maintenance, modification, and construction activities.

3.11.1.5 A corrective maintenance program shall be developed to restore structures, systems and components to the quality level required for them to perform their intended functions. Corrective maintenance shall be performed in a timely manner to ensure that unsatisfactory items are restored to the original, as designed, functional status.

3.11.1.6 A preventive maintenance program shall be established, including appropriate procedures which prescribe the frequency and type of maintenance to be performed for structures, systems, and components. In all cases, maintenance shall be scheduled and planned so as not to compromise the safety of the plant. Planning shall consider the possible safety consequences of concurrent or sequential maintenance, testing, or operating activities. Preventive maintenance shall be performed in a timely manner to ensure that quality related items are adequately maintained in the original, as designed, functional status.

3.11.1.7 Proposed modifications shall be reviewed, approved and controlled in accordance with the applicable requirements of the Operating Licenses, regulatory requirements, and procedures governing the design, procurement, construction, testing and inspection. Modifications to structures, systems, and components within the QA scope shall be reviewed and accepted in accordance with the requirements of Section 2.9 of this Plan.

3.11.1.8 Design, procurement, construction, testing, and inspection of all modifications shall be performed in accordance with the applicable portions of this Plan.

3.11.1.9 Deficiencies identified during installation shall be identified for resolution using the appropriate documentation as identified in the implementing procedures.

3.11.1.10 Organizations performing construction, maintenance, or modifications shall notify Quality Assurance and, where applicable, the Authorized Inspection Agency of all witness and hold points in sufficient time for performance of required inspections.

3.11.1.11 Deviations from design shall not be permitted without proper review and approval.

3.11.2 Responsibilities

3.11.2.1 Vice President, Nuclear Production

The Vice President, Nuclear Production, is responsible for:

a. Establishing and implementing preventive and corrective maintenance programs to maintain the station in a safe, reliable, and efficient condition.

b. Ensuring that maintenance and modification activities are performed in accordance with the requirements of this Plan and the applicable Operating Licenses, and regulatory requirements.

c. Establishing administrative control procedures for maintenance and modification work performed.

3.11.2.2 Vice President, Engineering & Construction

The Vice President, Engineering & Construction, is responsible for:

a. Ensuring that design and procurement activities associated with plant modifications are implemented in accordance with approved procedures.

b. Providing the drawings and specifications used for plant modifications.

c. Preparing and issuing as-built drawings of plant modifications, as appropriate.

d. Ensuring that modifications are designed, procured, and installed in accordance with requirements which are either equal to or better than the original requirements.

e. Preparing and filing all records in accordance with the requirements of the Plan.

f. Providing the design and engineering support during installation and testing of plant modifications including the resolution of deficiencies identified during installation.

g. Maintaining configuration control.

h. Ensuring proper approvals for deviations from design.

3.11.2.3 Director, Site Nuclear Engineering and Construction

The Director, Site Nuclear Engineering and Construction, is responsible for:

a. Reviewing the requirements of the modification packages and preparing the appropriate installation procedures and supporting documentation.

b. Providing the supervision and labor necessary to complete the modifications.

c. Ensuring that the modifications are installed in accordance with the engineering requirements.

d. Preparing and filing all records in accordance with the requirements of this Plan.

3.11.2.4 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.11.2.5 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible to incorporate into applicable policies, procedures, instructions, drawings, specifications, or procurement documents those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.12 Control of Surveillance Testing and Inspection

3.12.1 Requirements

3.12.1.1 A surveillance testing and inspection program shall be established and implemented in accordance with the Operating Licenses requirements of the plant to ensure that quality related structures, systems, and components will continue to operate to maintain parameters within normal bounds, or will act to put the plant in a safe condition if parameters exceed normal bounds.

3.12.1.2 Provisions shall be made for performing required surveillance testing and inspections, including inservice inspections. Such provisions shall include the establishment of a master surveillance schedule reflecting the status of all planned inplant surveillance tests and inspections. Frequency of surveillance tests and inspections shall be in accordance with Operating Licenses unless increased frequency is warranted by reliability analyses, type of service, or age of the item or system.

3.12.1.3 Additional control procedures shall be instituted, as necessary, to assure timely conduct of surveillance tests and inspections, and appropriate documentation, reporting, and evaluation of the results. Procedures shall be established to assure proper review of surveillance test data and the return of systems to an operable status following the completion of testing. These procedures shall include provisions for the documentation of authority, conduct, responsibility, and verification involved in returning the system to an operable status. Such provisions shall include the use of procedures, checklists, and independent verification as appropriate, considering the degree that system status was altered during the performance of the test.

3.12.2 Responsibilities

3.12.2.1 Director, Site Technical Support

The Director, Site Technical Support, is responsible for:

a. Providing the procedures necessary to implement the surveillance testing and inspection requirements of the Operating Licenses as applicable to each unit.

b. Ensuring that the requirements for surveillances testing and inspection are completed as required.

3.12.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.12.2.3 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible for:

a. Providing schedules and manpower necessary to implement the Surveillance Testing and Inspection Program.

b. Incorporating into applicable policies, procedures, instructions, drawings, specifications, or procurement documents those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.13 Radiological Control

3.13.1 Requirements

3.13.1.1 A radiological controls program shall be established and implemented to:

a. Control radiation hazards.

b. Avoid accidental radiation exposures.

c. Maintain exposures to workers and the general population as low as is reasonably achievable (ALARA) and within regulatory requirements.

d. Provide guidance and specify appropriate methods or techniques to ensure that the performance of activities are in accordance with sound radiological control principles and in compliance with applicable regulatory requirements.

3.13.1.2 The radiological controls program is to be fully integrated into the applicable activities of each and every phase of operations at the nuclear generating station.

3.13.1.3 Procedures shall be provided for the implementation of the radiological controls program. These procedures shall contain the requirements for implementation of the program by the General Manager, Site Radiation Protection, and the requirements for inclusion of radiological controls in the plant operation, maintenance, and testing procedures.

3.13.1.4 The radiological controls program includes the acquisition of data, and provisions for equipment necessary to perform radiation surveys, measurements and evaluations for assessments and control of radiological conditions.

3.13.2 Responsibilities

3.13.2.1 General Manager, Site Radiation Protection

The General Manager, Site Radiation Protection, is responsible for:

a. Establishing and maintaining the radiological controls program.

b. Providing the personnel, procedures and administrative controls to implement the radiological controls program.

c. Providing administrative and technical guidance applicable to radiological controls, radioactive materials, respiratory protection and radiological engineering including ALARA programs and dosimetry control.

3.13.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.13.2.3 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible for incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.14 Control of Radioactive Waste

3.14.1 Requirements

3.14.1.1 Procedures and administrative controls shall be developed and implemented to cover the following:

a. Processing of radioactive wastes including the collection, handling, and preparation for shipment of radioactive liquids and solids. These procedures shall be consistent with the ALARA program and shall clearly identify the administrative controls and organizational responsibilities.

b. Training and qualification of personnel operating radioactive waste processing equipment, health physics monitoring, packaging and shipping (which includes waste classification and establishment of waste characteristics), and other operations deemed appropriate by management.

c. The activities associated with the packaging of radioactive wastes to include the proper selection of the receptacles to be used for containing the waste materials, the selection of the shipping containers (structures used to contain and support the receptacle and its contents), establishment of Waste Characteristics, radiological control inspections of the outside of the package, and the preparation of documentation. The activities shall be in accordance with regulatory requirements.

d. Movement of radioactive materials within and outside the protected area to assure personnel protection at all times.

e. The shipment of radioactive material from the station.

f. The packaging used for transporting of radioactive wastes, whether purchased from an outside supplier or designed by PVNGS.

g. Minimization of the generation of radwaste materials through training programs, prudent scheduling, proper use of equipment, and good housekeeping practices.

3.14.1.2 Procedures shall also be developed for minimizing the generation of radwaste materials, the processing of radioactive waste, and movement of radioactive materials. These procedures include the following:

a. Training of personnel in the methods to minimize the generation of radwaste materials.

b. Processing and packaging of liquid and solid waste.

c. Collection and identification of radioactive solids such as rags, papers, boots, gloves, etc.

d. Selection of the proper packaging for the specific contents to be shipped, taking into consideration the radiation levels, contamination limits, and shipping requirements. Provisions for surveying the packaging for radiation levels, appropriate package markings, shipping papers/manifests and certificates, the security seals, and advising the carrier that the shipment is ready.

e. Review and acceptance of carrier procedures specified by the procurement documents covering the acceptance of radioactive waste materials for shipment.

f. Review and acceptance of the designs of packaging purchased from an outside supplier.

3.14.1.3 The carriers to be used for transporting of radioactive wastes shall be selected on the basis of their experience, knowledge of DOT regulations, control and maintenance of their equipment, and the selection and control of their drivers. The carrier is required to have or shall be supplied documented procedures covering acceptance of materials from a shipper, certification requirements, placarding, stowage control, reporting of incidents, and security.

3.14.1.4 Radwaste operations shall be controlled to minimize personnel exposures or environmental contamination consistent with ALARA.

3.14.2 Responsibilities

3.14.2.1 General Manager, Site Radiation Protection

The General Manager, Site Radiation Protection, is responsible for:

a. Developing and implementing radwaste procedures.

b. Monitoring all radiological activities associated with the processing and handling of radioactive wastes and for providing advice on radiological matters relating to processing, packaging, and shipping.

c. Incorporating into applicable policies, procedures, and instructions those requirements contained in the Regulatory Guides and standards committed to in Appendix B of this Plan.

3.14.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

3.14.2.3 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible for incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

4.0 CONTROL OF QUALITY VERIFICATIONS AND SELF ASSESSMENTS

4.1 Policy

A comprehensive Quality Verification Program shall be established and implemented to provide verification that Plan requirements are implemented.

4.2 Level I Verifications

4.2.1 Requirements

A program for verification of items within the QA scope shall be established and executed by, or for, the organization performing the activity to verify conformance to the documented instructions, procedures, and drawings for accomplishing the activity. Design specifications, drawings, procedures, or instructions shall include the necessary requirements for performance of verification activities. These requirements include acceptance criteria and reference codes, standards, and regulatory documents. These requirements shall be further translated into procedures, instructions, or checklists which shall contain, as required, the following:

a. Identification of characteristics and activities to be verified.

b. Methods to be used including necessary measuring and test equipment and the accuracy requirements.

c. Identification of the organization responsible for performing the verification.

d. Acceptance and rejection criteria.

e. Identification of required procedures, drawings, and specifications, including the applicable revisions.

f. Documentation of verification results including identification of the individual performing the verification.

4.2.1.1 The organization that initiates work implementing documents is responsible for identification of tasks which require worker verification, supervisory verification, second party verification, and independent verification. Procedures shall be developed to provide appropriate guidelines used in task selection.

4.2.1.2 The Engineering and Construction organization is responsible for the identification of attributes that require independent inspection. The QA organization may elect to identify additional attributes requiring independent inspection based on quality history, trending, and quality engineering reviews that indicate the need for increased independent inspection.

4.2.1.3 Worker Verification

Worker verifications provide a confirmation of the product quality provided by the worker who performed the tasks (i.e., the worker checks the quality of his/her own task(s). The worker is responsible and accountable for the proper completion and documentation of the task(s) in accordance with the controlling document or procedure. Worker verification may be requested by the organization initiating work implementing documents for quality related tasks. A sign-off for worker verification shall be provided in the work document when worker verification is requested.

4.2.1.4 Supervisory Verification

Supervisory verifications provide a confirmation of product quality by technically cognizant supervisory personnel subsequent to worker verification. Supervisory verification may also be requested by the organization initiating work implementing documents for quality related tasks. A sign-off for the supervisory verification shall be provided in the work document when supervisory verification is requested.

4.2.1.5 Second Party Verifications

Second party verifications are performed during activities where a second check of the work is desired to provide an additional measure of the quality of the work performed.

Second party verifications are performed by individuals who are knowledgeable in the activity being validated and who may have responsibility for performing the work, but did not perform the specific activity being checked. A sign-off for second party verification shall be provided in the work document.

4.2.1.6 Independent Verifications

Independent verifications are performed on activities where an independent review of correct performance is desired or when required by code, standard, or regulatory commitment.

Independent verifications are performed by qualified individuals who do not have responsibility for performing or directly supervising the work.

Independent verifications may be conducted by second line supervisory personnel or by other qualified personnel not assigned first line supervisory responsibility for the conduct of the work. Independent verifications are not intended to dilute or replace the clear responsibility of the first line supervisors for the quality of the work performed under their supervision. A sign-off for independent verification shall be provided in the work document.

Independent verification data and results shall be evaluated by designated personnel to assure that the acceptance criteria have been met and that items requiring action or follow-up are identified and documented.

Records shall be kept in sufficient detail to provide adequate confirmation of an independent verification program.

4.2.1.7 Independent Inspections

Independent inspection is performed on activities in which a high degree of independence is desired to assure correct performance was accomplished or when required by code, standard, or regulatory commitment.

Independent inspection is performed by ANSI N45.2.6 certified Quality Control inspectors, by individuals in organizations authorized by the QA organization to perform those activities and who meet the requirements of ANSI N45.2.6, and by NDE personnel certified in accordance with ASNT Recommended Practice No. SNT-TC-1A.

Inspectors (including NDE personnel) shall be qualified in accordance with applicable codes, standards, and PVNGS training programs and their qualification and/or certification shall be maintained current and documented.

Quality related work authorizing documents shall be reviewed by the Quality Assurance organization to determine the need for and annotation of independent inspection to be performed by the Quality Control Department.

When QA hold points have been established, either contractually by procurement, or internally by plant procedures, work may not proceed beyond the hold point until either the inspection is performed satisfactorily or waived by Quality Assurance.

For modification and nonroutine maintenance, independent inspections shall be conducted in a manner similar (frequency, type, and personnel performing such inspection) to that associated with construction phase activities.

Where independent inspection is being performed on previously accepted lots, sampling inspection shall be representative and shall be applied only to the extent necessary to assure adequacy of control. The sampling plan shall be established by the Quality Assurance organization. Inspection personnel shall be provided with suitable equipment and tools, which are calibrated as necessary, and controlled to assure that accuracy requirements are satisfied and that inspections are complete.

Inspection data and results shall be evaluated by designated personnel to assure that the acceptance criteria have been met and that items requiring action or follow-up are identified and documented.

Records shall be kept in sufficient detail to provide adequate confirmation of an inspection program.

4.2.2 Responsibilities

4.2.2.1 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible for:

a. Ensuring that the requirements for worker verification, supervisory verification, second party verification, and independent verification are incorporated into work implementing documents.

b. Incorporating into applicable policies, procedures and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this QA Plan.

c. Notifying the QA Division of the work being performed.

d. Assuring that established QA hold points are not bypassed without prior QA authorization.

e. Assuring that all information, records or copies of records associated with their work are made available to QA personnel.

f. Assuring that the personnel performing Level I Verifications are qualified in accordance with applicable codes, standards, training programs and procedures.

g. Assuring that the results of Level I Verifications are properly documented.

4.2.2.2 Vice President, Engineering & Construction

The Vice President, Engineering & Construction, is responsible for ensuring that verification requirements are included in appropriate design specifications, drawings, procedures and instructions and that these documents include acceptance criteria and, as applicable, references to codes, standards and regulatory documents.

4.2.2.3 Director, Quality Assurance

The Director, Quality Assurance is responsible for:

a. Independent inspections performed by the Quality Control Department.

b. Assuring that Quality Assurance inspectors are qualified in accordance with applicable codes, standards, and PVNGS training programs.

c. Reviewing procedures and work authorizing documents for inclusion of QA witness and hold points.

d. Development of inspection plans and standards.

e. Making decisions on matters concerning inspection and acceptance to criteria established by the Vice President, Engineering and Construction.

4.2.2.4 Director, Site Technical Support

The Director, Site Technical Support, is responsible for performing NDE in accordance with applicable codes, standards, and regulatory requirements.

4.3 Level II Verifications

4.3.1 Requirements

4.3.1.1 A program for monitoring, survey, surveillance, and document review activities within the QA scope shall be established.

4.3.1.2 Survey, Surveillance, and Monitoring

Survey, surveillance, and monitoring are used to establish adequate confidence levels that activities within the QA scope are being performed in accordance with the QA Program requirements and plant administrative controls. Survey, surveillance, and monitoring shall be performed on a graded approach and the degree of application shall be based typically upon the status and safety importance of activities, extent of previous experience, thoroughness of overall coverage, uniqueness of testing or operating activities, and trending data.

Survey, surveillance, and monitoring personnel shall be qualified in accordance with documented procedures.

Survey, surveillance, and monitoring reports shall contain, as a minimum, the following:

a. Identification of the activity being observed, including specific reference to the program or procedural requirements governing the activity.

b. Identification of compliance.

c. Identification of the individual observing the activity.

d. Appropriate distribution to supervisory or managerial personnel who have responsibility for performance of the activity.

e. Identification of each nonconformance and action taken when such nonconformances exist.

Records shall be kept in sufficient detail to provide adequate documentation of surveys, surveillances, and monitoring activities.

4.3.1.3 Document Reviews

A program for reviewing documents that implement quality related activities shall be established to verify incorporation of the requirements of this Plan.

Documents that define programs or establish administrative controls (upper tier) shall be reviewed and concurred with by the QA organization prior to implementation.

Reviews of lower tier procedures and other documents shall be performed on a graded approach as part of verification activities or on a sample basis.

When documents do not comply with requirements of the QA Program, the noncompliance shall be resolved through an approval process or a nonconformance/corrective action process depending on the status of the document at the time of review, type of document, and its importance to safety.

Reviews may address the technical correctness or performance objectives in addition to the review for compliance with the QA Program.

Records shall be kept in sufficient detail to provide adequate documentation of reviews.

4.3.2 Responsibilities

Director, Quality Assurance

The Director, Quality Assurance, is responsible for:

a. Establishing the requirements for Level II activities.

b. Assuring that QA personnel performing Level II activities are adequately trained and qualified to perform their duties.

c. Assuring that reports of the verification activity have sufficient detail and provide adequate confirmation of the verification.

d. Establishing the requirements for the review of documents affecting materials, parts, components, and activities within the QA scope.

e. Assuring that records of document reviews have sufficient detail to provide adequate confirmation of document review activities.

f. Reviewing and concurring with documents that define programs or establish administrative controls (upper tier).

g. Reviewing special process procedures.

4.4 Level III Verifications

4.4.1 Requirements

4.4.1.1 Audits

An audit program shall be established for both internal and external functions which affect structures, systems, components, operations and activities within the QA scope.

Planned and scheduled audits shall measure compliance with PVNGS Quality Assurance Policies, Plan, and Program, the Code of Federal Regulations, applicable Regulatory Guides, ANSI Standards, other codes and PVNGS license-based documents, Operating Licenses, commitments, procurement requirements associated with external organizations providing items, and services within the QA scope.

Audits shall include an objective evaluation of quality related practices, procedures, and instructions, including an objective review of activities, items, and records which demonstrate effective and proper implementation.

Audits shall be performed in accordance with pre-established written procedures and checklists, and shall be conducted by trained and qualified personnel having no direct responsibilities in the areas being audited. The audit program shall include:

a. Audit schedules.

b. Procedures for preparation, performance, and reporting of audits.

c. Analysis of audit data and reporting these results to appropriate levels of management.

d. Provisions for follow-up action.

e. Qualification of auditors.

f. Delineation of the authority, responsibility, and organizational independence of those responsible for the audit program.

Audits shall be initiated in a timely manner to assure the effectiveness of the QA Program. Implementation of corrective action shall be verified in a timely manner.

Audited organizations shall provide sufficient support to assure the accuracy of the audit results, respond to audit nonconformances, and resolve deficiencies. The corrective actions required to resolve audit findings and observations shall be addressed in a timely manner.

Audits shall be regularly scheduled, and their frequency shall be based upon, requirements of the Technical Specifications, the status and safety importance of activities, degree of previous experience, thoroughness of overall coverage, unique testing/operating activities, and follow-up of previous audit findings. In addition, audits shall be scheduled and performed as required by management. Unscheduled audits may be conducted at any time on any aspect of this Plan.

Records shall be maintained to provide evidence of audit program scope coverage, individual audit coverage, audit results, auditor certifications, follow-up, and verification.

Audits shall be performed by personnel who are trained and qualified to the requirements defined in ANSI N45.2.23. Each audit team shall be led by a qualified Audit Team Leader. Audit team members shall be utilized as required and shall be classified as either auditors or technical specialists, depending on their function on the audit team.

4.4.1.2 Assessments

An assessment program shall be established for activities within the QA scope. The program shall be delineated in procedures and instructions and shall include documentation requirements for the assessment activity.

Assessments are performed by the Quality Assurance organization and by Nuclear Safety and Licensing. Assessments are performance based reviews designed to provide management a measure of the effectiveness of various programs in meeting management expectations and nuclear performance standards. The Director, Quality Assurance, and the Vice President, Nuclear Safety and Licensing, shall determine the need for assessments. The assessment scope shall be defined. The results of assessments shall be documented and any corrective action which may be deemed necessary as a result of these assessments shall be formally identified and tracked through resolution.

4.4.2 Responsibilities

4.4.2.1 Director, Quality Assurance

The Director, Quality Assurance, is responsible to:

a. Establish and implement the Quality Assurance audit and assessment program.

b. Provide an auditing organization which meets the requirements of this Plan.

c. Evaluate the effectiveness of the audit program.

d. Ensure the development and implementation of the audit schedule.

e. Analyze audit data and the results, including the need for re-audits, and reporting these results to appropriate levels of management.

4.4.2.2 Vice Presidents, Directors, Plant Managers, and General Managers of Audited Organizations

The Vice Presidents, Directors, Plant Managers, and General Managers of audited organizations are responsible to ensure:

a. Sufficient support is given to the audit process to optimize the accuracy of the audit results.

b. Sufficient review of audit results is provided to assure that effective preventive measures for audit nonconformances are defined and implemented.

c. Responses to audit findings are reviewed and approved by their organizations prior to submittal to the auditing organization.

d. Responses to audit findings are submitted to the auditing organization in a timely manner as defined in implementing policies, plans, procedures and/or instructions.

e. Corrective actions to resolve audit findings are taken in a timely manner.

4.4.2.3 Vice President, Nuclear Safety and Licensing

The Vice President, Nuclear Safety and Licensing, is responsible for establishing and implementing an assessment program for the Nuclear Safety and Licensing organization.

5.0 CONTROL OF CONDITIONS ADVERSE TO QUALITY AND CORRECTIVE ACTIONS

5.1 Policy

Measures shall be established which ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified, documented, controlled, and corrected. The cause of significant conditions adverse to quality shall be determined and appropriate action taken to prevent recurrence. The identification, cause, and actions taken to correct significant conditions adverse to quality shall be documented and reported to the appropriate levels of management.

5.2 Requirements

5.2.1 Conditions Adverse to Quality

Conditions adverse to quality include hardware problems involving materials, parts, components or systems which do not comply with established requirements and non-hardware problems such as computer software deficiencies, failure to comply with the Licensing Commitments, Technical Specifications, procedures, regulations, design bases, or other established requirements.

It is the responsibility of all organizations and individuals to identify and report conditions adverse to quality.

Activities such as examinations or checks performed to assess the condition of equipment or its operation shall be documented on an appropriate form to control the activity. Once it has been determined that a nonconformance exists, the condition shall be reported as a nonconformance and the item controlled to prevent inadvertent use prior to correction.

Procedures shall be established to assure that conditions adverse to quality are promptly identified, documented, controlled, and corrected. These procedures shall detail and implement, as appropriate, the following measures:

a. Conditions adverse to quality shall be evaluated to determine the need for corrective action.

b. Follow-up activities shall be conducted to verify implementation of corrective actions and to close out corrective actions in a timely manner.

c. Conditions adverse to quality that are potentially reportable to the NRC shall be identified to appropriate management personnel for evaluation and reporting to the NRC as required.

d. Identification of nonconforming items by appropriate means (tags, labels, etc.) and segregation, if practical, until disposition of the nonconforming item has been determined.

e. Disposition of the condition adverse to quality. Nonconforming items shall be dispositioned as either rework, scrap, repair, or use-as-is. Use-as-is and repair dispositions require approval and justification by the cognizant engineering organization.

f. Verification method, verification, and close out.

g. Record retention.

h. Required approval signatures of the disposition and the verification.

Reworked, repaired, and replacement items shall be inspected and tested in accordance with the original inspection and test requirements or acceptable alternatives. All inspection, testing, rework, and repairs shall be controlled by approved procedures, and the results documented.

Prior to the initiation of a preoperational test on a Quality Related item, all nonconformances shall be evaluated for significance or impact on further testing or operation and shall be dispositioned as appropriate. The evaluation/disposition shall be documented.

Conditions adverse to quality shall be periodically analyzed to detect trends which may not be apparent to a day-to-day observer. The results of analyses shall be reported to management for review and assessment. When actions are required to correct problems, such as a generic problem identified by trend analysis or repetitive failure to disposition nonconformances, these problems shall be elevated to upper levels of management for resolution.

5.2.2 Significant Conditions Adverse to Quality

In addition to the requirements delineated in Section 5.2.1, procedures shall require the identification of the cause and the actions to be taken to prevent recurrence of significant conditions adverse to quality. These procedures shall include additional requirements for the following:

a. Identification of the form to be used for reporting the significant condition adverse to quality.

b. Description of the significant condition adverse to quality and date of identification.

c. Identification of the initiator of the report documenting the significant condition adverse to quality.

d. Identification of the requirement violated.

e. Notification to the affected organizations of the significant condition adverse to quality.

f. Quality Assurance Organization concurrence with all dispositions to significant condition adverse to quality.

5.3 Responsibilities

5.3.1 Director, Quality Assurance

The Director, Quality Assurance, is responsible for the following:

a. Review and concurrence of all procedures for reporting and controlling conditions adverse to quality in accordance with the requirements of this Plan.

b. Concurring with the dispositions to significant conditions adverse to quality.

c. Trending significant conditions adverse to quality.

5.3.2 Executive Vice President, Nuclear

The Executive Vice President, Nuclear, is responsible for the establishment of programs for the reporting and correction of conditions adverse to quality. Plant items such as failures, malfunctions, deficiencies, deviations and defective materials, parts or components are handled in a manner consistent with their importance to safety and reviewed in accordance with appropriate procedures and the applicable Technical Specification(s).

5.3.3 Vice Presidents, Directors, Plant Managers, and General Managers

Vice Presidents, Directors, Plant Managers, and General Managers are responsible for ensuring that conditions adverse to quality are identified and controlled in accordance with approved procedures and for ensuring that an atmosphere is created in the workplace where reporting and resolution of conditions adverse to quality is encouraged at all levels.

6.0 CONTROL OF DOCUMENTS AND RECORDS

6.1 Policy

6.1.1 The PVNGS Quality Assurance Program requires that activities within the QA scope be prescribed by documented procedures, instructions, and/or drawings of a type appropriate to the circumstances. Activities are accomplished in accordance with these documents.

6.1.2 Measures shall be established and documented to control the issuance of documents, such as program documents, design documents, instructions, procedures, and drawings, including changes thereto, which prescribe activities as defined in Section 2.0 of this Plan. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to, and used at, the location where the prescribed activity is performed.

6.1.3 Quality Assurance records for items and activities covered under the scope of the PVNGS Quality Assurance Program shall be identified, reviewed, retained, and retrievable. These requirements are imposed on all organizations performing Quality Related activities. Quality Assurance record systems shall be described and controlled by approved written procedures and instructions.

6.2 Instructions, Procedures, Drawings, and Policies

6.2.1 Requirements

6.2.1.1 Procedures, instructions, drawings, and policies that prescribe the performance of activities within the QA scope shall comply with the requirements of this Plan. To accomplish this, these documents shall, as appropriate:

a. Include quantitative and qualitative acceptance criteria sufficient for determining that activities have been satisfactorily accomplished.

b. Require approval and concurrence of responsible personnel prior to the initiation of the activity.

c. Describe the action to be accomplished.

d. Define the responsibilities and authorities of personnel performing the activity.

e. Describe interfaces with other company elements or other organizations that affect or are affected by the activity described in the procedure.

f. Be distributed in a controlled manner to preclude the use of obsolete documents and to assure availability to responsible personnel.

g. Require that changes be documented and approved prior to being implemented.

h. Require that revisions be reviewed and approved by the same organizations that performed the original review and approval or by organizations designated by the originating organizations.

i. Be clearly identified as "Quality Related."

6.2.1.2 Measures shall be established to control and coordinate the approval and issuance of instructions, procedures, and drawings, including changes, which prescribe activities within the QA scope.

These measures shall include the requirements for review of specific documents by the Quality Assurance organization. The QA review is to provide an independent verification that the documents have been prepared and reviewed in accordance with established policy and program controls. Additionally, the QA review shall verify policy and program requirements have been incorporated.

Plant procedures shall be reviewed by individuals knowledgeable in the area affected by the procedures at a frequency no less than every two years to determine if changes are necessary or desirable. A revision of a procedure may satisfy this requirement provided the results of the review are documented.

6.2.2 Responsibilities

6.2.2.1 Vice Presidents, Directors, Plant Managers, General Managers

Vice Presidents, Directors, Plant Managers, and General Managers performing activities within the scope of this Plan are responsible for:

a. Assuring that provisions are made for interface controls for internal and external lines of communications among participating organizations and technical disciplines.

b. Incorporating into applicable policies, procedures and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

6.2.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

When specified in procurement documents, contractor and vendor Quality Assurance Programs, special process procedures, and inspection and test procedures shall be reviewed and approved by the Quality Assurance organization prior to releasing the contractor or vendor to start work.

6.2.2.3 External Organizations

Those activities within the QA scope that are performed by contractors, suppliers, or vendors shall be delineated by documented, approved, and controlled procedures, instructions, or drawings.

6.3 Document Control

6.3.1 Requirements

6.3.1.1 Document control procedures shall be established to provide for control of all activities within the QA scope. These procedures shall address the following documents as a minimum:

a. Drawings

b. Plans/Manuals and Procedures

c. Operating Procedures & Instructions

d. Maintenance Procedures & Instructions

e. Design Documents (i.e., calculations, specifications, changes, analysis, as-built documentation) including documents related to computer software.

f. Manufacturing, Construction Modifications, Installation, Test, and Inspection Procedures, Instructions, and Drawings

g. Procurement Documents and Specifications

h. UFSAR and Related Design Criteria Documents

i. Nonconformance Documents

j. Design Criteria Documents and Specifications

k. Test Specifications

l. Operating and Special Orders

m. Equipment & Material Control Procedures

n. Refueling Procedures

o. Component Classification Evaluations

p. Audit and Assessment Reports

q. Equipment Qualification Data Files (EQ Binders)

r. Technical Manuals

s. Operating Licenses

6.3.1.2 All procedures established for document control shall meet the following requirements:

a. Review, approval, and issuance criteria for documents and their revisions shall be specified to assure adequate technical and quality requirements are met prior to issue.

b. The organizations or positions responsible for reviewing, approving, and issuing documents and their revision shall be specified.

c. Changes must be documented and approved prior to being implemented.

d. Revisions shall be approved by the same organizations that performed the original review and approval, or by organizations designated by the originating organizations except for documents originated by organizations outside PVNGS. In cases, where documents are originated by organizations outside PVNGS, PVNGS may designate the review and approval organization. Approved changes shall be promptly transmitted for incorporation into documents and obsolete or superseded documents shall be eliminated from use.

e. Document distribution must be sufficient to assure that the documents are readily available to responsible personnel prior to commencement of work.

f. Document users are responsible for assuring that the latest revision of the document is being used to perform work, thus assuring that voided, superseded or obsolete documents are not used. Master lists that identify the current revision of documents shall be maintained. As an alternative to master lists, documents may be issued as controlled documents and, as such, shall be appropriately stamped. Holders of controlled documents or master lists are responsible for maintaining their assigned copies in a current status.

g. Provisions shall be made to prohibit unauthorized disclosure of safeguards information. These provisions shall include identification of the documents, restrictions on their distribution, and storage in locked security storage containers.

h. Document disposition, including filing and permanent storage.

6.3.2 Responsibilities

6.3.2.1 Vice President, Engineering and Construction

The Vice President, Engineering and Construction through the General Manager, Nuclear Records Information Management, is responsible to develop, maintain and administer the PVNGS Document Control Program.

6.3.2.2 Director, Quality Assurance

The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.

6.3.2.3 Vice Presidents, Directors, Plant Managers, General Managers

Vice Presidents, Directors, Plant Managers, and General Managers performing activities within the scope of this Plan are responsible for:

a. Incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan, the Technical Specifications, and the Regulatory Guides and standards committed to in Appendix B of this Plan.

b. Ensuring that documents are available when required.

c. Properly reviewing and approving documents such as procedures, instructions, specifications, drawings, etc. to ensure that changes to documents are reviewed and approved by the same organization that performed the original review and approval of the document.

d. Ensuring that approved changes are promptly transmitted for incorporation into documents and ensuring that obsolete or superseded documents are eliminated from use.

6.4 Quality Assurance Records

6.4.1 Requirements

Procedures shall be established for the generation, collection, storage, maintenance, and retrieval of Quality Assurance records and shall meet the following minimum requirements:

a. Design specifications, procurement documents, and procedures shall specify the records to be generated, supplied, and maintained by or for PVNGS, including retention requirements. Typical records to be specified include operating logs; maintenance and modification procedures and related inspection results; reportable occurrences; inspection and verification procedures (excluding completed checklists when results are documented in a separate report); results or reviews, inspections, tests, audits, and material analysis; qualification of personnel, procedures, and equipment; other documentation such as calculations, design verifications, drawings, specifications, procurement documents, calibration procedures and reports; nonconformance documents; corrective action reports; vendor evaluations; and other records required by regulations and Technical Specifications.

b. Sufficient records and documentation shall be maintained to provide objective quality evidence of the items or activities within the QA scope. Inspection and test records shall contain the following, where applicable:

   1. Identification of the type of observation.

   2. The date and results of the inspection or test.

   3. Identification of any conditions adverse to quality.

   4. Inspector or data recorder identification.

   5. Evidence as to the acceptability of the results.

   6. Action taken to resolve any discrepancies noted.

c. Documented and approved measures shall be established for complying with the requirements of codes, standards, and procurement documents regarding record transmittal, retention, and maintenance subsequent to completion of work.

d. Record storage facilities shall be established and utilized to prevent destruction of quality records by fire, flooding, theft, and deterioration by environmental conditions such as temperature or humidity in compliance with the applicable standards, codes, and regulations.

e. All records shall be legible and should be capable of being reproduced.

6.4.2 Responsibilities

6.4.2.1 Vice Presidents, Directors, Plant Managers, General Managers

Vice Presidents, Directors, Plant Managers, and General Managers performing activities within the scope of this Plan are responsible for:

a. Incorporating into applicable policies, procedures, and instructions those requirements contained in this Plan and the Regulatory Guides and standards committed to in Appendix B of this Plan.

b. The initiation, collection, maintenance, and storage of records in accordance with approved written procedures which conform to the requirements and policy of this section until such time as they are transferred to Nuclear Records Information Management for storage.

6.4.2.2 Vice President, Engineering and Construction

The Vice President, Engineering and Construction, is responsible, through the General Manager, Nuclear Records Information Management for:

a. The collection, maintenance, and storage of records in accordance with approved written procedures and instructions which conform to the requirements and policy of this section.

b. Providing procedures which ensure the maintenance of records sufficient to furnish objective evidence that activities affecting quality are in compliance with applicable codes and standards, Regulatory Guides, and applicable regulations.

c. Establishing and implementing the PVNGS Records Control Program.

6.4.2.3 External Organizations

Records generated by contractors shall be controlled according to contractor or PVNGS procedures until such time as they are turned over for review, acceptance, and transmittal to the permanent records file. Purchased equipment records shall be retained by the vendor until the equipment is released for shipment, at which time the records required by procurement documents are to be submitted to PVNGS.

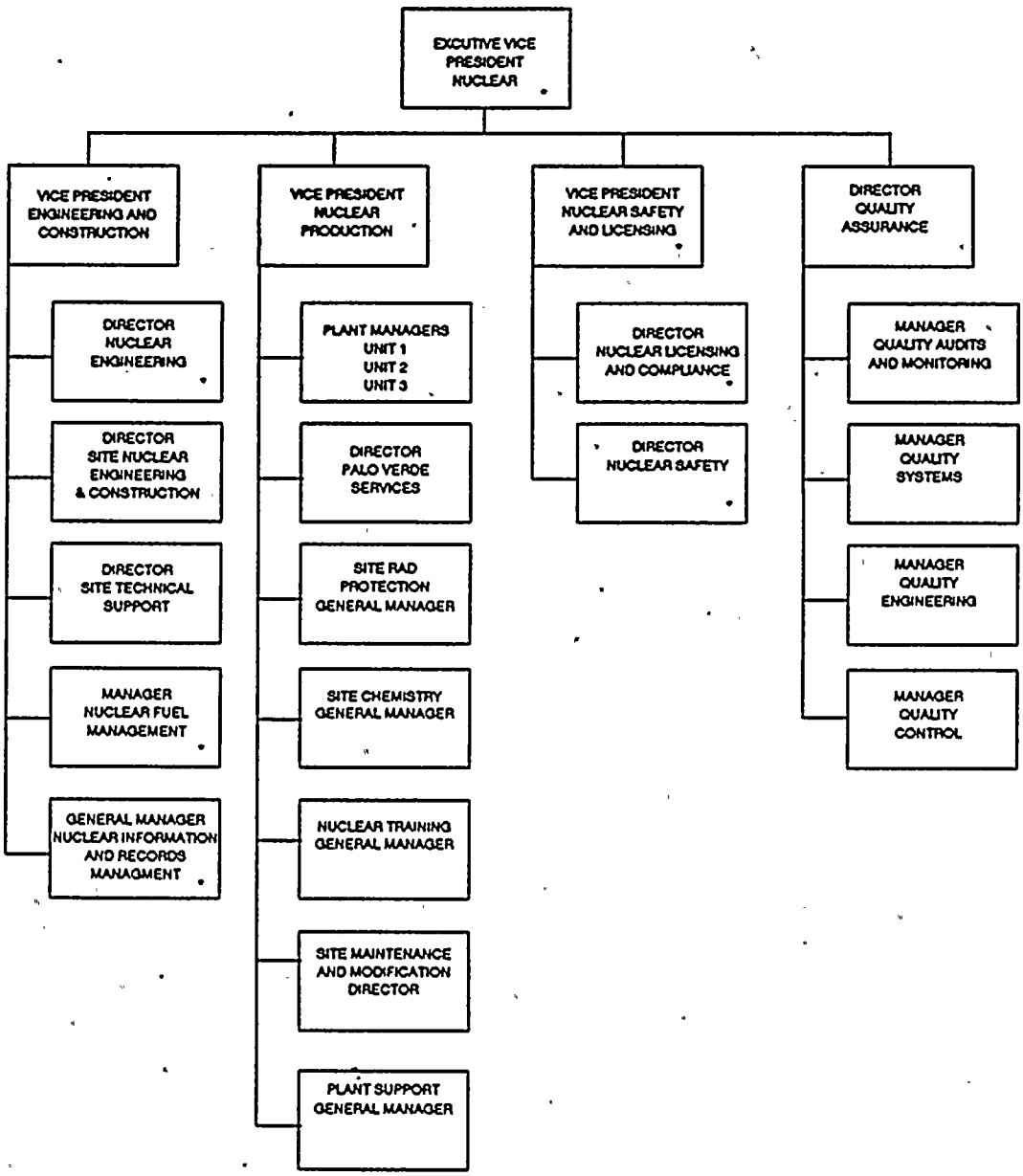
When required by the procurement documents, contractors and vendors shall establish procedures to control Quality Assurance records. Implementation of these procedures shall be assured by performance of source surveillance, monitoring, and audits performed by the Quality Assurance organization.

Records to be submitted with the shipment or retained by the vendor shall be specifically identified in procurement documents. These records shall be reviewed as necessary by Quality Assurance and/or Nuclear Engineering and Construction to provide the required degree of confidence regarding the adequacy of compliance by the vendor with the requirements of this section.

6.4.2.4 Director, Quality Assurance

The Director, Quality Assurance is responsible for performing quality verifications in accordance with Section 4.0 of this Plan.

APPENDIX A
PVNGS Organizational Structure



* OFFSITE POSITIONS

APPENDIX B

COMPLIANCE MATRIX

REG.Guide	Revision	Title	Standard	Year	Degree of Conformance	Divisions Having Implementation Responsibiles
1.8	Rev. 1-R May 1977	Personnel Selection and Training	N18.1	1971	Modified	NE&C NP NS&L QA
1.26	Rev. 1 Sept. 1974	Quality Group Classifications and Standards for Water-, Steam- and Radioactive-Waste-Containing Components of Nuclear Power Plants			Modified	NE&C NP QA
1.28	Rev. 0 June 7, 1972	Quality Assurance Program Requirements (Design and Construction)	N45.2	1971	Modified Note 1	NE&C QA
1.29	Rev. 3 Sept. 1978	Seismic Design Classification			Modified Operations Phase	NE&C QA NP
1.30	Rev. 0 Aug 11, 1972	Quality Assurance Requirements for the Installation, Inspection and Testing of Instrumentation and Electrical Equipment	N45.2.4	1972	Modified	NE&C NP QA
1.33	Revision 2 February 1978	Quality Assurance Program Requirements (Operation)	N18.7	1976	Modified	NE&C NP QA NS&L PVHR
1.37	Revision 0 March 16,1973	Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants	N45.2.1	1973	Modified	NE&C NP QA

REFER TO UFSAR SECTION 1.8 FOR CONFORMANCE STATEMENTS

Note 1. For Operational Phase see Reg. Guide 1.33.

APPENDIX B
COMPLIANCE MATRIX

REG.Guide	Revision	Title	Standard	Year	Degree of Conformance	Divisions Having Implementation Responsibiles
1.38	Revision 2 May 1977	Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water-Cooled Nuclear Power Plants	N45.2.2	1972	Modified Operations Phase	NE&C NP QA
1.39	Revision 2 Sept.1977	Housekeeping Requirements for Water-Cooled Nuclear Power Plants	N45.2.3	1973	Modified	NE&C NP QA
1.54	Revision 0 June 1973	Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants	101.4	1972	Modified	NE&C NP QA
1.58	Revision 1 Sept. 1980	Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel	N45.2.6	1978	Modified	QA
1.64	Revision 2 June 1976	Quality Assurance Requirements for the Design of Nuclear Power Plants	N45.2.11	1974	Modified Operation Phase	NE&C QA
1.74	Revision 0 Feb. 1974	Quality Assurance Terms and Definitions	N45.2.10	1973	Conform	NP QA NE&C NS&L PVHR

REFER TO UFSAR SECTION 1.8 FOR CONFORMANCE STATEMENTS

APPENDIX B
COMPLIANCE MATRIX

REG.Guide	Revision	Title	Standard	Year	Degree of Conformance	Divisions Having Implementation Responsibiles
1.88	Revision 2 October 1976	Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records	N45.2.9	1974	Modified	NE&C NP NS&L QA PVHR
1.94	Revision 1 April 1976	Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel during the Construction Phase of Nuclear Power Plants	N45.2.5	1974	Modified	NE&C NP QA
1.116	Revision 0-R May 1977	Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems	N45.2.8	1975	Modified	NE&C NP QA
1.123	Revision 1 July 1977	Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants	N45.2.13	1976	Modified	NE&C NP QA
1.143	Revision 0 July 1978	Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants	N199	1976	Modified	NE&C QA NP
1.144	Revision 1 Sept. 1980	Auditing of Quality Assurance Programs for Nuclear Power Plants	N45.2.12	1977	Modified	NP QA NE&C NS&L PVHR
1.146	Revision 0 August 1980	Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants	N45.2.23	1978	Modified	Quality Assurance

REFER TO UFSAR SECTION 1.8 FOR CONFORMANCE STATEMENTS

REG.Guide	Revision	Title	Standard	Year	Degree of Conformance	Divisions Having Implementation Responsibiles
	Appendix A to (BTP) APCSB 9.5-1 (2/24/77)	Guidelines for Fire Protection for Nuclear Power Plants The Operations Quality Assurance Program complies with the Quality Assurance Program Guidelines of Appendix A to (BTP)APCSB 9.5-1				NE&C NP QA

REFER TO UFSAR SECTION 1.8 FOR CONFORMANCE STATEMENTS

APPENDIX C
TERMS AND DEFINITIONS

Accept:
To acknowledge that identified items or specific services rendered comply with the specifications and procedures described in the controlling document.

Acceptance:
(As used in relation to acceptance of a document) Generally approved, believed or recognized. Does not require signature of person accepting.

Accept-As-Is:
A disposition which may be imposed for a nonconformance when it can be established that the discrepancy will result in no adverse conditions and that the item under consideration will continue to meet all engineering functional requirements including performance, maintainability, fit, and safety.

Acceptance Criteria:
A limit or limits placed on the variation permitted in the characteristics of an item expressed in definitive engineering terms such as dimensional tolerances, chemical composition limits, density and size of defects, temperature ranges, time limits, operating parameters, and similar characteristics.

ALARA:
(Acronym for As Low As is Reasonably Achievable) As used within the QA Plan means as low as is reasonably achievable taking into account the state of technology, and the economics of improvements in relation to benefits to the public health and safety and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

Approval:
An act of endorsing and adding positive authorization (signature) to a document by the person(s) responsible for the documents.

Approved Vendor List (AVL):
A list of Suppliers who have been evaluated by the PVNGS Quality Assurance organization for their capabilities to produce or provide quality related items, equipment or services.

APS:
Arizona Public Service Company.

As-Built Data:
Documented data that describes the condition actually achieved in a product.

APPENDIX C
TERMS AND DEFINITIONS

Audit:
An activity to determine through investigation, the adequacy of, and adherence to, established procedures, instructions, specifications, codes, and standards or other applicable contractual and licensing requirements, and the effectiveness of implementation.

Auditor:
Any individual who performs any portion of an audit, including lead auditors, technical specialists, and others such as management representatives and auditors in training.

Calibration:
Comparison of two instruments or measuring devices, one of which is a standard of known accuracy traceable to national standard, to detect, correlate, report, or eliminate by adjustment any discrepancy in accuracy on the instrument or measuring device being compared with the standard.

Certification:
The action of determining, verifying and attesting, in writing, to the qualifications of personnel or material.

Commercial Grade Item:
An item that meets all of the following conditions:

- Is used in applications other than nuclear facilities or activities.

- Is not subject to design or specification requirements unique to NRC requirements for nuclear facilities.

- May be ordered from the manufacturer/supplier on the basis of specification set forth in the manufacturer's published product description (e.g., a catalog).

Note: The specification set forth in the published product description must match the requirements needed to satisfy the design function of the item.

Component:
A piece of equipment such as a vessel, piping, pump, valve or core support structure, which will be combined with other components to form an assembly.

Concurrence:
Written agreement with the provisions in a document.

APPENDIX C
TERMS AND DEFINITIONS

Condition Adverse To Quality:
An all-inclusive term used to reference any item or activity which does not conform to requirements. Conditions adverse to quality is synonymous with terms such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances.

Contractor:
Any organization under contract for furnishing items or services. It includes the term Vendors, Supplier, Subcontractor, Fabricator and subtier levels, where appropriate.

Controlled Document:
A document which is assigned and distributed to an individual or organization and requires that individual or organization to be accountable for the document and to acknowledge receipt of the document in writing. The distributing agent is responsible for providing the recipients with current revision to the document and for maintenance of the return acknowledgement receipts.

Corrective Action:
Measures taken to rectify a condition adverse to quality and where necessary, to preclude repetition.

Dedication:
The point in time after which a commercial grade item is accepted for a safety related application and deficiency reporting becomes the responsibility of the party performing the acceptance.

Deficiency:
A general term covering any defect, discrepancy, omission, or lack of conformance to requirements.

Documentation:
Any written or pictorial information describing, defining, specifying, reporting, or certifying activities, requirements, procedure or results. A document is not considered to be a QA record until it is completed and contains the required signatures.

Engineering (Engineer):
The term used to refer to the technical responsibilities of Technical Functions, Plant Engineering, etc.

Equipment Qualification:
The generation and maintenance of evidence to assure that the equipment will operate on demand to meet the system performance requirements.

Failure:
The inability of an item to perform within previously specified limits.

APPENDIX C
TERMS AND DEFINITIONS

Hold Point:
A process point for which notification, a reasonable time in advance of the operation, is required so that it can be witnessed. Work shall not proceed beyond the hold point until inspection has been performed or waived in accordance with approved procedures.

Independent Safety Engineering Department (ISED):
A full time group of engineers, independent of the unit staff and reporting to the Director, Nuclear Safety, which is responsible for performing independent evaluations and assessments of procedures and activities which have a direct effect on the safe operation of PVNGS.

Inservice Inspection (ISI):
Those periodic or event related actions accomplished to satisfy the requirements of the ASME Boiler and Pressure Vessel Code, Section XI. These actions may be required by PVNGS Technical Specifications.

Inspection Plan:
The instruction document that identifies the characteristics or activities requiring inspection, the method of inspection, acceptance criteria, and the extent of documentation required.

Item:
Any level of unit assembly, including structure, system, subsystem, subassembly, component, part, or material.

Lead Auditor:
An individual qualified to organize and direct an audit, report audit findings, and evaluate corrective action (also referred to as ATL.)

Measuring and Test Equipment (M&TE):
Any tool, gauge, instrument, standard, or device used to measure, test, calibrate, or otherwise verify acceptance parameters. Specifically excluded are those gauges, instruments, and devices normally used to monitor system parameters.

Modification:
A planned change in plant design or operation and accomplished in accordance with the requirements and limitations of applicable codes, standards, specifications, licenses and predetermined safety restrictions.

Monitoring:
Review, observation, or inspection for the purpose of verifying that an action is accomplished as specified.

APPENDIX C
TERMS AND DEFINITIONS

Nonconformance:
A deficiency in characteristic, documentation, or procedure which renders the quality of an item unacceptable or indeterminate. Examples of nonconformance include: physical defects, test failures, incorrect or inadequate documentation, or deviation from prescribed processing, inspection or test procedures.

Non-Quality Related (NQR):
Items that are not designated as Quality Class Q or quality augmented (QAG) which do not perform an important safety function. NQR items are not within the scope of the PVNGS Quality Assurance Program.

Operational Phase:
That period of time during which the principal activity is associated with normal operation of the plant. This phase of plant life is considered to begin formally with commencement of fuel loading and ends with plant decommissioning.

Procurement Document:
Purchase requisitions, purchase orders, drawings, contracts, specifications or instructions used to define requirements for purchase.

PVNGS:
Palo Verde Nuclear Generating Station.

PVNGS Employees:
All APS employees directly or indirectly performing work at or for PVNGS.

QA:
Quality Assurance

Quality:
The degree of conformance of an item or material to the specified requirements.

Quality Assurance:
All those planned and systematic actions necessary to provide adequate confidence that an item or a facility will perform satisfactorily in service.

Quality Assurance Plan (Plan):
The document which describes the method, means, controls and limits of the QA Program that implements the applicable regulatory and PVNGS requirements.

APPENDIX C
TERMS AND DEFINITIONS

Quality Assurance Program:
The program established by APS to provide the formal system of controls, directives, and documentation necessary to assure that quality related activities, including plant operation, maintenance, repair, inservice inspection, refueling, modifications, testing, and inspection, are carried out with the desired level of control to provide adequate confidence that systems and structures of the PVNGS perform satisfactorily in service. This program is described in the Quality Assurance Plan.

Quality Assurance Records:
Those records which furnish documentary evidence of the quality of items and of activities affecting quality. A document is considered a QA record when the document has been completed.

Quality Augmented (QAG):
Items that do not perform a safety related function but which, as a result of regulatory commitment or management directive, require the application of certain quality assurance program elements.

Quality Class Q:
A Quality Classification that includes safety related items as well as equipment, systems, and structures which do not meet the criteria of safety related, but, due to their importance, are designated by Senior Management as requiring the full application of 10 CFR 50, Appendix B.

Quality Classification List:
The controlled document used to record the identification of systems and major components subject to the requirements of the QA Plan.

Quality Related (Activities):
Those activities, programs, and procedures that are within the scope of the PVNGS Quality Assurance Program which may not be safety-related but, as the result of not being performed or being performed improperly, could result in the failure to satisfy, in whole or in part, the objectives of the operations Quality Assurance Program.

Quality Related (Items):
Those structures, systems, and components that are classified either Quality Class Q or quality augmented.

Repair:
The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still may not conform to the original requirement.

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TERMS AND DEFINITIONS

Review:
To examine any form of documentation or activity for the purpose of establishing acceptability to the requirements of the function represented by the reviewer. Reviews may range from a thorough investigation to a spot check. Reviews are generally not hold points, but sign-off on documents or records traceable to the documents is required.

Rework:
The process by which a nonconforming item is made to conform to a prior specified requirement by completion, remachining, reassembling or other corrective means.

Safety-Related (Q):
The equipment, systems, and structures that are relied upon to remain functional during and following design bases events to ensure:

A. The integrity of the reactor coolant boundary

B. The capability to shut down the reactor and maintain it in a safe condition

C. The capability to prevent or mitigate the consequences of accident which could result in potential offsite exposures comparable to the guideline exposures of 10 CFR 100.

Safety Review Groups:
Committees or organizations with responsibilities for evaluation of methods, procedures or conditions affecting plant safety during the operational phase.

Services:
The performance by a supplier or contractor of activities such as design, fabrication, inspection, nondestructive examination, repair, or installation.

Shall, Should, and May:
The word "shall" is used to denote a requirement; the work "should" is to denote a recommendation; and the word "may" is used to denote permission, neither a requirement nor a recommendation.

Significant Condition Adverse to Quality:
A significant condition adverse to quality is one which, if uncorrected, could have a serious effect on safety or operability.

Special Processes:
Those processes that require interim inprocess controls in addition to final inspection to assure quality. Included are such processes as welding, heat-treating, chemical cleaning, and nondestructive examination.

APPENDIX C
TERMS AND DEFINITIONS

Supplier:
Any organization or individual furnishing items or services (not including contract work performed at PVNGS) subject to a procurement document.

Testing:
The determination or verification of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental or operating conditions.

Traceability:
The ability to trace the history, application, or location of an item and like items or activities by means of recorded information.

Trend Analysis:
A quantitative method of collecting and analyzing nonconformance/deviation events with the goal of systematically determining programmatic/procedural weaknesses that may not be obvious to the day-to-day observer.

Use-As-Is:
A disposition which may be imposed for a nonconformance when it can be established that the discrepancy will result in no adverse conditions and that the item under consideration will continue to meet all engineering functional requirements including performance, maintainability, fit, and safety.

Vendor:
Any organization or individual furnishing items or services, offsite or at the PVNGS, subject to a procurement document. The term vendor includes both suppliers and contractors.

Verification:
An act of confirming, substantiating and assuring that an activity or condition has been implemented in conformance with the specified requirements.

Witness:
To watch over, observe, or examine a specific test or work operation with sign-off responsibility included.

Witness/Notification Point:
A process point for which notification, a reasonable time in advance of the operation, is required so that it may be witnessed. Work may proceed past the witness/notification point if the notified individual is not available at the appointed time.

APPENDIX D
COMPARISON OF QA PLAN RQMNTS WITH THOSE OF 10 CFR 50 APP.B & SELECTED ANSI STDS

10 CFR 50, Appendix B		QA Plan
I	Organization	1.0
II	QA Program	2.0
III	Design Control	3.2
IV	Procurement Document Control	3.3
V	Instructions, Procedures, Drawings	6.2
VI	Document Control	6.3
VII	Control of Purchased Material	3.3
VIII	Identification & Cntrl of Matls, Parts, and Components	3.4
IX	Control of Special Processes	3.5
X	Inspection	2.4, 4.2
XI	Test Control	3.6
XII	Control of M&TE	3.7
XIII	Handling, Storage and Shipping	3.8
XIV	Inspection, Test and Operating Status	3.9
XV	Nonconforming Materials, Parts or Components	2.10, 5.0
XVI	Corrective Action	2.10, 5.0
XVII	Quality Assurance Records	6.4
XVIII	Audits	2.4, 4.4

ANSI N45.2 - 1971		QA Plan
1.0	Introduction	
2.0	QA Program	2.0
3.0	Organization	1.0
4.0	Design Control	3.2
5.0	Procurement Doc. Cntrl.	3.3
6.0	Instructions, Procedures and Drawings	6.2
7.0	Document Control	6.3
8.0	Control of Purchased Matls, Equip & Services	3.3, 3.4
9.0	Identification & Control of Matls, Parts and Components	3.4
10.0	Control of Special Processes	3.5
11.0	Inspection	2.4, 4.2
12.0	Test Control	3.6
13.0	Control of M&TE	3.7
14.0	Handling, Storage and Shipping	3.8
15.0	Inspection, Test and Operating Status	3.9
16.0	Nonconforming Items	2.10, 5.0
17.0	Corrective Actions	2.10, 5.0
18.0	Quality Assurance Records	6.4
19.0	Audits	2.4, 4.4

ANSI N18.7 - 1976		QA Plan
3.0	Owner Organization	1.0
3.1	General	1.0
3.2	Assignment of Authority and Responsibility	1.0
3.3	Indoctrination & Training	2.7
3.4	Onsite Operating Organization	1.0
4.0	Reviews and Audits	2.4, 4.4
4.1	General	
4.2	Program Description	
4.3	Independent Review Program	2.9
4.4	Review Activities of the Onsite Operating Org.	2.9
4.5	Audit Program	2.4, 4.4
5.0	Program, Policies and Procedures	2.0
5.1	Program Description	2.0
5.2	Rules of Practice	6.3
5.2.1	Responsibilities and Authorities of Operation Personnel	1.0
5.2.2	Procedure Adherence	6.0
5.2.3	Operating Orders	6.0
5.2.4	Special Orders	6.0
5.2.5	Temporary Procedures	6.0
5.2.6	Equipment Control	3.9
5.2.7	Maintenance and Modifications	3.11
5.2.8	Surveillance Testing and Inspection Schedule	3.12
5.2.9	Plant Security and Visitor Control	App. F-3
5.2.10	Housekeeping and Cleanliness Control	3.10
5.2.11	Corrective Actions	5.0
5.2.12	Plants Records Mgmt.	6.0
5.2.13	Procurement and Materials Control	3.3, 3.4 3.8
5.2.14	Nonconforming Items	2.10, 5.0
5.2.15	Review, Approval and Control of Procedures	6.2, App. E
5.2.16	Measuring & Test Equip	3.7
5.2.17	Inspections	2.4, 4.2
5.2.18	Control of Special Processes	3.5
5.2.19	Test Control	3.6
5.3	Preparation of Instructions & Procedures	6.0
5.3.1	Procedure Scope	6.0
5.3.2	Procedure Content	6.0
5.3.3	System Procedures	6.0
5.3.4	General Plant Procedures	6.0
5.3.5	Maintenance Procedures	6.0
5.3.6	Radiation Control Procedures	6.0
5.3.7	Calibration and Test Equipment	6.0
5.3.8	Chemical-Radiochemical Control Procedures	6.0
5.3.9	Emergency Procedures	6.0
5.3.10	Test and Inspection	6.0

APPENDIX E
QUALITY ASSURANCE ORGANIZATIONS DOCUMENT REVIEW REQUIREMENTS

QA shall selectively review documents that prescribe methods to implement activities within the scope of this Plan or provide the analytical basis or technical requirements for items, parts, materials and activities that are within the scope of this Plan. The purpose of such reviews is to verify that such documents will be or are appropriate for use. The minimum review criteria to be used, as appropriate to the document being reviewed, is provided in Subsection 6.2.1 of this Plan.

The classes of documents typically reviewed include plans, procedures, instructions, and changes; procurement documents; engineering documents; maintenance authorizing documents; and temporary procedures. Refer to Section 6.3.1.1 for specific types of documents that shall periodically be verified by document review.

The timing (i.e., prior to or after implementing approval) and extent of such reviews shall be prescribed by procedures. These procedure(s) shall be consistent with the following:

- The text and Appendix B of this Plan.
- Plans, procedures, instructions, and changes thereto that shall be reviewed by Quality Assurance personnel prior to implementation shall be identified in administrative control procedures.
- Changes to quality classification procedure(s) and review and approval procedure(s) shall be reviewed by the Director-QA prior to implementation of the change.
- Procurement and engineering documents that prescribe technical and/or quality requirements for items, parts, materials, and changes to the existing plant configurations may or may not be reviewed by QA prior to issue. Such documents and changes shall be reviewed prior to issue if inspection points are to be revised or affected.
- Selected maintenance and installation documents and changes may be reviewed prior to implementation.

APPENDIX F

QUALITY AUGMENTED PROGRAMS

APPENDIX F-1

QUALITY ASSURANCE FOR FIRE PROTECTION

1.0 SCOPE

1.1 This Appendix provides the Quality Assurance criteria for fire protection consistent with Branch Technical Position, APCSB 9.5-1, Appendix A, and the NRC Guidance Letter dated August 29, 1977, entitled "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance", Attachment 6 "Quality Assurance."

1.2 Items and activities to which this Appendix applies are identified and classified in accordance with PVNGS Administrative Control procedures.

1.3 This Appendix along with its implementing procedures comprise the PVNGS Fire Protection Quality Assurance Program.

2.0 PURPOSE

The purpose of this Appendix is to ensure that the critical aspects of design, procurement, maintenance, and testing are applied to ensure that fire protection equipment is available and functional. The Quality Assurance requirements described herein are applied to the extent necessary to ensure that the safe shutdown capability of the plant is maintained and to minimize any radioactive release to the environment if a fire does occur.

3.0 REQUIREMENTS

3.1 General

3.1.1 The fire protection program shall include provisions for:

a. Conducting a fire hazards analysis and annual updates, as necessary, to evaluate the effect of a fire on nuclear safety. The analysis shall evaluate plant design, potential fire hazards in the plant, potential threat of these hazards in the plant, and the effect of postulated fires on the capability to safely shut down the plant and to minimize radioactive releases to the environment.

b. Establishing the organizational and administrative responsibilities for the program.

c. Training, which shall include fire drills, and qualification of Fire Department personnel.

d. General employee training on fire protection and prevention.

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e. Controlling the use and storage of combustibles (such as wood and flammable gases and liquids) and ignition sources (such as welding, cutting, and open flame). Work activities shall be reviewed to identify potential fire hazards (including housekeeping), and precautions shall be taken to prevent the initiation and spread of fire.

f. Reporting of a fire, fire emergency procedures, and coordination of fire fighting activities with offsite fire departments.

g. Compensatory actions to be taken in the event that a fire protection system is out of service.

h. Conducting reportability evaluations of violations of the requirements of the fire protection program described in the UFSAR and the unit Operating Licenses which could have adversely affected the ability to achieve and maintain safe shutdown in the event of a fire.

3.1.2 Those items associated with fire protection that are not part of the permanent plant (i.e., communications equipment, portable smoke ejectors, manual fire fighting equipment, etc.), shall be procured to an appropriate commercial quality standard. The activities associated with assuring that these items are functional and available for use shall be delineated in administrative control procedures and shall be classified as quality related.

3.2 Quality Assurance

3.2.1 The extent to which the requirements of this Appendix and its implementing documents are applied to an item or activity shall be based on a graded approach using the following criteria:

a. The effect of a malfunction or failure of the item on nuclear safety or safe plant operation.

b. The design and fabrication complexity or uniqueness of the item.

c. The need for special controls, surveillance or monitoring of processes, equipment, and operational activities.

d. The degree to which functionality can be demonstrated by inspection or test.

e. The quality history and degree of standardization of the item.

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When the graded approach is utilized, the justification and basis for grading shall be documented and retrievable. Application of the graded approach shall be accomplished in accordance with procedures concurred with by the QA organization. These procedures shall clearly identify how the justification and basis for grading shall be documented and maintained.

Grading of Plan requirements applicable to items shall be the responsibility of the Vice President, Engineering and Construction.

Grading of Plan requirements applicable to activities shall be the responsibility of the organization responsible for performing the activity.

3.2.2 Design Control and Procurement Document Control

Measures shall be established to assure that the applicable guidelines of Branch Technical Position APCSB 9.5-1 are included in design and procurement documents and that deviations therefrom are controlled. These measures shall assure that:

a. Design and procurement document changes, including field changes and design deviations are subject to the same level of controls, reviews, and approvals that were applicable to the original document.

b. Quality standards are specified in the design documents such as appropriate fire protection codes and standards, and deviations and changes from these quality standards are controlled.

c. New designs and plant modifications, including fire protection systems, are reviewed by qualified personnel to assure inclusion of appropriate fire protection requirements. These reviews shall include items such as:

   1. Design reviews to verify adequacy of wiring isolation and cable separation criteria.

   2. Design reviews to verify appropriate requirements for room isolation (sealing penetrations, floors, and other fire barriers).

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d. A review and concurrence of the adequacy of fire protection requirements and quality requirements stated in procurement documents are performed and documented by qualified personnel. This review shall determine that fire protection requirements and quality requirements are correctly stated, inspectable, and controllable; there are adequate acceptance and rejection criteria; and the procurement document has been prepared, reviewed, and approved in accordance with QA program requirements.

3.2.3 Instructions, procedures, and drawings

Inspections, tests, administrative controls, fire drills, and training that govern the fire protection program shall be prescribed by documented instructions, procedures, or drawings and shall be accomplished in accordance with these documents. The following provisions shall be included:

a. Indoctrination and training programs for fire prevention and fire fighting are implemented in accordance with documented procedures.

b. Activities such as design, installation, inspection, test, maintenance, and modification of fire protection systems are prescribed and accomplished in accordance with documented instructions, procedures, and drawings.

c. Instructions and procedures for design, installation, inspection, test, maintenance, modification, and administrative controls are reviewed to assure proper inclusion of fire protection requirements, such as precautions, control of ignition sources and combustibles, provisions for backup fire protection if the activity requires disabling a fire protection system, and restriction on material substitution unless specifically permitted by design and confirmed by design review.

d. The installation or application of penetration seals and fire retardant coatings is performed by trained personnel using approved procedures.

e. Instructions, procedures, and drawings shall be controlled to prevent the use of superseded information.

f. Program and administrative control procedures shall be reviewed and concurred with by the Quality Assurance organization.

g. Instructions and procedures that prescribe the performance of quality related activities shall be clearly identified as quality related.

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QUALITY ASSURANCE FOR FIRE PROTECTION

3.2.4 Control of Purchased Material, Equipment, and Services

Measures shall be established to assure that purchased material, equipment, and services conform to the procurement documents. These measures shall include:

a. Provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor, inspections at suppliers, or receiving inspections.

b. Source or receiving inspection, as a minimum, for those items whose quality cannot be verified after installation.

3.2.5 Inspection

A program for inspection of activities affecting fire protection shall be established by or for the organization performing the activity to verify conformance to documented installation drawings and test procedures for accomplishing activities. The program shall include:

a. Inspections of (1) installation, maintenance, modification, and tests of fire protection systems; and (2) emergency lighting and communication equipment to assure conformance to design and installation requirements.

b. Inspection of penetration seals and fire retardant coating installations to verify the activity is satisfactorily completed.

c. Inspections of cable routing to verify conformance with design requirements.

d. Inspection to verify that appropriate requirements for room isolation (sealing penetrations, floors, and other fire barriers) are accomplished during construction.

e. Measures to assure that inspection personnel are independent from the individuals performing the activity being inspected and are knowledgeable in the design and installation requirements for fire protection.

f. Inspection procedures, instructions, and checklists that provide for the following:

1. Identification of characteristics and activities to be inspected.

2. Identification of the individuals or groups responsible for performing the inspection operation.

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3. Acceptance and rejection criteria.

4. A description of the method of inspection.

5. Recording evidence of completing and verifying a manufacturing, inspection or test operation.

6. Recording inspector or data recorder and the results of the inspection operation.

g. Periodic inspections of fire protection systems, emergency breathing and auxiliary equipment, emergency lighting, and communication equipment to assure the acceptable condition of these items.

h. Periodic inspection of materials subject to degradation such as fire stops, seals, and fire retardant coatings to assure that these items have not deteriorated or been damaged.

i. The identification of any required independent inspections to be performed by the Quality Assurance organization.

3.2.6 Test and Test Control

A test program shall be established and implemented to ensure that testing is performed and verified by inspection and audit to demonstrate conformance with design and system readiness requirements. The tests shall be performed in accordance with written test procedures; test results shall be properly evaluated and acted upon. The test program shall include the following:

a. Installation testing - Following construction, modification, repair, or replacement, sufficient testing shall be performed to demonstrate that fire protection systems, emergency lighting, and communication equipment will perform satisfactorily in service and that design criteria are met. Written test procedures for installation tests incorporate the requirements and acceptance limits contained in applicable design documents.

b. Periodic testing - The schedules and methods for periodic testing shall be developed and documented. Fire protection equipment, emergency lighting, and communication equipment are tested periodically to assure that the equipment will properly function and continue to meet the design criteria.

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c. Provisions for the Quality Assurance organization to verify testing of fire protection systems and to verify that test personnel are effectively trained.

d. Test results are documented, evaluated, and their acceptability determined by a qualified responsible individual or group.

3.2.7 Inspection, Test, and Operating Status

Measures shall be established to provide for the identification of items that have satisfactorily passed required tests and inspections. These measures shall include appropriate provisions for identification by means of tags, labels, or similar temporary markings to indicate completion of required inspections and tests, and operating status.

3.2.8 Nonconforming Items

Measures shall be established to control items that do not conform to specified requirements to prevent inadvertent use or installation. These measures shall include provision to assure that:

a. Nonconforming, inoperative, or malfunctioning fire protection systems, emergency lighting, and communication equipment are appropriately tagged or labelled.

b. The identification, documentation, segregation, review disposition, and notification to the affected organization of nonconforming materials, parts, components, or services are procedurally controlled.

c. Documentation identifies the nonconforming item, describes the nonconformance and the disposition of the nonconforming item, and includes signature approval of the disposition.

d. Provisions are established identifying those individuals or groups delegated the responsibility and authority for the disposition and approval of nonconforming items.

3.2.9 Corrective Action

Measures shall be established to ensure that conditions adverse to fire protection such as failures, malfunctions, deficiencies, deviations, defective components, uncontrolled combustible material, and nonconformances are promptly identified, reported, and corrected. These measures shall assure:

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QUALITY ASSURANCE FOR FIRE PROTECTION

a. Procedures are established for evaluation of conditions adverse to fire protection (such as nonconformance, failures, malfunctions, deficiencies, deviation, and defective material and equipment) to determine the necessary corrective action.

b. In the case of significant or repetitive condition adverse to fire protection, including fire incidents, the cause of the condition is determined and analyzed, and prompt corrective actions are taken to preclude recurrence. The cause of the condition and the corrective action taken are promptly reported to cognizant levels of management for review and assessment.

c. Conditions adverse to fire protection are periodically analyzed to detect trends which may not be apparent to a day-to-day observer.

3.2.10 Records

Records shall be prepared and maintained to furnish evidence that the criteria enumerated above are being met for activities affecting the fire protection program. The following provision shall be included:

a. Records are identifiable and retrievable and shall demonstrate conformance to fire protection requirements. The records shall include results of inspection, tests, reviews, and audits; nonconformance and corrective action reports; construction, maintenance, and modification records; and certified manufacturer's data.

b. Record retention requirements are established.

3.2.11 Audits

3.2.11.1 Audits shall be conducted and documented to verify compliance with the fire protection program, including design and procurement documents, instruction, procedures, drawings, and inspection and test activities. These audits are performed by Quality Assurance personnel in accordance with preestablished written procedures or check lists and conducted by trained personnel not having direct responsibilities in the area being audited

3.2.11.2 Audit results are documented and reviewed with management having responsibility in the area audited.

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3.2.11.3 Followup action is taken by responsible management to correct deficiencies revealed by the audit.

3.2.11.4 Audits are performed annually to provide an overall assessment of conformance to fire protection requirements.

4.0 RESPONSIBILITIES

4.1 The Director, Palo Verde Services, is responsible for implementing and maintaining in effect all provisions of the approved fire protection program for PVNGS, as required by the Operating Licenses.

4.2 The Vice President, Engineering and Construction, is responsible for establishing all technical and quality classification requirements for the engineering and design of fire protection structures, systems, and components, including changes and modifications thereto.

4.3 The Director, Quality Assurance, is responsible for:

4.3.1 Performing independent inspection, when required.

4.3.2 Performing an audit of the Fire Protection Program and implementing procedures at least once per 24 months.

4.3.3 Performing an audit of the Fire Protection and Loss Prevention Program, utilizing either qualified offsite company personnel or an outside fire protection firm, at least once per 12 months.

4.3.4 Performing an audit of the Fire Protection and Loss Prevention Program, utilizing a qualified outside fire consultant, at least once per 36 months.

4.3.5 Reviewing and concurring with Fire Protection program and administrative control procedures.

4.3.6 Trending of significant conditions adverse to quality.

4.3.7 Resolving disputes on matters concerning the quality classification of activities.

4.3.8 Performing periodic monitorings to ensure that the requirements of this Appendix are properly implemented.

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QUALITY ASSURANCE FOR FIRE PROTECTION

4.4 Vice Presidents, Directors, Plant Managers, and General Managers are responsible for assisting in the implementation of the fire protection program as specified by administrative controls and implementing procedures.

4.5 The Executive Vice President, Nuclear, is responsible for the establishment of programs for the reporting, correction, and analysis of conditions adverse to fire protection.

APPENDIX F-2

QUALITY ASSURANCE FOR RADWASTE MANAGEMENT

1.0 SCOPE

1.1 This Appendix provides the Quality Assurance criteria for those Radwaste Systems within the scope of Regulatory Guide 1.143," Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants."

1.2 Items and activities to which this Appendix applies are identified and classified in accordance with PVNGS Administrative Control Procedures.

1.3 This Appendix, together with its implementing procedures, comprise the PVNGS Radwaste Management Quality Assurance Program

2.0 PURPOSE

The purpose of this Appendix is to provide criteria that will furnish reasonable assurance that components and structures used in the radioactive waste management and steam generator blowdown systems are designed, constructed, installed, and tested to a level commensurate with the need to protect the health and safety of the public and plant operating personnel.

3.0 REQUIREMENTS

3.1 General

3.1.1 Since the impact of these systems on safety is limited, a quality assurance program corresponding to the full extent of Appendix B to 10 CFR Part 50 is not required. However, to ensure that systems will perform their intended function, a quality assurance program sufficient to ensure that all design, construction, and testing provisions are met shall be established and documented.

3.1.2 The design, procurement, fabrication, and construction activities shall conform to the quality assurance provisions of the codes and standards referenced in Regulatory Guide 1.143.

3.1.3 Where not covered by the referenced codes and standards, the quality assurance features of this Appendix shall be established.

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QUALITY ASSURANCE FOR RADWASTE MANAGEMENT

3.2 Quality Assurance

The extent to which the requirements of this Appendix and its implementing documents are applied to an item or activity shall be based on a graded approach using the following criteria:

a. The effect of a malfunction or failure of the item on nuclear safety or safe plant operation.

b. The design and fabrication complexity or uniqueness of the item.

c. The need for special controls, surveillance or monitoring of processes, equipment, and operational activities.

d. The degree to which functionality can be demonstrated by inspection or test.

e. The quality history and degree of standardization of the item.

When the graded approach is utilized, the justification and basis for grading shall be documented and retrievable. Application of the graded approach shall be accomplished in accordance with procedures concurred with by the QA organization. These procedures shall clearly identify how the justification and basis for grading shall be documented and maintained.

Grading of Plan requirements applicable to items shall be the responsibility of the Vice President, Engineering and Construction.

Grading of Plan requirements applicable to activities shall be the responsibility of the organization responsible for performing the activity.

3.3 Design and Procurement

3.3.1 Design and procurement documents shall be independently verified for conformance to the requirements of Regulatory Guide 1.143 and this Appendix by individual(s) within the design organization who are not the originators of the documents. Changes to these documents shall be verified or controlled to maintain conformance to this Appendix.

3.3.2 Measures to ensure suppliers of material, equipment, and construction services are capable of supplying these items to the quality specified in the procurement documents shall be established. This may be done by an evaluation or a survey of the suppliers' products and facilities.

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QUALITY ASSURANCE FOR RADWASTE MANAGEMENT

3.3.3 Instructions shall be provided in procurement documents to control the handling, storage, shipping, and preservation of material and equipment to prevent damage, deterioration, or reduction in the level of cleanliness.

3.4 Inspection

In addition to required code inspections, a program for inspection of activities affecting quality shall be established and executed by, or for, the organization performing the activity to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity. This shall include the visual inspection of components prior to installation for conformance with procurement documents and the visual inspection of items and systems following installation, cleanness, and passivation (where applied).

3.5 Inspection Test and Operating Status

Measures shall be established to provide for the identification of items which have satisfactorily passed required inspections and test.

3.6 Corrective Action

Measures shall be established to identify items of nonconformance with regard to the requirements of procurement documents or applicable codes and standards and to identify the action taken to correct such items.

3.7 Records

Sufficient records shall be maintained to furnish evidence that the measures identified herein are being implemented. The records shall include results of reviews and inspections and shall be identifiable and retrievable.

4.0 RESPONSIBILITIES

4.1 The General Manager, Site Radiation Protection, is responsible for implementing and maintaining in effect all provisions of the Radwaste Management Program for PVNGS, as required by the Operating Licenses.

4.2 The Vice President, Engineering and Construction, is responsible for establishing all technical and quality classification requirements for the engineering and design of the Radwaste structures and components, including changes and modifications.

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QUALITY ASSURANCE FOR RADWASTE MANAGEMENT

4.3 The Director, Quality Assurance, is responsible for:

4.3.1 Performing independent inspections, when required.

4.3.2 Reviewing and concurring with the Radwaste Management program and administrative control procedures.

4.3.3 Trending of significant conditions adverse to quality.

4.3.4 Resolving matters of dispute with regard to the quality classification of activities

4.3.5 Performing periodic monitorings to ensure that the requirements of this Appendix are properly met.

4.4 Vice Presidents, Directors, Plant Managers, and General Managers are responsible for assisting in the implementation of the Radwaste Management Program as specified by the administrative control and implementing procedures.

APPENDIX F-3

QUALITY ASSURANCE FOR SECURITY

1.0 SCOPE

1.1 This Appendix provides the Quality Assurance requirements applicable to the PVNGS Security Program.

1.2 Activities to which this Appendix applies are identified and classified in accordance with PVNGS Administrative Control Procedures.

1.3 This Appendix, along with its implementing procedures, comprise the PVNGS Quality Assurance Program for security.

2.0 PURPOSE

The purpose of this Appendix is to ensure that the requirements of 10 CFR 73, "Physical Protection of Plants and Materials," and the applicable Regulatory Guidance are appropriately applied to protect PVNGS from acts of industrial sabotage that could lead to a threat to the health and safety of the public.

3.0 REQUIREMENTS

3.1 General

3.1.1 The security program for PVNGS shall provide for and maintain:

a. The maintenance of the physical security plan submitted in accordance with 10 CFR 50.34(c) and 10 CFR 73.55.

b. The maintenance of the training and qualification plan submitted in support of the physical security plan, as required by 10 CFR 73, Appendix B, "General Criteria for Security Personnel."

c. The maintenance of the safeguards contingency plan submitted in support of the physical security plan, as required by 10 CFR 73, Appendix C, "Licensee Safeguards Contingency Plans."

3.1.2 Changes to the physical security plan, the training and qualification plan, and the safeguards contingency plan for PVNGS shall be either preapproved or subsequently accepted for inclusion in the plan(s) by the NRC, where necessary.

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QUALITY ASSURANCE FOR SECURITY

3.1.3 Safeguards Information shall be protected against unauthorized disclosure in accordance with 10 CFR 73.21, and shall be restricted to authorized personnel with an established need-to-know.

3.1.4 The training and qualification of security personnel shall be accomplished in accordance with the training and qualification plan developed pursuant to 10 CFR 73, Appendix B.

3.1.5 Reporting of physical security events shall be accomplished in accordance with 10 CFR 73.71.

3.2 Quality Assurance

3.2.1 Instructions, Procedures, and Drawings

Instructions, procedures, and drawings for implementing the security program shall be prepared, processed, and controlled in accordance with PVNGS Administrative Control Procedures.

3.2.2 Reviews

A review of the security program shall be performed at least once every 12 months in accordance with 10 CFR 73.55(g)(4). Deficiencies identified during reviews of the security program shall be documented, reviewed by management, and evaluated for trends.

3.2.3 Corrective Actions

Security Program deficiencies shall be identified and controlled in accordance with PVNGS Administrative Control Procedures.

3.2.4 Records

Records generated during the development and implementation of the security program shall be processed and maintained in accordance with Section 6.0 of this QA Plan.

4.0 RESPONSIBILITIES

4.1 The Director, Palo Verde Services, is responsible for implementing and maintaining in effect all provisions of the approved security program for PVNGS, as required by the Operating Licenses.

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QUALITY ASSURANCE FOR SECURITY

4.2 The Director, Quality Assurance, is responsible for:

a. Performing an audit of the PVNGS security program at least once per 12 months.

b. Performing periodic monitoring to ensure that the requirements of this Appendix are properly implemented.

c. Trending of significant conditions adverse to quality.

d. Reviewing and concurring with Security Program Administrative Control Procedures.

e. Resolving disputes on matters concerning the quality classification of security activities.

4.3 Vice Presidents, Directors, Plant Managers, and General Managers are responsible for assisting in the implementation of the security program as specified by administrative control and implementing procedures.

APPENDIX F-4
QUALITY ASSURANCE FOR EMERGENCY PLANS AND EQUIPMENT

1.0 SCOPE

1.1 This Appendix provides the Quality Assurance requirements applicable to the PVNGS Emergency Plan and associated equipment.

1.2 Items and activities to which this Appendix applies are identified and classified in accordance with PVNGS Administrative Control Procedures.

1.3 This Appendix, along with its implementing procedures, comprise the PVNGS Quality Assurance Program for Emergency Planning.

2.0 PURPOSE

The purpose of this Appendix is to ensure that the requirements of 10 CFR 50.47, "Emergency Plans" and 10 CFR 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities" and the applicable Regulatory Guidance are appropriately applied to provide assurance that adequate protective measures are taken in the event of a radiological emergency.

3.0 REQUIREMENTS

3.1 General

The PVNGS Emergency Plan shall:

a. Establish plans for coping with emergencies.

b. Describe organizations and include responsibilities and duties.

c. Establish means for determining magnitude of and continually assessing the release of radioactive material, including emergency action levels.

d. Establish provisions for prompt communication among principal response organizations, emergency personnel, and the public.

e. Describe administrative and physical means for notifying local, state, and federal agencies and emergency personnel.

f. Establish and describe emergency facilities and equipment.

g. Establish a program to provide for training of employees.

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QUALITY ASSURANCE FOR EMERGENCY PLANS AND EQUIPMENT

h. Require periodic drills and provide for formal critiques of drills.

i. Provide for independent review of the emergency preparedness program.

j. Identify and evaluate events which may arise during operation.

k. Provide direction of activities to limit consequences of an accident.

l. Provide for a general approach to recovery.

m. Require periodic testing of communication systems.

3.2 Quality Assurance

Plans, procedures, and instructions shall be prepared, processed, and controlled in accordance with PVNGS Administrative Control Procedures.

Measuring and test equipment utilized in implementing the Emergency Plan shall be calibrated against standards which are traceable to National Institute of Standards and Technology or other nationally recognized standards. In cases where no such standard exists, standards should be derived or developed.

Equipment, components, and supplies that are utilized in implementing the Emergency Plan shall be inspected at least quarterly. Equipment and components shall be maintained and tested in accordance with approved written procedures. Deficiencies shall be documented and corrected.

Deficiencies noted during drills and exercises shall be incorporated in action items. Follow-up shall be performed to ensure that deficiencies are corrected.

Independent audit of the Emergency Program (including the Emergency Plan) shall be performed.

Records, including training records, generated during the development and implementation of the Emergency Plan shall be identified and their retention requirements shall be specified.

4.0 RESPONSIBILITIES

4.1 The Director, Palo Verde Services, is responsible for implementing and maintaining in effect all provisions of the Emergency Plan for PVNGS.

4.2 The Director, Quality Assurance, is responsible for:

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QUALITY ASSURANCE FOR EMERGENCY PLANS AND EQUIPMENT

a. Performing audits of the PVNGS Emergency Plan.

b. Performing periodic monitoring to ensure that the requirements of this Appendix are properly implemented.

c. Resolving disputes on matters concerning the quality classification of Emergency Plan activities.

4.3 Vice Presidents, Directors, Plant Managers, and General Managers are responsible for assisting in the implementation of the Emergency Plan as specified by administrative control and implementing procedures.

APPENDIX F-5
QUALITY ASSURANCE FOR SEISMIC CATEGORY IX

1.0 SCOPE

1.1 This Appendix provides the Quality Assurance criteria for items that do not perform a safety related function but whose structural failure and collapse during a safe shutdown earthquake could reduce the functioning of safety related equipment or systems.

1.2 Items and activities to which this Appendix applies are identified and classified in accordance with PVNGS Administrative Control Procedures.

2.0 PURPOSE

The purpose of this Appendix is to ensure that seismic category IX items are designed and installed such that a safe shutdown earthquake will not cause their structural failure and collapse or cause the generation of missiles that could reduce the functioning of safety related structures, systems, and components.

3.0 REQUIREMENTS

3.1 General

The quality augmented program applied to seismic category IX structures, systems, and components is primarily intended to provide design and configuration control.

The primary focus of this quality augmented program is component supports and support elements. It also must be applied to supported components to the extent that the support is an integral part of the supported component.

This quality augmented program is not intended to encompass structures, systems, and components whose failure could reduce the functioning of safety related equipment through leakage, spray, or impingement effects.

3.2 Quality Assurance

3.2.1 The extent to which the requirements of this Appendix and its implementing documents are applied to an item or activity shall be based on a graded approach using the following criteria:

a. The effect of a malfunction or failure of the item on nuclear safety or safe plant operation.

b. The design and fabrication complexity or uniqueness of the item.

c. The need for special controls, surveillance or monitoring of processes, equipment, and operational activities.

d. The degree to which functionality can be demonstrated by inspection or test.

e. The quality history and degree of standardization of the item.

When the graded approach is utilized, the justification and basis for grading shall be documented and retrievable. Application of the graded approach shall be accomplished in accordance with procedures concurred with by the QA organization. These procedures shall clearly identify how the justification and basis for grading shall be documented and maintained.

Grading of Plan requirements applicable to items shall be the responsibility of the Vice President, Engineering and Construction.

Grading of Plan requirements applicable to activities shall be the responsibility of the organization responsible for performing the activity.

3.2.2 Design Control

The organizational structure and responsibilities of personnel involved in preparing, reviewing, approving, and verifying design documents shall be defined.

Internal and external design interface controls, procedures, and lines of communication among participating design organizations and across technical disciplines shall be established and described for the preparation, review, approval, release, distribution, and revision of design documents.

Vendor designed components shall be evaluated by Engineering and Construction to the extent necessary to assure that they are compatible with approved support design parameters.

a. Components or parts containing integral support elements (e.g. a built-in mounting bracket on an instrument) shall be analyzed by Engineering and Construction to ensure that the support element is adequate to withstand a safe shutdown earthquake without loss of structural integrity.

b. Vendor designed equipment shall be documented on approved drawings that are sufficiently detailed for the performance of configuration inspections.

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QUALITY ASSURANCE FOR SEISMIC CATEGORY IX

Conditions adverse to quality in approved design documents, including design methods (such as computer software) that could adversely affect items within the scope of this Appendix shall be identified, documented, and corrected. An evaluation of the effect of such conditions adverse to quality on installed hardware shall be performed. Significant conditions adverse to quality shall be promptly identified, evaluated for reportability, and corrected. The cause of significant conditions adverse to quality shall be determined and appropriate action taken to prevent recurrence.

Design verification methods shall be established consistent with the commitment to Regulatory Guide 1.64 (including clarifications and exceptions) contained in Appendix B of this Plan.

3.2.3 Instructions, Procedures, and Drawings

Activities critical to the structural integrity of seismic category IX systems, structures, and components shall be accomplished in accordance with documented procedures, instructions, and/or drawings of a type appropriate to the circumstances. These procedures, instructions, and drawings shall be clearly identified as "quality related."

3.2.4 Control of Special Process

Special processes subject to the controls mandated by this Appendix are welding, brazing, and nondestructive examination which, if performed incorrectly, could have a detrimental effect on the structural integrity of seismic category IX structures, systems, or components.

Measures shall be established to assure that special processes are accomplished under controlled conditions in accordance with applicable codes, standards, applications criteria, and other requirements, including the use of qualified personnel and procedures.

Qualification records of personnel, equipment, and procedures associated with special processes shall be established and maintained to the extent required by applicable codes and standards.

3.2.5 Control of Measuring and Test Equipment (M&TE)

Measures shall be established to assure that tools, gauges, instruments and other measuring and testing devices used in activities affecting the structural integrity of seismic category IX structures, systems, and components are properly controlled and calibrated or adjusted at specified intervals to maintain accuracy with specified limits.

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QUALITY ASSURANCE FOR SEISMIC CATEGORY IX

Measures shall be established for determining the validity of previous inspections or tests performed when the measuring and test equipment is found to be out of calibration. Such determination is to be documented in suitable form. If any calibration, testing or measuring device is consistently found to be out of calibration, it shall be repaired or replaced.

Some measuring tools, because of their construction or because they are not adjustable (such as rulers) may not require periodic calibration. However, they shall be maintained in good working condition.

3.2.6 Inspections

A program of inspection shall be established by or for the organization performing maintenance and modification activities that could affect the structural integrity of seismic category IX structures, systems, and components.

The inspection program associated with the installation of seismic IX components shall include verification of general configuration of vendor and APS designed components and support elements.

Measures shall be established to assure that inspection personnel are independent from the individuals performing the activity being inspected and are knowledgeable in the design and installation requirements for seismic category IX structures, systems, and components.

3.2.7 Control of Conditions Adverse to Quality and Corrective Action

Measures shall be established for controlling items that do not conform to specified requirements to prevent inadvertent use or installation.

Measures shall be established to ensure that conditions adverse to quality are promptly identified, documented and corrected. Significant conditions adverse to quality shall be promptly identified, evaluated for reportability, and corrected. The cause of significant conditions adverse to quality shall be determined and appropriate action taken to prevent recurrence.

3.2.8 Control of Documents and Records

Measures shall be established for the control and generation of documents and records associated with activities critical to the structural integrity of seismic category IX structures, systems, and components.

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QUALITY ASSURANCE FOR SEISMIC CATEGORY IX

These measures shall control the issuance of documents such as program documents, design documents, and work instructions that prescribe the performance of activities critical to the structural integrity of seismic category IX structures, systems, and components.

These measures shall require that records are prepared and maintained to furnish objective evidence that the criteria enumerated above are being met for activities affecting the structural integrity of seismic category IX structure, systems, and components.

4.0 RESPONSIBILITIES

4.1 The Vice President, Engineering and Construction, is responsible for:

a. Establishing all technical and quality classification requirements for the engineering and design of seismic category IX structures, systems, and components.

b. Identifying attributes requiring inspection.

4.2 The Director, Quality Assurance, is responsible for:

a. Performing independent inspections, when required.

b. Reviewing and concurring with administrative control procedures associated with the implementation of this Appendix.

c. Trending of significant conditions adverse to quality.

d. Resolving matters of dispute with regard to the quality classification of activities.

e. Performing periodic monitorings to ensure that the requirements of this Appendix are properly met.

4.3 Vice Presidents, Directors, Plant Managers, and General Managers are responsible for assisting in the implementation of the seismic category IX program as specified by the administrative control and implementing procedures.

APPENDIX G

Control of Computer Software and Data

1.0 GENERAL

Measures shall be established utilizing the graded approach to ensure that the requirements for procurement, installation, design, testing, modification, and use of software are commensurate with their importance to safety.

2.0 PROGRAM REQUIREMENTS

2.1 The computer software development process, documentation requirements, and qualification and approval requirements shall be established.

2.2 Methods shall be established and implemented to control the procurement of computer software.

2.3 Methods shall be established and implemented to document, evaluate, and correct errors and deficiencies in computer software. Their impact on past and present design activities shall be evaluated.

2.4 Methods shall be established and implemented for the control of changes to approved computer software.

2.5 Methods shall be established for the installation, use, modification, and distribution of computer software and associated documentation in accordance with Section 6.3 of this Plan.

2.6 Methods shall be established for the maintenance and retention of computer software and associated documentation in accordance with Section 6.4 of this Plan.

2.7 Prior to utilization, computer software shall be qualified in accordance with approved procedures, or by administrative controls that require verification of output prior to use.

2.8 Controls shall be established to verify the accuracy and integrity of data input into automated computer databases.

3.0 APPLICABILITY

3.1 The requirements of this Appendix apply to computer software and relevant data not specifically classified as a plant system, structure, or component in accordance with Section 2.8 of this Plan.

APPENDIX G

Control of Computer Software and Data

3.2 The requirements of this Appendix apply to computer software that is used to:

a. Generate design output which defines or prescribes activities affecting safety related functions or equipment (e.g., cable pull slips).

b. Directly interface with plant operations personnel and is used to make decisions affecting:

1. The integrity of the reactor coolant pressure boundary.

2. The capability to shut down the reactor and maintain it in a safe condition.

3. The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the 10 CFR 100 guidelines.

c. Perform calculations which result in acceptance of inspection or test data for quality related equipment.

d. Design or aid in the design of quality related structures, systems, or components including physics, seismic, stress, thermal, hydraulic, radiation, and accident analysis.

e. Generate output used to procure quality related items.

f. Maintain or control descriptive information for output used in the procurement of quality related items.

4.0 RESPONSIBILITIES

4.1 The Vice President, Engineering and Construction, is responsible for the development of process and non-process computer software and data controls.

4.2 The Director, Quality Assurance, is responsible for performing Quality Assurance verifications in accordance with Section 4.0 of this Plan.