

OPERATIONS QUALITY ASSURANCE PLAN



PALO VERDE
NUCLEAR GENERATING STATION

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OPERATIONS QUALITY ASSURANCE PLAN
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PVNGS OPERATIONS QUALITY ASSURANCE PLAN

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items within the scope of the QA Plan will require documents which control activities and records which will serve as a historical reference.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 the Palo Verde Nuclear Generating Station (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 will 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.

Blaine E. Ballard Jr.
B. E. Ballard, Sr.
Director, Quality Assurance

W. F. Conway
W. F. Conway
Executive Vice President, Nuclear



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1.0 ORGANIZATION

The general structure of the organizational elements responsible for the operation, maintenance, modification, repair, inservice inspection and refueling 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, modification, maintenance, 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, is responsible for the engineering, design, procurement, modification, maintenance, construction, 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.



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- 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
General Manager, Site Radiation Protection
General Manager, Site Chemistry
General Manager, Nuclear Training
Manager, Site Maintenance
Manager, Plant Support



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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.



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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
Manager, Nuclear Safety
Manager, Independent Safety Engineering

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.



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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, Technical Support
General Manager, Nuclear Information Records Management
Manager, Nuclear Fuel Management
Manager, Configuration 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:



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- 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.



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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:

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

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.

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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 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."

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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; 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.



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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.



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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 or systems 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.



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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.

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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 approval by the NRC prior to issuance, but must 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 must be submitted to the NRC for approval prior to implementation. Such revisions shall be regarded as approved 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 must include all pages affected by that change and must 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 must 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.



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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.



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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.

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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.

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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 Vice President, Nuclear Safety and Licensing. 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 Vice President, Nuclear Safety and Licensing 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 Vice President, Nuclear Safety and Licensing. 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.

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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.



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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.

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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.

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- 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 design documents.
- 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.

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

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.

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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 delineate requirements to assure that procurement documents include 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.



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- 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.

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:



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- 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:

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- 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.

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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 use.
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.



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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:

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- 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:

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- 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.



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- 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.



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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.



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- 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, Technical Support

The Director, 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:

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- 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.

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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.



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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.

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- 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.



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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 be identified where necessary to preclude inadvertent bypassing of required inspections and tests.
- 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.

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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.



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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.



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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.

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- 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.



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- 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.

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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, Technical Support

The Director, 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.



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- 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.

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- 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.

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- 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.

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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.

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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 or reviews 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 Quality Assurance and Engineering and Construction organizations are responsible for the identification of attributes which require independent inspection.

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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 Work Control on quality related tasks. A sign-off for worker verification shall be provided in the work document when requested by Work Control.

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 Work Control on quality related tasks. A sign-off for the supervisory verification shall be provided in the work document when requested by Work Control.

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.



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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:

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- 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.



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4.2.2.4 Director, Technical Support

The Director, 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.



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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.



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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.

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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.

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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.

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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.



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- 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.

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- 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.



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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.



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- 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.



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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)



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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.

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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:



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- 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:

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- 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.

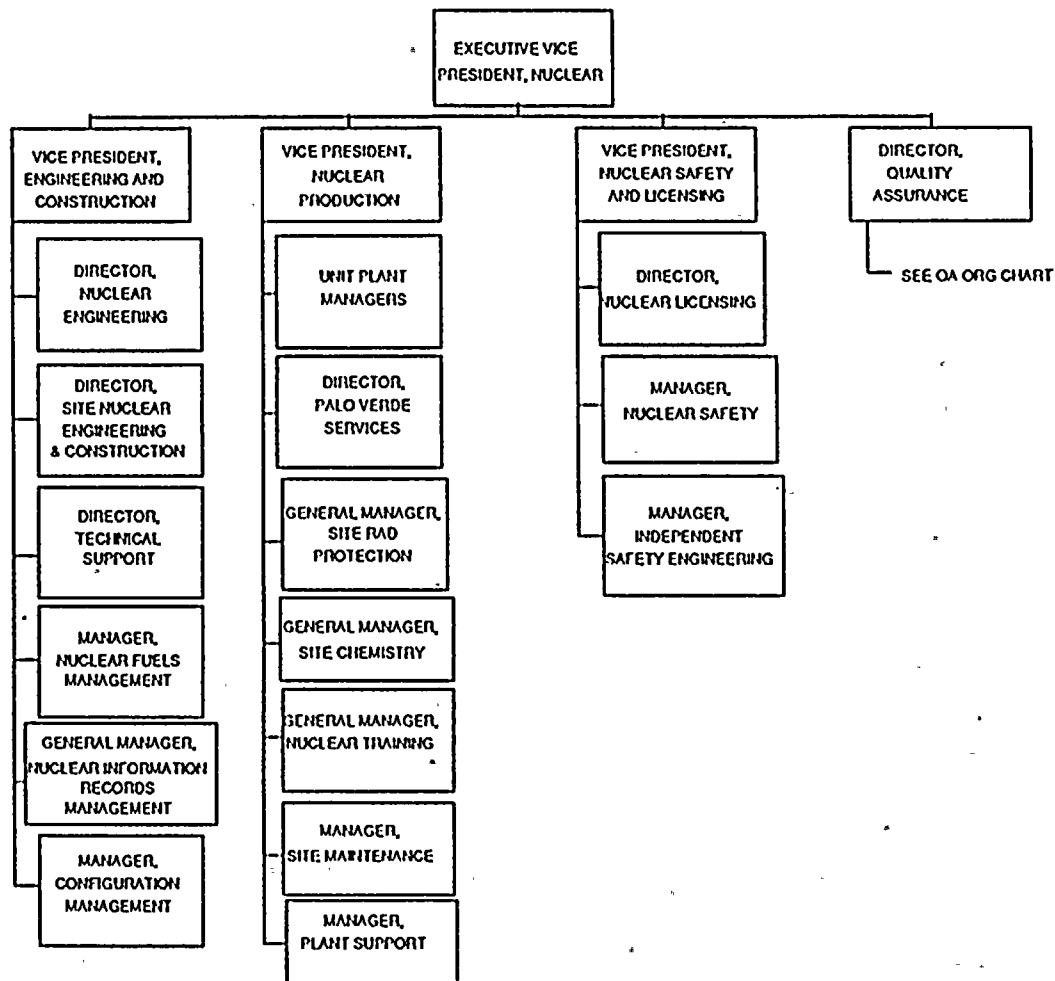
6.4.2.4 Director, Quality Assurance

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



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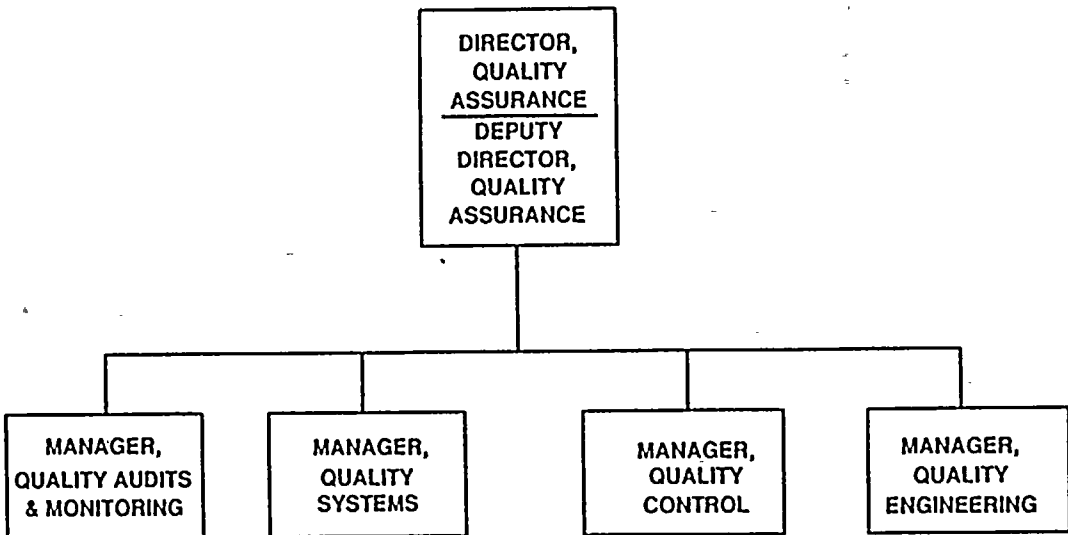
APPENDIX A PVNGS Organizational Structure





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APPENDIX A
PVNGS Organizational Structure





APPENDIX B Part 1
COMPLIANCE MATRIX

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REG.Guid	Revision	Title	Standard	Year	Degree of Conformance	Divisions Having Implementation Responsibilities
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

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

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REG.Guidc	Revision	Title	Standard	Year	Degree of Conformance	Divisions Having Implementation Responsibilities
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

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REG.Guid	Revision	Title	Standard	Year	Degree of Conformance	Divisions Having Implementation Responsibilities
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

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

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Part II

Conformance statements for Regulatory Guides are contained in Section 1.8 of the PVNGS Updated Final Safety Analysis Report (UFSAR). Conformance statements for selected Regulatory Guides related to Quality Assurance are contained in this Appendix and are included for information only. The reader is directed to the most recent revision of the UFSAR for current Regulatory Guide conformance.

REGULATORY GUIDE 1.8:

Personnel Selection and Training
(Revision 1-R, May 1977)

RESPONSE

The position of Regulatory Guide 1.8 is accepted (refer to UFSAR Sections 13.1 and 13.2) except that the criteria for the selection and training of nuclear power plant personnel contained in ANSI/ANS 3.1-1978 are substituted for ANSI N18.1-1971, and that the radiation protection supervisor qualifications are as provided in ANSI/ANS 3.1-1978. PVNGS compliance with ANSI/ANS 3.1-1978, along with any deviation from ANSI/ANS 3.1-1978, is presented in UFSAR paragraph 13.1.3.1.

REGULATORY GUIDE 1.26:

Quality Group Classification and Standards for Water, Steam
and Radioactive-Waste-Containing Components of Nuclear
Power Plants

(Revision 1, September 1974)

RESPONSE

Quality group classifications and code requirements for each quality group correspond to those indicated in Regulatory Guide 1.26 with the following exceptions:

- A. Positions C.1 and C.2
For Quality Group B and C instrument lines for safety-related instruments, the instrument piping, tubing, and fittings downstream of the instrument root valves will be the same quality group classification as the root valve. The instrument valves will be Quality Group D.
- B. Position C.1 for the Quality Group B Refueling Water Tank and Position C.2 for the Quality Group C Condensate Storage Tank

These tanks are of concrete construction with a stainless steel liner for maintenance of water Quality and are not constructed to the ASME Boiler and Pressure Vessel Code, Section III.

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- C. Positions C.1.d, C.1.e, C.2.c, and Footnote 4
The words "or remote manual" are considered to be inserted between the words "automatic" and "closure." This option is included to avoid an unnecessary complication (leading to decreased plant reliability) in lines which would not normally be provided with automatic closing valves.
- D. Position C.1.d
Specific exceptions taken to placing main steam and feedwater lines in Quality Group B are as follows:

The branch line size limitation of application of Seismic Category I requirements, indicated in Regulatory Guide 1.29, is also applied to quality group classification. Therefore, branch lines 2 inches nominal pipe size and under, excluding containment penetrations, are placed in Quality Group D.
- E. Position C.2.a
The requirement that systems providing cooling for the spent fuel pool be placed in Quality Group C is interpreted to apply only to the minimum systems required during an emergency condition and not necessarily to those systems normally providing such cooling.
- F. Position C.2.b
The seal water injection lines to the reactor coolant pumps are constructed to ASME Section III Class 2 requirements, although the cooling water lines to the shell side of the seal water heat exchanger are constructed to Quality Group D requirements as are the cooling water lines for the reactor coolant pump motors. This piping is Quality Group D because the cooling water is not required for safe shutdown of the reactor as the reactor coolant pumps can coast down without the benefit of this cooling water.
Equipment classification and code requirements are presented in UFSAR Section 3.2.

REGULATORY GUIDE 1.29:

Seismic Design Classification (Revision 3, September 1978)

RESPONSE

For operations phase activities, the following interpretations apply to the position of Regulatory Guide 1.29:

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- A. Position C.1.d
Systems required for cooling the spent fuel storage pool are required to be designed for the SSE. This is interpreted to apply only to the minimum systems required in an emergency condition and not necessarily to those systems normally providing such cooling.
- B. Position C.1.f and Footnote 1
The words "or remote manual" are considered to be inserted between the words "automatic" and "closure." This option is included to avoid an unnecessary complication (leading to decreased plant reliability) in lines which would not normally be provided with automatic closing valves.
- C. Position C.1.h
Refer to CESSAR Section 5.4.1.3.

REGULATORY GUIDE 1.30:

Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment (Revision 0, August 11, 1972)

RESPONSE

For operations phase activities that are comparable to activities occurring during the construction phase, the following interpretations apply to the position of Regulatory Guide 1.30:

- A. Section 5.2:
The various tests are performed "as appropriate" as determined by PVNGS Engineering Department based upon the significance of the change or modification.
- B. Section 6.2.1:
PVNGS utilizes a computer information management system to maintain plant equipment calibration status including the date of calibration and identity of the person that performed the calibration. The computer information management system provides a more reliable and accessible method of documenting plant equipment calibration status than the use of tags or labels affixed to the equipment.
- C. Section 6.2.2:
The requirement that systems tests be made to verify that all parts of a system properly coordinate with each other is interpreted as not requiring that an entire system be retested after modification of only a portion of that system. The testing requirements of the Technical Specifications are met for inoperable equipment.

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- D. PVNGS implements the requirements of ANSI N45.2.4 - 1972 in accordance with a performance based graded QA inspection program. Some items traditionally inspected by quality control may be accomplished through independent verification and/or second party verification.

REGULATORY GUIDE 1.33: Quality Assurance Program Requirements (Operation)
(Revision 2, February 1978)

RESPONSE

The position of Regulatory Guide 1.33 is accepted with the following interpretation:

The term "applicable operations phase activities that are comparable to activities occurring during the construction phase" shall be interpreted to mean those activities of such a scale and type that the following conditions are met:

- A. The work is to be performed by an outside contractor or owner's service organization not part of the plant organization.
- B. The system or area of the plant affected by the work is released to the contractor or service organization during the activity, and, except for radiological protection purposes and other specified control, effectively ceases to be part of an operating nuclear power plant.

If the above conditions are not met and the activity is performed by the plant organization, the plant administrative procedures, which satisfy the same basic criteria as this guide and standard, shall apply.

The following exception is taken to Section 3.4.2 of ANSI N18.7:

The APS commitment on the qualification of personnel who are performing preoperational and startup test functions is found in UFSAR paragraph 14.2.2.12.

In addition, the following interpretations of ANSI N18.7 are made:

- A. Section 5.2.2
The requirements of this section are accepted with the following interpretations:

Temporary changes to procedures may be made provided the change is approved by two members of the plant management staff, at least one of whom holds a senior reactor operator license on the unit affected.

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Procedural steps traditionally identified as immediate actions are incorporated into standard post-trip actions. These actions are identified as safety function status checks that ensure plant safety regardless of accident classification. Safety function status checks, in the form of flow charts, will be provided on the control boards for ready use by the operators following any reactor trip.

B. Section 5.2.13.1

The requirement that changes made to procurement documents be subject to the same degree of control as was used in the preparation of the original documents is applied consistent with the requirements of ANSI N45.2.11, Paragraph 7.2. Minor changes to documents, such as inconsequential editorial corrections or changes to commercial terms and conditions, may not require that the revised document receive the same review and approval as the original documents.

C. Section 5.2.17

The requirements of this section are accepted with the following interpretation:

The requirement that deviations, their cause, and any corrective action completed or planned shall be documented shall apply to significant deviations. Other identified deviations will be documented and corrected. This interpretation is consistent with Appendix B to 10 CFR 50, Criterion XVI, Corrective Action.

D. Section 5.2.19.1

Preoperational testing (phase I startup testing) addressed in ANSI N18.7, Paragraph 5.2.19.1, will be conducted in accordance with Regulatory Guide 1.68, Revision 0.

E. Section 5.3.9.1

The requirements of this section are accepted with the following interpretation:

Actions identified as immediate operator actions have been standardized in the form of safety function status checks. Safety functions are maintained for all transients when the emergency procedure is implemented. This ensures proper operator response independent of event diagnosis. This approach is consistent with CEN-152, CE Emergency Procedure Guidelines.

Actions identified as subsequent operator action are addressed as a recovery procedure, implemented after event diagnosis. This approach is consistent with CEN-152, CE Emergency Procedure Guidelines.

The specific procedure format and content have been identified in the Emergency Procedure Generation Package and submitted to the NRC for review. This is consistent with NUREG-0899.

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The implementation of the positions of Regulatory Guide 1.33 are described in UFSAR chapter 13, this Plan, and the Technical Specifications.

REGULATORY GUIDE 1.37:

Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants (Revision 0, March 16, 1973)

RESPONSE

For operations phase activities that are comparable to activities occurring during the construction phase, the referenced standard (ANSI N45.2.1-1973) as modified by Regulatory Guide 1.37 is accepted as modified below.

- A. Section 2.1, Planning. The required planning is frequently performed on a generic basis for application to many systems and component installations. This results in standard procedures for cleaning, inspection, and testing which meet the requirements of the standard. Individual plans for each item or system are not normally prepared unless the work operations are unique; however, standard procedures are reviewed for applicability in each case. Cleaning procedures are limited in scope to those actions or activities which are essential to maintain or achieve required quality. This is consistent with Section 5.2.17, Paragraph 5, of ANSI N18.7-1976 which provides for examination, measurement, or testing to assure quality or indirect control by monitoring of processing methods.

REGULATORY GUIDE 1.38:

Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage and Handling of Items for Water-Cooled Nuclear Power Plants (Revision 2, May 1977)

RESPONSE

For operations phase activities that are comparable to activities occurring during the construction phase, the position of Regulatory Guide 1.38 is accepted with the following exceptions to the referenced standard (ANSI N45.2.2-1972):

- A. Section 2.4, Personnel Qualification. Personnel performing offsite audits shall be qualified to ANSI N45.2.23. Personnel performing offsite material inspection shall be qualified to ANSI N45.2.6. Personnel performing offsite monitoring activities shall be qualified to ANSI N45.2.23 or ANSI N45.2.6. Personnel performing preliminary visual observations (prior to unloading) per Section 5.2.1 of ANSI N45.2.2-1972 need not be qualified to ANSI N45.2.6. Item inspections per Section 5.2.2 of ANSI N45.2.2-1972 are performed by personnel qualified to ANSI N45.2.6. The item inspections also ensure that no damage has occurred during shipping.

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- B. Section 2.7, Classification of Items. The four-level Classification system may not be used explicitly. However, the specific requirements for each classification as specified in the standard are applied to the items suggested in each classification and for similar items.
- C. Section 2.7, Classification of Items. New (unirradiated) fuel elements, fission chamber detectors, and sealed sources containing special nuclear material are classified as level B for the purposes of this standard.
- D. Section 3.9, Marking. Identification of items, after the outside of the container has been removed, is accomplished in accordance with ANSI N18.7, Section 5.2.13.3.
- E. Section 6.2, Storage Areas. Paragraph 6.2.1 requires control and limited access to storage areas. In lieu of and to amplify this paragraph the following is applied.

"Access to storage areas for levels A, B, and C is controlled by the individual(s) responsible for material storage." Level D items are stored in a site area which has access control consistent with zone IV of ANSI N45.2.3-1973. While the areas may be posted to limit access, other positive controls (other than that for the overall site area) or guards may not be provided.
- F. Sections 3.9, 5.6, and Appendix A, Section 3.9, Marking. These ANSI N45.2.2 sections control direct marking of austenitic stainless steel and nickel based alloys. Marking is in compliance with the requirements of these sections except that markings may be directly applied using inks controlled so as not to contain more than 200 ppm of inorganic halogens.

REGULATORY GUIDE 1.39:

Housekeeping Requirements for Water Cooled Nuclear Power Plants (Revision 2, September 1977)

RESPONSE

For operations phase activities that are comparable to activities occurring during the construction phase, the position of Regulatory Guide 1.39 is accepted with the following exception:

Alternative equivalent zone designations and requirements may be utilized to cover those situations not included in the subject standard. For example, situations in which shoe covers and/or coveralls are required but material accountability is not.



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REGULATORY GUIDE 1.54:

Quality Assurance Requirements for Protective Coatings
Applied to Water-Cooled Nuclear Power Plants (Revision 0,
June 1973)

RESPONSE

The requirements of Regulatory Guide 1.54 and the referenced standard (ANSI N101.4-1972) are included in the APS quality program except as modified or interpreted below:

- A. Section 2.5
A meeting will not necessarily be held prior to coating work or a demonstration conducted provided all parties understand the coating requirements and acceptance standards.
- B. Section 5.2
Coating procedures used by suppliers may not be required to be submitted to the owner or his representative. However, they will be required to be approved by the coating applicator and coating manufacturer.
- C. Section 6
Instead of using a coating inspection agency, coating inspectors may be assigned by the owner or supplier to perform this function. These inspectors will meet the qualification requirements of Section 6.3.1, but may be assigned other inspection duties as long as these duties do not interfere with the coating inspection.

In addition, the selection of protective coatings for specific locations and the extent of applicability of Regulatory Guide 1.54 shall be based on the following coatings criteria:

- A. Location
Coating systems selected for either shop coatings program or field coatings are based on the location of the particular area or equipment within the plant, as it may be subject to unique environmental exposures and service conditions. These areas are identified as Q, R, and S areas.
 - 1. Q Area (nuclear)
Area located inside the containment building.
 - 2. R Area (decontaminable)
Area located outside the containment building but subject to radioactive contamination. These areas include portions of the auxiliary, fuel, and radwaste buildings.



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3. S Areas (conventional)
Areas located outside the containment building and not subject to radioactive contamination. These are all areas not classified under Q or R.

B. Quality Assurance Requirements

1. Summary
 - a. Compliance with Regulatory Guide 1.54 for R and S areas is not required and, therefore, will not be imposed for these areas.
 - b. ANSI N101.2 provides the testing and evaluation criteria established for coatings which shall be used. The coating used shall be certified by the coating manufacturer to withstand the spray solution proposed by the project.
 - c. Compliance with Regulatory Guide 1.54 for each and every item to be located within the containment is considered impractical and in some cases unattainable. Therefore, Regulatory Guide 1.54 will or will not be imposed in accordance with the following criteria:
2. Regulatory Guide 1.54 will be imposed for items located within the containment building as follows:
 - a. For shop priming of liner plate, structural steel, and fabricated shapes.
 - b. For shop priming of fabricated pipes, tanks, HVAC ducts, and equipment.
 - c. Field touch-up of any Q class coated items, when the touch-up area is in excess of 30 square inches.
 - d. For field finish painting of structural steel and equipment where called for in drawings and specifications.
 - e. For surfacing of concrete where indicated in drawings and specifications.
3. Regulatory Guide 1.54 will be implemented by requirements as follows:
 - a. Use of specific coatings systems which are prequalified to ANSI N101.2.



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- b. Surface preparation standards.
 - c. Surface profile requirements.
 - d. Application of the coating systems in accordance with the paint manufacturer's instructions.
 - e. Inspections and nondestructive examinations.
 - f. Identification of all nonconformances.
 - g. Certifications of compliance and or documentation procedures to satisfy project requirements.
 - h. Coated surfaces not meeting the requirements of Regulatory Guide 1.54 will be documented and the surface area and type of the nonconforming coating recorded.
4. Regulatory Guide 1.54 will not be imposed when:
- a. The item is to be insulated.
 - b. The surface is contained within a cabinet or enclosure (the interior of the cab of a polar crane; the interior surfaces of ducts).

Within the containment of Unit 1, there are currently less than 4000 square feet (of a total of about 393,600 square feet) of coated surfaces documented not to conform with ANSI N101.2 and Regulatory Guide 1.54. Exceptions include:
 - About 4000 square feet of insulated piping.
 - About 140,480 square feet enclosed within cabinets or enclosures.
 - c. The field repair to any Q Class coated item is less than 30 square inches of surface area such as:
 - Cut ends or otherwise damaged galvanized items.
 - Bolt heads, nuts, and miscellaneous fasteners.
 - Damage resulting from spot, tack, or stud welding.



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- d. Small production line items such as small motors, handwheels, electrical cabinets, control panels, and loudspeakers where special painting requirements would be impracticable.
- e. The surface is stainless or galvanized.
- f. The coating is used for the color coding markings on piping.
- 5. Coating surfaces not meeting the requirements of Regulatory Guide 1.54 will be documented and the surface area and type of nonconforming coating recorded.
- 6. For items listed in item 4.d, the coating requirements will be stringent in:
 - a. The use of specific coating systems which are suitable to withstand the normal operating temperature and environment of the containment interior.
 - b. Surface preparation standards.
 - c. Surface profile requirements when required by the coating manufacture.
 - d. Application of the coating systems in accordance with the paint manufacturer's instructions.

Refer to UFSAR Subsection 6.1.2. Also see CESSAR Section 1.8.

REGULATORY GUIDE 1.58:

Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel (Revision 1, September 1980)

RESPONSE

The position of Regulatory Guide 1.58 is accepted with the following exceptions:

A. Position C.1

The qualification of personnel who approve preoperational and startup test procedures and test results, and those who direct or supervise the conduct of individual preoperational and startup tests is discussed in UFSAR paragraph 14.2.2.12. The qualification of other personnel discussed in Position C.1 follows the guidelines of Regulatory Guide 1.8 as discussed in UFSAR Sections 13.1 and 13.2.

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B. Position C.6

The specified education and experience recommendation of ANSI N45.2.6-1978 for various levels of inspectors shall not be treated as absolute when other factors provide reasonable assurance that a person can competently perform a particular task. These factors will be documented, with justification by management (on an individual basis), demonstrating that the individual does have equivalent competence to that which would be gained from having the required education and experience.

In addition, the following exceptions are taken to the referenced standard (ANSI N45.2.6-1978):

- A.** The first sentence of Paragraph 3.4 states that a Level III qualified person shall have all the capabilities of a Level II qualified person for the inspection, examination or test category or class in question. APS will qualify Level III persons without the actual hands on experience and capability to perform specific inspections, examinations or tests required of a Level I or II qualified person, and utilize these persons for administrative and supervisory functions including certifying persons at the same or lower level.
- B.** Paragraph 3.3 states that a Level II qualified person shall have demonstrated experience in certifying lower level qualified persons. APS does not use Level II qualified persons to certify lower level qualified persons, and does not require Level II qualified persons to demonstrate this capability.

The following interpretation is also made to Regulatory Guide 1.58:

A. Position C.1

For qualification of personnel, (1) who perform or approve operational test procedures and test results, and (2) who direct or supervise the conduct of individual operational tests, the guidelines contained in Regulatory Guide 1.8, Revision 1-R, "Personnel Selection and Training" with the criteria for selection and training contained in ANSI/ANS 3.1-1978, substituted for ANSI-N18.1-1971, will be followed. See also conformance to Regulatory Guide 1.8: Personnel Selection and Training (Revision 1-R, May 1977).

REGULATORY GUIDE 1.64:

Quality Assurance Requirements for the Design of Nuclear Power Plants (Revision 2, June 1976)

RESPONSE

For operations phase activities, the position of Regulatory Guide 1.64 is accepted with the following exception to Position C.2:



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Supervisory personnel may perform design verification under exceptional circumstances as documented and approved by the next level of supervision, if:

1. The justification (for design verification by a designer's immediate supervisor) is individually documented and approved in advance, and
2. Quality assurance audits cover frequency and effectiveness of use of supervisors as design verifiers to guard against abuse.

APS interprets ANSI N45.2.11-1974, Sections 3.1 and 4.1, as follows:

- A. **Section 3.1**
This section implies that all necessary design input (as listed in Section 3.2) should be available prior to the start of a design activity. In practice, certain design activities are initiated before the firm input requirements are available. (For example, foundation designs prepared based on preliminary information or equipment sizes and mounting and embedded conduit run based on preliminary estimates of circuit requirements). The design phase QA program is structured to assure that all necessary design input is available before completion of final design of the work affected by the input and that final design input is available for use in verification of the final design.
- B. **Section 4.1, Design Process General**
Paragraph 3 implies traceability back from final design to the source of design input. In practice, a literal interpretation of this is not always possible. For example, final design drawings do not identify the related calculations. This paragraph is interpreted to mean that it shall be possible to relate the criteria used and analyses performed to the final design documents and that record files will permit location of analyses supporting specific design output documents.

REGULATORY GUIDE 1.88:

Collection, Storage and Maintenance of Nuclear Power Plant Quality Assurance Records (Revision 2, October 1976)

RESPONSE

The position of Regulatory Guide 1.88 is accepted with the following exceptions to Section 5.6 of ANSI N45.2.9-1974:

- A. Doors, structure and frames, and hardware shall be designed to comply with the requirements of a minimum 2-hour fire rating. (Section 4.4.1 (c) of Supplement 17S-1 of NQA-1 requires 2-hour rated doors and dampers, and the latest version of Regulatory Guide 1.28 provides no additional guidance in this area.)



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- B. Vinyl asbestos tile is used on the floor in lieu of a surface sealant.
- C. The concrete floor and roof of record storage facilities are not provided with slope for drainage. (Halon suppression is provided; therefore, drainage is unnecessary. No piping or other source of water is located within the records storage facility. The facility is located on the first floor of a two-story building with basement having provisions for adequate drainage.)

REGULATORY GUIDE 1.94:

Quality Assurance Requirements for Installation, Inspection and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants (Revision 1, April 1976)

RESPONSE

For operations phase activities that are comparable to activities occurring during the construction phase, the position of Regulatory Guide 1.94 is accepted with the following interpretations (refer to UFSAR Section 3.8):

- A. The various tests are performed "as appropriate" as determined by PVNGS Engineering Department based upon the significance of the change or modification.
- B. Implementation of the inspection requirements of ANSI N45.2.5 will be in accordance with a performance based graded QA inspection program. Some items traditionally inspected by quality control may be accomplished through independent verification and/or second party verification.

REGULATORY GUIDE 1.116 :

Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems (Revision 0-R, May 1977)

RESPONSE

For operations phase activities that are comparable to activities occurring during the construction phase, the position of Regulatory Guide 1.116 is accepted with the following clarifications:

- A. The various tests are performed "as appropriate" as determined by PVNGS Engineering Department based upon the significance of the change or modification.
- B. Implementation of the inspection requirements of ANSI N45.2.8 will be in accordance with a performance based graded QA inspection program. Some items traditionally inspected by quality control may be accomplished through independent verification and/or second party verification.

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Interpretations of ANSI N45.2.8:

- A. Section 2.3
Test reports attached to or referenced in data sheets may meet the evaluation requirements of the last paragraph.
- B. Sections 2.2 and 2.3; 5.2 and 5.4
For application of the provisions of these sections to preoperational and startup testing, the APS position on the applicable revision of Regulatory Guide 1.68, "Preoperational and Initial Startup Test Programs for Water-Cooled Power Reactors," shall take precedence where there is a conflict or difference.
- C. Item 2.9e(6)
This item shall be interpreted to mean that any work performed without an approved design change shall not be considered complete and acceptable for its intended use until the change is approved, and that the intent of this item will be satisfied provided that such work is performed only with approved procedures and that the activities and the results are documented. Evidence of design change approval shall be required prior to placing the affected item in service.
- D. Section 5
For the purposes of functional tests addressed by this standard, APS defines completed systems as any system, or portion or component thereof, on which construction is sufficiently complete to allow the required testing, and on which further or adjacent construction will not render the results of such testing invalid or indeterminate.
- E. Item 5.1.g
Traceability as used in this item is considered to be the same as discussed in Section 5.2.13.3 of ANSI N18.7.

REGULATORY GUIDE 1.123:

Quality Assurance Requirements for Control of
Procurement of Items and Services for Nuclear
Power Plants (Revision 1, July 1977)

RESPONSE

For operations phase activities, the position of Regulatory Guide 1.123 is accepted with the following modification to ANSI N45.2.13-1976:

Section 7.5, Personnel Qualifications. Personnel performing offsite audits shall be qualified to ANSI N45.2.23. Personnel performing offsite material inspection shall be qualified to ANSI N45.2.6. Personnel performing offsite surveillance activities shall be qualified to ANSI N45.2.23 or ANSI N45.2.6.

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REGULATORY GUIDE 1.143:

Design Guidance for Radioactive Waste Management Systems Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants (Revision 0, July 1978)

RESPONSE

PVNGS accepts the position of Regulatory Guide 1.143 including implementation of quality assurance requirements for the radwaste management systems (refer to UFSAR Sections 9.3, 11.2, 11.3, and 11.4) with the following exceptions:

- A. Position B, (Discussion) - For the purpose of this guide the radwaste systems do not include instrumentation and sampling systems beyond the first root valve.
- B. Position B - The instrument and controls of the gaseous radioactive waste processing system satisfy the requirements of Section 7.2 of ANSI/ANS-55.4-1979 referenced by Regulatory Guide 1.143, Rev. 1, with the following exception:

The system gas analyzer, as specified in Table 6, will not record the H₂% by volume. It is assumed that the gaseous radwaste system will contain $\geq 4\%$ H₂ by volume whenever the system is in service. Monitoring the potentially explosive mixture will be based upon this assumption and the measured O₂ concentration by the gas analyzers.

- C. Position C, Paragraph 1.1.3
The turbine building, which houses most of the steam generator blowdown system, is a Seismic Category II braced steel and concrete structure with a design that has been shown not to collapse under SSE loads. The turbine building has no means of containing the maximum liquid inventory contained in the potentially radioactive portions of the steam generator blowdown system. This potential for liquid/gaseous release is less than that resulting from failure of the refueling water tank analyzed in UFSAR Subsection 15.7.3 where the radiological consequences have been determined to be less than 1% of the 10 CFR 100 limits.
- D. Position C, Paragraph 1.2.1
High level alarms on tanks in the radwaste building alarm in the radwaste control room instead of the main control room. A common radwaste alarm sounds in the main control room for any alarm that exists in the radwaste control room. No tank has local alarm as the tank overflows are hardpiped to sumps avoiding local uncontrolled spillage.



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- E. Position C, Paragraph 1.2.3
The blowdown flashtank, (SCN-XO1) in the turbine building, does not have an elevated threshold to catch potential leakage. However, because this tank operates at an elevated temperature and pressure, any leakage would be initially visible as steam. Liquid leaks would be collected by the turbine building drain system, which can be routed to the liquid radwaste system.
- F. Position C, Paragraph 4.3
Pressure testing is conducted using the applicable ASME or ANSI code, but in no case less than one and one-half times the line design pressure for a minimum of 10 minutes as required by the above codes. Testing per applicable code requirements results in a higher test pressure for a shorter period of time than is recommended by the Regulatory Guide and is considered acceptable.
- G. Position C, Paragraphs 5.1.2 and 5.2.4
The reinforced concrete design of these structures is in accordance with American Concrete Standard ACI 318 in lieu of ACI 349-76. Structures containing radwaste systems are analytically verified to withstand SSE loads without collapse.

REGULATORY GUIDE 1.144:

Auditing of Quality Assurance Programs for Nuclear Power Plants (Revision 1, September 1980)

RESPONSE

The requirements of the referenced standard (ANSI N45.2.12-1977); as modified and interpreted in the position of Regulatory Guide 1.144 are applied to the APS Quality Assurance Program for operations phase activities, with the following exceptions:

- A. Section 4.3.1 requires that a brief preaudit conference be conducted with cognizant organization management. A formal preaudit conference may not be required for some routine internal audits where informal preaudit communication is determined to be adequate. The manager of the auditing organization will monitor the performance of audits, through review of audit reports, to ensure that informal preaudit communication is utilized only in cases where such informal communication is adequate.

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- B. Section 4.5.1 requires the audited organization to provide a followup report stating the corrective action taken and the date corrective action was completed. The APS corrective action program requires the audited organization to provide a forecast date for completion of corrective action if the corrective action cannot be completed by the established response due date. The corrective action response due date is no longer than 30 days. The corrective action tracking system implemented by APS QA provides for followup action by QA on or near the forecast completion date to verify corrective action was accomplished as planned. Therefore, the corrective action tracking system is adequate to satisfy the intent of Paragraph 4.5.1 of ANSI N45.2.12-1977 for followup reports.

REGULATORY GUIDE 1.146:

Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants (Revision 0, August 1980)

RESPONSE

The requirements of the referenced standard (ANSI N45.2.23-1978) as modified and interpreted in the position of Regulatory Guide 1.146 are applied to the Quality Assurance Program with the following modification to Paragraph 2.2.1:

Orientation to produce a working knowledge and understanding of ANSI N18.7, ANSI N45.2.12, this standard, and the auditing organization's procedures for implementing audits and reporting results.

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APPENDIX C TERMS AND DEFINITIONS

This Appendix contains terms and definitions that are necessary to provide a uniform understanding of the requirements of the Quality Assurance Plan.

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.



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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 power plant facilities or activities.
- Is not subject to design or specification requirements unique to NRC requirements for nuclear power plants.
- 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.

Condition Adverse To Quality:

An all inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, and nonconformances.

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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.

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.



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Independent Safety Engineering Department (ISED):

A full time group of engineers, independent of the unit staff and reporting to the Vice President, Nuclear Safety and Licensing, 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.

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.

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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.

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.

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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.

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.

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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 word "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.

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.



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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.



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

10 CFR 50, Appendix B		QA Plan	ANSI N18.7 - 1976		QA Plan
I	Organization	1.0	3.0	Owner Organization	1.0
II	QA Program	2.0	3.1	General	1.0
III	Design Control	3.2	3.2	Assignment of Authority and Responsibility	1.0
IV	Procurement Document Control	3.3	3.3	Indoctrination & Training	2.7
V	Instructions, Procedures, Drawings	6.2	3.4	Onsite Operating Organization	1.0
VI	Document Control	6.3	4.0	Reviews and Audits	2.4, 4.4
VII	Control of Purchased Material	3.3	4.1	General	
VIII	Identification & Cntrl of Mtls, Parts, and Components	3.4	4.2	Program Description	
IX	Control of Special Processes	3.5	4.3	Independent Review	2.9
X	Inspection	2.4, 4.2	4.4	Program	
XI	Test Control	3.6	4.5	Review Activities of the Onsite Operating Org.	2.9
XII	Control of M&TE	3.7	5.0	Audit Program	2.4, 4.4
XIII	Handling, Storage and Shipping	3.8	5.1	Program, Policies and Procedures	2.0
XIV	Inspection, Test and Operating Status	3.9	5.2	Program Description	2.0
XV	Nonconforming Materials, Parts or Components	2.10, 5.0	5.2.1	Rules of Practice	6.3
XVI	Corrective Action	2.10, 5.0	5.2.2	Responsibilities and Authorities of Operation Personnel	1.0
XVII	Quality Assurance Records	6.4	5.2.3	Procedure Adherence	6.0
XVIII	Audits	2.4, 4.4	5.2.4	Operating Orders	6.0
ANSI N45.2 - 1971		QA Plan	5.2.5	Special Orders	6.0
1.0	Introduction		5.2.6	Temporary Procedures	6.0
2.0	QA Program	2.0	5.2.7	Equipment Control	3.9
3.0	Organization	1.0	5.2.8	Maintenance and Modifications	3.11
4.0	Design Control	3.2	5.2.9	Surveillance Testing and Inspection Schedule	3.12
5.0	Procurement Doc. Cntrl.	3.3	5.2.10	Plant Security and Visitor Control	App. F-3
6.0	Instructions, Procedures and Drawings	6.2	5.2.11	Housekeeping and Cleanliness Control	3.10
7.0	Document Control	6.3	5.2.12	Corrective Actions	5.0
8.0	Control of Purchased Mtls, Equip & Services	3.3, 3.4	5.2.13	Plants Records Mgmt.	6.0
9.0	Identification & Control of Mtls, Parts and Components	3.4	5.2.14	Procurement and Materials Control	3.3, 3.4
10.0	Control of Special Processes	3.5	5.2.15	Nonconforming Items	3.8
11.0	Inspection	2.4, 4.2	5.2.16	Review, Approval and Control of Procedures	2.10, 5.0
12.0	Test Control	3.6	5.2.17	Measuring & Test Equip	6.2, App. E
13.0	Control of M&TE	3.7	5.2.18	Inspections	3.7
14.0	Handling, Storage and Shipping	3.8	5.2.19	Control of Special Processes	2.4, 4.2
15.0	Inspection, Test and Operating Status	3.9	5.3	Test Control	3.5
16.0	Nonconforming Items	2.10, 5.0	5.3.1	Preparation of Instructions & Procedures	3.6
17.0	Corrective Actions	2.10, 5.0	5.3.2	Procedure Scope	6.0
18.0	Quality Assurance Records	6.4	5.3.3	Procedure Content	6.0
19.0	Audits	2.4, 4.4	5.3.4	System Procedures	6.0
			5.3.5	General Plant Procedures	6.0
			5.3.6	Maintenance Procedures	6.0
			5.3.7	Radiation Control	6.0
			5.3.8	Procedures	6.0
			5.3.9	Calibration and Test Equipment	6.0
			5.3.10	Chemical-Radiochemical Control Procedures	6.0
				Emergency Procedures	6.0
				Test and Inspection	6.0

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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

PVNGS OPERATIONS QUALITY ASSURANCE PLAN

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.
 - 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.

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- 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.

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.



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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).
- 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.

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- 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.

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:



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QUALITY ASSURANCE FOR FIRE PROTECTION

- 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.
 - 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.

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QUALITY ASSURANCE FOR FIRE PROTECTION

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.
- 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.

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QUALITY ASSURANCE FOR FIRE PROTECTION

- 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:

- 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.

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.

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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.

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.



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QUALITY ASSURANCE FOR FIRE PROTECTION

- 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.
- 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.



PVNGS OPERATIONS QUALITY ASSURANCE PLAN

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.

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:



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- 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.
- 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.

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QUALITY ASSURANCE FOR RADWASTE MANAGEMENT

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, cleanliness, 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.

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.



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APPENDIX F-2

QUALITY ASSURANCE FOR RADWASTE MANAGEMENT

- 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.



PVNGS OPERATIONS QUALITY ASSURANCE PLAN

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.
- 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.

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QUALITY ASSURANCE FOR SECURITY

- 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.

- 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.

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QUALITY ASSURANCE FOR SECURITY

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.

PVNGS OPERATIONS QUALITY ASSURANCE PLAN

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.
- h. Require periodic drills and provide for formal critiques of drills.
- i. Provide for independent review of the emergency preparedness program.



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APPENDIX F-4 QUALITY ASSURANCE FOR EMERGENCY PLANS AND EQUIPMENT

- 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:
 - a. Performing audits of the PVNGS Emergency Plan.
 - b. Performing periodic monitoring to ensure that the requirements of this Appendix are properly implemented.

PVNGS OPERATIONS QUALITY ASSURANCE PLAN

**APPENDIX F-4
QUALITY ASSURANCE FOR EMERGENCY PLANS AND EQUIPMENT**

- 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.

PVNGS OPERATIONS QUALITY ASSURANCE PLAN

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.

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APPENDIX F-5 QUALITY ASSURANCE FOR SEISMIC CATEGORY IX

- 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.

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.

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APPENDIX F-5 QUALITY ASSURANCE FOR SEISMIC CATEGORY IX

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.

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.



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APPENDIX F-5 QUALITY ASSURANCE FOR SEISMIC CATEGORY IX

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.

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.

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APPENDIX F-5 QUALITY ASSURANCE FOR SEISMIC CATEGORY IX

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.



PVNGS OPERATIONS QUALITY ASSURANCE PLAN

APPENDIX G

Control of Computer Software and Data

1.0 GENERAL

Measures shall be established 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.
- 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.
- 3.2 The requirements of this Appendix apply to computer software that is used without further verification to:
 - a. Generate design output which defines or prescribes activities affecting safety related functions or equipment (e.g., cable pull slips).

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APPENDIX G

Control of Computer Software and Data

- 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.

ENCLOSURE 2

PVNGS OPERATIONS QUALITY ASSURANCE PLAN

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	ANSI N18.7 - 1976		QA Plan
I	Organization	1.0	3.0	Owner Organization	1.0
II	QA Program	2.0	3.1	General	1.0
III	Design Control	3.2	3.2	Assignment of Authority and Responsibility	1.0
IV	Procurement Document Control	3.3	3.3	Indoctrination & Training	2.7
V	Instructions, Procedures, Drawings	6.2	3.4	Onsite Operating Organization	1.0
VI	Document Control	6.3	4.0	Reviews and Audits	2.4, 4.4
VII	Control of Purchased Material	3.3	4.1	General	
VIII	Identification & Cntrl of Mtls, Parts, and Components	3.4	4.2	Program Description	
IX	Control of Special Processes	3.5	4.3	Independent Review	2.9
X	Inspection	2.4, 4.2	4.4	Review Activities of the Onsite Operating Org.	2.9
XI	Test Control	3.6	4.5	Audit Program	2.4, 4.4
XII	Control of M&TE	3.7	5.0	Program, Policies and Procedures	2.0
XIII	Handling, Storage and Shipping	3.8	5.1	Program Description	2.0
XIV	Inspection, Test and Operating Status	3.9	5.2	Rules of Practice	6.3
XV	Nonconforming Materials, Parts or Components	2.10, 5.0	5.2.1	Responsibilities and Authorities of Operation Personnel	1.0
XVI	Corrective Action	2.10, 5.0	5.2.2	Procedure Adherence	6.0
XVII	Quality Assurance Records	6.4	5.2.3	Operating Orders	6.0
XVIII	Audits	2.4, 4.4	5.2.4	Special Orders	6.0
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1.0	Introduction		5.2.6	Equipment Control	3.9
2.0	QA Program	2.0	5.2.7	Maintenance and Modifications	3.11
3.0	Organization	1.0	5.2.8	Surveillance Testing and Inspection Schedule	3.12
4.0	Design Control	3.2	5.2.9	Plant Security and Visitor Control	App. F-3
5.0	Procurement Doc. Cntrl.	3.3	5.2.10	Housekeeping and Cleanliness Control	3.10
6.0	Instructions, Procedures and Drawings	6.2	5.2.11	Corrective Actions	5.0
7.0	Document Control	6.3	5.2.12	Plants Records Mgmt.	6.0
8.0	Control of Purchased Mtls, Equip & Services	3.3, 3.4	5.2.13	Procurement and Materials Control	3.3, 3.4
9.0	Identification & Control of Mtls, Parts and Components	3.4	5.2.14	Nonconforming Items	2.10, 5.0
10.0	Control of Special Processes	3.5	5.2.15	Review, Approval and Control of Procedures	6.2, App. E
11.0	Inspection	2.4, 4.2	5.2.16	Measuring & Test Equip	3.7
12.0	Test Control	3.6	5.2.17	Inspections	2.4, 4.2
13.0	Control of M&TE	3.7	5.2.18	Control of Special Processes	3.5
14.0	Handling, Storage and Shipping	3.8	5.2.19	Test Control	3.6
15.0	Inspection, Test and Operating Status	3.9	5.3	Preparation of Instructions & Procedures	6.0
16.0	Nonconforming Items	2.10, 5.0	5.3.1	Procedure Scope	6.0
17.0	Corrective Actions	2.10, 5.0	5.3.2	Procedure Content	6.0
18.0	Quality Assurance Records	6.4	5.3.3	System Procedures	6.0
19.0	Audits	2.4, 4.4	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



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1.0 SCOPE

- 1.1 This Appendix provides the Quality Assurance criteria for fire protection consistent with Branch Technical Position, APCS 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.
 - 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.

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- 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.

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.

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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 APCS 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).
- 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 shall-be implemented in accordance with documented procedures.

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- b. Activities such as design, installation, inspection, test, maintenance, and modification of fire protection systems are ~~shall be~~ 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 ~~shall be reviewed to assure ensure proper~~ inclusion of fire protection requirements, ~~Requirements to be considered are 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 ~~marked~~ identified as quality related.

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:



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- 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.
 - 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 ~~Identification of the 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.



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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.
- 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.



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- 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:

- 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.

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.

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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.

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 Site 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.

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- 4.3.6 ~~Trending of quality deficiencies~~ 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.
- 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.

ENCLOSURE 3

**MATRIX OF NRC STANDARD REVIEW PLAN 17.2
PART II, ACCEPTANCE CRITERIA
TO THE PVNGS QUALITY ASSURANCE PLAN**

MATRIX OF NRC STANDARD REVIEW PLAN
PART II, ACCEPTANCE CRITERIA, DESIGN AND CONSTRUCTION
(REV 2, JULY 1981) TO THE PVNGS QA PLAN

SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
Organization	1A1	QA Program Policy Statement, 1.2, 1.6
	1A2	1.0, 2.1, 2.11, 3.1.2, 3.1.3
	1A3a	1.0 (all), 2.1, 2.11, 3.1.2, 3.1.3
	1A3b	1.2, 1.6.b, 2.4.3, 2.6
	1A3c	2.7, Policy
	1A4	Not Applicable SRP 17.2
	1A5	1.0 (all), Appendix A, UFSAR Ch. 13.0
	1A6	1.0 (all), UFSAR Ch. 13.0
	1B1	1.6
	1B1a	1.2, 1.6, Appendix A
	1B1b	1.6.g
	1B1c	QA Plan Concurrence/Approval page, 2.5
	1B1d	1.6
	1B2	1.6, 2.4.1, 2.4.2, 2.4.3
	1B3a	1.7.d, 1.6
	1B3b	1.6
	1B3c	1.6
	1B3 2nd para	Appendix A, 1.6, 4.2.1.7, 4.3, 4.4
	1B4a	1.6, 1.2,
	1B4b	1.2, 1.3, 1.4, 1.5, 1.6,
	1B5	2.12
	1B6	1.6.g, 1.6.a

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SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
Quality Assurance Program	1C1	QA Plan Policy Statement, 1.2, 2.1
	1C2 (all)	1.2, 1.6, 2.12, UFSAR ch 13.0, 2.5.2
	1C3	1.2, 1.6
	2A1a	2.2, 2.2.1, 2.2.2
	2A1b	Not Applicable per SRP 17.2
	2A1c	3.2.1.12, Appendix G
	2A1d	Appendix F-1
	2A1e	2.2.2
	2A2	2.1
	2B1a	2.1, 6.1.1, 6.1.2
	2B1b	4.3.1.3
	2B1c	1.0, QA Plan Policy Statement
	2B1d	2.11, 3.3.1.i, 3.3.2.3
	2B2	2.5
	2B3	Introduction, QA Plan Policy Statement, Appendix B, 2.5.2, 2.3
	2B4	QA Plan Policy Statement, 2.1, 6.1.1, 6.2.1.1.i, Appendix B
	2B5	2.1, 6.1.1
	2C1	1.2
	2C1a	1.6.j
	2C1b	2.6
	2C2	Not Applicable per SRP 17.2
	2C3	Not Applicable per SRP 17.2
	2Da	2.7

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SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
Design Control	2Db	2.4.1, 2.4.2, 2.4.3
	2Dc	2.7, Appendix B
	2Dd	2.7, Appendix B
	2De	2.7, Appendix B
	2Df	2.7, Appendix B
	2Dg	2.7, Appendix B
	3A	3.2.1
	3B	3.2.1.1
	3C1	3.2.1.5
	3C2	3.2.1.6
	3D	3.2.1.4
	3E1	3.2.1.9
	3E2	3.2.2.4, 6.2.1.2, 4.3.1.3
	3E3	3.2.1.7
	3E4a	3.2.1.9, Appendix B
	3E4a1	3.2.1.9
	3E4a2	3.2.1.9
	3E4a3	4.4.1.1
	3E4b	3.2.1.9.c
	3E4c	3.2.1.8, 3.2.1.9, Appendix B
	3E4d	3.2.1.9
	3E3a	3.2.1.7
	3E3b	3.2.1.10.a
	3E3c	3.2.1.10.b

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SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
	3E4	3.2.1.8, 3.2.1.11
	3F1	3.2.1.12
	3F2	Appendix B
Procurement Document Control	4A1	3.3.1
	4A2	3.3.1
	4B1	3.3.4
	4B2	Appendix B
Instructions, Procedures Drawings	5A	6.2.1.1, 6.2.2.1.b
	5B	6.2.1.1.a, 6.2.1.1.b, 6.2.1.2
Document Control	6A1(All)	6.3.1.1
	6A2	6.3.1.2, 6.3.2.2
	6A3	6.3.1.2.d
	6A4	6.3.1.2.e
	6B1	6.3.1.2.f
	6B2	6.3.1.2.f
	6C1	3.2.1.15
Control of Purchased Material, Equipment, and Services	7A1	3.4.2
	7A2	3.3.3.d, 3.3.3.f
	7A2a	3.3.3.b
	7A2b	3.3.3.d
	7A3	3.3.2.1, 3.3.2.2
	7A4	3.3.1.1.h
	7B1a	3.3.3.g.1
	7B1b	3.3.3.g.4, 3.3.3.g.5

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SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
	7B1c	3.3.3.g.3
	7B2	3.3.3.g.7, 3.3.3.g.6
	7B3a	3.3.3.g.3
	7B3b	3.3.3
	7B3c	3.3.3
	7B3 (2nd Para)	3.3.3.g.3, 3.3.3.c
	7B4	3.3.2.4
	7B5	3.3.3.d, 3.3.3.f, 3.3.3.e
	7B6	Appendix B
	8A	3.4
Identification and Control of Materials, Parts, and Components	8B1	3.4.1.2, 3.4.1.3, 3.4.2.3.b
	8B2	3.4.1.3
	8B3	3.4.1.5, 3.4.1.7, 3.4.2.1
	9A1	3.5.1.1, 3.5.2.1.a
Control of Special Processes	9A2	3.5.2
	9B1	3.5.1.2, 3.5.2.2
	9B2	3.5.1.3
	9B3	3.5.1.3, 3.5.2.1.c
Inspection	10A	4.2.1, 2.4.1
	10B1	2.4.1, 4.2.1.7, 4.2.2.3
	10B2	2.4.1, 4.2.1.7, 4.2.2.3.b
	10C1 (All)	4.2.1
	10C2	4.2.1.1, 4.2.1.7, 4.2.2.3.c
	10C3	4.2.1.7

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SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
Test Control	11A1	3.6.1.1
	11B1a	3.6.1.1
	11B1b	3.6.1.1.b
	11B1c	3.6.1.1.c
	11B1d	3.6.1.1.g
	11B1e	3.6.1.1.e
	11B1f	3.6.1.1.f
	11B1g	3.6.1.1.j
	11C1	3.6.1.2
Control of Measuring and Test Equipment	12.1	3.7.1.1
	12.2	3.7.2
	12.3	3.7.1.2, 3.7.2.1
	12.4	3.7.1.2.b
	12.5	3.7.1.2.c
	12.6	3.7.1.2.d
	12.6 (2nd Para.)	3.7.1.2.f, 3.7.2.1
	12.7	3.7.1.2.f
	12.8	3.7.1.2.h
	12.9	3.7.1.2.e
Handling, Storage, and Shipping	13.1	3.8.1.2
	13.2	3.8.1.2
	13.3	Appendix B
Inspection, Test, and Operating Status	14.1	3.9.1
	14.2	3.9.1.3

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SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
	14.3	3.9.1.10, 6.3.1.2.d
	14.4	3.9.1.5, 3.9.2.1
Nonconforming Materials, Parts, or Components	15.1	5.2.1
	15.2	5.3
	15.3	5.2.1
	15.4	5.2.1
	15.5	5.3.1
Corrective Action	16.1	5.5.2.1, 5.2.2, 5.3.1.a
	16.2	5.2.1, 5.2.2.f
	16.3	5.3.1
	16.4	5.3.1
Quality Assurance Records	17.1	6.4.1
	17.2	6.4.2
	17.3 (All)	6.4.1.1.b
	17.4 (All)	6.4.1.1.d, Appendix B
	17.5	Appendix B
Audits	18A1a	4.4.1.1
	18A1b	4.4.1.1
	18A2	4.4.1.1
	18A3	4.4.1.1
	18A4 (All)	4.4.1.1
	18B1	4.4.1.1., 5.0
	18B2	4.4.1.1
	18B3	4.4.1.1, Appendix B

**MATRIX OF NRC STANDARD REVIEW PLAN
PART II, ACCEPTANCE CRITERIA, DESIGN AND CONSTRUCTION
(REV 2, JULY 1981) TO THE PVNGS QA PLAN**

SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
Organization	1b	1.0 (all), Appendix A, UFSAR Ch. 13
	1e	1.2, 1.6
Quality Assurance Program	2	Not Applicable - fuel loading has already occurred at PVNGS
	3	Not Applicable - design and construction phase has been completed at PVNGS
Design Control	2	3.2.1.13
Procurement Document Control		
Instructions, Procedures and Drawings		
Document Control	2a&b	4.2.1, 4.2.1.7
Control of Purchased Material, Equipment, and Services		
Identification and Control of Materials, Parts, and Components		
Control of Special Processes		
Inspection	2a&b	Not applicable. Inspection is performed by the Quality Assurance Organization.
Test Control		
Control of M&TE		
Handling, Storage, and Shipping	2	3.8.1.2.g
Inspection, Test and Operating Status		

MATRIX OF NRC STANDARD REVIEW PLAN
PART II, ACCEPTANCE CRITERIA, DESIGN AND CONSTRUCTION
(REV 2, JULY 1981) TO THE PVNGS QA PLAN

SRP SECTION TITLE	RQMT NO.	QA PLAN RQMT NO.
Nonconforming, Materials, Parts, and Components		
Corrective Action		
Quality Assurance Records	2	6.4.1.a
Audits	2a,b,&c	Not Applicable. PVNGS does not have an offsite audit organization.

ENCLOSURE 4

AUDIT TRIP REPORT

PURPOSE: Audit of the Palo Verde Pressurizer Surge Line Thermal Stratification Program to Address NRC Bulletin 88-11 Issues

LOCATION: Arizona Public Service Company, Phoenix, Arizona

DATES: February 20-21, 1991

NRC
PERSONNEL: S. Hou (NRC), T. Chan (NRC), G. DeGrassi (BNL)

LICENSEE
PERSONNEL: K. Sweeney (APS), J. Quan (APS), D. Sibiga (ABB-CE) and others (see Attachment 2).

1.0 INTRODUCTION

The purpose of this audit was to review the implementation and results of the Licensee's program to address Bulletin 88-11 issues regarding pressurizer surge line thermal stratification. The bulletin requested all PWR Licensees to establish and implement a program to confirm pressurizer surge line integrity in view of the occurrence of thermal stratification and inform the staff of the actions taken to resolve this issue. Licensees of operating PWRs were requested to take the following actions:

1. Conduct a visual inspection of the surge line to determine any gross discernable distress or structural damage in the piping and its supports. (Action Item 1.a)
2. Demonstrate that the surge line meets the applicable design codes, FSAR and regulatory commitments by performing a plant specific or generic bounding analysis considering the phenomena of thermal stratification and thermal striping. (Action Item 1.b)
3. If the requirements and licensing commitments are not met for the remaining life of the plant, a justification for continued operation must be submitted (Action Item 1.b) and plant specific data on thermal stratification, thermal striping, and line deflections must be obtained. The data may be obtained through collective efforts, such as from other plants with a similar surge line design. (Action Item 1.c)
4. Based on the applicable data, the stress and fatigue analyses are to be updated to ensure compliance with applicable Code requirements. (Action 1.d)

Arizona Public Service (APS) is a participant in the Combustion Engineering Owners Group (CEOG) program on Pressurizer Surge Line Thermal Stratification Evaluation. Through the CEOG program, Combustion Engineering performed a generic bounding analysis to justify continued short term operation, collected and evaluated plant data to define stratification transients, and is completing a generic detailed analysis to demonstrate Code compliance for the design lives of the participating plants. In addition, APS has performed visual inspections of the surge lines in all three units and is monitoring temperature and displacement data in Unit 3. APS also contracted Impell to reevaluate the surge line pipe supports and whip restraints. THE CEOG program is scheduled to be completed by July 1991. APS plans to complete additional plant specific analysis needed to close out Bulletin 88-11 Action Item 1.d by October 1991.

During the audit, the licensee gave a presentation on the background and current status of the Surge Line program. The presentation also covered the NRC Audit Agenda discussion items (see attachment 1). A meeting attendance list is included in Attachment 2 and a copy of the licensee presentation slides is included in Attachment 3. During this audit, the licensee responded to several additional staff questions and provided documents such as drawings, calculations, inspection reports, monitoring data, and operating procedures and logs for further staff review. A plant walkdown was not performed but the audit team viewed a detailed scale model of the plant which showed the surge line and its supports in relation to surrounding plant structures.

2.0 AUDIT SUMMARY

The following is a summary of the information obtained during the audit through our discussions and document reviews:

2.1 Pressurizer Surge Line Design

The Palo Verde Units 1,2, and 3 pressurizer surge lines are identical. All lines are 12 inch Schedule 160 stainless steel piping connecting the hot leg to the pressurizer. The piping connects to the bottom of the pressurizer with a vertical nozzle. It has a 90° elbow just below the nozzle and runs horizontally for approximately 56 feet through three straight sections and two elbows. At the hot leg, there is another elbow and a vertical drop to the hot leg nozzle. The horizontal portion of the line has a slope of 1/16" per foot. A 3/4" sample line connects to the horizontal portion of the surge line. The surge line is supported by two spring hangers, one vertical strut, and one lateral snubber. The line has one vertical and two horizontal whip restraints. There are no welded attachments to the line. The licensee provided a complete set of piping and pipe support drawings to the audit team for review. A surge line isometric drawing is included in the presentation slides in Attachment 3.

2.2 Surge Line Inspection

The licensee performed visual inspections of the surge line and supports in all three units in February and March 1989. The inspections were performed in accordance with the requirements of ASME Code VT-3 and VT-4 examinations. The inspection results determined that there was no visible distress or structural damage in the entire surge line including piping, pipe supports, pipe whip restraints, and anchor bolts. In addition, the licensee performed thermal expansion measurements using LVDTs at the pipe whip restraint locations. The piping movements were within acceptable range at all pipe whip restraint locations. Walkdowns for inspection of signs of boric acid leakage in the surge line area were also conducted. No evidence of leakage was detected. As a result of the inspections, the licensee does not plan to take any corrective actions at this time.

APS provided copies of the visual inspection procedures and visual examination reports for staff review. The audit team reviewed these documents and concluded that the licensee inspections adequately satisfied NRC Bulletin 88-11 Action Item 1.a.

2.3 Surge Line Monitoring

As part of the CEOG program, three operating plants had their surge lines instrumented and monitored to determine stratification temperature profiles and displacements. The data was reduced and utilized to develop a revised set of generic design transient loadings which incorporate thermal stratification effects. According to CE, all CE designed plants have similar surge line designs and the CEOG monitoring program and data bound Palo Verde. Details of the CEOG monitoring program are given in the bounding analysis report CEN 387-P, issued in July 1989.

The audit team questioned whether Palo Verde, which is the only CE System 80 plant, is adequately bounded by the other three CE plants that were monitored. APS informed the team that a plant specific program on Unit 3 is in progress. Due to extended shutdowns in all three units, the Palo Verde program couldn't be included in the CEOG program in a timely manner. Unit 3 was instrumented with thermocouples and displacement transducers as shown in the sketch in Attachment 4. The licensee plans to use the data to confirm that the generic transients used in the CEOG analysis bound the Palo Verde transients. To date, data on heatup and steady state operation has been collected and is being reduced. Cooldown data will be taken before the upcoming outage. APS indicated that a preliminary review of the heatup data shows that the CEOG transients are bounding.

The licensee provided copies of the monitoring procedure and preliminary data plots for staff review. Sample plots are included

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in Attachment 4. Based on the discussions and document reviews, the audit team was satisfied that the plant specific monitoring program will be adequate for confirming that the CEOG generic transients bound the plant transients.

2.4 Surge Line Analysis and Evaluation

The audit team discussed and reviewed calculations on the original surge line Class 1 stress report, the pipe support reevaluation, and the preliminary sample line reevaluation. The final surge line reanalysis is being performed by CE through the CEOG program. The current status of the piping reanalysis was reviewed and a number of questions were raised. These questions were identified as open items to be addressed by CE at a meeting in Windsor in the near future. A summary of our discussions and reviews in these areas is presented below:

2.4.1 Surge Line Piping Reevaluation

The CEOG surge line reevaluation is still in progress. In the previous bounding evaluation which was used to justify continued operation, ASME Code stress limits for thermal expansion (Equation 12) were exceeded and striping was not adequately addressed. The CE representative informed the audit team that CE is prepared to discuss the updated striping analysis methodology separately with NRC and suggested a meeting in the near future. He also informed the audit team that the current reanalysis demonstrates compliance with equation 12. The audit team questioned the CE methodology for meeting equation 12 and asked if stress indices were redefined. In addition, if equation 12 is met, why is an elastic plastic analysis per NB-3200 required? It was agreed that this will also be discussed by CE at the meeting.

In the CEOG effort, piping models were developed and generic revised design transients with thermal stratification were defined. The CEOG analysis assumed a uniform stratification profile along the entire horizontal length of the pipe. Fluid temperature differentials between the top and bottom of the pipe (ΔT s) of 32°F, 90°F and 320°F were used in the analysis. The CEOG analysis is expected to demonstrate Code compliance for the surge line in the limiting CE plant. APS plans to confirm in a plant specific analysis that the Palo Verde surge line is bounded by the CEOG analysis. APS will update all applicable stress reports and perform Code reconciliations as necessary. A number of additional questions were raised by the audit team. The technical basis for the revised design transient cycles was not clear. CE was asked to provide the basis and to demonstrate that the test data is bounded by the design transients. The slope effect of the surge line on the stratification profile was not addressed. CE was asked to justify this. It was noted that the SUPERPIPE program cannot model stratified flow directly. It was also not clear that thermal anchor movements were included in the stratification analyses. The

nozzles were found to meet ASME Code allowables but the nozzle calculations were not available for review. CE agreed to provide responses and additional documentation to address all concerns at the CE meeting. Due to the number of questions and requests for calculation reviews, it was agreed that the meeting should be held at CE offices in Windsor.

2.4.2 Pipe Support Reevaluation

CE provided APS the predicted surge line displacements, support loads and basic support data used in the CEOG bounding analysis. APS contracted Impell to perform a reevaluation to confirm that the supports meet the applicable design codes. The line contains one rigid vertical support which was qualified for the revised loads with a maximum computed load to allowable ratio of 0.91. The spring hangers were evaluated for additional travel and found to remain within acceptable limits. The snubber and two whip restraints are horizontal and are unaffected by thermal stratification which significantly affects displacements only in the vertical direction. The vertical whip restraint was evaluated for changes in gaps due to revised vertical displacements. The gaps were shown to be within the acceptable range. The audit team reviewed the Impell calculation and found the methodology acceptable. An additional question was raised regarding the potential for defining revised pipe break locations based on the piping reanalysis. If pipe break locations were originally defined at points with fatigue usage factors exceeding 0.1, the reanalysis may identify different break locations requiring whip restraints. APS did not think that this was a problem because of the lack of targets in the area, but they will investigate and address this question in their final submittal.

Another question was raised regarding the adequacy of the CE analysis to predict accurate surge line displacements. The plant specific monitoring program showed that the measured displacements were smaller than those predicted by the CE analysis. However, the CE analysis used a ΔT of 320°F while the measured ΔT at Palo Verde was only 250°F. APS was asked if the displacement test data could be extrapolated to 320°F to ensure that the analytical displacements are accurate. The licensee agreed to address this question in the final submittal.

2.4.3 Sampling Line Reevaluation

The Palo Verde Surge Line has a 3/4 inch sampling line connected to the top of the line near the pressurizer. APS reanalyzed this line using revised displacements from the CE bounding analysis. The audit team reviewed the preliminary calculation and found the methodology acceptable. However, thermal expansion stresses (NC-3600, equation 11) were very close to their allowables (computed/allowable stress ratio = .996). APS plans to perform a final evaluation as part of the plant specific analysis

and is considering removing a support to relieve the thermal stresses if necessary. The audit team found this satisfactory but asked CE to assure that all CEOG utilities verify that any surge line tributary lines are regualified for additional movement due to stratification.

2.4.4 Analysis of Record

The licensee provided the current analysis of Record and Class I Stress Report for review. The results of this analysis were reviewed to identify the critical points in the line before consideration of thermal stratification. The highest fatigue usage factors were at the RTD and sample line connections. Since these were not identified as critical points in the CEOG reevaluation, CE was asked to provide the fatigue usage factors at these connections with thermal stratification effects included. CE agreed to provide this information at the upcoming meeting.

2.5 Operating Procedures and Records

The licensee provided a number of operating procedures on plant heatup and cooldown and sample operating logs for review. Current procedures do not define limits for differential temperature between the pressurizer and hot leg to ensure that the 320°F ΔT limit assumed in the CEOG analysis is not exceeded. The licensee discussed other limits which indirectly impose pressurizer to hot leg differential temperature limits. Based on LTOP relief valve settings and lower limits on RCS temperature, the ΔT should not exceed 357°F. APS also noted that pumps are normally started at 350 psi which corresponds to a saturation temperature of 400°F while RCS temperature is at 100°F. Therefore, ΔT s greater than 300°F are hardly ever seen. Based on a limited review of operating logs, the highest ΔT identified by APS was 331°F.

The licensee is considering several options to ensure that analysis ΔT limits are not exceeded in the future. The options include establishing administrative limits, increasing the current 320°F ΔT limit by reanalysis, or redefining the stratification ΔT for Palo Verde based on the plant specific monitoring program. APS expects a decision to be made shortly and will inform the staff at the upcoming meeting in Windsor.

3.0 CONCLUSIONS

The audit team concluded that the licensee defined and implemented an acceptable program to address the pressurizer surge line thermal stratification concerns discussed in NRC Bulletin 88-11. During the audit, the licensee demonstrated a good technical understanding of the subject. APS has been active in demonstrating plant specific applicability of the CEOG analysis. It has implemented a plant specific monitoring program to verify the design transient input. It has adequately performed other

plant specific activities including requalification of pipe supports and pipe whip restraints and reevaluation of the tributary sampling line. APS is working to ensure that the plant will operate within the temperature limits of the CEOG analysis.

APS is relying on the CEOG program for the reanalysis and Code reevaluation of the surge line. This program is scheduled to be completed by July 1991. A number of concerns over the CE methodology were raised by the audit team and were identified as open items to be addressed in a meeting at CE offices in the near future. These items include the following:

1. Describe the method and show calculations to demonstrate that the nozzle loads at connections to the hot leg and the pressurizer are within the ASME Code Allowable.
2. Present updated technology on striping and describe the effects of the striping load on the total pipe loads.
3. Describe how anchor movements were considered in the surge line analysis.
4. Determine means to ensure ΔT between the pressurizer and the RCS hot leg does not exceed the CEOG analysis limits (a decision by APS).
5. Determine the slope effects of the surge line (3 1/2 inch slope) on the thermal stratification model. Justify not using the slope in the CE analysis.
6. Were the stress indices redefined for the thermal expansion per ASME NB-3600 Equation 12? If so, present the methodology used to define the indices.
7. Explain how the number of cycles in each associated design-transient were determined for the fatigue evaluation. Provide technical basis for data. Demonstrate that the test data is bounded by the assumed transients.
8. Demonstrate Code compliance including how equations 9 through 14 of NB-3600 were met. If the thermal stresses met equation 12 of NB-3600, why was the elastic plastic analysis of NB-3200 required?
9. The SUPERPIPE program can not model stratified flow directly. Demonstrate how stratified loadings were inputted to SUPERPIPE. Also, CE is to assure that other member utilities verify that any tributary lines are qualified for additional movement of the surge line due to stratified flow.
10. Provide the fatigue usage factor at the connections of the RTD and sample line.



In addition, the licensee agreed to address the following items by their final submittal in October:

1. Perform a code reconciliation as required for a plant specific analysis.
2. Is it possible to extrapolate the PVNGS test data of 250°F surge line ΔT with the CE analysis ΔT of 320°F to ensure the CE model can accurately predict the amount of surge line movement?
3. Identify any changes in postulated break locations in the surge line and describe related design modifications, if any, to mitigate the consequences of such high energy line breaks.



ATTACHMENT 1

Audit Agenda



AGENDA

NRC AUDIT OF BULLETIN 88-11 ISSUES AT PALO VERDE 1 & 2

I. AUDIT DISCUSSION ITEMS

- A. Surge line inspection results
- B. Corrective actions implemented or planned
- C. Surge line monitoring program and results
- D. Surge line analysis - Interface with CEOG
 - 1. Transient definition and basis
 - a. Stratification profiles
 - b. Striping
 - 2. Piping and support structural analysis
 - 3. Line deflection, thermal gradient and local stresses
 - 4. Stress concentration by weld attachments
- E. Code conformance - Stress and fatigue
 - 1. Load, load combination and code allowables
 - 2. Verification of Code compliance
- F. Plant operation method and procedures

II. DOCUMENT REVIEW

- A. Surge line inspection reports
- B. Surgr line drawings, including updates to reflect corrective actions
- C. Stress reports
 - 1. Detailed calculations, including design and modifications of piping and supports
 - 2. Computer models used
 - 3. ASME Code evaluation
 - 4. Deflection assessments to ensure no adverse interaction with other structures and components
- D. Monitoring program reports and data
- E. Past plant operating records

III. WALKDOWN (If possible)



ATTACHMENT 2

Audit Meeting Attendees

NRC BULLETIN 88-11 AUDIT - 2/20/91

Giuliano DeGrassi	Brookhaven National Lab. (NRC)
Shou-nien Hou	NRC/DET/MEB
Terence Chan	NRC/DET/MEB
Joy Quan	APS Licensing
David Sibiga	ABB-CE
Eugene Camp	ABB - Impell
Joseph R. Provasoli	APS Licensing
D.B. Hansen	APS ISI
Mark Radspinner	APS Nuclear Eng. - Mechanical
Mike Powell	APS Licensing
Kevin Sweeney	APS Nuclear Eng. - Mechanical
Helmut Miyahara	APS Structural/Eng. Mechanic

ATTACHMENT 3
Licensee Presentation Slides



IEB 88-11 PRESURIZER SURGE LINE THERMAL STRATIFICATION

BACKGROUND

- o INPO SER 87-25 ISSUED SEPTEMBER 1987
- o APS CONTRACTED WITH IMPELL CORPORATION TO PERFORM BASE-LINE SURGE LINE ANALYSIS - SEPTEMBER 1988
- o CEOG TASK 587 TO PERFORM SURGE LINE THERMAL FATIGUE EVALUATION - OCTOBER 1988. APS IS A FULL TASK PARTICIPANT.
- o IEB 88-11 ISSUED DECEMBER 20, 1988
- o PRESSURIZER SURGE LINE INSPECTIONS COMPLETED
 - UNIT 1 MARCH 1989
 - UNIT 2 FEBRUARY 1989
 - UNIT 3 MARCH 1989
- o CEOG REPORT CEN 387-P, "PRESSURIZER SURGE LINE FLOW STRATIFICATION EVALUATION" SUBMITTED TO NRC JULY 1989
- o CEOG/NRC MEETING - SEPTEMBER 1989
- o APS CONTRACTED WITH IMPELL TO PERFORM SUPPORT QUALIFICATION ANALYSIS. COMPLETED - DECEMBER 1989
- o APS RESPONDS TO NRC ON ITEMS 1A, 1B, AND 1C OF IEB 88-11 - APRIL 1990



BACKGROUND (continued)

- o **NRC TRANSMITS RESULTS OF ITS REVIEW OF CEN 387-P - AUGUST 1990**
- o **CEOG/NRC MEETING TO RESOLVE OPEN ISSUES - SEPTEMBER 1990**
- o **APS NOTIFIES NRC OF COMPLETION SCHEDULE FOR ACTION 1(D) OF IE BULLETIN 88-11 VIA LETTER DATED JANUARY 1991.**



COMMITMENTS/ACTIONS

- o COMPLETION OF CEOG REPORT/ANALYSIS CEN 387-P FOR NRC SUBMITTAL JULY 1991**
- o COMPLETION OF APS PLANT SPECIFIC ANALYSIS (ACTION 1D) OCTOBER 1991**



CEORG PROGRAM

- o DATA COLLECTION**
- o DATA REDUCTION**
- o DEVELOP THERMAL HYDRAULIC MODELS**
- o DEFINE NEW THERMAL LOADINGS**
- o THERMAL STRIPING ANALYSIS**
- o STRESS ANALYSIS**
- o FATIGUE ANALYSIS**





AGENDA ITEMS

SURGE LINE INSPECTION RESULTS

- **VISUAL INSPECTION OF THE PRESSURIZER SURGE LINE AND SUPPORTS HAS BEEN PERFORMED IN ALL THREE UNITS.**

UNIT 1 MARCH 1989

UNIT 2 FEBRUARY 1989

UNIT 3 MARCH 1989

- **PIPE WHIP RESTRAINT THERMAL EXPANSION MEASUREMENTS AND INSPECTIONS HAVE BEEN PERFORMED IN ALL THREE UNITS. THE ACCEPTANCE CRITERIA WAS MET FOR ALL SURGE LINE WHIP RESTRAINTS.**
- **INSPECTION RESULTS DETERMINED THAT THERE WAS NO VISIBLE DISTRESS OR STRUCTURAL DAMAGE IN THE ENTIRE PRESSURIZER SURGE LINE, INCLUDING PIPING, PIPE SUPPORTS, PIPE WHIP RESTRAINTS, AND ANCHOR BOLTS.**

CORRECTIVE ACTIONS IMPLEMENTED OR PLANNED

- **AS A RESULT OF THE SURGE LINE INSPECTIONS, NO CORRECTIVE ACTIONS ARE BEING IMPLEMENTED OR PLANNED AT THIS TIME.**





SURGE LINE MONITORING PROGRAM AND RESULTS

CEOG SURGE LINE MONITORING PROGRAM

- o ALL CE DESIGNED PLANTS HAVE SIMILAR SURGE LINE DESIGNS. THEREFORE, THE CEOG MONITORING PROGRAM BOUNDS THE PVNGS SURGE LINES.**
- o THE CEOG MONITORING PROGRAM RECORDED, REDUCED AND EVALUATED DATA FROM THREE OPERATING PLANTS. THE RESULTS OF THE CEOG DATA REDUCTION AND ANALYSIS ARE SUMMARIZED AS FOLLOWS:**
 - 1. THE PIPE WALL TOP TO BOTTOM DELTA-T IS ALWAYS LESS THAN THE PRESSURIZER/HOT LEG DELTA-T.**
 - 2. ALL LARGE SURGE LINE DELTA-Ts ARE ASSOCIATED WITH A CHANGE IN PRESSURIZER LEVEL.**
 - 3. DURING PERIODS OF NO "LARGE" INSURGES OR OUTSURGES THE SURGE LINE PIPE WALL DELTA-T IS SMALL AND THE LINE TENDS TO COOL TO THE HOT LEG TEMPERATURE.**
 - 4. THE SURGE LINE PIPE WALL TEMPERATURE DISTRIBUTIONS WERE SIMILAR IN ALL THREE PLANTS IN THE MONITORING PROGRAM.**
 - 5. THE SURGE LINE BENDING MOTION IS DIRECTLY RELATED TO THE "LARGE" INSURGES OR OUTSURGES. THE SURGE LINE "STRAIGHTENS" AFTER THE TRANSIENT.**
 - 6. THE PIPE WALL TOP TO BOTTOM DELTA-Ts ARE GENERALLY LARGER AT LOCATIONS ADJACENT TO THE PRESSURIZER.**
 - 7. THE STRATIFIED FLOW PHENOMENON IS GENERIC, AND THEREFORE GENERIC LOADINGS CAN BE DEVELOPED AND EVALUATED VIA A BOUNDING ANALYSIS.**





PVNGS SURGE LINE MONITORING PROGRAM

- o PVNGS UNIT 3 HAS BEEN INSTRUMENTED IN ACCORDANCE WITH TEMPORARY PROCEDURE 73TI-9RC03 TO COLLECT DATA ON PIPE WALL TEMPERATURE AND DISPLACEMENT.**
- o DUE TO EXTENDED SHUTDOWNS IN ALL THREE UNITS, THE PVNGS MONITORING PROGRAM COULD NOT BE INCLUDED IN THE CEOG PROGRAM.**
- o THE DATA WILL BE UTILIZED TO CONFIRM THAT THE ACTUAL PLANT TRANSIENTS ARE BOUNDED BY THE GENERIC TRANSIENT USED IN THE CEOG SURGE LINE ANALYSIS.**
- o TO DATE, DATA HAS BEEN COLLECTED FOR THE UNIT 3 PLANT HEATUP AND STEADY STATE OPERATION. DATA REDUCTION ACTIVITIES ARE ONGOING AND HAVE NOT YET BEEN COMPLETED. COOLDOWN DATA WILL BE AVAILABLE (APRIL/MAY 1991) FROM THE UPCOMING UNIT 3 REFUELING OUTAGE.**
- o PRELIMINARY REVIEW OF THE HEATUP DATA INDICATES THAT THE TRANSIENTS USED IN THE CEOG ANALYSIS BOUND THE ACTUAL PLANT TRANSIENTS.**





SURGE LINE ANALYSIS INTERFACE WITH CEOG

TRANSIENT DEFINITION AND BASES

- **TABLE 3.5.1-1 ON PAGE 3-49 OF CEN 387-P PROVIDES A SUMMARY OF THE DESIGN BASIS EVENTS CONSIDERED IN THE CEOG FATIGUE EVALUATION.**
- **THESE TRANSIENTS REPLACE THE ORIGINAL PVNGS DESIGN BASIS TRANSIENTS.**

STRATIFICATION PROFILES

- **THE CEOG ANALYSIS ASSUMED A UNIFORM STRATIFICATION PROFILE ALONG THE ENTIRE HORIZONTAL LENGTH OF SURGE LINE PIPING.**
- **FLUID DELTA-Ts OF 320°F, 90°F, AND 32°F WERE USED IN THE ANALYSIS.**

STRIPING

- **FIGURE 3.4.2-1 ON PAGE 3-137 OF CEN 387-P IS THE STRIPING MODEL USED IN THE CEOG ANALYSIS.**
- **THE CEOG ANALYSIS DEMONSTRATED THAT EXISTING CRACKS WILL NOT PROPAGATE APPRECIABLY INTO THE SURGE LINE WALL, AND THAT FATIGUE DAMAGE DUE TO STRIPING IS NEGLIGIBLE.**

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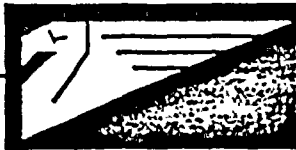
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PIPING AND SUPPORT STRUCTURAL ANALYSIS

- PIPING ANALYSIS WAS PERFORMED BY CE VIA THE CEOG EFFORT.**
- THE PVNGS SURGE LINE WAS MODELLED AS A 3-D BEAM USING THE *SUPERPIPE* COMPUTER CODE (ELASTIC ANALYSIS). THE RESULTS EXCEEDED THE ASME CODE NB-3600 LIMITS.**
- ELASTIC PLASTIC ANALYSIS WILL BE PERFORMED ON THE MOST LIMITING PLANT TO DEMONSTRATE STRUCTURAL ADEQUACY USING THE RULES OF ASME NB-3200.**
- CE HAS PROVIDED APS WITH THE PREDICTED SURGE LINE DISPLACEMENTS, SUPPORT LOADS AND BASIC SUPPORT DATA USED IN THE CEOG ANALYSIS. APS HAS CONFIRMED THE PLANT SPECIFIC SUPPORT CAPABILITIES.**
- APS CONTRACTED WITH IMPELL CORPORATION FOR THE PERFORMANCE OF AN ANALYSIS TO CONFIRM THAT THE SURGE LINE SUPPORTS MEET THE APPLICABLE DESIGN CODES.**
- THE SURGE LINE SUPPORTS INCLUDE ONE STRUT, TWO SPRING HANGERS, ONE SNUBBER AND THREE PIPE WHIP RESTRAINTS. ONLY THE STRUT EXPERIENCES ADDITIONAL LOAD.**
- THE STRUT WAS QUALIFIED WITH A MAXIMUM INTERACTION OF 0.91. THIS VALUE IS LESS THAN THE MAXIMUM VALUE OF 1.0 AND IS THEREFORE ACCEPTABLE.**
- THE SPRING HANGERS WERE EVALUATED FOR ADDITIONAL TRAVEL DUE TO THERMAL STRATIFICATION IN THE SURGE LINE. BOTH HANGERS WERE SHOWN TO HAVE SUFFICIENT TRAVEL AND BE IN THE ACCEPTABLE RANGE.**
- THE SNUBBER IS IN THE HORIZONTAL PLANE AND IS UNAFFECTED SINCE THERMAL STRATIFICATION OF THE SURGE LINE RESULTED IN VERTICAL DISPLACEMENTS.**





PIPING AND SUPPORT STRUCTURAL ANALYSIS (CONT)

- o TWO OF THE THREE WHIP RESTRAINTS WERE DESIGNED FOR HORIZONTAL LOADING, AND THEREFORE ARE UNAFFECTED. THE THIRD WHIP RESTRAINT IS DESIGNED FOR VERTICAL LOADING. THE PREDICTED PIPE MOVEMENT DUE TO THERMAL STRATIFICATION IS LESS THAN THE DESIGN CLEARANCE, AND THEREFORE NO CONTACT OF THE WHIP RESTRAINT WILL OCCUR. DISPLACEMENT TESTING HAS ALSO VERIFIED THAT PIPE MOVEMENT IS WITHIN DESIGN ALLOWABLES.**
- o PVNGS HAS ONE (1) TRIBUTARY LINE ATTACHED TO THE SURGE LINE - A 3/4 INCH SAMPLE LINE CONNECTING TO THE TOP OF THE SURGE LINE CLOSE TO THE PRESSURIZER.**
- o THE LINE HAS BEEN EVALUATED UTILIZING PRELIMINARY DATA FROM THE CEOG REPORT AND THE UNIT 3 MONITORING PROGRAM. STRESSES IN THE LINE WERE WITHIN THE STRESS ALLOWABLES PER ASME NC-3600. FINAL EVALUATION OF THE SAMPLE LINE WILL BE COMPLETED AS PART OF THE PLANT SPECIFIC ANALYSIS.**





LINE DEFLECTION, THERMAL GRADIENT, AND LOCAL STRESSES

- **PREDICTED MAXIMUM LINE DEFLECTION AT SUPPORTS ARE AS FOLLOWS:**

H1(SPRING HANGER) = + 0.989 INCH
H3 (STRUT) = - 0.095 INCH
H4(SPRING HANGER) = + 1.132 INCH

- **PRESSURIZER SURGE LINE NOZZLES AT THE HOT LEG AND THE PRESSURIZER WERE FOUND TO MEET ALL ASME CODE SECTION III REQUIREMENTS.**

STRESS CONCENTRATION AT WELD ATTACHMENTS

- **THERE ARE NO WELD ATTACHMENTS LOCATED ON THE PVNGS SURGE LINE.**





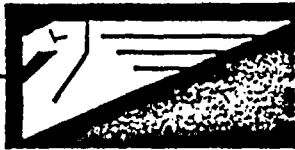
CODE CONFORMANCE - STRESS AND FATIGUE

- **THE CEOG ANALYSIS WILL DEMONSTRATE THAT ALL ASME CODE SECTION III REQUIREMENTS ARE MET FOR THE LIMITING SURGE LINE (BASED ON THE ELASTIC-PLASTIC ANALYSIS)**
- **APS WILL CONFIRM IN A PLANT SPECIFIC ANALYSIS THAT THE PVNGS SURGE LINE IS BOUNDED BY THE CEOG ANALYSIS. ALL APPLICABLE STRESS REPORTS WILL BE UPDATED TO REFLECT THE ADDITIONAL LOADINGS ASSOCIATED WITH THERMAL STRATIFICATION, TO ASSURE COMPLIANCE WITH THE APPLICABLE ASME CODE REQUIREMENTS. CODE RECONCILIATIONS WILL BE PERFORMED AS NECESSARY.**

LOADS, LOAD COMBINATIONS, AND CODE ALLOWABLES.

- **THE ORIGINAL DESIGN BASES TRANSIENTS FOR THE PVNGS THERMAL FATIGUE ANALYSIS DID NOT INCLUDE STRATIFIED FLOW LOADING CONDITIONS. A REVISED, BOUNDING SET OF DESIGN BASIS TRANSIENTS WERE DEVELOPED BY THE CEOG AND USED IN THE FATIGUE ANALYSIS. (REFER TO TABLE 3.5.1-1 ON PAGE 3-49 OF CEN 387-P)**
- **THE LOAD COMBINATIONS FOR THE PLASTIC ANALYSIS IS PROVIDED IN TABLE 3.6.2-1 ON PAGE 3-50 OF CEN 387-P. THE LOAD COMBINATIONS WERE CONSIDERED IN ACCORDANCE WITH THE ASME CODE RULES.**
- **THE SUPPORT QUALIFICATION ANALYSIS FOR THE STRUT SUPPORT COMBINED THE REVISED THERMAL LOAD DUE TO THERMAL STRATIFICATION WITH DEAD WEIGHT AND OBE LOADS FOR THE NORMAL/UPSET CONDITION. SSE AND LOCA LOADS WERE CONSIDERED FOR THE EMERGENCY/FAULTED CONDITION.**





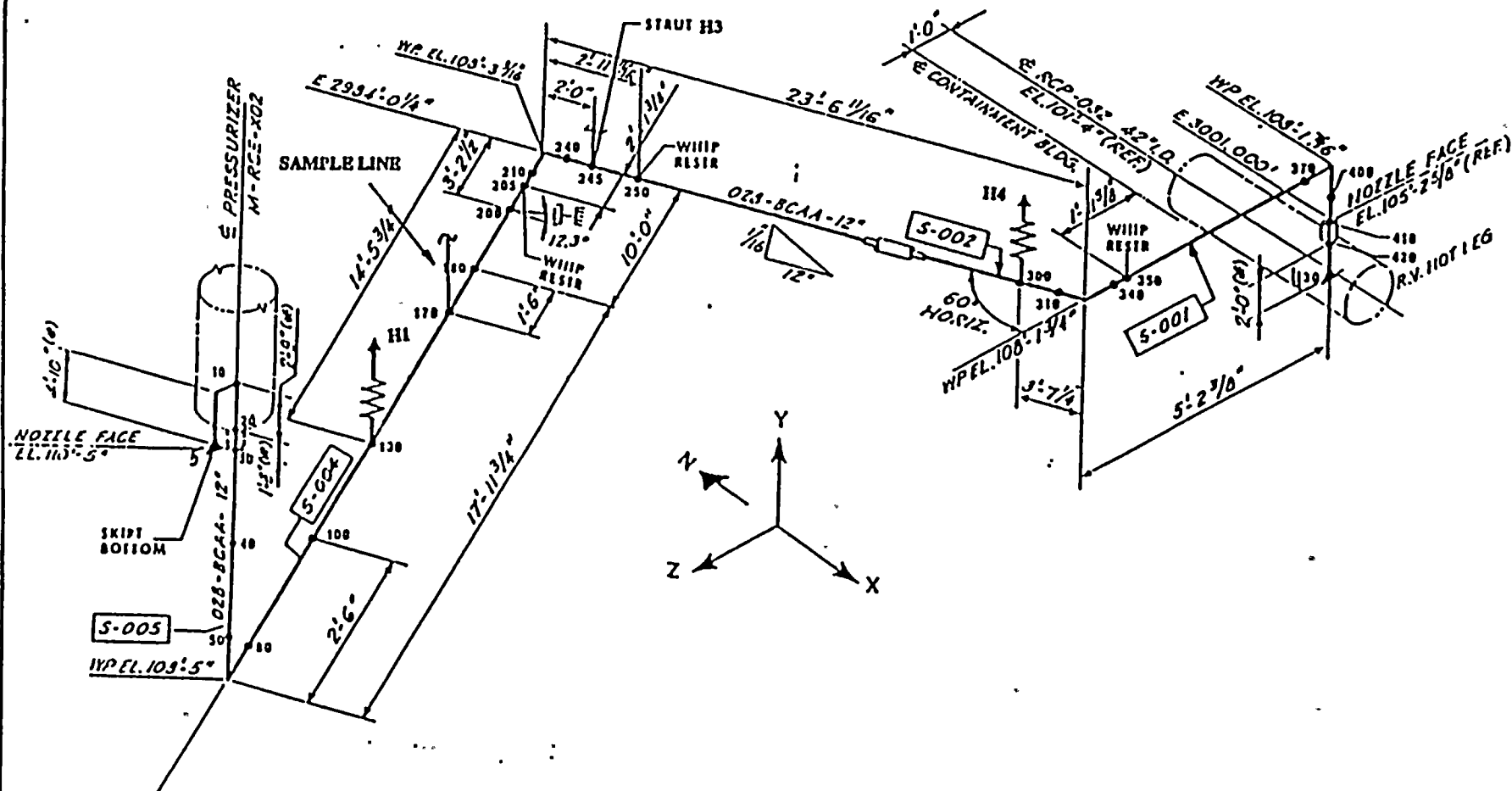
VERIFICATION OF CODE COMPLIANCE

- o ALL APPLICABLE ASME CODE STRESS REPORTS WILL BE AMENDED BY APS TO INCLUDE THE RESULTS OF CEOG BOUNDING ANALYSIS AND ALL APPROPRIATE PLANT SPECIFIC INFORMATION TO ENSURE THAT ALL ASME CODE REQUIREMENTS ARE MET FOR THE SURGE LINE.

PLANT OPERATION METHODS AND PROCEDURES

- o CURRENT PROCEDURES OR REQUIREMENTS DO NOT SPECIFICALLY DEFINE LIMITS FOR DIFFERENTIAL TEMPERATURE BETWEEN THE PRESSURIZER AND THE RCS HOT LEG TO LESS THAN OR EQUAL TO 320 °F.
- o SEVERAL OPTIONS SUCH AS ADMINISTRATIVE LIMITS, INCREASING THE CURRENT ANALYSIS LIMITS OR DEFINITION OF SURGE LINE DELTA-T FROM THE UNIT 3 MONITORING PROGRAM ARE CURRENTLY BEING EVALUATED TO RESOLVE THIS ISSUE.





ANPP PRESSURIZER SURGE LINE MATH MODEL



Design Basis Events for Fatigue Evaluation

	<u>Event</u>	<u>Operation</u>	<u>Fluid Delta-T(°F)</u>	<u>Occurrences</u>
Normal	1a	Steady State-Unif.	0	2,000,000
	1b	Steady State-Strat.	32	2,000,000
	2	Load Change	60	30,000
	3	Step Load Change	80	8,240
	4	Ramp Load Change	86	34,080
	5	Non Load Change	80	9,400
	6	Non Load Change	73	200
	7	Below Power Operation	89	4,580
	8a	Heat Up (440°F)	320	500
	8b	Heat Up (653°F)	320	500
	9a	Cool Down (653°F)	320	500
	9b	Cool Down (440°F)	320	500
	10	Hot Standby	89	87,710
Test	11	Hydro Leak Test	130	440
Upset	12	Decay Heat Removal Increase	32	70
	13	Decay RCS Removal Decrease	250	30
	14	Power Dist. Anomalies	80	40
	15	Increase RCS Inventory	32	30
	16	Decrease RCS Inventory	46	5
	17	Envelope	90	52,160

Event Description

Occurrences

OBE Seismic

5 events @ 40 cycles each

Full Flow Water Slug-Upset

100

Full Flow Water Slug-Heatup/Cooldown

500

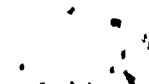




TABLE 1
PLANT TRANSIENTS

<u>Transient</u>	<u>Condition</u>	<u>Lifetime Occurrences</u>	<u>Figure/Paragraph</u>
1. Pressurizer Heatup	Normal	500	Figure 2
2. Pressurizer Cooldown and Flooding	Normal	500	Figure 2 and Paragraph 4.3.1.1.1
3. Plant Loading, 5%/min.	Normal	10^6	$\begin{cases} + 100 \text{ psi} \\ + 20^\circ\text{F} \end{cases}$
4. Plant Unloading, 5% min.			
5. 10% Step Load Increase			
6. 10% Step Load Decrease			
7. Normal Plant Variation	Upset	480	Figure 3
8. Reactor Trip			
9. Loss of Reactor Coolant Flow			
10. Loss of Load	Upset	200	Paragraph 4.7.1
11. Operational Basis Earthquake			
12. Safe Shutdown Earthquake (SSE) and Normal Operation at Full Power	Faulted	1	Paragraph 4.7.2.1
13. Safe Shutdown Earthquake (SSE) and Normal Operation at Full Power and Pipe Rupture Condition	Faulted	1	Paragraph 4.7.2.2
14. Loss of Secondary Pressure	Faulted	1	Figure 4
15. Hydrostatic Test 3125 psia, 120°-400°F	Test	10	Paragraph 5.2.1
16. Plant Leak Test 2250 psia, 120°-400°F	Test	200	Isothermal Conditions

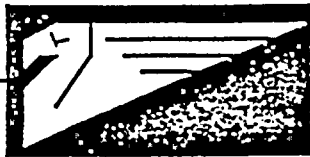


Table 3.6.2-1
Shakedown Analysis Load History

<u>State Number</u>	<u>Load State</u>	<u>Pressure (psia)</u>	<u>Horizontal (°F)</u>	<u>PZR (°F)</u>	<u>Hot Leg (°F)</u>
0	Cold Shutdown	15	70	70	70
1	Start of Heatup	15	120	120	120
2	Pressurize (low)	410	120	440	120
3	Low Temp. Stratified	410	(1)	440	120
4	No Stratification	410	333	653	333
5	Pressurize (high)	2,250	333	653	333
6	High Temp. Stratified	2,250	(2)	653	333
7	Hot Standby Stratified	2,250	(3)	653	563
8	No Stratification	2,250	653	653	653
9	Steady State Stratified	2,250	(4)	653	621
10	No Stratification	2,250	653	653	653
11	Steady State Stratified	2,250	(4)	653	621
12	No Stratification	2,250	653	653	653
13	Hot Standby Stratified	2,250	(5)	653	653
14	High Temp. Stratified	2,250	(6)	653	653
15	No Stratification	2,250	333	653	333
16	Depressurize	410	230	440	230
17	Low Temp. Stratified	410	(7)	440	120
18	No Stratification	410	120	120	120
19	Depressurize	15	120	120	120
20	Cold Shutdown	15	70	70	70

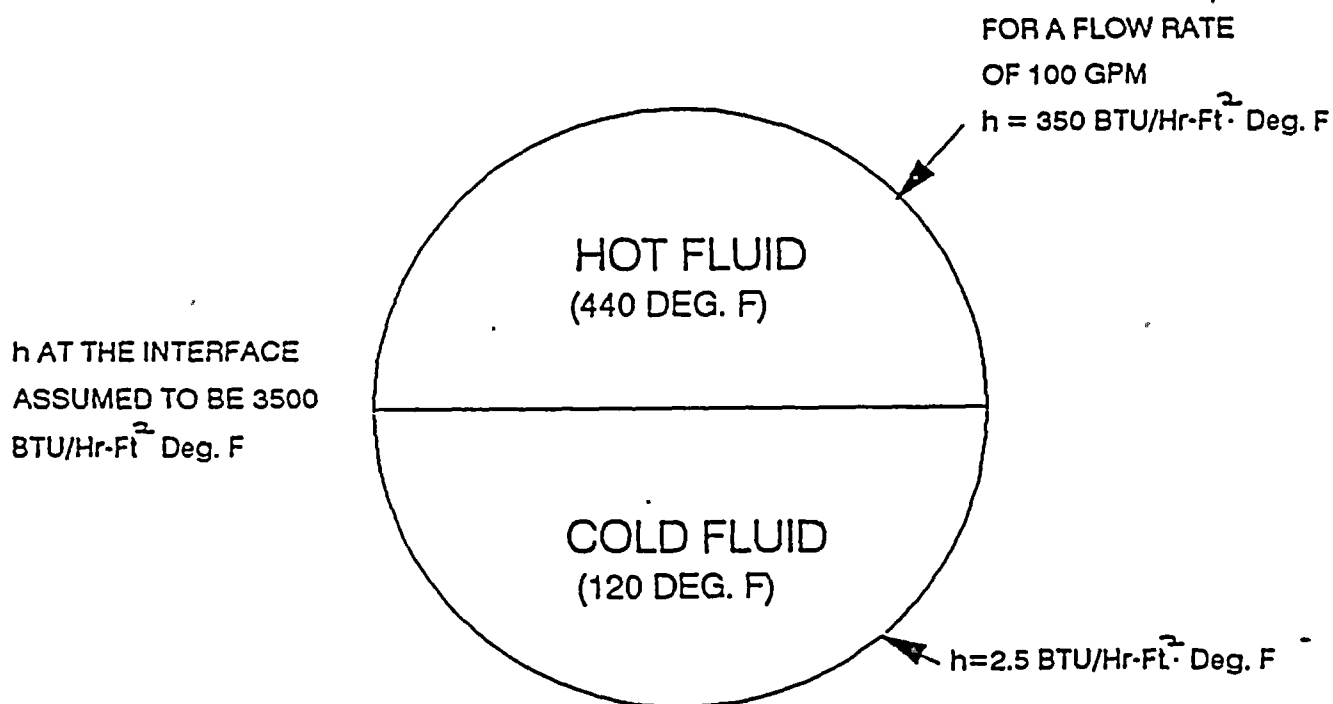
- (1) See Figure 3.6.2-10
(2) See Figure 3.6.2-11
(3) See Figure 3.6.2-12
(4) See Figure 3.6.2-13
(5) See Figure 3.6.2-14
(6) See Figure 3.6.2-15
(7) See Figure 3.6.2-15

11





FIGURE 3.4.2-1
STRIPING MODEL



KNOWN

- o MAXIMUM TEMPERATURE DIFFERENCE

UNKNOWN BUT BOUNDING VALUES FROM PUBLIC DOMAIN

- o HEAT TRANSFER COEFFICIENT IN STRIPING REGION - WILL RANGE FROM ONE TO TEN TIMES THE HIGHEST VALUE
- o PERIOD - PERIOD MAY RANGE UP TO 4 SECONDS
- o DELTA T AT THE WALL - DELTA T RANGES FROM 1% TO 10% OF THE TOP TO BOTTOM DELTA T

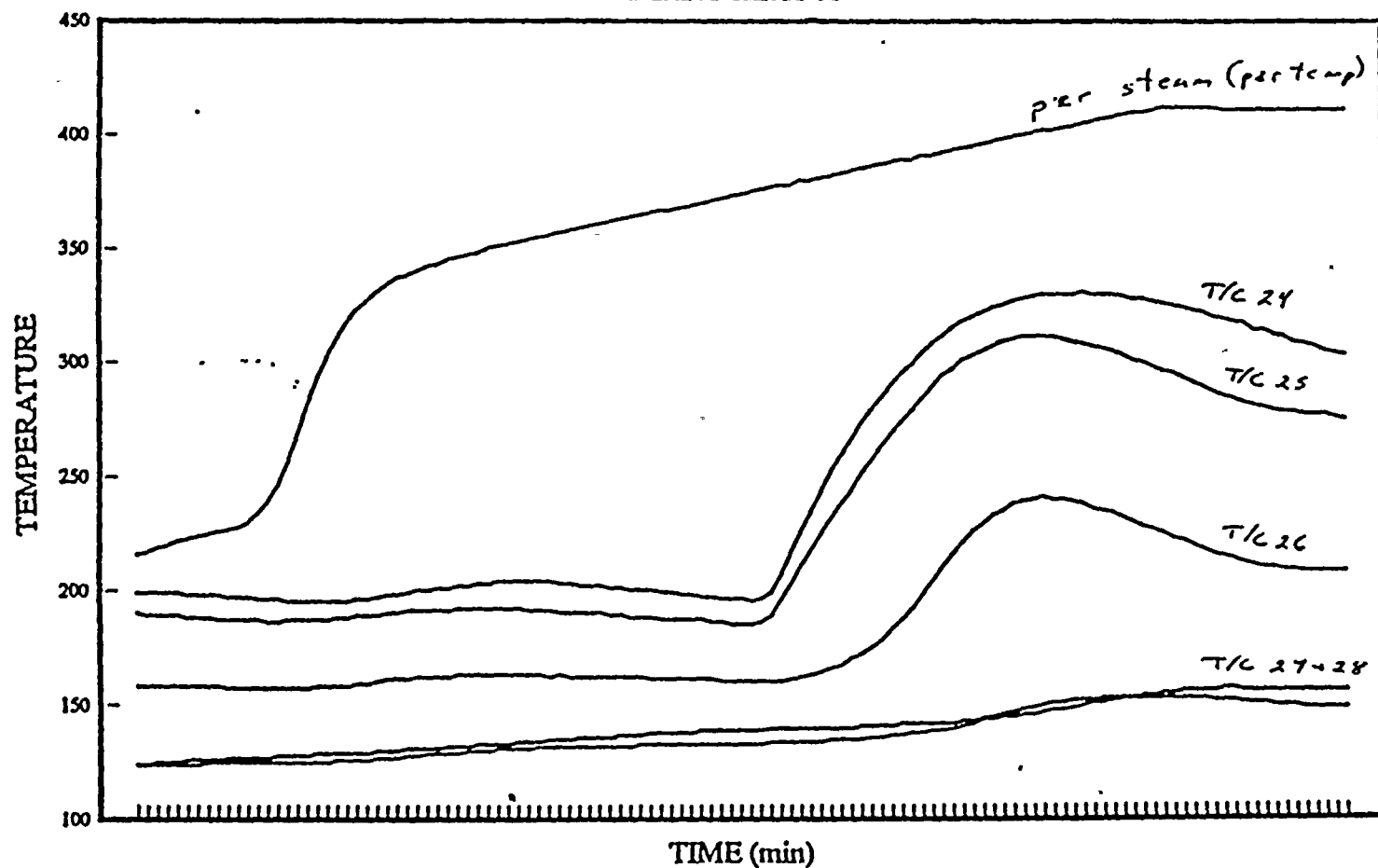




PRELIMINARY

PRESSURIZER SURGE LINE

PLANT HEATUP



Data from Unit 3 on 10/20/89
Time 1330 to 1330

TIME (min)
(2 hrs total)

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ATTACHMENT 4

Palo Verde Unit 3 Monitoring Locations
and Preliminary Temperature Plots



NUCLEAR ADMINISTRATIVE AND TECHNICAL MANUAL

Page 15 of 15

SURGE AND AUX. SPRAY PIPING
TEMP. AND DISPL. MONITORING

73TI-9RC03

Revision
0

Appendix A Page 3 of 3

PROCESS NO. 73-TI-9RC03

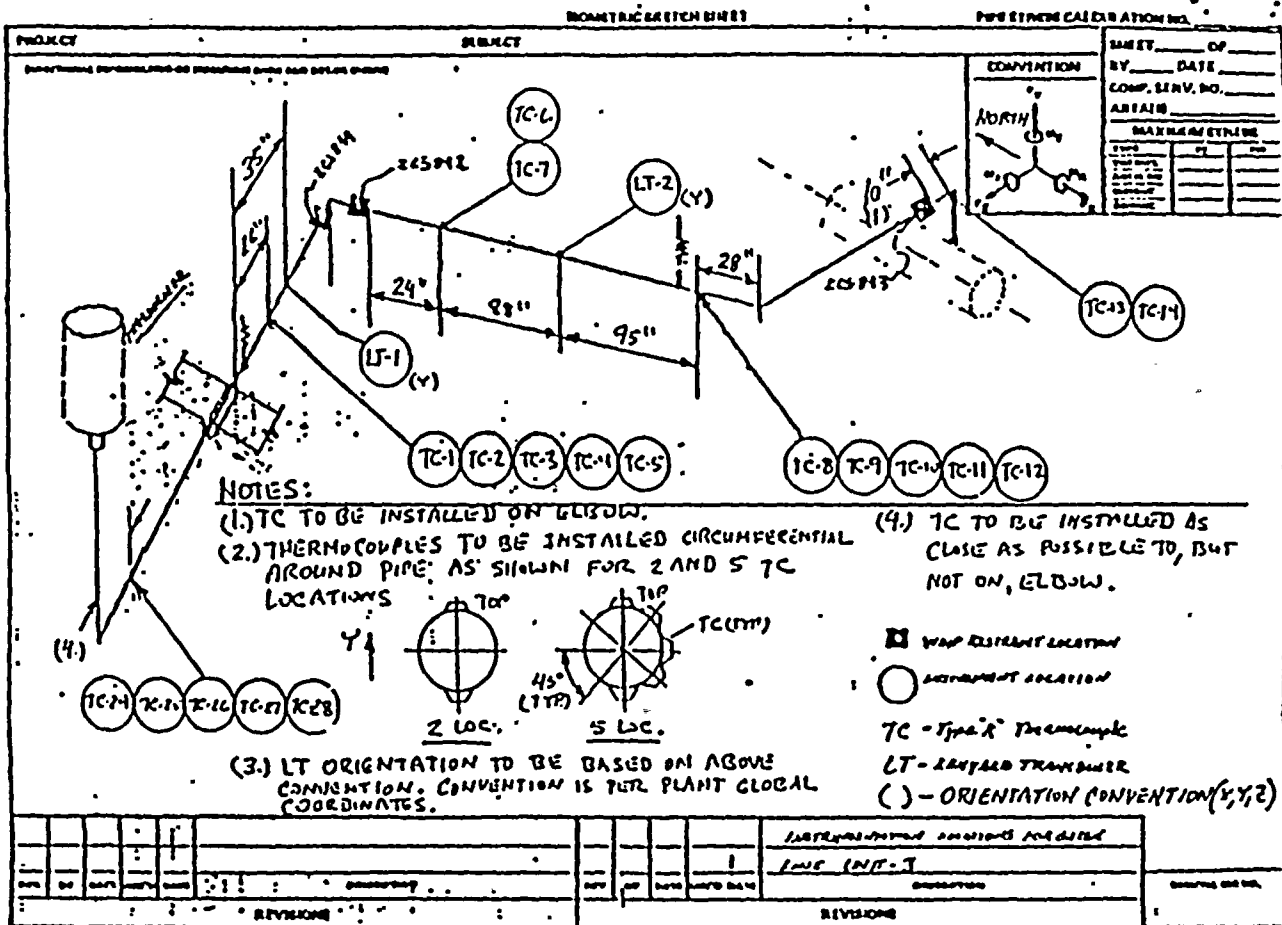
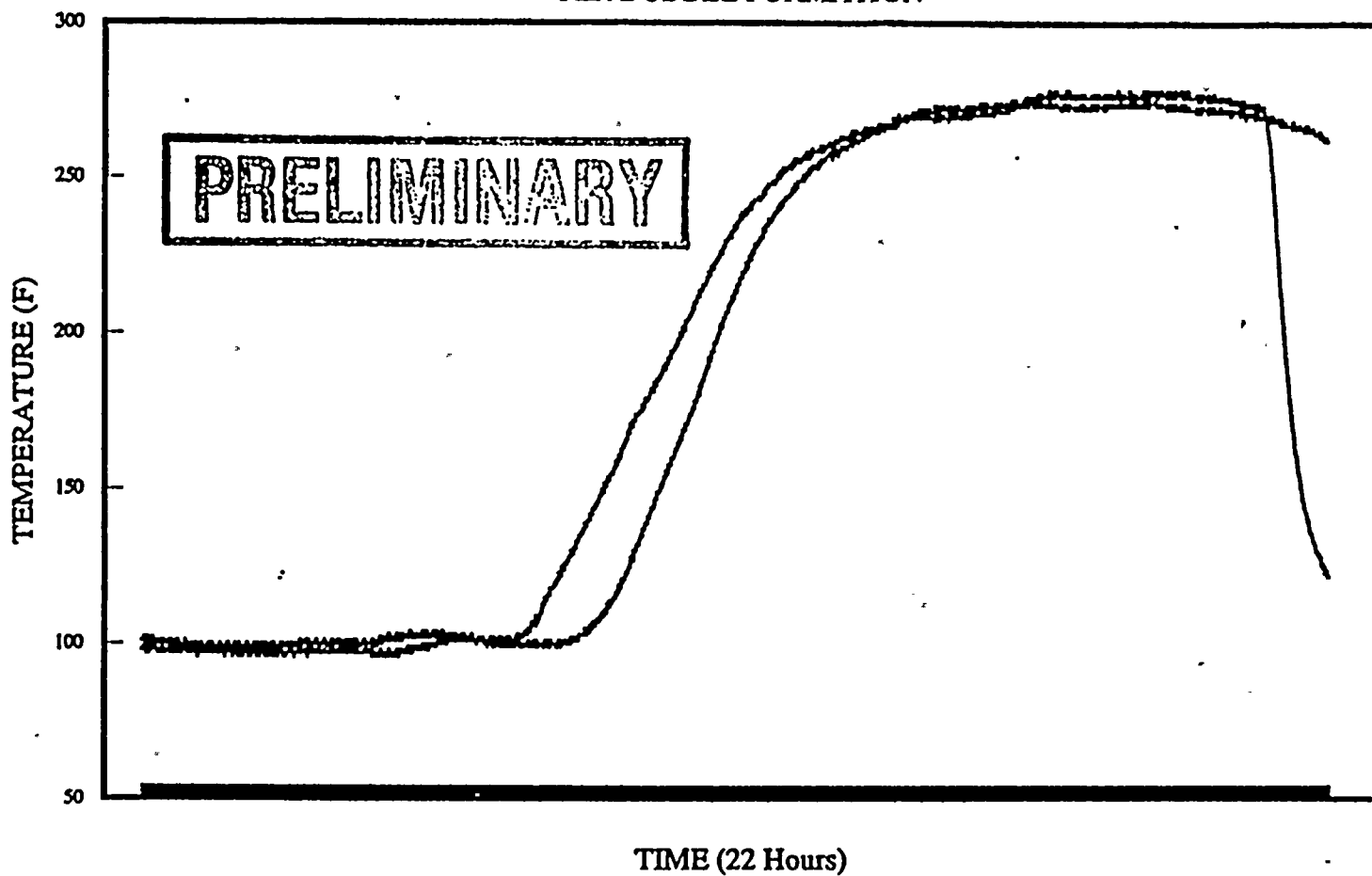


FIGURE A-2



SURGE LINE STRATIFICATION

PZR BUBBLE FORMATION

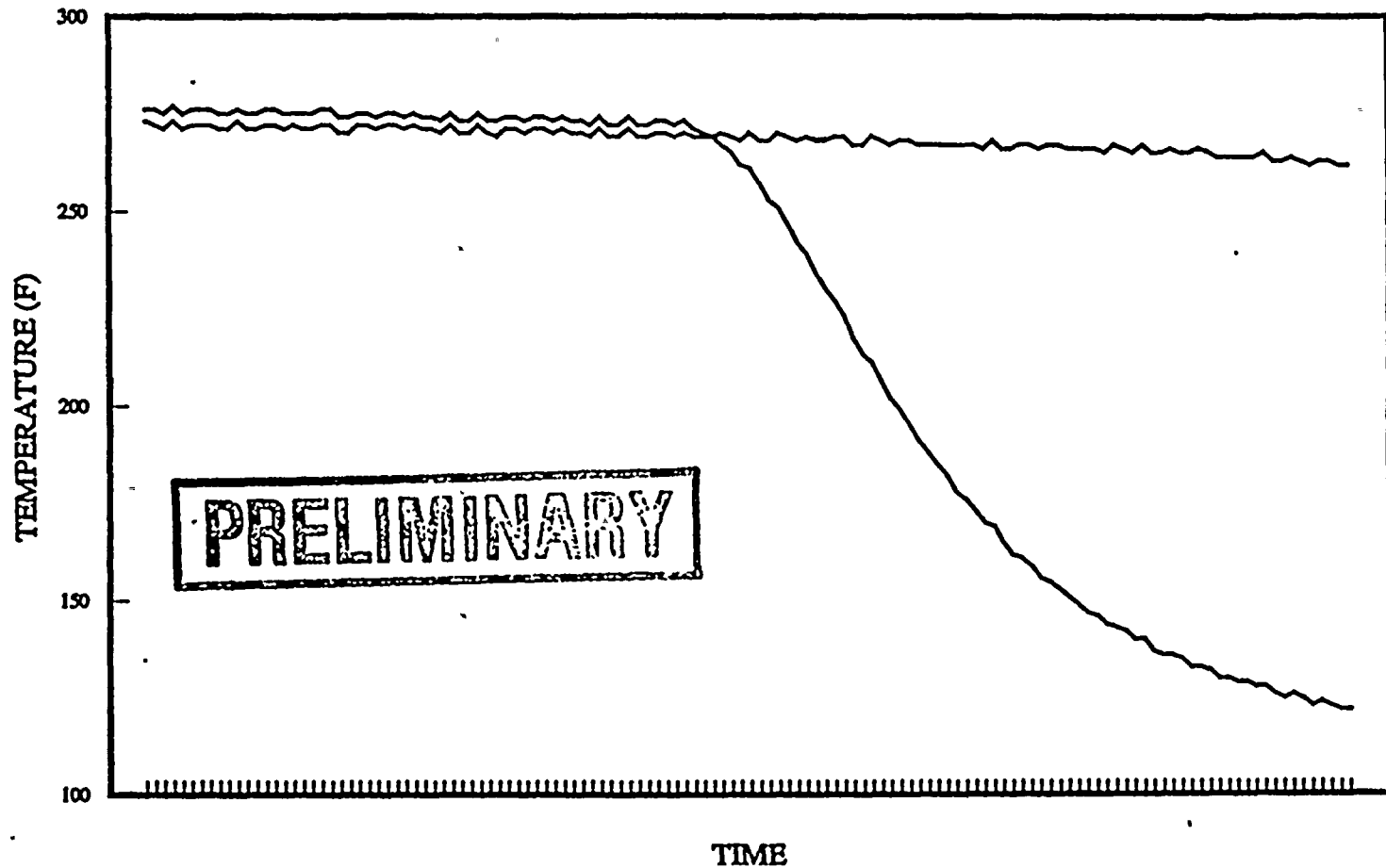


PROCEDURE 73TI-9RC09
TC6 (Top) TC7 (Bottom)



SURGE LINE STRATIFICATION

PZR BUBBLE FORMATION

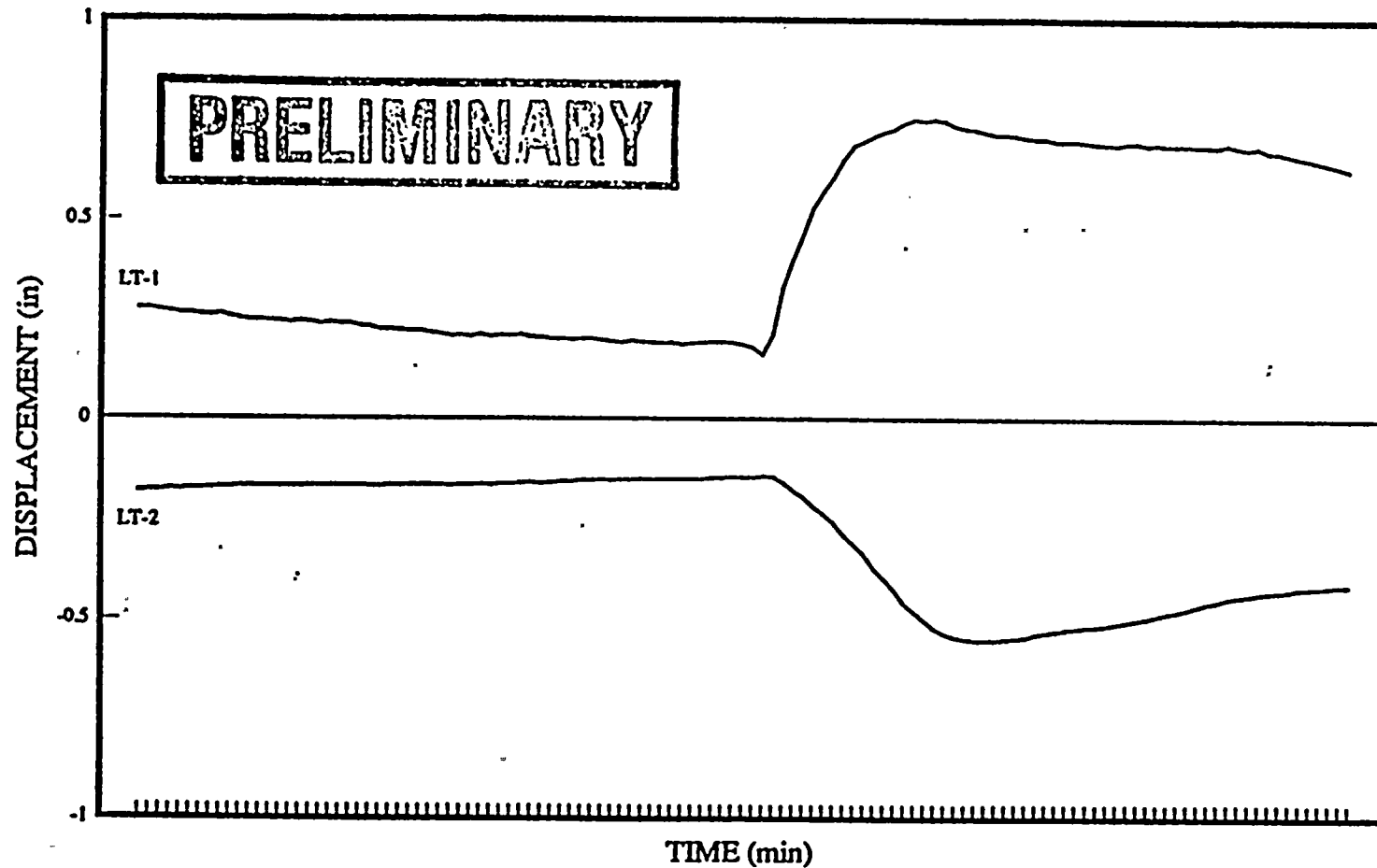


PROCEDURE 73TI-9RC09
TC6 (Top) TC7 (Bottom)



PRESSURIZER SURGE LINE

PLANT HEATUP



Data from Unit 3 on 10/20/89
Time 1330 to 1530

NOTE: Sign convention (vertical movement)

LT1 is mounted to the bottom of the surge line - (+) value indicates upward vertical

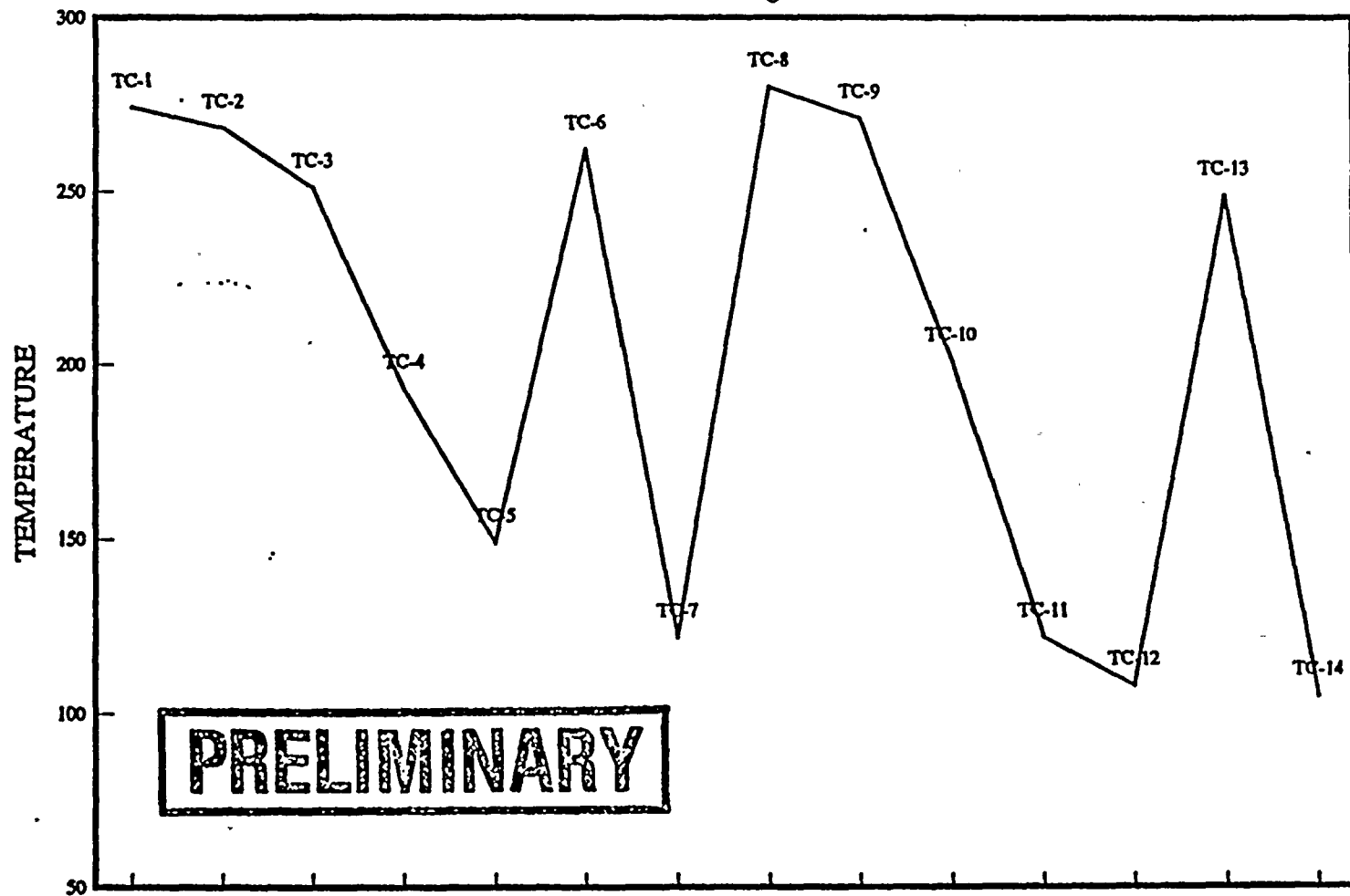
LT2 is mounted to the top of the surge line - (-) value indicates upward vertical

2000



TEMPERATURE PROFILE

Pressurizer Surge Line

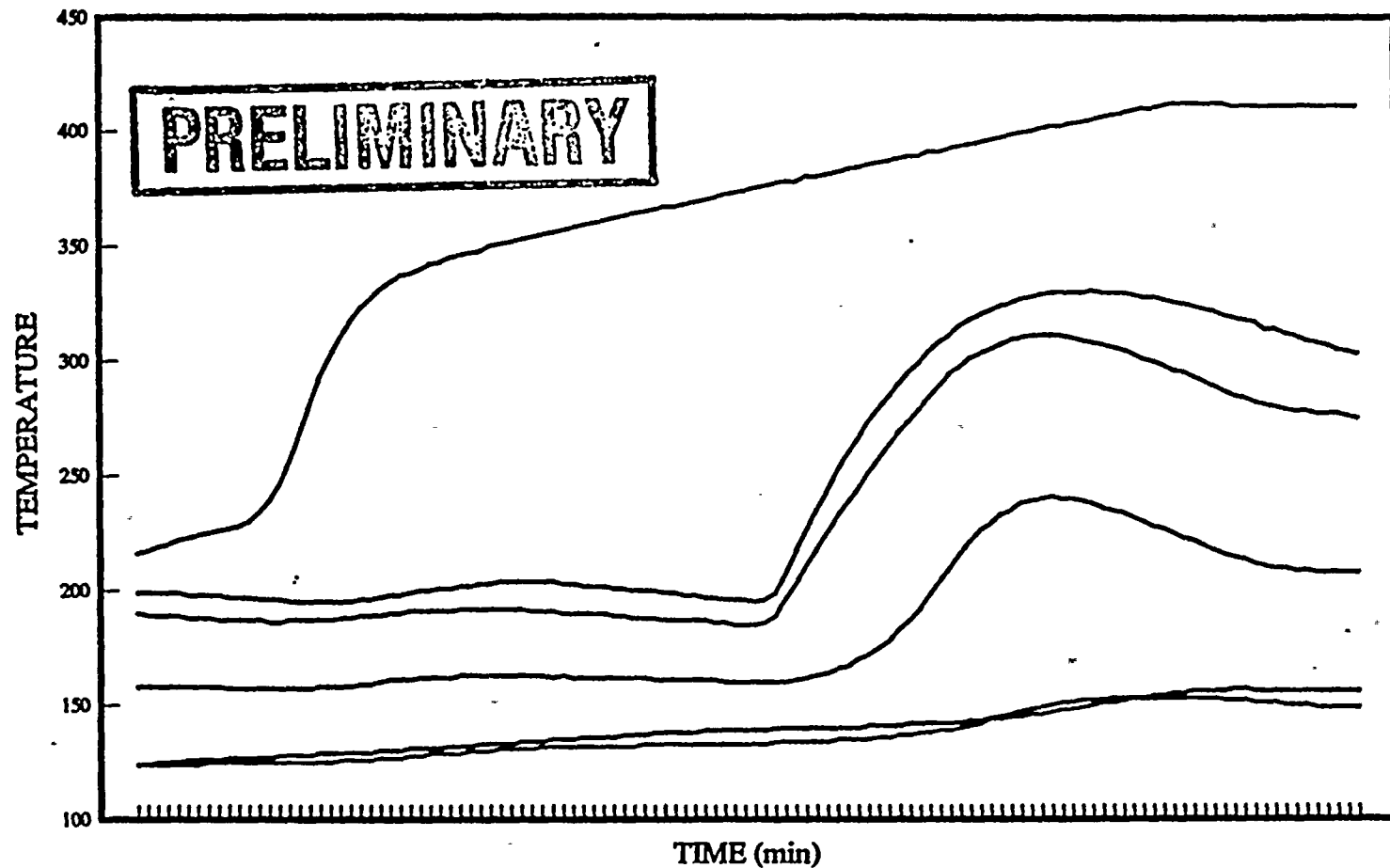


2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



PRESSURIZER SURGE LINE

PLANT HEATUP



Data from Unit 3 on 10/20/89
Time 1330 to 1530 (TC24-TC28)

2000



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AMENDMENT NO. 13 TO THE
ARIZONA NUCLEAR POWER PROJECT
PARTICIPATION AGREEMENT



AMENDMENT NO. 13 TO THE
ARIZONA NUCLEAR POWER PROJECT
PARTICIPATION AGREEMENT

1. Parties:

The Parties to this Amendment No. 13 to the Arizona Nuclear Power Project Participation Agreement, hereinafter referred to as "Amendment No. 13," are: ARIZONA PUBLIC SERVICE COMPANY, a corporation organized and existing under and by virtue of the laws of the State of Arizona, hereinafter referred to as "Arizona"; SALT RIVER PROJECT AGRICULTURAL IMPROVEMENT AND POWER DISTRICT, an agricultural improvement district organized and existing under and by virtue of the laws of the State of Arizona, hereinafter referred to as "Salt River Project"; SOUTHERN CALIFORNIA EDISON COMPANY, a corporation organized and existing under and by virtue of the laws of the State of California, hereinafter referred to as "Edison"; PUBLIC SERVICE COMPANY OF NEW MEXICO, a corporation organized and existing under and by virtue of the laws of the State of New Mexico, hereinafter referred to as "PNM"; EL PASO ELECTRIC COMPANY, a corporation organized and existing under and by virtue of the laws of the State of Texas, hereinafter referred to as "El Paso"; SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY, a joint powers agency organized and existing under and by virtue of the laws of the State



1 of California, doing business in the State of Arizona as
2 SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY ASSOCIATION,
3 hereinafter referred to as "SCPPA"; and DEPARTMENT OF
4 WATER AND POWER OF THE CITY OF LOS ANGELES, a municipal
5 corporation organized and existing under and by virtue of
6 the laws of the State of California, hereinafter referred
7 to as "LADWP", hereinafter individually referred to as
8 "Party" and collectively as "Parties".
9

10 2. Recitals:
11

12 2.1 Arizona, Salt River Project, Edison, PNM, El Paso,
13 SCPPA and LADWP are parties to a certain agreement enti-
14 tled Arizona Nuclear Power Project Participation Agree-
15 ment, dated as of August 23, 1973, as amended by Amendment
16 No. 1, dated as of January 1, 1974, Amendment No. 2, dated
17 as of August 28, 1975, Amendment No. 3, dated as of July
18 22, 1976, Amendment No. 4, dated as of December 15, 1977,
19 Amendment No. 5, dated as of December 5, 1979, Amendment
20 No. 6, effective as of October 16, 1981, Amendment No. 7,
21 effective as of April 1, 1982, Amendment No. 8, executed
22 as of September 12, 1983, Amendment No. 9, executed as of
23 June 12, 1984, Amendment No. 10, executed as of November
24 21, 1985, Amendment No. 11, effective January 10, 1987,
25 and Amendment No. 12, effective August 5, 1988, herein-
26



1 after, as so amended, referred to as the "Participation
2 Agreement".

3
4 2.2 The Participants desire to amend the Participation
5 Agreement in respect of the permanent termination of oper-
6 ation and removal from service of each Generating Unit.

7
8 2.3 During discussions among the Participants leading to
9 this Amendment No. 13, a consensus was reached that no
10 Participant should be enabled to take advantage of Section
11 21.5 to limit its Termination Responsibility (as
12 hereinafter defined) to \$10,000,000 through a deliberately
13 willful refusal or failure to pay its share of the
14 Termination Costs (as hereinafter defined) and that
15 Section 21.5 should be modified to preclude its
16 application to a refusal or failure of any Participant to
17 meet its Termination Responsibility.

18
19 In discussions respecting an appropriate modification
20 of Section 21.5, it was recognized that a modification
21 that was limited solely to carving out from the limitation
22 of liability a refusal or failure by a Participant to meet
23 its monetary obligations for its share of Termination
24 Costs might result in an attempt by a Participant to
25 interpret Section 21.5 in a manner that would permit a
26 Participant to limit any or all of its other monetary



1 obligations under the Participation Agreement to
2 \$10,000,000 through a deliberately willful refusal or
3 failure to pay any or all of such other monetary
4 obligations. All Participants agreed that when Section
5 21.5 was incorporated into the Participation Agreement by
6 Amendment No. 9, it was never intended that a deliberately
7 willful refusal or failure by any Participant to meet any
8 or all its monetary obligations should be subject to any
9 limitation of liability, and the language should not be so
10 interpreted. However, in view of the foregoing discussion
11 of Termination Costs the Participants desire to explicitly
12 conform Section 21.5 to clearly reflect the original
13 intent.

14
15 3. Agreement:

16
17 3.1 In consideration of the terms and conditions con-
18 tained in this Amendment No. 13 to the Participation
19 Agreement, the Parties agree as follows:

20
21 4. Effective Date:

22
23 4.1 This Amendment No. 13 shall become effective thirty
24 days after it has been (i) executed by all Participants
25 and (ii) filed with the NRC; provided that in the event
26 the NRC requests or orders additional time for its review



1 of this Amendment No. 13, then the effective date shall be
2 deferred to the expiration of the requested or ordered
3 additional time.

4
5 5. Amendment No. 13 to the Participation Agreement:

6
7 5.1 Section 3 is amended by the addition of Section 3.17A
8 which reads as follows:

9
10 "3.17A Cure Period: The period defined
11 in paragraph (C) of Section 8A.1.11 hereof."

12
13 5.2 Section 3 is further amended by the addition of
14 Sections 3.18A, 3.18B, 3.18C and 3.18D which read as
15 follows:

16
17 "3.18A Decommission or Decommissioning: The
18 permanent removal or removing from service of
19 any Generating/Terminated Unit (together with
20 any radioactively contaminated common facilities
21 associated therewith which the Engineering and
22 Operating Committee, pursuant to Section 8A.2.7
23 hereof, shall have determined are not required
24 or useful in the operation or maintenance of any
25 Generating Unit or other Generating/Terminated
26 Unit) in a manner that meets the requirements of



1 the NRC for the surrender of the license issued
2 for such Generating/Terminated Unit and the
3 disposal of all radioactive materials (other
4 than Nuclear Fuel) and radioactively contami-
5 nated equipment, materials or wastes associated
6 therewith in accordance with applicable law.

7
8 "3.18B Decommissioning Work: All work under-
9 taken to Decommission any Generating/Terminated
10 Unit, including work associated with the prepar-
11 ation and implementation of Decommissioning
12 plans and the preparation, submittal and prose-
13 cution of all necessary applications to Decom-
14 mission such unit, but excluding all work under-
15 taken by the Operating Agent pursuant to Section
16 8A.5 hereof (other than work performed by the
17 Operating Agent that is deemed to be Termination
18 Work pursuant to Section 8A.5.15 hereof) or by
19 any Participant in connection with the perform-
20 ance of its obligations under Section 8A.7
21 hereof.

22
23 "3.18C Deficiency Deposit: The funds that a
24 nondefaulting Participant maintains in its
25 Termination Fund(s) to make up for any
26 deficiency of a Participant in Default (as



1 defined in paragraph (D) of Section 8A.1.11
2 hereof) as required by Section 8A.7.2.3 hereof,
3 including any net income deemed to have been
4 earned thereon as determined in accordance with
5 the policies, criteria and formulas established
6 by the Termination Funding Committee pursuant to
7 Section 8A.4.7 hereof; provided that at such
8 time as the Termination Funding Committee shall
9 make the findings described in clause (i)(a) of
10 paragraph (E) of Section 8A.1.11, such funds so
11 maintained by any nondefaulting Participant
12 shall thereupon cease to be Deficiency Deposits.

13
14 "3.18D Deficiency Findings: The findings made
15 by the Administrative Committee pursuant to
16 paragraph (B) of Section 8A.1.11 hereof."

17
18 5.3 Section 3 is further amended (i) to redesignate Sec-
19 tion 3.28 as Section 3.29A, and (ii) to add a new Section
20 3.28 which reads as follows:

21
22 "3.28 Generating/Terminated Unit: Any Genera-
23 ting Unit which the Administrative Committee has
24 determined to permanently remove from service,
25 pursuant to Section 8A.1.3 hereof."
26



1 5.4 Section 3 is further amended by the addition of Sec-
2 tion 3.29B which reads as follows:

3
4 "3.29B Independent Trustee: With respect to any
5 Termination Fund of a Participant, a trustee
6 meeting the following requirements: (A) shall be
7 selected by such Participant, (B) shall be (i) a
8 corporation organized and existing under and by
9 virtue of the laws of the United States or of any
10 State, (ii) authorized under such laws to
11 exercise corporate trust powers and (iii) subject
12 to supervision or examination by federal or state
13 banking or trust authorities, (C) shall not be
14 owned by or subject to the control, except as
15 provided in the following clauses (D) and (E), of
16 such Participant or any other direct or indirect
17 Participant or any parent or any other subsidiary
18 of any parent of such Participant or any other
19 Participant, or, if such Participant is an
20 agency, instrumentality, department or
21 subdivision of a governmental unit, of an agency,
22 instrumentality, department or subdivision of the
23 same or a related governmental unit [other than
24 as required by clause (B)(iii) above], (D) may
25 invest all or any portion of such Termination
26 Fund as such Participant or its designee(s) may



1 direct, and (E) may be subject to removal at any
2 time at the sole discretion of such Participant,
3 provided such Participant shall have, at the time
4 of any such removal, appointed a successor
5 trustee who meets all of the requirements of
6 clauses (A), (B) and (C) above."

7
8 5.5 Section 3 is further amended by the addition of
9 Section 3.33A which reads as follows:

10
11 "3.33A NRC: The United States Nuclear Regula-
12 tory Commission or any successor agency which
13 has authority to regulate the construction,
14 operation, maintenance and Decommissioning of
15 nuclear power facilities, including each
16 Generating Unit and each Generating/Terminated
17 Unit in respect of all matters affecting
18 radiological safety in accordance with the
19 Atomic Energy Act of 1954, as heretofore or
20 hereafter amended or any laws superseding said
21 act, and the NRC's predecessor agency, the U. S.
22 Atomic Energy Commission."

23
24 5.6 Section 3 is further amended by the addition of Sec-
25 tion 3.36A which reads as follows:
26



1 "3.36A OA Discharge Date: The date in respect
2 of each Generating/Terminated Unit which is the
3 later of (i) the Unit Termination Date of such
4 unit or (ii) the date on which all Nuclear Fuel
5 shall have been removed from the reactor vessel
6 of such unit and placed in storage at the Nucle-
7 ar Plant Site or otherwise stored or disposed of
8 off the Nuclear Plant Site, but in any event not
9 earlier than the date on which the NRC shall
10 have authorized by license amendment or other-
11 wise the Termination Agent to assume all license
12 responsibilities for such unit."

13
14 5.7 Section 3 is further amended by the deletion of Sec-
15 tion 3.42 in its entirety and the substitution in lieu
16 thereof of a new Section 3.42 which reads as follows:

17
18 "3.42 Operating Work: Engineering, contract
19 preparation, purchasing, repair, supervision,
20 recruitment, training, expediting, inspection,
21 accounting, testing, protection, operation, use,
22 management, retirement, reconstruction, and
23 maintenance associated with operating ANPP,
24 including (i) any work undertaken by the Opera-
25 ting Agent pursuant to Section 16 or Section
26 8A.5 hereof and (ii) any work necessitated by an



1 Operating Emergency, but excluding (i) all work
2 undertaken to make any Capital Improvements and
3 (ii) all Termination Work."

4
5 5.8 Section 3 is further amended by the deletion of
6 Section 3.46 in its entirety and the substitution in lieu
7 thereof of a new Section 3.46 which reads as follows:

8
9 "3.46 Project Agreements: This
10 Participation Agreement, any Construction
11 Agreement, any Nuclear Fuel Agreement, but
12 excluding any Nuclear Fuel Agreements for
13 the supply of Uranium Concentrates to which
14 all Participants are not parties, any
15 agreements between the Participants or any
16 of them and any third party for land, land
17 rights or water rights for ANPP, any
18 agreement specified as a Project Agreement
19 in Section 8A.8.1, as such agreements are
20 originally executed or as they may
21 thereafter be supplemented or amended and
22 any other agreements as the Participants
23 agree to designate as Project Agreements.
24 Project Agreements shall not include any
25 deed of trust, mortgage, indenture, security
26 agreement, any agreement or instrument

1 relating to a sale and leaseback transaction
2 or any trust or other agreement that any
3 Participant may enter into in connection
4 with the Termination Fund(s) such
5 Participant is required to establish and
6 maintain pursuant to Section 8A.7.2 hereof,
7 unless the Participants shall otherwise
8 agree."

9
10 5.9 Section 3 is further amended by the deletion of
11 Section 3.48 in its entirety and the substitution in lieu
12 thereof of a new Section 3.48 which reads as follows:

13
14 "3.48 Project Insurance: Construction Insur-
15 ance, Operating Insurance and Termination
16 Insurance."

17
18 5.10 Section 3 is further amended by the addition of
19 Section 3.51A which reads as follows:

20
21 "3.51A Recommended Termination Plan: The plan
22 for each Generating/Terminated Unit which is
23 developed, submitted and recommended to the
24 Administrative Committee by the Termination
25 Agent pursuant to Section 8A.6.2 hereof."
26



1 5.11 Section 3 is further amended to add new Sections
2 3.53B and 3.53C which read as follows:

3
4 "3.53B Surviving Obligations: Those obliga-
5 tions set forth in Section 35.7.2 hereof.

6
7 "3.53C Surviving Rights: Those rights set
8 forth in Section 35.7.1 hereof."

9
10 5.12 Section 3 is further amended by the deletion of Sec-
11 tions 3.54A, 3.54B and 3.54C in their entirety and the
12 substitution in lieu thereof of new Sections 3.54A through
13 3.54L which read as follows:

14
15 "3.54A Termination Agent: The corporation or
16 other entity designated by the Administrative
17 Committee pursuant to Section 8A.1.4 hereof
18 which is responsible for the performance of
19 Termination Work for each Generating/Terminated
20 Unit.

21
22 "3.54B Termination Costs: The costs and obli-
23 gations incurred for any Generating/Terminated
24 Unit in the performance of Termination Work for
25 such unit, but excluding expenses incurred by
26 the Operating Agent for work performed pursuant



1 to Section 8A.5 hereof (except as otherwise
2 provided in Section 8A.5.15 hereof) and expenses
3 incurred by any Participant in establishing,
4 administering, managing and investing its
5 Termination Funds and otherwise complying with
6 Sections 8A.7.2.2 and 8A.7.2.4 through 8A.7.2.7
7 hereof.

8
9 *3.54C Termination Fund(s): The fund or funds
10 which each Participant is obligated to establish
11 and maintain for one or more Generating Units or
12 Generating/Terminated Units in accordance with
13 and for only those purposes permitted by Section
14 8A.7.2 hereof, irrespective of (i) the tax
15 treatment of contributions to or deposits in
16 such funds or of income derived from the
17 investment of such funds or (ii) the treatment
18 accorded to such contributions, deposits and
19 income in the establishment of the rates for
20 electric service furnished by such Participant.

21
22 *3.54D Termination Funding Committee: The
23 committee established pursuant to Section 6.1.4
24 hereof.
25
26

1 "3.54E Termination Insurance: Insurance pro-
2 cured and maintained pursuant to Section 8A.8.4
3 hereof.

4
5 "3.54F Termination Plan: The plan, including
6 any changes thereto, for each Generating/Termi-
7 nated Unit which has been approved by the Admin-
8 istrative Committee pursuant to Section 8A.1.9
9 hereof.

10
11 "3.54G Termination Power and Energy: The
12 amount of Power and Energy required for the
13 purposes of performing Termination Work in re-
14 spect of any Generating/Terminated Unit.

15
16 "3.54H Termination Responsibility: The obliga-
17 tion of each Participant to fully perform and
18 satisfy all of the duties, responsibilities and
19 obligations imposed upon it pursuant to Section
20 8A.7 hereof."

21
22 "3.54I Termination Work: All work, including
23 Decommissioning Work, performed (i) by the Oper-
24 ating Agent that is deemed to be Termination
25 Work pursuant to Section 8A.5.15 hereof and (ii)
26 by or under the direction of the Termination



1 Agent for any Generating/Terminated Unit in the
2 development of the Recommended Termination Plan
3 for such unit and in the implementation of the
4 Termination Plan for such unit in connection
5 with the permanent removal from service of such
6 unit and the common facilities associated
7 therewith which the Engineering and Operating
8 Committee, pursuant to Section 8A.2.7 hereof,
9 shall have determined are not required or useful
10 in the operation or maintenance of any Gener-
11 ating Unit or other Generating/Terminated Unit.

12
13 "3.54J Testing and Start-Up Power and Energy:

14 The amount of Power and Energy required for the
15 purposes of testing of any component or system
16 of any Generating Unit before, during, or after
17 its Start-Up Period.

18
19 "3.54K Transmission Agreements: Transmission
20 Agreements which may be entered into between and
21 among the Parties and third parties for the
22 explicit purpose of defining transmission
23 arrangements and charges for the delivery of
24 each Participant's Generation Entitlement Share
25 of Testing and Start-Up Power and Energy, and/or
26 Termination Power and Energy.



1 "3.54L Unit Rating: The effective Available
2 Generating Capability as determined from time to
3 time by the Engineering and Operating Committee,
4 pursuant to Section 6.3.2.17 hereof, to reflect
5 seasonal changes in Generating Unit operation."
6

7 5.13 Section 3 is further amended (i) to redesignate
8 Section 3.55A as Section 3.55C, and (ii) to add new
9 Sections 3.55A and 3.55B which read as follows:
10

11 "3.55A Unit Termination Date: The date estab-
12 lished pursuant to Section 8A.1.3 hereof on
13 which the permanent termination of operation and
14 the removal from service of a Generating/Termi-
15 nated Unit shall become effective.
16

17 "3.55B Unrecovered Advanced Termination Costs:
18 Any Termination Costs which a Participant in
19 Default (as defined in paragraph (D) of Section
20 8A.1.11 hereof) is obligated to pay but which
21 are paid by a nondefaulting Participant pursuant
22 to Section 23.5.1 hereof and have not been
23 recovered by such nondefaulting Participant from
24 the Termination Fund(s) of such Participant in
25 Default or other consideration received from the
26 Participant in Default."

1 5.14 Section 3 is further amended by the changing of the
2 parenthetical phrase "(including the Operating Agent)" as
3 it appears in Sections 3.56.1, 3.56.2 and 3.56.3 to read
4 as follows:

5
6 "(including the Operating Agent and the Termina-
7 tion Agent if such agent is a Participant)"
8

9 5.15 Section 3 is further amended by the addition to
10 Section 3.57 of a new Section 3.57.3 which reads as
11 follows:

12
13 "3.57.3 The performance or nonperformance of
14 Termination Work."
15

16 5.16 Section 5 is amended by the deletion of Sections 5.2
17 and 5.8 in their entirety and the substitution in lieu
18 thereof of new Sections 5.2 and 5.8, respectively, which
19 read as follows:

20
21 "5.2 At all times after the Date of Firm Opera-
22 tion of each Generating Unit and prior to its
23 Unit Termination Date, other than those periods
24 referred to in Section 5.1 hereof, each Partici-
25 pant shall be entitled to schedule for its
26 account Power from such Generating Unit equal to

1 the product of its Generation Entitlement Share
2 and the Available Generating Capability of such
3 Generating Unit; and each Participant shall be
4 obligated to provide its own reserve require-
5 ments, including spinning reserves, for its
6 Generation Entitlement Share of the Available
7 Generating Capability of all Generating Units.
8

9 "5.8 Each Participant shall provide and sche-
10 dule its share, equal to its Generation Entitle-
11 ment Share, of the Testing and Start-Up Power
12 and Energy and/or Termination Power and Energy
13 which the Project Manager, Operating Agent or
14 any Termination Agent, in accordance with poli-
15 cies, criteria and procedures approved by the
16 Engineering and Operating Committee pursuant to
17 Section 6.3.2.5, 6.3.2.7 or 8A.2.5.5 hereof,
18 shall have determined is required and scheduled
19 for delivery to any Generating Unit or
20 Generating/Terminated Unit. Each Participant
21 may at its option provide its share of such
22 required and scheduled Testing and Start-Up
23 Power and Energy and/or Termination Power and
24 Energy by either (i) the delivery thereof to the
25 500 KV bus at the ANPP High Voltage Switchyard
26 in accordance with any applicable Transmission



1 Agreements or other agreements for the delivery
2 or supply of Testing and Start-Up Power and
3 Energy and/or Termination Power and Energy, or
4 (ii) from its Generation Entitlement Share of
5 the Power and Energy available from any Genera-
6 ting Unit or Generating/Terminated Unit unless
7 the Operating Agent shall have determined in
8 accordance with policies, criteria and proce-
9 dures approved by the Engineering and Operating
10 Committee pursuant to Section 6.3.2.5, 6.3.2.7
11 or 8A.2.5.5 hereof that such Power and Energy
12 cannot or should not be supplied by any Genera-
13 ting Unit or Generating/Terminated Unit. The
14 costs of Testing and Start-Up Power and Energy
15 and/or Termination Power and Energy as may be
16 provided by any Participant in accordance with
17 clause (i) above shall be borne by such Partici-
18 pant consistent with any applicable Transmission
19 Agreements or other agreements for the delivery
20 or supply of Testing and Start-Up Power and
21 Energy and/or Termination Power and Energy and
22 shall be accounted for by such Participant in
23 such manner as it deems appropriate."

24
25 5.17 Section 6.1 is amended by the deletion of the intro-
26 ductory paragraph thereof in its entirety and the substi-



1 tution of a new introductory paragraph thereof which reads
2 as follows:

3
4 "6.1 As a means of securing effective coopera-
5 tion and interchange of information and of pro-
6 viding consultation on a prompt and orderly
7 basis among the Participants in connection with
8 various administrative and technical matters
9 which may arise from time to time in connection
10 with the terms and conditions of the Project
11 Agreements, the Participants establish the com-
12 mittees described in this Section 6.1. The
13 chairman of each of such committees shall be a
14 representative of the Project Manager up to the
15 Date of Firm Operation of the first Generating
16 Unit and thereafter until the OA Discharge Date
17 for the last Generating Unit to be permanently
18 removed from service shall be a representative
19 of the Operating Agent. After such OA Discharge
20 Date, the chairman of each of said committees
21 shall be determined in the manner provided by
22 Section 8A.8.2 hereof. The chairman shall be
23 responsible for calling meetings and establish-
24 ing agendas. The following committees are
25 hereby established and shall have the functions
26

1 and responsibilities described herein and in the
2 Project Agreements:"
3

4 5.18 Section 6.1 is further amended by the addition of a
5 new Section 6.1.4 which reads as follows:
6

7 "6.1.4 A Termination Funding Committee consist-
8 ing of one representative appointed by each
9 Participant."
10

11 5.19 Section 6.2 is amended by the deletion of Section
12 6.2.2 in its entirety and the substitution in lieu thereof
13 of a new Section 6.2.2 which reads as follows:
14

15 "6.2.2 Exercise general supervision over the
16 Engineering and Operating Committee, the Auditing
17 Committee, the Termination Funding Committee, and
18 any other standing or ad hoc committees
19 established pursuant to Section 6.13 hereof."
20

21 5.20 Section 6.2 is further amended by the deletion of
22 Section 6.2.12 in its entirety and the substitution in
23 lieu thereof of a new Section 6.2.12 and by the addition
24 of a new Section 6.2.13 which read as follows:
25
26

1 "6.2.12 Review, modify if necessary and approve
2 criteria and guidelines which are to be utilized
3 by the Project Manager, the Operating Agent or
4 any Termination Agent, as the case may be, con-
5 cerning (i) the sale, transfer or conveyance of
6 equipment or materials acquired for use in the
7 performance of Construction Work, Operating
8 Work, the construction, operation or maintenance
9 of Capital Improvements or Termination Work,
10 which are no longer required for such purposes,
11 and (ii) the disposal of retired Units of Pro-
12 perty pursuant to Section 18.8. Such criteria
13 and guidelines are to be developed by the Pro-
14 ject Manager, Operating Agent or Termination
15 Agent and shall be reviewed and modified as
16 necessary by the Engineering and Operating Com-
17 mittee prior to being forwarded to the Admini-
18 strative Committee. Such criteria and guide-
19 lines shall also include any specific require-
20 ments which may be deemed necessary with respect
21 to the sale, transfer or conveyance, by a non-
22 competitive bid process, of such equipment or
23 materials or retired Units of Property to any
24 Participant or subsidiary thereof, the Project
25 Manager, Operating Agent or Termination Agent.
26

1 "6.2.13 Perform the functions delegated to the
2 Administrative Committee by Section 8A.1 hereof."
3

4 5.21 Section 6.3 is amended by the addition thereto of a
5 new Section 6.3.7 which reads as follows:
6

7 "6.3.7 Perform the functions delegated to the
8 Engineering and Operating Committee by Section
9 8A.2 hereof."
10

11 5.22 Section 6.4 is amended by the addition thereto of a
12 new Section 6.4.5 which reads as follows:
13

14 "6.4.5 Perform the functions delegated to the
15 Auditing Committee by Section 8A.3 hereof."
16

17 5.23 Section 6 is further amended by the addition of a
18 new Section 6.4A which reads as follows:
19

20 "6.4A The Termination Funding Committee shall
21 perform the functions delegated to the Termina-
22 tion Funding Committee by Section 8A.4 hereof."
23

24 5.24 Section 6 is further amended by the deletion of
25 Section 6.6 in its entirety and the substitution in lieu
26 thereof of a new Section 6.6 which reads as follows:

1 "6.6 Any action or determination of a committee
2 must be unanimous except as otherwise provided
3 in Sections 8A.1.11, 8A.4.5, 8A.8.2 and 23.5 or
4 Appendix K hereof."

5
6 5.25 Section 6 is further amended by the deletion of
7 Section 6.7 in its entirety and the substitution in lieu
8 thereof of a new Section 6.7 which reads as follows:

9
10 "6.7 The Administrative Committee, the Engineer-
11 ing and Operating Committee, the Auditing Commit-
12 tee and the Termination Funding Committee shall
13 each keep written minutes, and records of all
14 meetings and all actions, agreements or determi-
15 nations made by any such committee shall be re-
16 duced to writing and shall be signed by a repre-
17 sentative of each Participant on such committee
18 or an authorized alternate."

19
20 5.26 Section 6 is further amended by the deletion of
21 Section 6.9 in its entirety and the substitution in lieu
22 thereof of a new Section 6.9 which reads as follows:

23
24 "6.9 If the Engineering and Operating Committee,
25 the Auditing Committee or the Termination Funding
26 Committee fails to agree while performing the



1 functions and duties delegated to it in this
2 Participation Agreement or in the Project
3 Agreements, then such disagreement shall be
4 referred to the Administrative Committee for
5 determination."
6

7 5.27 Section 8.3 is amended by the deletion of Section
8 8.3.17 in its entirety and the substitution in lieu there-
9 of of a new Section 8.3.17 which reads as follows:
10

11 "8.3.17 Provide the Administrative, Engineering
12 and Operating, Auditing and Termination Funding
13 Committees with all written statistical and ad-
14 ministrative reports, accounting records, written
15 budgets, information and other records relating
16 to Operating Work, Capital Improvements, Termina-
17 tion Work and Termination Costs and the funding
18 thereof necessary or useful in the performance of
19 their respective responsibilities under this
20 Participation Agreement."
21

22 5.28 Section 8.3 is further amended by the deletion of
23 Section 8.3.25 in its entirety and the substitution in
24 lieu thereof of a new Section 8.3.25 which reads as
25 follows:
26

1 "8.3.25 Carry out and follow the practices and
2 procedures and directions which have been approv-
3 ed and issued by the Administrative Committee,
4 the Engineering and Operating Committee, the
5 Auditing Committee or the Termination Funding
6 Committee pursuant to the Project Agreements,
7 except as otherwise provided in Section 8.3.26
8 hereof."
9

10 5.29 Section 8.3 is further amended by the addition
11 thereto of a new Section 8.3.29, which reads as follows:
12

13 "8.3.29 Perform the functions delegated to the
14 Operating Agent by Section 8A.5 hereof."
15

16 5.30 The Participation Agreement is amended by the addi-
17 tion after Section 8 of a new Section 8A which reads as
18 follows:
19

20 "8A. Termination of Generating Units
21

22 "8A.1 Responsibilities of the Administrative Committee
23

24 "8A.1.1 In addition to those functions delegated to
25 the Administrative Committee by Section 6.2 hereof
26 and other provisions of this Participation Agreement,



1 the Administrative Committee shall have the functions
2 hereinafter set forth in this Section 8A.1 in connec-
3 tion with the permanent termination of operation and
4 the removal from service of each Generating Unit and
5 the performance and completion of Termination Work
6 for each Generating/Terminated Unit.

7
8 "8A.1.2 The Administrative Committee shall provide
9 liaison between the Participants and the Termination
10 Agent for each Generating/Terminated Unit in connec-
11 tion with the planning, performance and completion of
12 Termination Work for such unit and the financial and
13 accounting aspects thereof.

14
15 "8A.1.3 The Administrative Committee shall make the
16 determination to permanently terminate the operation
17 of each Generating Unit and remove such unit from
18 service and establish the Unit Termination Date
19 therefor.

20
21 "8A.1.4 At any time prior to making its determina-
22 tion to permanently terminate operation of each
23 Generating Unit or promptly thereafter, but in no
24 event later than the Unit Termination Date for such
25 unit, the Administrative Committee shall designate a
26 Termination Agent to perform or direct the Termina-

1 tion Work for such unit that is not performed by the
2 Operating Agent. The Termination Agent for any
3 Generating/Terminated Unit may be either a
4 Participant, the Operating Agent, an entity organized
5 and owned in whole or in part by one or more
6 Participants directly or indirectly through
7 an affiliated company, or an entity that is not owned
8 by any Participant directly or indirectly through an
9 affiliated company.

10
11 "8A.1.5 The Administrative Committee shall, concur-
12 rently with the designation of the Termination Agent
13 for any Generating/Terminated Unit, enter into or
14 authorize the chairman of the Administrative Commit-
15 tee to enter into a written contract with such Termi-
16 nation Agent containing such terms and conditions for
17 the performance of Termination Work as the Admini-
18 strative Committee shall have approved and specifying
19 the obligations set forth in Sections 8A.6.2 and
20 8A.6.3 hereof.

21
22 "8A.1.6 The Administrative Committee may remove and
23 discharge any Termination Agent for any Generating/
24 Terminated Unit with or without cause and at any time
25 as the Administrative Committee may determine is in
26 the best interests of the Participants on such terms

1 as the Administrative Committee shall determine to be
2 appropriate.

3
4 "8A.1.7 In the event of the removal, discharge or
5 resignation of the Termination Agent for any Genera-
6 ting/Terminated Unit prior to the completion of the
7 Termination Work for such unit, the Administrative
8 Committee shall designate a successor Termination
9 Agent and enter into or authorize the chairman of the
10 Administrative Committee to enter into a written
11 contract with such successor Termination Agent con-
12 taining such terms and conditions for the performance
13 of Termination Work as the Administrative Committee
14 shall have approved and specifying the obligations
15 set forth in Section 8A.6.3 hereof.

16
17 "8A.1.8 The Administrative Committee shall delegate
18 to the Termination Agent for each Generating/
19 Terminated Unit such authorities, duties and respon-
20 sibilities as the Administrative Committee may
21 determine to be appropriate and are consistent with
22 this Participation Agreement and other Project
23 Agreements. The delegation of such authorities,
24 duties and responsibilities shall be in writing and
25 incorporated in either (i) the contract with such
26 Termination Agent which the Administrative Committee



1 shall have approved pursuant to Section 8A.1.5 or
2 8A.1.7 hereof or (ii) the Termination Plan for such
3 unit approved by the committee pursuant to Section
4 8A.1.9 hereof.

5
6 "8A.1.9 The Administrative Committee shall review
7 and approve, modify or otherwise act upon the Recom-
8 mended Termination Plan for each Generating/Termi-
9 nated Unit submitted to it by the Termination Agent
10 for such unit pursuant to Section 8A.6.2 hereof after
11 giving due consideration to any recommendations or
12 comments respecting such Recommended Termination Plan
13 as may be submitted to it by such Termination Agent,
14 the Operating Agent, the Engineering and Operating
15 Committee, the Termination Funding Committee or the
16 Auditing Committee. No changes shall be made to any
17 Termination Plan so approved without the approval of
18 the Administrative Committee.

19
20 "8A.1.10 The Administrative Committee shall, after
21 considering any recommendations or comments as may be
22 submitted to it by the Engineering and Operating
23 Committee pursuant to Section 8A.2.6 hereof and the
24 Termination Funding Committee pursuant to Section
25 8A.4.6 hereof, approve or otherwise act upon (i) the
26 selection of the independent consultant which the

1 Operating Agent proposes to engage to make an esti-
2 mate of Termination Costs pursuant to Section 8A.5.8
3 hereof and (ii) any addition to, deletion from, or
4 other change in any assumption specified in said
5 section on which any such estimate shall be made.

6
7 "8A.1.11 In the event that all of the following
8 shall occur:

9
10 (A) the Termination Funding Committee shall
11 report to the Administrative Committee pur-
12 suant to Section 8A.4.5 hereof that (i) the
13 deposits made or accumulations in the Termi-
14 nation Fund(s) of any Participant are not in
15 compliance with the criteria and standards
16 established by the Termination Funding Com-
17 mittee and (ii) as a result there is not
18 reasonable assurance that the accumulations
19 in such fund(s) will be sufficient to meet
20 such Participant's obligations under Section
21 8A.7.2.3 hereof;

22
23 (B) all members of the Administrative Com-
24 mittee other than the member representing
25 any such Participant unanimously find (i)
26 that such Participant is deficient in

1 meeting its obligations under Section
2 8A.7.2.3 and (ii) that the measures which
3 such Participant has committed to the other
4 Participants to undertake are not sufficient
5 to cure the deficiencies in a timely manner
6 (hereinafter the "Deficiency Findings"); and
7

8 (C) such Participant has not cured the defi-
9 ciencies within the Cure Period (i.e., the
10 period commencing on the date on which the
11 Deficiency Findings are made and ending on
12 the later of (i) the date occurring six
13 months after the date on which the
14 Deficiency Findings are made or (ii) such
15 other date as all members of the Admini-
16 strative Committee other than the member
17 representing such Participant shall
18 unanimously designate) by making deposits in
19 its Termination Fund(s) or by making
20 commitments to do so in a timely manner
21 acceptable to and approved by all members of
22 the Administrative Committee other than the
23 member representing such Participant;
24

25 then immediately upon the expiration of the Cure
26 Period and without further action by the Admini-

1 strative Committee or any Participant and irre-
2 spective of the pendency of any arbitration
3 proceeding initiated to contest the Deficiency
4 Findings:
5

6 (D) the Participant found to be deficient in
7 meeting its obligations under Section
8 8A.7.2.3 (hereinafter the "Participant in
9 Default") shall thereupon be deemed to be in
10 default of its obligations under this
11 Participation Agreement;
12

13 (E) the rights of the Participant in Default
14 to be represented on and participate in the
15 actions of all committees and to receive all
16 or any part of its Generation Entitlement
17 Share of the Net Energy Generation and
18 Available Generating Capability of all
19 Generating Units shall thereupon be sus-
20 pended until such time as (i)(a) the
21 Termination Funding Committee shall find
22 that the deposits and accumulations in the
23 Termination Fund(s) of the Participant in
24 Default have been brought into compliance
25 with the criteria and standards established
26 pursuant to Section 8A.4.4 hereof and there

1 is reasonable assurance that the
2 accumulations in such Termination Fund(s)
3 will be sufficient to meet the obligations
4 of the Participant in Default under Section
5 8A.7.2.3 hereof and (b) the Participant in
6 Default shall have reimbursed each
7 nondefaulting Participant for all
8 Unrecovered Advanced Termination Costs, for
9 all incidental costs [including, for example
10 and without limitation, trust administration
11 expenses, legal expenses, and costs of
12 borrowing funds (but excluding interest and
13 other financial charges in lieu of
14 interest)] incurred by such nondefaulting
15 Participant in connection with any
16 Deficiency Deposits and Unrecovered Advanced
17 Termination Costs and for interest accrued
18 thereon as determined in accordance with
19 paragraph (H) of this Section 8A.1.11, or
20 (ii) a decision is rendered in any
21 arbitration initiated by the Participant in
22 Default determining that either of the
23 Deficiency Findings was in error;

24
25 (F) Sections 23.5.1, 23.5.2, 23.5.3 (except
26 as otherwise provided in paragraph (E) of

1 this Section 8A.1.11) and 23.5.4 hereof
2 shall thereupon become applicable to all
3 Participants;

4
5 (G) if the Termination Fund(s) that is
6 deficient is for a Generating Unit or
7 Generating/Terminated Unit which has been
8 removed from service on or before the end of
9 the Cure Period, or which the Administrative
10 Committee has determined to remove from
11 service within two years after the end of
12 the Cure Period, the Participant in Default
13 shall thereupon be obligated to deposit in
14 such Termination Fund(s) amount(s) which are
15 equal to (a) its share of the most recent
16 estimate of the Termination Costs for such
17 unit obtained pursuant to Section 8A.5.8
18 hereof (adjusted for potential inflation of
19 such costs, using the greater of the
20 escalation factors established by NRC in 10
21 CFR 50.75(c)(2) or such other escalation
22 factors as the Termination Funding Committee
23 may establish, over the period expiring five
24 years after the expiration date of the
25 operating license for such unit) LESS (b)
26 the sum of (i) the accumulation(s) in such



1 fund(s) on the date the Cure Period ends and
2 (ii) the estimated income that may be earned
3 on the investment of all accumulations in
4 such fund(s) over such period expiring five
5 years after the expiration date of the
6 operating license for such unit, using the
7 estimated income factors established by the
8 Termination Funding Committee; and
9

10 (H) in addition, the Participant in Default
11 shall thereupon become liable and obligated
12 to pay each nondefaulting Participant for
13 all Unrecovered Advanced Termination Costs
14 and all incidental costs such nondefaulting
15 Participant incurs in connection with
16 Deficiency Deposits and Unrecovered Advanced
17 Termination Costs for the Participant in
18 Default, including without limitation
19 interest in the amount determined as
20 hereinafter provided. The amount of
21 interest for which a Participant in Default
22 shall be liable for and pay to each
23 nondefaulting Participant shall be equal to
24 the aggregate amount of interest that would
25 be obtained by multiplying (a) the daily
26



1 rate of interest equivalent to the annual
2 rate determined in accordance with Section
3 23.3 hereof by (b) the amount equal to the
4 sum of (i) the aggregate amount of
5 Deficiency Deposits, (ii) all Unrecovered
6 Advanced Termination Costs, and (iii) the
7 aggregate amount of all nonreimbursed
8 incidental costs, if any, incurred by such
9 nondefaulting Participant in connection with
10 Deficiency Deposits and Unrecovered Advanced
11 Termination Costs, outstanding each day.
12 Unrecovered Advanced Termination Costs and
13 incidental costs incurred by a nondefaulting
14 Participant in connection with Deficiency
15 Deposits or Unrecovered Advanced Termination
16 Costs shall be deemed to be nonreimbursed
17 until such time as a Participant in Default
18 has fully paid each nondefaulting
19 Participant (i) its Unrecovered Advanced
20 Termination Costs and such incidental costs
21 and (ii) the interest due thereon.

22
23 "8A.1.12 The obligations imposed on a
24 Participant in Default to make deposits pursuant
25 to paragraph (G) of Section 8A.1.11 hereof shall
26 not apply to any lessor in a sale and leaseback



1 transaction of such Participant in Default
2 permitted under clause (b) of Section 15.1.1
3 hereof (or any mortgagee, trustee or secured
4 party under present and future deeds of trust,
5 mortgages, indentures or security agreements of
6 such lessor and any successor or assignee
7 thereof, and any receiver, referee or trustee in
8 bankruptcy or reorganization of such lessor and
9 any successor by action of law or otherwise, and
10 any purchaser, transferee or assignee of any
11 thereof), which exercises its rights and assumes
12 the obligations under Section 15.2.2 hereof, nor
13 shall fulfillment of the Participant in
14 Default's obligation to make such deposits be
15 required as a condition for the restoration of
16 the right to receive the Net Energy Generation
17 and Available Generating Capability for the
18 portion of the Generation Entitlement Share of
19 such Participant in Default acquired by such
20 lessor in such sale and leaseback transaction.
21 Nothing contained in this Section 8A.1.12 shall
22 change or modify any of the rights or
23 obligations of a lessor under Section 15.2.2.

24
25 "8A.1.13 In respect of any default or breach by
26 any Participant of any of its obligations under

1 Section 8A or any suspension of the rights of
2 such Participant as a result of such default or
3 breach, to the extent that any provisions of
4 Section 8A.1.11 hereof are inconsistent with any
5 provision of Section 23 hereof, the provisions
6 of Section 8A.1.11 shall prevail and apply.
7

8 *8A.2 Responsibilities of the Engineering and Operating
9 Committee
10

11 *8A.2.1 In addition to those functions dele-
12 gated to the Engineering and Operating Committee
13 by Section 6.3 hereof and other provisions of
14 this Participation Agreement, the Engineering
15 and Operating Committee shall have the functions
16 hereinafter set forth in this Section 8A.2 in
17 connection with the permanent removal from
18 service of each Generating Unit and the perfor-
19 mance and completion of Termination Work for
20 each Generating/Terminated Unit.
21

22 *8A.2.2 The Engineering and Operating Committee
23 shall provide liaison between the Participants
24 and the Termination Agent for each Generating/
25 Terminated Unit in connection with the technical
26



1 aspects of the planning, performance and comple-
2 tion of the Termination Work for such unit.

3
4 "8A.2.3 The Engineering and Operating Committee
5 shall work with, provide recommendations to and
6 otherwise assist the Termination Agent for any
7 Generating/Terminated Unit in the development of
8 (i) the Recommended Termination Plan for such
9 unit to be prepared by such Termination Agent
10 pursuant to Section 8A.6.2 hereof and (ii) any
11 changes which may be proposed to be made to the
12 Termination Plan for such unit.

13
14 "8A.2.4 The Engineering and Operating Committee
15 shall provide to the Administrative Committee
16 recommendations of the Engineering and Operating
17 Committee and any comments of any member thereof
18 with respect to (i) the Recommended Termination
19 Plan for each Generating/Terminated Unit
20 submitted to the Administrative Committee by the
21 Termination Agent for such unit and (ii) any
22 changes which may be proposed to be made to the
23 Termination Plan for such unit.

24
25 "8A.2.5 The Engineering and Operating Committee
26 shall review and approve, modify or otherwise

1 act upon the recommendations of the Termination
2 Agent for any Generating/Terminated Unit with
3 respect to the following items related to the
4 performance of the Termination Work for such
5 unit:

6
7 "8A.2.5.1 The annual budget for such
8 Termination Work and any revisions
9 thereof.

10
11 "8A.2.5.2 Forecasts of all expendi-
12 tures projected to be required for the
13 completion of all such Termination Work
14 and any revisions of such forecasts.

15
16 "8A.2.5.3 Policies, procedures and
17 practices applicable to the performance
18 of such Termination Work. Such poli-
19 cies, procedures and practices shall be
20 consistent with the Termination Plan
21 for such Generating/Terminated Unit.

22
23 "8A.2.5.4 Reporting and recordkeeping
24 of such Termination Work not provided
25 for in the Termination Plan for such
26 Generating/Terminated Unit.



1 "8A.2.5.5 The policies, criteria and
2 procedures for (A) determining the
3 amounts and scheduling delivery of
4 Termination Power and Energy to be (i)
5 procured by the Termination Agent from
6 any source, including any Participant
7 on such terms and conditions as are
8 approved by the committee, or (ii)
9 provided by each Participant and (B)
10 scheduling deliveries of Termination
11 Power and Energy from the Participants
12 as set forth in Section 5.8 hereof.

13
14 "8A.2.6 The Engineering and Operating Committee
15 shall provide to the Administrative Committee
16 recommendations and any comments of any members
17 of the Engineering and Operating Committee with
18 respect to the selection of the independent
19 consultant which the Operating Agent proposes to
20 engage to make an estimate of Termination Costs
21 pursuant to Section 8A.5.8 hereof and any pro-
22 posed addition to, deletion from, or other
23 change in any assumption specified in said sec-
24 tion on which any such estimate shall be made.
25
26



1 "8A.2.7 The Engineering and Operating Commit-
2 tee, after considering recommendations that the
3 Operating Agent shall submit to the committee,
4 shall determine and identify the common facili-
5 ties associated with any Generating/Terminated
6 Unit which are not required or useful for the
7 operation or maintenance of any Generating Unit
8 or other Generating/Terminated Unit.
9

10 "8A.2.8 The Engineering and Operating Committee
11 shall perform such other functions and duties in
12 connection with the Termination Work for any
13 Generating/Terminated Unit as may be delegated
14 to the committee by the Termination Plan for
15 such unit or by the Administrative Committee.
16

17 "8A.3 Responsibilities of the Auditing Committee
18

19 "8A.3.1 In addition to those functions dele-
20 gated to the Auditing Committee by Section 6.4
21 hereof and other provisions of the Participation
22 Agreement, the Auditing Committee shall have the
23 functions hereinafter set forth in this Section
24 8A.3 in connection with the permanent removal
25 from service of each Generating Unit and the
26

1 performance and completion of Termination Work
2 for each Generating/Terminated Unit.

3
4 "8A.3.2 The Auditing Committee shall work with,
5 provide recommendations to and otherwise assist
6 the Termination Agent for each Generating/Term-
7 inated Unit in the development of (i) the
8 accounting and auditing elements of the
9 Recommended Termination Plan for such unit to be
10 prepared by such Termination Agent pursuant to
11 Section 8A.6.2 hereof and (ii) any changes which
12 may be proposed to be made to any such elements
13 of the Termination Plan for such unit.

14
15 "8A.3.3 The Auditing Committee shall provide to
16 the Administrative Committee recommendations of
17 the Auditing Committee and any comments of
18 any member thereof with respect to (i) the
19 Recommended Termination Plan for such
20 Generating/Terminated Unit submitted to the
21 Administrative Committee for approval by the
22 Termination Agent for such unit and (ii) any
23 changes which may be proposed to be made to the
24 Termination Plan for such unit.

25
26

1 "8A.3.4 The Auditing Committee shall develop
2 procedures for (i) the accounting and auditing
3 of the Termination Costs for each Generating/
4 Terminated Unit, (ii) the advancement by the
5 Participants of funds required to pay such Term-
6 ination Costs, (iii) the establishment of ac-
7 counts for holding such funds as are advanced by
8 the Participants, (iv) controls for the
9 expenditures of such funds from such accounts
10 and for any short-term investments of any funds
11 in such accounts, (v) the preparation of budgets
12 and forecasts of expenditures and requests for
13 funds to be made by the Termination Agent for
14 such unit, and (vi) the determination of any
15 overhead formulas and rates incurred by such
16 Termination Agent, which may be included in the
17 written contract between the Administrative
18 Committee and such Termination Agent pursuant to
19 Section 8A.1.5 or 8A.1.7, all in accordance with
20 good accounting practice and as are consistent
21 with the Termination Plan for such unit.

22
23 "8A.3.5 The Auditing Committee shall audit or
24 cause to be audited the books and records of the
25 Termination Agent for each Generating/Terminated
26 Unit and any contractor of such Termination

1 Agent which may be relevant to the Termination
2 Work for such unit.

3
4 "8A.3.6 The Auditing Committee shall perform
5 such other functions and duties in connection
6 with the Termination Work for any Generating/
7 Terminated Unit as may be delegated to the
8 committee by the Termination Plan for such unit
9 or by the Administrative Committee.

10
11 "8A.4 Responsibilities of the Termination Funding
12 Committee

13
14 "8A.4.1 The Termination Funding Committee shall
15 have the functions hereinafter set forth in this
16 Section 8A.4 in connection with the permanent
17 removal from service of each Generating Unit,
18 the performance and completion of Termination
19 Work for each Generating/Terminated Unit and the
20 funding which the Participants are required to
21 provide for payment of the Termination Costs for
22 each Generating/Terminated Unit pursuant to
23 Section 8A.7.2.3 hereof.

24
25 "8A.4.2 The Termination Funding Committee shall
26 work with, provide recommendations to and other-

1 wise assist the Termination Agent for each Gen-
2 erating/Terminated Unit in the development of
3 (i) the financial and funding elements of the
4 Recommended Termination Plan for such unit to be
5 prepared by such Termination Agent pursuant to
6 Section 8A.6.2 hereof and (ii) any changes which
7 may be proposed to be made to any such elements
8 of the Termination Plan for such unit.

9
10 "8A.4.3 The Termination Funding Committee shall
11 provide to the Administrative Committee recom-
12 mendations of the Termination Funding Committee
13 and any comments of any member thereof with
14 respect to (i) the Recommended Termination Plan
15 for such Generating/Terminated Unit submitted to
16 the Administrative Committee for approval by the
17 Termination Agent for such unit and (ii) any
18 changes which may be proposed to be made to the
19 Termination Plan for such unit.

20
21 "8A.4.4 Within six months after the date on
22 which Amendment No. 13 shall become effective or
23 such other date established by the Administra-
24 tive Committee, the Termination Funding
25 Committee shall establish criteria and
26 standards, consistent with applicable law,

1 including the rules and regulations of the NRC
2 [including without limitation such discount
3 factors, allowances for inflation, bases for
4 estimating future net earnings on accumulations
5 in the Termination Fund(s) of the Participants
6 and other elements as may be appropriate to
7 provide reasonable assurance that each
8 Participant will accumulate in its Termination
9 Fund(s) over the remaining license term (as
10 specified in the original license issued for
11 each Generating Unit authorizing fuel load and
12 low power operation of such unit) sufficient
13 funds to pay such Participant's share of the
14 most current estimate of the Termination Costs
15 of such unit] that will be used by the committee
16 to determine whether or not the periodic
17 deposits made by each Participant in its
18 Termination Fund(s) have been adequate and the
19 accumulations in its Termination Funds will be
20 adequate to meet the requirements of Section
21 8A.7.2.3 hereof and to comply with applicable
22 laws. At least once every three years the
23 Termination Funding Committee shall review such
24 criteria and standards and make such adjustments
25 thereto as are warranted by the circumstances
26 then existing or as may be required by appli-



1 cable law. Additionally, the Termination
2 Funding Committee shall establish the format,
3 content and time for submission of the funding
4 status reports and certificates that Partici-
5 pants are required to submit pursuant to Section
6 8A.7.2.4 hereof.

7
8 *8A.4.5 The Termination Funding Committee shall
9 review the reports submitted by each Participant
10 pursuant to Section 8A.7.2.4 hereof and report
11 to the Administrative Committee whether or not
12 (i) the deposits made by each Participant in its
13 Termination Fund(s) and the accumulations
14 therein are in compliance with the criteria and
15 standards established pursuant to Section 8A.4.4
16 hereof, and (ii) there is reasonable assurance
17 that the accumulations in such Participant's
18 Termination Funds will be sufficient to meet
19 obligations under Section 8A.7.2.3 hereof. In
20 the event all members of the Termination Funding
21 Committee other than the member representing any
22 Participant whose report made pursuant to
23 Section 8A.7.2.4 is under consideration conclude
24 (i) that such deposits and accumulations in the
25 Termination Fund(s) of such Participant are not
26 in compliance with the committee's criteria and

1 standards and (ii) that as a result there is not
2 reasonable assurance that the accumulations in
3 such Termination Fund(s) will be sufficient to
4 meet such Participant's obligations under
5 Section 8A.7.2.3 hereof, then the Termination
6 Funding Committee shall report such conclusions
7 to the Administrative Committee and provide the
8 Administrative Committee with recommendations
9 unanimously adopted by all members of the
10 Termination Funding Committee other than the
11 member representing such Participant as to any
12 corrective measures such Participant should be
13 required to make in a timely manner to cure such
14 noncompliance or to establish such reasonable
15 assurance.

16
17 "8A.4.6 The Termination Funding Committee shall
18 provide to the Administrative Committee
19 recommendations and any comments of any members
20 of the Termination Funding Committee with
21 respect to any proposed addition to, deletion
22 from, or other change in the assumptions
23 specified in Section 8A.5.8 hereof on which any
24 estimate of Termination Costs shall be made.
25
26

1 "8A.4.7 Within six months after the date on
2 which Amendment No. 13 shall become effective or
3 such other date established by the Administra-
4 tive Committee the Termination Funding Committee
5 shall establish and from time to time thereafter
6 review and modify as may be appropriate the
7 policies, criteria and formulas to be used to
8 determine the aggregate amount of net income
9 that shall be deemed to have been earned as part
10 of Deficiency Deposits.

11
12 "8A.4.8 The Termination Funding Committee shall
13 perform such other functions and duties in
14 connection with the Termination Work for any
15 Generating/Terminated Unit as may be delegated
16 to the committee by the Termination Plan for
17 such unit or by the Administrative Committee."

18
19 "8A.5 Responsibilities of the Operating Agent

20
21 "8A.5.1 In addition to those functions delega-
22 ted to the Operating Agent by Section 8 hereof
23 and other provisions of this Participation
24 Agreement, the Operating Agent shall have the
25 functions hereinafter set forth in this Section
26 8A.5 in connection with the permanent termina-

1 tion of operation and removal from service of
2 each Generating Unit and the performance and
3 completion of Termination Work for each
4 Generating/Terminated Unit.

5
6 "8A.5.2 The Operating Agent shall maintain all
7 records and documents required by the NRC, any
8 other regulatory authority or other applicable
9 law or by the Engineering and Operating Commit-
10 tee or which the Operating Agent shall determine
11 in its discretion may facilitate the performance
12 of Termination Work for each Generating/
13 Terminated Unit.

14
15 "8A.5.3 The Operating Agent shall make avail-
16 able to the Termination Agent for each
17 Generating/Terminated Unit all of the records
18 and documents in its possession respecting the
19 design, engineering, construction and operation
20 of such unit and the common facilities associ-
21 ated with the operation of such unit and records
22 of any event or incident as may have occurred
23 during the operation of such unit or facilities,
24 and otherwise cooperate with such Termination
25 Agent in the performance of the Termination Work
26 for such unit, including without limitation

1 cooperation by making available employees who,
2 as determined by the Operating Agent in its sole
3 discretion, are not key employees for
4 the operation or maintenance of any Generating
5 Unit or Generating/Terminated Unit, for
6 temporary loan or temporary or permanent
7 employment by the Termination Agent as the
8 Termination Agent may request.
9

10 "8A.5.4 The Operating Agent shall retain the
11 responsibility under this Participation Agree-
12 ment for the operation, maintenance and status
13 of each Generating/Terminated Unit and for all
14 work performed on such unit until the OA Dis-
15 charge Date for such unit.
16

17 "8A.5.5 On the OA Discharge Date for each
18 Generating/Terminated Unit, the Operating Agent
19 shall turn over to the Termination Agent for
20 such unit (i) the responsibility, as set forth
21 in this Section 8A, for the status of and the
22 performance of Termination Work on such unit and
23 any associated common facilities which the
24 Engineering and Operating Committee shall have
25 determined pursuant to Section 8A.2.7 hereof are
26 not required or useful for the operation or

1 maintenance of any Generating Unit or other
2 Generating/Terminated Unit and (ii) all records
3 and documents pertaining to such unit and such
4 associated common facilities which are not
5 required by the Operating Agent in the
6 performance of its duties under this
7 Participation Agreement or as licensee of any
8 Generating Unit or other Generating/Terminated
9 Unit. All Termination Work, other than planning
10 or work associated with securing required
11 regulatory approvals or authorizations for such
12 work, conducted by such Termination Agent at the
13 Nuclear Plant Site prior to the OA Discharge
14 Date for such unit shall be conducted under the
15 direction of the Operating Agent.

16
17 "8A.5.6 Prior to the OA Discharge Date of the
18 last Generating/Terminated Unit to be termi-
19 nated, the Operating Agent shall have the exclu-
20 sive responsibility for the disposition of Nuc-
21 lear Fuel acquired for or used in any Generating
22 Unit. Thereafter, the Termination Agent for
23 such unit shall have the exclusive responsibil-
24 ity for the disposition of any Nuclear Fuel not
25 disposed of prior to such OA Discharge Date.
26



1 "8A.5.7 On or about the OA Discharge Date for
2 each Generating/Terminated Unit, the Operating
3 Agent shall assign to the Termination Agent for
4 such Generating/Terminated Unit any outstanding
5 contract which (i) such Termination Agent shall
6 request be assigned and (ii) the Operating Agent
7 shall determine in its sole discretion is not
8 required or useful in the operation or main-
9 tenance of any Generating Unit or any other
10 Generating/Terminated Unit for which the Opera-
11 ting Agent is the operating licensee. Any such
12 assignment shall not become effective until such
13 OA Discharge Date. With respect to any such
14 contract which requires the consent to the
15 assignment of other contracting parties, the
16 Operating Agent shall use its best efforts to
17 obtain such consents prior to any assignment
18 thereof.

19
20 "8A.5.8 Unless otherwise directed by the Admin-
21 istrative Committee, the Operating Agent, in
22 order to develop the level of funding for each
23 Participant as provided in Section 8A.7.2.3
24 hereof, shall procure from a qualified indepen-
25 dent consultant, approved by the Administrative
26 Committee pursuant to Section 8A.1.10 hereof,

1 once every three years an estimate in then cur-
2 rent year dollars of the Termination Costs for
3 each Generating Unit. Unless otherwise directed
4 by the Administrative Committee, such estimate
5 shall be based upon the prompt removal/
6 dismantling of each Generating/Terminated Unit
7 and restoration of the Nuclear Plant Site to
8 approximately original condition. Unless other-
9 wise directed by the Administrative Committee,
10 the estimate shall be based on a site specific
11 decommissioning study (versus a generic cost
12 estimate) and shall be based on the assumptions
13 that (i) all radioactive structures, facilities
14 and equipment shall be decontaminated or removed
15 and disposed of as required by applicable law,
16 (ii) all radioactive wastes, fluids or materials
17 which have activities above accepted unrestrict-
18 ed activity levels shall be disposed of as
19 required by applicable law, (iii) all struc-
20 tures, facilities and equipment shall be safely
21 removed from the Nuclear Plant Site, (iv) the
22 Nuclear Plant Site will be restored to an
23 approximately pre-construction (original) condi-
24 tion, (v) the structures, facilities, equipment
25 and materials to be disposed of shall have no
26 salvage value, and (vi) such other circum-



1 stances, factors and conditions as the indepen-
2 dent consultant shall deem to be prudent and
3 reasonable to assume. The development of esti-
4 mates as provided in this Section 8A.5.8 on the
5 basis of the foregoing or any other assumptions
6 is intended to be used solely for establishing
7 the level of funding which the Participants are
8 required to provide pursuant to Section 8A.7.2.3
9 and is not intended to create any obligation or
10 commitment to perform or conduct Termination
11 Work in compliance with such assumptions.

12
13
14 "8A.5.9 Within 30 days after the receipt of each
15 estimate of Termination Costs procured pursuant
16 to Section 8A.5.8 hereof, the Operating Agent
17 shall send a copy thereof to each Participant,
18 together with a report setting forth for each
19 Participant (i) its share of such estimate which
20 it is required to fund pursuant to Section
21 8A.7.2.3 hereof, (ii) the amount of such share
22 which remains to be funded based upon the most
23 recent annual report which such Participant shall
24 have furnished to the Termination Funding Commit-
25 tee and the Operating Agent pursuant to Section
26 8A.7.2.4 hereof and (iii) such other information



1 as the Administrative Committee, the Engineering
2 and Operating Committee, the Termination Funding
3 Committee or the Auditing Committee may request.
4

5 "8A.5.10 The Operating Agent shall prepare and
6 file with the NRC all reports respecting the
7 Decommissioning of each Generating Unit required
8 to be filed at any time prior to the filing of
9 an application to the NRC for authority to sur-
10 render the license for such unit.
11

12 "8A.5.11 Until the Unit Termination Date of the
13 last Generating/Terminated Unit to be permanent-
14 ly removed from service pursuant to Section
15 8A.1.3, the Operating Agent shall perform all
16 work required (i) to operate and maintain such
17 unit and the common facilities that the Operat-
18 ing Agent determines shall remain in service for
19 the operation or maintenance of any Generating
20 Unit or other Generating/Terminated Unit and
21 (ii) to disconnect and isolate any common
22 facilities associated with any Generating/
23 Terminated Unit that are to be permanently
24 removed from service.
25
26

1 "8A.5.12 The Operating Agent shall cooperate
2 with the Termination Agent for each Generating/
3 Terminated Unit in the performance of Termina-
4 tion Work for such unit and shall provide to
5 such Termination Agent such recommendations and
6 comments as the Operating Agent deems appropri-
7 ate in the development of (i) the Recommended
8 Termination Plan for such unit to be prepared by
9 such Termination Agent pursuant to Section
10 8A.6.2 hereof and (ii) any changes which may be
11 proposed to be made to the Termination Plan for
12 such unit.

13
14 "8A.5.13 The Operating Agent shall provide to
15 the Administrative Committee such recommenda-
16 tions and comments as may be appropriate with
17 respect to (i) the Recommended Termination Plan
18 for each Generating/Terminated Unit submitted to
19 the Administrative Committee by the Termination
20 Agent for such unit and (ii) any changes which
21 may be proposed to be made to the Termination
22 Plan for such unit.

23
24 "8A.5.14 The Operating Agent shall perform such
25 other duties, responsibilities and obligations
26 in respect of any Generating/Terminated Unit

1 which may be assigned to it by the Admini-
2 strative Committee.

3
4 "8A.5.15 All work performed by the Operating
5 Agent pursuant to this Section 8A.5, excluding
6 Section 8A.5.14, shall be deemed to be Operating
7 Work, and the costs therefor shall be shared,
8 funded and budgeted in the same manner as the
9 costs for all other Operating Work. Work under-
10 taken pursuant to Section 8A.5.14 shall be deem-
11 ed to be either Operating Work or Termination
12 Work as the Administrative Committee shall de-
13 termine, and the costs therefor shall be shared,
14 funded and budgeted in the same manner as the
15 costs for all other Operating Work or Termina-
16 tion Work as the case may be.

17
18 "8A.5.16 The Operating Agent shall cooperate
19 with the Participants in connection with the
20 preparation of regulatory filings addressing
21 Decommissioning and Termination Costs.

22
23 "8A.6 Responsibilities of the Termination Agent

24
25 "8A.6.1 The Termination Agent for each
26 Generating/Terminated Unit shall be the entity

1 designated by the Administrative Committee pur-
2 suant to Section 8A.1 hereof. The Participants
3 hereby appoint such Termination Agent as their
4 agent, and the Termination Agent shall undertake
5 as their agent to perform Termination Work for
6 such unit and to carry out the duties and
7 responsibilities as (i) hereinafter set forth,
8 (ii) set forth in the Termination Plan for such
9 unit or (iii) may be delegated to it by the
10 Administrative Committee pursuant to Section
11 8A.1 hereof.

12
13 "8A.6.2 The Termination Agent for each
14 Generating/Terminated Unit shall develop, submit
15 and recommend to the Administrative Committee a
16 Recommended Termination Plan for such unit.
17 Such plan shall be developed and submitted in a
18 timely manner to permit compliance with the
19 requirements of the NRC and any other regu-
20 latory authority which shall have jurisdiction
21 with respect to the performance of the Termina-
22 tion Work for such unit or any elements
23 thereof. In developing such Recommended
24 Termination Plan the Termination Agent shall
25 consult with the Engineering and Operating
26 Committee, Auditing Committee, Termination

1 Funding Committee and the Operating Agent as set
2 forth in Sections 8A.2.3, 8A.3.2, 8A.4.2 and
3 8A.5.12 hereof, respectively, and incorporate or
4 otherwise resolve their respective recommenda-
5 tions or comments respecting such plan. Unless
6 the Administrative Committee shall otherwise
7 direct, such Recommended Termination Plan shall
8 include the following elements:
9

10 "8A.6.2.1 With respect to the Termina-
11 tion Work to be undertaken for such
12 unit, (i) a definition and description
13 of the scope of such work, (ii) a mile-
14 stone schedule for the performance and
15 completion of such work, (iii) an esti-
16 mate of the costs for such work, (iv) a
17 forecast of cash requirements for such
18 work, (v) a description of the schedule
19 and cost control systems to be utilized
20 in the management of such work, and
21 (vi) a description of the quality as-
22 surance program to be applied to such
23 work.

24
25 "8A.6.2.2 A description of the Termi-
26 nation Agent's organization and the

1 resources required to perform and com-
2 plete the Termination Work.

3
4 "8A.6.2.3 The procurement policies and
5 practices to be followed in procuring
6 any Materials and Supplies, equipment
7 or services required or useful in the
8 performance of the Termination Work.

9
10 "8A.6.2.4 A description of any dis-
11 crete portions of the Termination Work
12 to be performed by third parties under
13 contracts with the Termination Agent,
14 including policies and procedures to be
15 used in soliciting and evaluating pro-
16 posals and awarding contracts for such
17 discrete portions.

18
19 "8A.6.2.5 The procedures developed by
20 the Auditing Committee pursuant to
21 Section 8A.3.4 hereof.

22
23 "8A.6.2.6 A description of the records
24 management system(s) to be used.
25
26



1 "8A.6.2.7 Identification of property
2 expected to have salvage value and a
3 description of the policies and prac-
4 tices to be adopted to realize the
5 maximum salvage value for such property.
6

7 "8A.6.2.8 Provisions to be made for
8 the disposition of common facilities
9 not required or useful in the operation
10 or maintenance of any Generating Unit
11 or Generating/Terminated Unit or in the
12 conduct of any Termination Work.
13

14 "8A.6.2.9 Policies and procedures to
15 be utilized in the disposition of any
16 ANPP property as part of the
17 Termination Work.
18

19 "8A.6.2.10 A description and evalua-
20 tion of reasonable and practical alter-
21 natives for the performance of Termina-
22 tion Work.
23

24 "8A.6.2.11 Identification of regula-
25 tory authorizations, permits, licenses
26 or approvals which must be obtained



1 under applicable laws to perform and
2 complete the Termination Work.

3
4 "8A.6.2.12 A description of the Termi-
5 nation Insurance to be procured and
6 maintained.

7
8 "8A.6.2.13 Such other matters as may
9 be required by the NRC or any other
10 regulatory authority which shall have
11 jurisdiction with respect to the per-
12 formance of the Termination Work or any
13 elements thereof.

14
15 "8A.6.2.14 Any other elements which
16 the Administrative Committee may
17 require.

18
19 "8A.6.3 The Termination Agent for each
20 Generating/Terminated Unit shall:

21
22 "8A.6.3.1 Administer, enforce and
23 perform the Termination Work for such
24 unit so as to comply with the Termina-
25 tion Plan for such unit and the Project
26 Agreements in a manner consistent with

1 generally accepted practices in the
2 electric utility industry recognizing
3 that such practices may be affected by
4 unique characteristics of ANPP, the
5 rights and obligations of the Partici-
6 pants under the Project Agreements and
7 other special circumstances affecting
8 the Termination Work for such unit.
9

10 "8A.6.3.2 Subject to the provisions of
11 the Termination Plan and the Project
12 Agreements, furnish from its own
13 resources or contract for and obtain
14 from any other sources, including any
15 Participant, the services and studies
16 necessary for performance of Termina-
17 tion Work for such unit.
18

19 "8A.6.3.3 Execute, administer, perform
20 and enforce contracts authorized
21 pursuant to the Termination Plan for
22 such unit including warranties and
23 other remedies provided therein, in the
24 name of such Termination Agent, acting
25 as agent for all of the Participants,
26 for Termination Work for such unit.

1 "8A.6.3.4 Keep the Participants fully
2 and promptly informed of any known
3 default of the Project Agreements and
4 submit to the Participants any recom-
5 mendations for amendments of the Pro-
6 ject Agreements.

7
8 "8A.6.3.5 Prepare recommendations
9 covering the matters which are to be
10 reviewed and acted upon by the Admini-
11 strative Committee pursuant to Section
12 8A.1 hereof, by the Engineering and
13 Operating Committee pursuant to Section
14 8A.2 hereof, by the Auditing Committee
15 pursuant to Section 8A.3 hereof, by the
16 Termination Funding Committee pursuant
17 to Section 8A.4 hereof or by the
18 Operating Agent pursuant to Section
19 8A.5 hereof.

20
21 "8A.6.3.6 Carry out and follow the
22 practices and procedures and directions
23 which have been incorporated in the
24 Termination Plan for such unit or have
25 been approved and issued by the
26 Administrative Committee, the Engineer-

1 ing and Operating Committee, the
2 Termination Funding Committee or the
3 Auditing Committee pursuant to Section
4 8A hereof or any other Project
5 Agreement.

6
7 "8A.6.3.7 Consistent with the criteria
8 and guidelines approved by the Admini-
9 strative Committee pursuant to Section
10 6.2.12 hereof, sell, transfer and con-
11 vey or otherwise dispose of for and on
12 behalf of all Participants to any enti-
13 ty, including without limitation the
14 Operating Agent, the Termination Agent
15 or any Participant, ANPP property,
16 including any and all equipment or
17 material acquired for use in the per-
18 formance of Termination Work for such
19 unit, to the extent required or
20 contemplated by, and in a manner that
21 complies with the Termination Plan for
22 such unit or as otherwise directed by
23 the Administrative Committee; provided
24 that prior to the effective date of any
25 such sale, transfer or conveyance the
26 Operating Agent shall have determined



11
22

1 that such equipment or material is no
2 longer used or useful for ANPP. Such
3 property shall be sold, transferred or
4 conveyed or otherwise disposed of only
5 on an "as is" basis without any
6 representation or warranty as to
7 quality, condition or fitness for any
8 purpose unless the Administrative
9 Committee shall otherwise authorize and
10 direct. The net proceeds, if any,
11 received from any such sale, transfer,
12 conveyance or other disposal of such
13 equipment or material (after deduction
14 of all costs associated with such sale,
15 transfer, conveyance or other disposal,
16 including without limitation the costs
17 of removal, preparation and delivery of
18 such equipment and material for sale,
19 transfer, conveyance or other disposal)
20 shall be allocated to the Participants
21 in proportion to their respective
22 Generation Entitlement Shares in such
23 unit and such allocation shall be
24 credited or distributed only to the
25 Participants who are not in default of
26 any obligation under any Project



1 Agreement; such allocation of any
2 Participant who is in default of any
3 obligation under any Project Agreement
4 shall not be credited or distributed to
5 such Participant until each such
6 default is cured, and the Termination
7 Agent shall hold such allocation of the
8 Participant in default as the
9 Administrative Committee shall direct.

10
11 "8A.6.3.8 Purchase, rent or otherwise
12 procure in accordance with procurement
13 policies and procedures established by
14 the Termination Plan for such unit, in
15 the name of the Participants as tenants
16 in common with undivided interests in
17 accordance with their respective
18 Generation Entitlement Shares, the
19 equipment, apparatus, machinery, tools,
20 Materials and Supplies necessary for
21 the performance of Termination Work for
22 such unit.

23
24 "8A.6.3.9 Administer, perform and
25 enforce all other contractual obliga-
26 tions and arrangements respecting the

1 Generating/Terminated Unit, including
2 all warranties applicable thereto,
3 which were (i) entered into by the
4 Operating Agent and continue beyond the
5 OA Discharge Date of the last Genera-
6 ting Unit to be permanently removed
7 from service, and (ii) assigned to and
8 assumed by the Termination Agent.

9
10 "8A.6.3.10 Comply with (i) any and all
11 laws applicable to the performance of
12 Termination Work for such unit,
13 including without limitation all
14 applicable laws, rules and regulations
15 relating to the public health and
16 safety, industrial safety, protection
17 of the environment, workers'
18 compensation laws, and nondiscrimina-
19 tory employment practices; and (ii) the
20 terms and conditions of any contract,
21 permit or license relating to ANPP.

22
23 "8A.6.3.11 Receive, deposit, invest
24 and expend the funds advanced to the
25 Termination Agent in accordance
26 with the Termination Plan for such unit

1 and the policies, procedures and
2 practices established by the Auditing
3 Committee.

4
5 "8A.6.3.12 Keep and maintain such
6 records of monies received and expend-
7 ed, obligations incurred, credits ac-
8 crued, the conduct of Termination Work
9 for such unit, and of contracts entered
10 into in the performance of such
11 Termination Work as may be necessary or
12 useful in carrying out Project
13 Agreements or required to permit an
14 audit of such Termination Work, and
15 make such records available for
16 inspection by any Participant, the
17 Auditing Committee, the NRC and any
18 other regulatory authority which shall
19 have jurisdiction with respect to the
20 performance of the Termination Work.

21
22 "8A.6.3.13 Not suffer any liens to
23 remain in effect unsatisfied against
24 ANPP (other than the liens permitted
25 under the Project Agreements, liens for
26 taxes and assessments not yet delin-



1 quent, liens for labor and material not
2 yet perfected or undetermined charges
3 or liens incidental to the performance
4 of the Termination Work for such unit);
5 provided that such Termination Agent
6 shall not be required to pay or
7 discharge any such lien as long as the
8 Termination Agent in good faith shall
9 be contesting the same, which contest
10 shall operate during the pendency
11 thereof to prevent the collection or
12 enforcement of such lien so contested.

13
14 "8A.6.3.14 Arrange for the placement
15 and maintenance of Termination Insur-
16 ance as provided in Section 8A.8.4
17 hereof.

18
19 "8A.6.3.15 Assist any insurer in the
20 investigation, adjustment and settle-
21 ment of any loss or claim covered by
22 Termination Insurance.

23
24 "8A.6.3.16 Present and prosecute
25 claims against insurers and indemnitors
26 providing Termination Insurance or

1 indemnities in respect of any loss of
2 or damage to any property of ANPP or
3 liability of any Participant to third
4 parties covered by any indemnity agree-
5 ment, and to the extent that any such
6 loss, damage or liability is not cover-
7 ed by Termination Insurance or by any
8 indemnity agreement, present and prose-
9 cute claims therefor against any par-
10 ties who may be liable therefor. In
11 the event the cost of repair, replace-
12 ment or correction of such loss or
13 damage arising out of a single incident
14 or event exceeds \$250,000, such Termi-
15 nation Agent shall not make any settle-
16 ment of any claims in respect thereof
17 without the consent and approval of the
18 Administrative Committee.

19
20 "8A.6.3.17 Subject to the provisions of
21 Section 21 hereof and except as otherwise
22 provided in the Termination Plan for such
23 unit or directed by the Administrative
24 Committee or as hereinafter provided in this
25 Section 8A.6.3.17, investigate, adjust,
26 defend and settle claims against any or all

1 Participants or the Termination Agent
2 arising out of or attributable to
3 Termination Work for such unit, or the past
4 or future performance or nonperformance of
5 the obligations and duties of any
6 Participant or the Termination Agent related
7 to such Termination Work for such unit under
8 or pursuant to this Participation Agreement,
9 including but not limited to any claim
10 resulting from death or injury to persons or
11 damage to property, when said claims are not
12 covered by valid and collectible Termination
13 Insurance carried by any Participant, and
14 whenever and to the extent reasonable
15 present and prosecute claims against any
16 third party, including insurers, for any
17 costs, losses and damages incurred in
18 connection with said claims. The approval
19 of the Administrative Committee shall be
20 obtained by such Termination Agent before
21 any said claim or combination of said claims
22 against any or all Participants or such
23 Termination Agent arising out of the same
24 transaction or incident is settled for
25 more than \$250,000 unless the entire amount
26 of the settlement in excess of \$250,000 is



1 recoverable from an insurer providing
2 Termination Insurance.

3
4 "8A.6.3.18 Keep the Participants fully and
5 promptly advised of material changes in
6 conditions or other material developments
7 affecting the performance of Termination
8 Work for such unit and furnish the
9 Participants with copies of any notices
10 given or received pursuant to the Project
11 Agreements.

12
13 "8A.6.3.19 Provide the Administrative,
14 Engineering and Operating, Termination
15 Funding and Auditing Committees with written
16 statistical and administrative reports,
17 accounting records, written budgets and such
18 other information and records relating to
19 Termination Work for such unit which any of
20 such committees shall request.

21
22 "8A.6.3.20 Determine, in accordance with
23 policies, criteria and procedures establish-
24 ed by the Engineering and Operating Commit-
25 tee pursuant to Section 8A.2.5.5 hereof, and
26 keep the system dispatcher of each Partici-

1 pant advised of, Termination Power and
2 Energy to be provided by such Participant
3 pursuant to Section 5.8 hereof.
4

5 "8A.6.3.21 Upon the request of any Partici-
6 pant, provide such Participant, in reason-
7 able quantity without direct charge there-
8 for, a copy or copies of any report, record,
9 list, budget, manual, accounting or billing
10 summary, classification of accounts or other
11 documents or revisions of any of the afore-
12 said items, all as prepared in accordance
13 with this Participation Agreement.
14

15 "8A.6.3.22 Establish and implement a qual-
16 ity assurance program to be followed in the
17 performance of Termination Work for such
18 unit, which shall, at a minimum, fully meet
19 the requirements of the NRC.
20

21 "8A.6.3.23 Take custody of and maintain a
22 suitable recovery system for all records
23 received from the Operating Agent and
24 provide any Participant access to such
25 records as may be reasonably requested.
26

1 "8A.6.4 The Termination Agent for each
2 Generating/Terminated Unit shall be responsible
3 for (A) preparing and filing the preliminary
4 decommissioning plan and any other reports,
5 notices or documents required to be filed by the
6 NRC or any other regulatory authority or other
7 applicable law which have not been previously
8 prepared and filed by the Operating Agent, and
9 (B) preparing, filing and prosecuting the
10 application to the NRC for the transfer of the
11 NRC license then in effect for such unit from
12 the Operating Agent to the Termination Agent and
13 for the surrender of such license and for
14 obtaining and continuing in effect all licenses,
15 permits and authorizations required by
16 applicable law to (i) perform Termination Work
17 for such unit, (ii) release any effluents and
18 (iii) store, ship or dispose of Nuclear Fuel not
19 disposed of by the Operating Agent and any
20 radioactive or nonradioactive wastes. Such
21 Termination Agent shall furnish each Participant
22 with copies of all documents submitted and all
23 licenses, permits and authorizations received
24 and shall otherwise keep each Participant
25 informed of the status of all licenses, permits
26 and authorizations in effect and any pending or



1 proposed applications therefor or for changes
2 thereto. Each Participant shall cooperate with
3 such Termination Agent in the preparation,
4 submission and execution of such information,
5 records, statements or other material required
6 to surrender such NRC license or to obtain and
7 continue in effect any such licenses, permits or
8 authorizations and any changes thereto.
9

10 "8A.6.5 A representative of the Termination
11 Agent for any Generating/Terminated Unit who is
12 not a Participant shall attend meetings of the
13 Administrative Committee, the Engineering and
14 Operating Committee, the Termination Funding
15 Committee and the Auditing Committee and provide
16 information to such committees as the respective
17 chairmen thereof may request, but shall have no
18 right to vote on any matter pending before any
19 of such committees.
20

21 "8A.6.6 The Termination Agent for each
22 Generating/Terminated Unit shall cooperate with
23 the Operating Agent in the conduct of the Termination
24 Work for such unit and shall not permit
25 such Termination Work to interfere with any
26 Operating Work conducted by the Operating Agent.

1 "8A.6.7 The Termination Agent for each
2 Generating/Terminated Unit shall cooperate with
3 the Participants in connection with the
4 preparation of filings with any regulatory or
5 taxing authority concerning Decommissioning,
6 Termination Costs or Termination Work.
7

8 "8A.7. Responsibilities of Participants
9

10 "8A.7.1 In addition to those duties, responsi-
11 bilities and obligations imposed upon the Parti-
12 cipants by other provisions of this Participa-
13 tion Agreement, the Participants shall have the
14 following duties, responsibilities and obliga-
15 tions in respect of the permanent termination of
16 operation and removal from service of each Gene-
17 rating Unit and the Termination Work associated
18 therewith.
19

20 "8A.7.2 Each Participant has the duty, respon-
21 sibility and obligation to:
22

23 "8A.7.2.1 Pay its share, equal to its
24 Generation Entitlement Share, of all
25 Termination Costs for each Generating/
26 Terminated Unit and all liabilities and



1 obligations associated with or at any
2 time arising from or in connection with
3 the Termination Work for such unit.
4

5 "8A.7.2.2 Establish, not later than
6 June 15, 1990, and maintain Termination
7 Fund(s) for the accumulation of funds
8 over a period not in excess of the
9 remaining term of the operating license
10 for each Generating Unit and the period
11 thereafter until completion of the
12 Termination Work for such unit in the
13 amount or amounts, singly if only one
14 such fund is established and maintained
15 or collectively if more than one such
16 fund is established and maintained,
17 that meet the regulatory requirements
18 of the NRC and the requirements of this
19 Participation Agreement. Such
20 Participant shall designate the
21 Generating Unit or Units for which each
22 of its Termination Fund(s) is
23 established and maintained. Each such
24 Termination Fund shall be held by an
25 Independent Trustee in trust for the
26 following purposes and no others: (i)



1 the payment of the costs of managing
2 and investing such Termination Fund(s),
3 administering the trust(s) in which
4 Termination Fund(s) are held, including
5 without limitation legal, accounting,
6 actuarial and trustee expenses, and
7 taxes, if any, levied upon such
8 Termination Fund(s) or any investment
9 income derived therefrom; (ii) the
10 payment of such Participant's share,
11 determined pursuant to Sections
12 8A.7.2.1 and 23.5.1 hereof, of the
13 Termination Costs of the Generating
14 Units designated by such Participant;
15 and (iii) any payment to such
16 Participant as may be permitted by
17 Section 8A.7.2.8 or 35.7.1.2 hereof.

18
19 "8A.7.2.3 Make deposits at least an-
20 nually (unless such annual deposits
21 have been prepaid) and maintain
22 accumulations in its Termination
23 Fund(s) in amounts which, together with
24 future deposits and estimated net
25 earnings on accumulations in such
26 fund(s), will be sufficient to pay its

1 pro rata share of the greater of (i)
2 the latest estimate of the Termination
3 Costs for each Generating Unit as
4 determined pursuant to Section 8A.5.8
5 hereof or (ii) the minimum amount(s)
6 required by the NRC. Such pro rata
7 share of each Participant shall be
8 equal to the sum of (A) its Generation
9 Entitlement Share and (B) its share of
10 the Generation Entitlement Share of a
11 defaulting Participant as determined
12 pursuant to Section 23.5.1 hereof.

13
14 "8A.7.2.4 Each Participant shall
15 provide annual funding status reports
16 of its Termination Fund(s) for each
17 Generating Unit in accordance with the
18 form, content and schedule established
19 pursuant to Section 8A.4.4 hereof to
20 the Termination Funding Committee and
21 the Operating Agent. In addition to
22 such annual funding status reports, on
23 the written request of any member of
24 the Administrative Committee made to
25 all other members of such committee for
26 reasonable cause (e.g., changes in

1 market conditions that could
2 significantly affect the value of the
3 Termination Fund(s) of one or more of
4 the Participants) each Participant
5 shall provide special funding status
6 reports in the same form and content as
7 annual funding status reports to the
8 Termination Funding Committee and the
9 Operating Agent; provided that special
10 funding status reports shall not be
11 required more frequently than once in
12 any calendar quarter. Concurrently
13 with the submittal of each such annual
14 and special funding status report, each
15 Participant shall provide each other
16 Participant with a certificate, in the
17 form established by the Termination
18 Funding Committee pursuant to Section
19 8A.4.4 and signed by an officer of such
20 Participant, to the effect that the
21 trust agreement(s) and/or all other
22 instruments establishing or affecting
23 its Termination Fund(s) comply with
24 Section 8A.7.2.2 hereof and all other
25 provisions of this Participation
26 Agreement. Concurrently, with the

1 first annual report submitted by each
2 Participant and the first annual report
3 submitted by such Participant after any
4 amended or new trust agreement(s)
5 become effective, such Participant
6 shall furnish each other Participant a
7 letter of opinion of counsel with
8 respect to the matters set forth in
9 Section 8A.7.2.2 hereof and to the
10 effect that such trust agreement(s) are
11 not inconsistent with this Participa-
12 tion Agreement. Such opinion may rely
13 upon calculations provided by such
14 Participant with respect to any
15 determination of amounts required to be
16 accumulated and expected future
17 accumulations.

18
19
20 "8A.7.2.5 Advance funds or cause funds
21 to be advanced to the Termination Agent
22 of any Generating/Terminated Unit for
23 the payment of Termination Costs for
24 such unit in the manner provided in the
25 Termination Plan for such unit or pro-
26 cedures established by the Auditing

1 Committee pursuant to Section 8A.3.4
2 hereof.
3

4 "8A.7.2.6 Provide to the Operating
5 Agent or the Termination Agent of any
6 Generating/Terminated Unit such
7 certificates, documentation or other
8 information as may be required to
9 permit the Operating Agent or such
10 Termination Agent to prepare and file
11 any application with or report to the
12 NRC or any other regulatory authority.
13

14 "8A.7.2.7 Provide its share, equal to
15 its Generation Entitlement Share, of
16 the Termination Power and Energy not
17 otherwise provided pursuant to Section
18 5.8 hereof which is required for Termination
19 Work for each Generating/
20 Terminated Unit.
21

22 "8A.7.2.8 Nothing in this Participa-
23 tion Agreement shall preclude any Par-
24 ticipant from withdrawing any funds
25 from its Termination Fund(s) in excess
26 of the accumulation(s) it is required



1 to maintain therein at any time by
2 Section 8A.7.2.3 hereof or from
3 adjusting its deposits in such fund(s)
4 to reduce any such excess.
5

6 "8A.7.2.9 Each Participant shall coop-
7 erate with the Termination Agent and
8 lend such assistance in the performance
9 of Termination Work as the Termination
10 Agent shall reasonably request and such
11 Participant can reasonably perform upon
12 such terms and conditions as are accep-
13 table to such Participant and the Engi-
14 neering and Operating Committee.
15

16 "8A.8 General Provisions
17

18 "8A.8.1 The agreement between the Participants
19 and the Termination Agent in respect of any
20 Generating/Terminated Unit executed pursuant to
21 Section 8A.1.5 or 8A.1.7 and all contracts be-
22 tween such Termination Agent and any third party
23 for or in the performance of Termination Work
24 for such unit are Project Agreements.
25
26

1 "8A.8.2 In the event the Termination Agent in
2 respect of one or more Generating/Terminated
3 Unit is a Participant, then on and after the OA
4 Discharge Date of the last Generating Unit to be
5 permanently removed from service, the chairman
6 of the Administrative Committee, the Engineering
7 and Operating Committee, the Termination Funding
8 Committee and the Auditing Committee, respec-
9 tively, shall be a representative of such Parti-
10 cipant. In the event the Termination Agent of
11 any Generating/Terminated Unit is not a Partici-
12 pant, then on and after the OA Discharge Date of
13 the last Generating Unit to be permanently re-
14 moved from service, the chairman of the Admini-
15 strative Committee, the Engineering and Opera-
16 ting Committee, the Termination Funding Commit-
17 tee and the Auditing Committee, respectively,
18 shall be the representative of a Participant of
19 each such committee selected by a majority of
20 the members thereof. Any chairman so selected
21 may be removed and replaced by a majority of the
22 members of such committee.

23
24 "8A.8.3 The provisions of Section 16 hereof
25 shall not apply in respect of any Generating/
26 Terminated Unit.

1 "8A.8.4 Unless otherwise specified by the Ad-
2 ministrative Committee, the Termination Agent in
3 respect of each Generating/Terminated Unit shall
4 procure and maintain in force, or cause to be
5 procured and maintained in force, Termination
6 Insurance against such risks, hazards and perils
7 in such amounts and with such deductibles as may
8 be required (i) by applicable laws, (ii) by the
9 Termination Plan for such unit and (iii) as
10 otherwise directed by the Administrative
11 Committee.

12
13 "8A.8.5 Except as provided in Section 8A.6.4
14 hereof, each Participant shall be responsible
15 for obtaining, at its own expense, its required
16 authorizations and approvals, if any, relating
17 to its participation in the Termination Work of
18 each Generating/Terminated Unit and to its per-
19 formance of the provisions of the Project Agree-
20 ments, from Federal, state or local regulatory
21 authorities having jurisdiction to issue such
22 authorizations and approvals, and each Partici-
23 pant shall keep such Termination Agent informed
24 of the status of its applications therefor.
25
26

1 "8A.8.6 Title to all equipment, apparatus,
2 machinery, tools, Materials and Supplies pur-
3 chased for the performance of Termination Work
4 shall vest on delivery in the Participants as
5 tenants in common with undivided interests in
6 accordance with their respective Generation
7 Entitlement Shares."

8
9 5.31 Section 21 is amended by the deletion of Section
10 21.1 in its entirety and the substitution in lieu thereof
11 of a new Section 21.1 which reads as follows:
12

13 "21.1 Except for any judgment debt for damage
14 resulting from Willful Action and except to the
15 extent any judgment debt is collectible from
16 valid Project Insurance, and subject to the
17 provisions of Sections 21.2, 21.4, 21.5, and
18 21.6 hereof, each Participant hereby extends to
19 all other Participants, their directors, members
20 of their governing bodies, officers and employ-
21 ees its covenant not to execute, levy or other-
22 wise enforce a judgment obtained against any of
23 them, including recording or effecting a judg-
24 ment lien, for any direct, indirect or conse-
25 quential loss, damage, claim, cost, charge or
26 expense, whether or not resulting from the neg-

1 ligence of such Participant, its directors,
2 members of its governing bodies, officers, em-
3 ployees, or any person or entity whose negli-
4 gence would be imputed to such Participant from
5 (i) Construction Work, Operating Work, the de-
6 sign and construction of Capital Improvements,
7 Termination Work or the use of or ownership of
8 ANPP or (ii) the performance or nonperformance
9 of the obligations of a Participant under the
10 Project Agreements, other than the obligation to
11 pay any monies which have become due."

12
13 5.32 Section 21 is further amended by the addition to
14 Section 21.5 of a new Section 21.5.3 which reads as
15 follows:

16
17 "21.5.3 The aggregate liability limit of
18 \$10,000,000 referenced in Sections 21.5.1 and
19 21.5.2 shall not apply to the failure or refus-
20 al, willful or otherwise, of any Participant to
21 meet its obligations under Sections 8A.7.2.1
22 through 8A.7.2.3, 8A.7.2.5, 10.3, 11.2, 11.3,
23 12.1, 12.10 through 12.14, 13, 16, 18.3, 21.3,
24 21.6, 23, 24.9, and Appendices F, I and K."

1 5.33 Section 23.5 is amended by the deletion of Section
2 23.5.1 in its entirety and the substitution in lieu
3 thereof of a new Section 23.5.1 which reads as follows:
4

5 "23.5.1 During the period that any such suspen-
6 sion or any suspension pursuant to Section
7 8A.1.11 hereof is in effect, the nondefaulting
8 Participants (i) shall bear all of the operation
9 and maintenance costs, insurance costs, Termina-
10 tion Costs, and other expenses, including Fuel
11 Expenses and Nuclear Fuel Expenditures, other-
12 wise payable by the defaulting Participant under
13 the Project Agreements, (ii) shall make
14 Deficiency Deposits in their respective
15 Termination Fund(s) pursuant to Section 8A.7.2.3
16 hereof, and (iii) shall be entitled to schedule
17 and receive for their respective accounts the
18 Generation Entitlement Share of the defaulting
19 Participant of the Available Generating
20 Capability and Net Energy Generation of all
21 Generating Units in the ratio of their
22 respective Generation Entitlement Shares to the
23 total of the Generation Entitlement Shares of
24 all non-defaulting Participants."
25
26



1 5.34 Section 25 is amended by the deletion of Section
2 25.1 in its entirety and the substitution in lieu thereof
3 of a new Section 25.1 which reads as follows:
4

5 "25.1 If a dispute should arise which is not
6 resolved by the Administrative Committee or the
7 higher authorities within the Participants'
8 organizations, then, pending the resolution of
9 the dispute by arbitration or judicial proceed-
10 ings, the Project Manager, Operating Agent or
11 Termination Agent shall proceed with Construc-
12 tion Work, Operating Work, Capital Improvements
13 or Termination Work in a manner consistent with
14 the Project Agreements and generally accepted
15 practice in the electric utility industry, and
16 the Participants shall advance the funds requir-
17 ed to perform such Construction Work, Operating
18 Work, Capital Improvements or Termination Work
19 in accordance with the applicable provisions of
20 the Project Agreements. The resolution of any
21 dispute involving the failure of the Administra-
22 tive Committee to reach agreement upon matters
23 involving future expenditures shall have
24 prospective application from the date of final
25 determination, and amounts advanced by the
26 Participants pursuant to this Section 25 during



1 the pendency of such dispute shall not be
2 subject to refund except upon a final
3 determination that the expenditures were not
4 made in a manner consistent with the Project
5 Agreements and generally accepted practice in
6 the electric utility industry."

7
8 5.35 Section 35 is amended by the deletion of Section
9 35.1 in its entirety and the substitution in lieu thereof
10 of a new Section 35.1 which reads as follows:

11
12 "35.1 This Participation Agreement shall become
13 effective on September 1, 1973, provided that it
14 shall have been then duly executed by all of the
15 Participants."

16
17 5.36 Section 35 is further amended by the deletion of
18 Section 35.7 in its entirety and the substitution in lieu
19 thereof of a new Section 35.7 and by the addition of a new
20 Section 35.8 which read as follows:

21
22 "35.7 This Participation Agreement shall
23 terminate on the earlier of: (i) December 31,
24 2027, or (ii) the date on which all Generating
25 Units shall have been permanently removed from
26 service and all Termination Work in respect of



1 all Generating/Terminated Units has been comple-
2 ted; provided however, that
3

4 (a) the Termination Responsibility of each
5 Participant shall survive any termination of
6 this Participation Agreement until such
7 Participant has fully satisfied its Termina-
8 tion Responsibility;
9

10 (b) upon the termination of this Participa-
11 tion Agreement the Participants shall pos-
12 sess the Surviving Rights as defined in
13 Section 35.7.1, and shall be subject to and
14 obligated to fully satisfy the Surviving
15 Obligations as defined in Section 35.7.2.;
16

17 (c) any obligations of any Participant to
18 one or more other Participants under any
19 provision of this Participation Agreement or
20 under any other Project Agreement, including
21 for example and without limitation any obli-
22 gation arising under Sections 8A.1.11, 21.1
23 through 21.6, 23.3, 23.5.2 hereof and Sec-
24 tion K.2.9 of Appendix K to this Participa-
25 tion Agreement, which has not been satisfied
26 prior to any termination of this Participa-

1 tion Agreement shall survive and be fully
2 enforceable against such Participant after
3 such termination; and
4

5 (d) upon any termination of this Participa-
6 tion Agreement the Participants shall be
7 obligated to convey their respective inter-
8 ests in the fee to the land underlying the
9 ANPP High Voltage Switchyard to the joint
10 owners of such switchyard as tenants in
11 common as their respective interests may
12 appear upon the payment by the joint owners
13 of the switchyard to the Participants of an
14 amount equal to the then fair market value
15 of such land exclusive of all improvements
16 thereon and shall grant permanent easements
17 for transmission line rights of way to the
18 owners of the transmission lines which may
19 be located on the Nuclear Plant Site and are
20 connected to the ANPP High Voltage Switch-
21 yard upon the payment(s) by said owners to
22 the Participants of an amount equal to 90%
23 of the then fair market value of land,
24 exclusive of all improvements, occupied by
25 such rights of way.
26

1 "35.7.1 The Surviving Rights of each
2 Participant shall include:

3
4 "35.7.1.1 The rights of such
5 Participant under any Project
6 Agreement that shall continue to
7 be in force and effect after the
8 termination of this Participation
9 Agreement;

10
11 "35.7.1.2 The rights of such
12 Participant to the unexpended
13 balance of any contributions or
14 deposits made by such Participant
15 to or in any Termination Fund(s)
16 established for the payment of
17 Termination Costs;

18
19 "35.7.1.3 The rights of such
20 Participant in any unexpended
21 balance of any fund or reserve
22 established at any time by ANPP or
23 the Participants for the payment
24 of any liability or obligation
25 pursuant to any Project Agreement
26 or any insurance policy providing



1 Project Insurance or any ANPP
2 self-insured arrangement which, as
3 of the date of the termination of
4 this Participation Agreement ("TPA
5 Date"), is not due or payable, is
6 the subject of a dispute, or is
7 indeterminate or contingent,
8 including without limitation (i)
9 any liability or obligation
10 arising from any litigation
11 instituted or claims asserted or
12 anticipated prior to the TPA Date
13 against ANPP, any or all Partici-
14 pants, the Project Manager, Opera-
15 ting Agent or any Termination
16 Agent with respect to any Con-
17 struction Work, Operating Work,
18 Capital Improvements or Termina-
19 tion Work, (ii) any contingent
20 liability for workers' compensa-
21 tion, employers' liability,
22 employees' health, retirement or
23 other benefits, (iii) any reserve
24 or other funds held by any
25 insurers on the TPA Date which
26 under the terms of any insurance

1 policy are or may become subject
2 to refund or otherwise payable to
3 the Operating Agent, the Termination Agent or the Participants,
4 including without limitation the
5 portion of premiums paid to
6 American Nuclear Insurers, Inc.
7 under its Nuclear Liability Policy
8 or Master Workers Policy that are
9 refundable pursuant to its
10 Industry Credit Rating Plan or
11 Industry Retrospective Rating
12 Plan, (iv) any reserves of Nuclear
13 Mutual Limited, Nuclear Electric
14 Insurance Limited or any other
15 nuclear property insurer as may
16 become payable to the Operating
17 Agent, the Termination Agent or
18 the Participants, and (v) proceeds
19 paid or payable under any nuclear
20 property insurance policy and held
21 in trust or otherwise for reactor
22 stabilization and decontamination
23 or (vi) any liability for other
24 claims of any nature as may be
25 asserted subsequent to the TPA
26



1 Date against ANPP, any or all
2 Participants, the Project Manager,
3 Operating Agent or any Termination
4 Agent; and
5

6 "35.7.1.4 The rights and inter-
7 ests of any Participant in any
8 real, personal, tangible or intan-
9 gible property or assets or rights
10 therein of ANPP or all Partici-
11 pants, which is not distributed to
12 the Participants on or before the
13 TPA Date.
14

15 "35.7.2 The Surviving Obligations of
16 each Participant shall include:
17

18 "35.7.2.1 The obligations of such
19 Participant under any Project
20 Agreement that shall continue to
21 be in force and effect after the
22 termination of this Participation
23 Agreement;
24

25 "35.7.2.2 Such Participant's pro
26 rata share, equal to its Genera-



1 tion Entitlement Share, of any
2 liability identified in Section
3 35.7.1.3 for which no fund or
4 reserve is established on or prior
5 to the TPA Date or which is in
6 excess of any fund or reserve
7 established on or prior to the TPA
8 Date. .
9

10 "35.8 Any Participant may assign any or all
11 of its Surviving Rights to any party without
12 the consent of the other Participants."
13

14 5.37 Except as provided herein, the Participation Agree-
15 ment, as amended by this Amendment No. 13, shall remain in
16 full force and effect.
17

18 6. Execution by Counterparts:
19

20 6.1 This Amendment No. 13 may be executed in any number
21 of counterparts, and upon execution by all Participants,
22 each executed counterpart shall have the same force and
23 effect as an original instrument and as if all Partici-
24 pants had signed the same instrument. Any signature page
25 of this Amendment No. 13 may be detached from any counter-
26 part of this Amendment No. 13 without impairing the legal

1 effect of any signatures thereon, and may be attached to
2 another counterpart of this Amendment No. 13 identical in
3 form hereto but having attached to it one or more signa-
4 ture pages.

5
6 7. Signature Clause:

7
8 7.1 The signatories hereto represent that they have been
9 appropriately authorized to enter into this Amendment No.
10 13 on behalf of the Party for whom they sign. This Amend-
11 ment No. 13 is hereby executed as of the 22nd day
12 of April, 1991.

13
14 ARIZONA PUBLIC SERVICE COMPANY

15
16 By William F. Conway
17 Its Executive Vice President, Nuclear

18
19 SALT RIVER PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT

20 ATTEST AND COUNTERSIGN:

21
22 Its _____ By _____
Its _____ Its _____

1 effect of any signatures thereon, and may be attached to
2 another counterpart of this Amendment No. 13 identical in
3 form hereto but having attached to it one or more signa-
4 ture pages.

5
6 7. Signature Clause:

7
8 7.1 The signatories hereto represent that they have been
9 appropriately authorized to enter into this Amendment No.
10 13 on behalf of the Party for whom they sign. This Amend-
11 ment No. 13 is hereby executed as of the ____ day
12 of _____, 19__.

13
14 ARIZONA PUBLIC SERVICE COMPANY

15
16 By _____
17 Its _____

18
19 SALT RIVER PROJECT AGRICULTURAL
IMPROVEMENT AND POWER DISTRICT

20 ATTEST AND COUNTERSIGN:

21 *Paula D. Hice*
22 Its _____ SECRETARY

23 *John R. Lasser*
24 By _____
25 Its _____ PRESIDENT

26
APPROVED AS TO FORM
SALT RIVER PROJECT LAW DEPARTMENT
BY *Steven R. Linn*
DATE 10/23/90



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SOUTHERN CALIFORNIA EDISON
COMPANY

APPROVED AS TO FORM:
DAVID N. BARRY, III
Vice President and General Counsel
By David N. Barry
Attorney
2/15, 1991

By David N. Barry
Its Senior Vice President

PUBLIC SERVICE COMPANY OF NEW
MEXICO

By _____
Its _____

EL PASO ELECTRIC COMPANY

By _____
Its _____

SOUTHERN CALIFORNIA PUBLIC
POWER AUTHORITY, doing
business in the State of
Arizona as SOUTHERN CALI-
FORNIA PUBLIC POWER AUTHOR-
ITY ASSOCIATION

ATTEST:

By _____
Its _____

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES,
a municipal corporation in
the State of California

ATTEST:

By _____
Its _____

1668c

SOUTHERN CALIFORNIA EDISON
COMPANY

By _____
Its _____

PUBLIC SERVICE COMPANY OF NEW
MEXICO

By 
Its 

EL PASO ELECTRIC COMPANY

By _____
Its _____

SOUTHERN CALIFORNIA PUBLIC
POWER AUTHORITY, doing
business in the State of
Arizona as SOUTHERN CALI-
FORNIA PUBLIC POWER AUTHOR-
ITY ASSOCIATION

ATTEST:

Its _____

By _____
Its _____

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES,
a municipal corporation in
the State of California

ATTEST:

Its _____

By _____
Its _____

1668c



SOUTHERN CALIFORNIA EDISON
COMPANY

By _____
Its _____

PUBLIC SERVICE COMPANY OF NEW
MEXICO

By _____
Its _____

EL PASO ELECTRIC COMPANY

By J R T. Jones
Its Sr Vice President

SOUTHERN CALIFORNIA PUBLIC
POWER AUTHORITY, doing
business in the State of
Arizona as SOUTHERN CALI-
FORNIA PUBLIC POWER AUTHOR-
ITY ASSOCIATION

ATTEST:

Its _____

By _____
Its _____

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES,
a municipal corporation in
the State of California

ATTEST:

Its _____

By _____
Its _____

1668c

SOUTHERN CALIFORNIA EDISON
COMPANY

By _____
Its _____

PUBLIC SERVICE COMPANY OF NEW
MEXICO

By _____
Its _____

EL PASO ELECTRIC COMPANY

By _____
Its _____

SOUTHERN CALIFORNIA PUBLIC
POWER AUTHORITY, doing
business in the State of
Arizona as SOUTHERN CALI-
FORNIA PUBLIC POWER AUTHOR-
ITY ASSOCIATION

ATTEST:

George R. Spencer
Its Assistant Secretary

By Wall A. Drews
Its President

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES,
a municipal corporation in
the State of California

ATTEST:

Its _____

By _____
Its _____

1668c



1000

SOUTHERN CALIFORNIA EDISON
COMPANY

By _____
Its _____

PUBLIC SERVICE COMPANY OF NEW
MEXICO

By _____
Its _____

EL PASO ELECTRIC COMPANY

By _____
Its _____

SOUTHERN CALIFORNIA PUBLIC
POWER AUTHORITY, doing
business in the State of
Arizona as SOUTHERN CALI-
FORNIA PUBLIC POWER AUTHOR-
ITY ASSOCIATION

ATTEST:

By _____
Its _____

APPROVED AS TO FORM AND LEGALITY
JAMES K. HAHN CITY ATTORNEY

DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES.

SEP 28 1990
BY *Diana Mahmud*
DIANA MAHMUD
Deputy City Attorney

By *Richard A. Cohn*
Its _____

1668c



1 STATE OF ARIZONA)
 2 County of Maricopa) ss.

3 On this 22nd day of April, 1990, before me,
 4 the undersigned Notary Public, personally appeared William F. Conway
 5 Exec. Vice President, Nuclear of ARIZONA PUBLIC SERVICE COMPANY, an
 6 Arizona corporation, and that he as such officer, being
 7 authorized so to do, executed the foregoing instrument for
 8 the purposes therein contained by signing the name of the
 9 company by himself as such Exec. Vice President, Nuclear.

10 IN WITNESS WHEREOF, I hereunto set my hand and
 11 official seal.

12 Angela S. Maiten
 13 Notary Public

14 My Commission Expires:

15 My Commission Expires Oct. 18, 1994

16 STATE OF ARIZONA)
 17 County of Maricopa) ss.

18 On this _____ day of _____, 1990, before me,
 19 the undersigned Notary Public, personally appeared _____
 20 _____ who acknowledged himself to be the
 21 _____ of SALT RIVER PROJECT AGRICULTURAL
 22 IMPROVEMENT AND POWER DISTRICT, an Arizona agricultural
 23 improvement district, and that he as such officer, being
 24 authorized so to do, executed the foregoing instrument for
 25 the purposes therein contained by signing the name of the
 26 company by himself as such _____.

IN WITNESS WHEREOF, I hereunto set my hand and
 official seal.

 Notary Public

My Commission Expires:

1 STATE OF ARIZONA)
 2 County of Maricopa) ss.

3 On this _____ day of _____, 1990, before me,
 4 the undersigned Notary Public, personally appeared _____
 5 _____ who acknowledged himself to be the
 6 _____ of ARIZONA PUBLIC SERVICE COMPANY, an
 7 Arizona corporation, and that he as such officer, being
 8 authorized so to do, executed the foregoing instrument for
 9 the purposes therein contained by signing the name of the
 10 company by himself as such _____.

11 IN WITNESS WHEREOF, I hereunto set my hand and
 12 official seal.

13 _____
 14 Notary Public

15 My Commission Expires:
 16 _____

17 STATE OF ARIZONA)
 18 County of Maricopa) ss.

19 On this 24th day of October, 1990, before me,
 20 the undersigned Notary Public, personally appeared _____
 21 JOHN R. LASSEN who acknowledged himself to be the
 22 President of SALT RIVER PROJECT AGRICULTURAL
 23 IMPROVEMENT AND POWER DISTRICT, an Arizona agricultural
 24 improvement district, and that he as such officer, being
 25 authorized so to do, executed the foregoing instrument for
 26 the purposes therein contained by signing the name of the
 company by himself as such President.

IN WITNESS WHEREOF, I hereunto set my hand and
 official seal.

 Notary Public

My Commission Expires:
April 29, 1991

1 STATE OF CALIFORNIA)
2 County of Los Angeles) ss.

3 On this 14 day of February, 1991, before me,
4 the undersigned Notary Public, personally appeared _____
5 Harold B. Ray who acknowledged himself to be the
6 Sr. Vice President of SOUTHERN CALIFORNIA EDISON COMPANY,
7 a California corporation, and that he as such officer,
being authorized so to do, executed the foregoing
instrument for the purposes therein contained by signing
the name of the company by himself as such Sr. Vice President

8 IN WITNESS WHEREOF, I hereunto set my hand and
9 official seal.



11 Donna Peterson
12 Notary Public

13 My Commission Expires:

14 9-24-93

15 STATE OF NEW MEXICO)
16 County of Bernalillo) ss.

17 On this _____ day of _____, 1990, before me,
18 the undersigned Notary Public, personally appeared _____
19 the _____ who acknowledged himself to be
20 _____ of PUBLIC SERVICE COMPANY
OF NEW MEXICO, a New Mexico corporation, and that he as
such officer, being authorized so to do, executed the
foregoing instrument for the purposes therein contained by
signing the name of the company by himself as such

21 IN WITNESS WHEREOF, I hereunto set my hand and
22 official seal.

23 _____
24 Notary Public

25 My Commission Expires:



1 STATE OF CALIFORNIA)
 2 County of Los Angeles) ss.

3 On this ____ day of _____, 1990, before me,
 4 the undersigned Notary Public, personally appeared _____
 5 _____ who acknowledged himself to be the
 6 _____ of SOUTHERN CALIFORNIA EDISON COMPANY,
 7 a California corporation, and that he as such officer,
 8 being authorized so to do, executed the foregoing
 9 instrument for the purposes therein contained by signing
 10 the name of the company by himself as such _____.

11 IN WITNESS WHEREOF, I hereunto set my hand and
 12 official seal.

13 _____
 14 Notary Public

15 My Commission Expires:
 16 _____

17 STATE OF NEW MEXICO)
 18 County of Bernalillo) ss.

19 On this 11th day of December, 1990, before me,
 20 the undersigned Notary Public, personally appeared _____
 21 Ferry J. Rodwin who acknowledged himself to be
 22 the Vice President of PUBLIC SERVICE COMPANY
 23 OF NEW MEXICO, a New Mexico corporation, and that he as
 24 such officer, being authorized so to do, executed the
 25 foregoing instrument for the purposes therein contained by
 26 signing the name of the company by himself as such
Vice President.

IN WITNESS WHEREOF, I hereunto set my hand and
 official seal.

 Notary Public

My Commission Expires:
2-1-91

1 STATE OF TEXAS)
 2) ss.
 County of El Paso)

3 On this 20th day of SEPTEMBER, 1990, before me,
 4 the undersigned Notary Public, personally appeared DR. F. J. [unclear]
DR. F. J. [unclear] who acknowledged himself to be the
 5 DR. F. J. [unclear] of EL PASO ELECTRIC COMPANY, a Texas
 corporation, and that he as such officer, being authorized
 6 so to do, executed the foregoing instrument for the
 purposes therein contained by signing the name of the
 company by himself as such SE. VICE PRESIDENT.

7
 8 IN WITNESS WHEREOF, I hereunto set my hand and
 official seal.

9
 10 John B. Cahill
 Notary Public

11 My Commission Expires:

12 2-27-91

13 STATE OF CALIFORNIA)
 14) ss.
 County of Los Angeles)

15 On this ____ day of _____, 1990, before me,
 16 the undersigned Notary Public, personally appeared _____
 17 _____ who acknowledged himself to be the
 _____ of SOUTHERN CALIFORNIA PUBLIC
 18 POWER AUTHORITY (doing business in the State of Arizona as
 SOUTHERN CALIFORNIA POWER AUTHORITY ASSOCIATION), a
 19 California joint powers agency, and that they as such
 officers, being authorized so to do, executed the
 20 foregoing instrument for the purposes therein contained by
 signing the name of the company by himself as such
 _____.

21 IN WITNESS WHEREOF, I hereunto set my hand and
 22 official seal.

23
 24 _____
 Notary Public

25 My Commission Expires:



1 STATE OF TEXAS)
 2) ss.
 3 County of El Paso)

4 On this _____ day of _____, 1990, before me,
 5 the undersigned Notary Public, personally appeared _____
 6 _____ who acknowledged himself to be the
 7 _____ of EL PASO ELECTRIC COMPANY, a Texas
 8 corporation, and that he as such officer, being authorized
 9 so to do, executed the foregoing instrument for the
 10 purposes therein contained by signing the name of the
 11 company by himself as such _____.

12 IN WITNESS WHEREOF, I hereunto set my hand and
 13 official seal.

14 _____
 15 Notary Public

16 My Commission Expires:
 17 _____

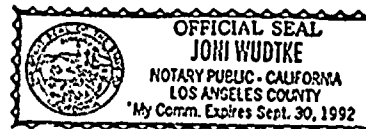
18 STATE OF CALIFORNIA)
 19) ss.
 20 County of Los Angeles)

21 On this 3rd day of October, 1990, before me,
 22 the undersigned Notary Public, personally appeared _____
 23 Gale A. Drews who acknowledged himself to be the
 24 President of SOUTHERN CALIFORNIA PUBLIC
 25 POWER AUTHORITY (doing business in the State of Arizona as
 26 SOUTHERN CALIFORNIA POWER AUTHORITY ASSOCIATION), a
 California joint powers agency, and that they as such
 officers, being authorized so to do, executed the
 foregoing instrument for the purposes therein contained by
 signing the name of the company by himself as such
President.

IN WITNESS WHEREOF, I hereunto set my hand and
 official seal.

 Notary Public

My Commission Expires:
9-30-92





1 STATE OF CALIFORNIA)
 2 County of Los Angeles) ss.

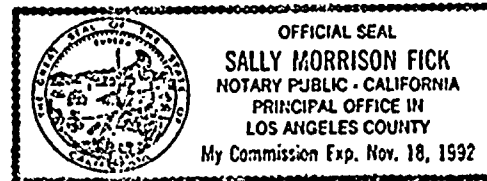
3 On this 2nd day of October, 1990, before me,
 4 the undersigned Notary Public, personally appeared Eldon A. Cotton
 5 Asst. Gen. Mgr. - Power of DEPARTMENT OF WATER AND POWER OF
 6 THE CITY OF LOS ANGELES, a department organized and
 7 existing under the Charter of the City of Los Angeles, a
 8 California municipal corporation, and that as such
 officer, being authorized so to do, executed the foregoing
 instrument for the purposes therein contained by signing
 the name of the company by himself as such _____.

9 IN WITNESS WHEREOF, I hereunto set my hand and
 official seal.

10 *Sally Morrison Fick*
 11 _____
 12 Notary Public

13 My Commission Expires:

14 Nov. 18, 1992



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10 CFR 50.59
ANNUAL REPORT

1990 PVNGS Material Nonconformance 50.59 Report (MNCR)

<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-EW-0008	This MNCR allowed a conditional release for Unit 1 essential cooling water (EW) heat exchanger A to be operable with a pinhole leak in the outlet channel head drain pipe in Unit 1.	This MNCR did not introduce an unreviewed safety question. The pinhole leak is on the downstream side of the heat exchanger. It has been plugged with a soft patch (gasket, metal band and 2 hose clamps). The heat removal function is still being fulfilled. This condition was only permitted below mode 4; rework was required prior to mode 4 entry.
90-ZC-0003	This MNCR evaluated a broken support rail stud on the Unit 2 polar crane. The stud was repaired prior to mode 4 entry.	This MNCR did not introduce an unreviewed safety question. The structural integrity of the supports of the polar crane rail is not compromised by the missing stud. With no load on the hook and the worst case SSE loads applied, the resulting tensile loads can be adequately supported by one stud.
90-ZA-0002, 90-ZA-0005 90-FP-0006 & 90-FP-0005	These MNCRs accepted standard strikes instead of electric strikes on fire rated doors in Unit 2 and Unit 3.	These MNCRs did not introduce an unreviewed safety question. The standard strike serves the same function as the electric strike and it is rated for use on fire rated doors in accordance with NFPA80.
90-ZY-0005 & 90-ZY-0003	These MNCRs accepted latchsets instead of Sargent 8G04 locksets for Unit 1 and Unit 3 cooling tower electrical equipment building doors. The installed latchsets did not meet the specification for construction for the cooling tower electrical equipment building.	These MNCRs did not introduce an unreviewed safety question. The installed configuration does not affect form, fit or function of the doors. It maintains the design requirements for the door assembly. The installed condition has no impact on equipment or components Important-to-Safety.
89-SB-0003 & 89-SB-0004	These MNCRs allowed a conditional release for the Core Protection Calculator (CPC)/Control Element Assembly Calculator (CEAC) to remain operable with the threaded spacers that have separated from the CPC/CEAC chassis in Units 2 and 3. These threaded spacers are normally used to secure the CPC/CEAC turnkey panels to the computer chassis. This is contrary to the system design requirements.	These MNCRs did not introduce an unreviewed safety question. In the event of an earthquake, the probability of the turnkey panel acting as a missile and hitting a component is insignificant. This condition does not raise any safety concerns.

1990 PVNGS Material Nonconformance 50.59 Report (MNCR)

<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
89-ZY-0002 & 89-ZY-0003	These MNCRs allowed the presence of paint on the surface of penetration seals in Unit 1. The existing penetration details and the specification 13-AN-340 does not specify the condition of the surface of the penetration seals to be painted.	These MNCRs did not introduce an unreviewed safety question. The condition does not adversely affect the passive function or the operability of penetration seals. The paint on the surface is not combustible and it does not affect the combustible loading used for the fire zones listed in the UFSAR.
89-CP-0004 & 90-CP-0002	These MNCRs allowed the replacement of a manual operator spiral pin (Part 2-150) of a valve by a similar pin until the class replacement pin could be obtained for Unit 1.	These MNCRs did not introduce an unreviewed safety question. The fit, form and function of the replacement pin is the same as the original.
90-ZJ-0003 90-FP-0001 90-FP-0002 90-FP-0003 90-FP-0015 & 90-FP-0024	These MNCRs allowed the use of either a latchset or a lockset on fire doors. The installed configurations did not match design drawings in Unit 1, Unit 2, and Unit 3.	These MNCRs did not introduce an unreviewed safety question. The use of a lockset or a latchset on a fire door does not change the function or operation of a fire door.
90-FP-0019 & 90-FP-0023	These MNCRs accepted the installation of fire door nos. 3AZANNA217 and 3AZANNA218 in Unit 3 without a deadbolt. The need for a deadbolt is based on the security function of the door.	These MNCRs did not introduce an unreviewed safety question. Deadbolts are not required to maintain the fire rating of the door. The door is not listed on the "Security Door Hardware Schedule". It is not identified as a Locked High Radiation Area (LHRA) door. The deletion of the deadbolt does not impact the ability of the door to function as a fire barrier.
90-FP-0034	This MNCR accepted the addition of 3-hour rated fire seals to six (6) open penetrations in the center wall of the Main Steam Supply System (MSSS) in Unit 3.	This MNCR did not introduce an unreviewed safety question. The addition of these seals maintains the integrity of the barrier. It does not make any changes to the Fire Protection Program. This change is performed in accordance with approved specification 13-AN-340.

1990 PVNGS Material Nonconformance 50.59 Report (MNCR)

<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-HC-0003 & 90-HC-0004	These MNCRs accepted the missing ground on shield cables EHC58AC1XA and EAC58BC1XA. The missing ground on the shield cable may slightly increase the noise susceptibility of the instrument loop associated with pressure transmitters 2J-HCA-PT-492 and 2J-HCA-PT-493 associated with the containment purge valves in Unit 2.	These MNCRs did not introduce an unreviewed safety question. This missing ground does not affect the isolation capabilities of containment purge valves. The containment purge system is not required for accident mitigation beyond the isolation capabilities of the valves. The physical isolation characteristics of the valves are not affected.
90-HC-0005	This MNCR accepted one broken stud on Control Element Drive Mechanism (CEDM) normal cooling fan (no. 2MHCNA02D) mounting plate in order to allow continued operation in Unit 2.	This MNCR did not introduce an unreviewed safety question. It is not postulated to initiate any existing and analyzed accidents. Also, it does not provide any safety-related function to mitigate any accidents evaluated in the UFSAR.
90-HD-0001	This MNCR allowed a conditional release for continued operation without a test port and test port covers for the Unit 1 Diesel Generator Control equipment room HVAC ductwork. The Waldinger Sheet Metal Standard specifies the use of Ventlok Series #699 test post covers for Q and R Class ductwork.	This MNCR did not introduce an unreviewed safety question. The duct is as strong with the covers installed as without. The ports located in the control equipment room essential air handling unit duct have an insignificant effect on the total air flow to the generator control panel. The diesel generator building HVAC (HD) system will continue to function as described in the UFSAR.
90-QB-0002	This MNCR accepted replacement batteries (no. UPS 12-300) to be installed in emergency lighting unit 1EQBN004 in Unit 1 until replacement batteries can be found and installed. Installed UPS 12-300 batteries are rated at 88 ampere-hours; whereas an emergency lighting 8-hour load can be met with 50 ampere-hour batteries.	This MNCR did not introduce an unreviewed safety question. Emergency lighting has not been considered in the accident analysis of the UFSAR; but it is taken credit for in achieving safe shutdown after a fire. The change involves entirely nonsafety-related equipment and the operator's ability to safely shutdown the plant is not affected.

1990 PVNGS Material Nonconformance 50.59 Report (MNCR)

<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-RC-0012, 90-RC-0013 & 90-RC-0014	<p>These MNCRs accepted the plugging of degraded and/or defective steam generator tubes with the Westinghouse Inconel 690 mechanical plugs on both the hot and cold leg ends on Unit 2.</p> <p>This condition was discovered during eddy current testing. A conservative plugging criteria was used based on the calculations that the wear is at a constant volumetric progression.</p>	<p>These MNCRs did not introduce an unreviewed safety question. The replacement plugs maintain the integrity of the primary coolant boundary and therefore, results in the plant being returned to a condition that would not affect the health and safety of the public. It has no effect on the steam generator thermal performance, nor will it affect the Reactor Coolant System (RCS) flow rate. The RCS flow will still be maintained with up to 400 tubes plugged. The LOCA analysis remains unaffected.</p>
89-SI-0005	<p>This MNCR accepted the deviation of a vent and drain line support assembly for Reactor Coolant (RC) and Safety Injection (SI) systems from the design drawing in Unit 3. Also, three (3) safety injection (SI) drain lines were modified with pipe caps in lieu of blank flanges.</p>	<p>This MNCR did not introduce an unreviewed safety question. It does not affect the accident analyses of the UFSAR. The supports are not near any essential equipment or instruments in the containment. Also, the pipe support function is not degraded.</p>
89-SI-0009	<p>This MNCR accepted the change in the design size for a flow element (no. FE-390). The flow element bore diameter of 1.934" was changed to 1.973" in Unit 2.</p>	<p>This MNCR did not introduce any unreviewed safety question. This design change meets the original design intent. It does not have any impact on the safety function of any system or equipment.</p>
90-SG-0008	<p>This MNCR allowed the use of damaged actuator shafts for the downcomer valve (no. 1JSGBUV0130) which rotated, shearing the pin that connects the two shafts in Unit 1.</p>	<p>This MNCR did not introduce an unreviewed safety question. Per the valve actuator vendor, there is not a requirement for the shafts to be able to rotate during the valve operation (auto or manual). The sheared pin is only used to prevent the shafts from unthreading. Therefore, the use of damaged actuator shafts does not affect the process or control functions of the valve and does not change the valve operation. A postulated failure of the MSIVs and FWIVs is bound by the accident analyses in the UFSAR.</p>

1990 PVNGS Material Nonconformance 50.59 Report (MNCR)

<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-XX-0050	This MNCR accepted the charging pump suction and discharge check valve assemblies which were out of specifications.	This MNCR did not introduce an unreviewed safety question. The check valve assemblies are not pressure retaining parts. The material not included in the specification will not impair the ability of the check valve from performing its design function. These valves have been evaluated and found acceptable for use within their design intended function.
90-FP-0018, 90-FP-0020, & 90-FP-0021	These MNCRs accepted the installation of fire doors 2AZANNA217, 2AZANNA218 in Unit 2 and 1AZJNN218 in Unit 1 without a double cylinder deadbolt and with a latchset instead of a lockset. The need for a deadbolt and lockset is based on the security function of the door.	These MNCRs did not introduce an unreviewed safety question. The use of a latchset is acceptable because NFPA 80-1975 allows the use of fire doors to latch. Deadbolts are not required to maintain the fire rating of the door. The door is not listed in the "Security Door Hardware Schedule". It is not identified as a Locked High Radiation Area (LHRA) door. The use of a latchset or the lack of a deadbolt on a fire door does not change the operation of the door.
90-RC-0003	This MNCR accepted pan head machine screws as equivalent to the originally specified hex head bolts on the basis of adequate preload and screw strength for the originally specified torque in Unit 1.	This MNCR did not introduce an unreviewed safety question. The machine screws provide more than adequate clamping force while still maintaining both fastener and base metal induced stresses within acceptable limits. It does not affect the function or operation of important-to-safety equipment.
90-RC-0011	The MNCR accepted the travel indicator disc on spray valve no. PV 100E, which has not been positioned per the drawing in Unit 1.	This MNCR did not introduce an unreviewed safety question. This situation does not affect valve operability, nor does it alter the structural integrity of the valve. As such, it does not impact any analyses in the UFSAR.

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90-RC-0027

This MNCR allowed a conditional release for continued operation of Unit 3 Reactor Coolant Pumps (RCPs) without the installation of the lift pump cover which mitigates the effects of oil spray or potential fires in the vicinity of the steam generator level transmitter sensing lines during and after a safe shutdown earthquake (SSE).

This MNCR did not introduce an unreviewed safety question. This conditional release does not affect the start, stop and continuous operation of the RCPs. The opening of the lift pump breakers eliminates the ability of the lift pumps to start automatically, which decreases the possibility of oil spray onto equipment and lines important to safety. Therefore, opening the breakers provides and performs the same function as the cover. The RCPs still meet the coast down requirements, the primary pressure boundary interface and the fire protection capabilities.

90-SA-0002

This MNCR allowed the use of two (2) screws to secure safety screens to the computer processing unit (CPU) chassis cooling fans in Unit 1.

This MNCR did not introduce an unreviewed safety question. The two (2) screws adequately secure the safety screens to the cooling fan and prevent inadvertent personnel injury. It does not affect the function and operation of the cooling fan. The design requirement to secure the safety screens is still achieved.

90-SB-0001

This MNCR allowed the use of three (3) screws rather than four (4) to secure the Data Acquisition System (DAS) chassis in Unit 3. In addition, it allowed the use of 1/4-20 screws to retain the left side of the DAS chassis.

This MNCR did not introduce an unreviewed safety question. The engineering evaluation verified that the equipment's seismic qualification would be maintained during a safe shutdown earthquake in the present configuration. The design requirement to secure the DAS chassis is still achieved and no new or different equipment failures/malfunctions will be introduced.

90-SE-0001

This MNCR accepted the addition of sleeving over a damaged cable for the channel 'C' excor log signal (no. 3E-SE01-CC-1XW) in Unit 3.

This MNCR did not introduce an unreviewed safety question. The sleeving provides the same protection as the normal cable jacket. It ensures that the signal is available to the plant protection system during its operational mode requirements in accordance with Technical Specifications.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-XX-0028	This MNCR accepted the replacement of an Ion Exchanger (no. 1MCHND01B) with the unit supplied from WNP-5, which would require Schedule 40 versus Schedule 10 connections to match the nozzles.	This MNCR did not introduce an unreviewed safety question. The nozzle interface change from Schedule 10 to Schedule 40 improves the pressure boundary capability at the ion exchange/piping interface, thus minimizing the probability of an accident analyzed in the UFSAR. It also eliminates the possibility of increased leakage through a letdown line break. There are no other safety-related concerns with the letdown subsystem of the Chemical Volume and Control System (CVCS).
90-XX-0060	This MNCR accepted slightly higher hardness values of the diesel generator fuel nozzle shims than the vendor specified values. Vendor specified hardness is 30N 65 to 70; whereas four out of ten shims tested were 30N 70.3 to 71.3.	This MNCR did not introduce an unreviewed safety question. The shims' hardness is slightly higher than the vendor specified values. The shims are used as repairs to establish the appropriate "pop" pressure. Shims are added or removed as appropriate to obtain the correct pressure. The fuel nozzles are tested to assure that the proper pop pressure range is attained. The slightly higher hardness characteristics do not have any impact on establishing the pop pressure. Therefore, it has no negative impact on the ability of the fuel nozzle from performing its safety function. Once shims are installed, the first nozzle is tested prior to installation.
89-HA-0001, 89-HA-0002 & 89-HA-0003	These MNCRs allowed the use of Q-supplied 3/32" thick Ventlok gaskets in Units 1, 2 & 3. However, the vendor supplied gasket is 1/8" thick.	These MNCRs did not introduce an unreviewed safety question. The new Q-supplied gasket will perform the same function by sealing the joint between the ventlock and the duct. It does not affect the accident analyses or the safety design bases.
90-CP-0001	This MNCR allowed a larger than specified hole (ANSI standard) through a thrust collar and a thrust bearing stud in a Unit 2 valve.	This MNCR did not introduce an unreviewed safety question. This condition does not affect the safety function or operation of any system or component. The safety design basis of any equipment or system is not compromised.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-RI-0004	This MNCR accepted the repair of bent pins of sensor 7 of the Heated Junction Thermocouple (HJTC) "B" probe by straightening in Unit 1.	This MNCR did not introduce an unreviewed safety question. The repair of the pins of sensor 7 does not affect any other sensors for channel "B". Even if a single sensor fails, a channel will be still operable with four or more operable sensors according to the Technical Specification. Unless one of the two channels of Reactor Vessel Level Monitoring System (RVLMS) becomes inoperable, action statements in the Technical Specification need not be considered. Therefore, the system would still meet the operability requirements.
90-SP-0001 & 90-EW-0003	These MNCRs allowed continued operation of valves in Unit 1 with carbon steel caps on the leak off lines whereas the piping material classification index specifies 316 Stainless Steel.	These MNCRs did not introduce an unreviewed safety question. Should the carbon steel cap corrode, the leakage would be only a few ounces/minute. This is insignificant when compared with the system flow and spray pond capacity. The carbon steel caps do not change the form, fit or function of the valves.
90-ZZ-0002	This MNCR accepted the lead brick supports that were not installed in accordance with design drawings in Unit 2.	This MNCR did not introduce an unreviewed safety question. This change would not affect the requirements that safety-related equipment and systems retain their structural integrity and remain operational both during and after a safe shutdown earthquake.
90-CH-0017, 90-CH-0021, 90-CH-0022, & 90-CH-0023	These MNCRs allowed the operation of a charging pump without the suction stabilizer bladder in Unit 1.	These MNCRs did not introduce an unreviewed safety question. Tests performed without the suction stabilizer bladder show no appreciable increase in pump vibration or decrease in flow or Net Positive Suction Head (NPSH). Three possible boron injection paths provide adequate flow and pressure without an intact bladder. The failures associated with operating the charging pump under these conditions have been addressed in the UFSAR.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-CW-0002	This MNCR accepted the deviation from original vendor supplied stator Resistance Thermal Detector (RTD) of 100 ohm platinum to 10 ohm copper in Unit 1. The RTD provides control room indication and alarm in the event of high stator temperatures during operating mode.	This MNCR did not introduce an unreviewed safety question. This deviation does not change the motor operating parameters or associated indication hardware. The input signal to the control room recorder would change but the recorder output would not change.
90-ZY-0001	This MNCR accepted a revision to the design drawings to reflect as-built conditions in the field for penetrations 315/18, 19, 20, 21 and 25 of the control building. The existing field conditions have different 3-hour fire rated seals installed.	This MNCR did not introduce an unreviewed safety question. This change does not adversely affect the passive function and the operability of penetration seals. The existing field condition has acceptable 3-hour fire rated seals.
90-EW-0002	This MNCR accepted corrosion grindouts in Unit 1 essential cooling water (EW) heat exchanger without weld buildup.	This MNCR did not introduce an unreviewed safety question. No structural concerns result from this repair disposition. The minimum wall requirements are not violated. The restoration of the corrosion protection by coating rather than cladding and seal welding is as provided for by ASME Code.
90-ED-0001	This MNCR accepted the existing piping of feedwater drain and vent system that is Schedule 80 and fittings that are rated for 3000 lbs. in Unit 1 whereas the drawing indicates that the piping is Schedule 160 and fittings are rated for 6000 lbs.	This MNCR did not introduce an unreviewed safety question. It does not affect the accidents analyzed in the UFSAR. It has no impact on system or equipment important to safety.
90-DG-0024 & 90-DG-0027	These MNCRs accepted the use of wire lugs with #10 screw holes in Unit 3 and #8 screw holes in Unit 1 instead of #6 screw holes as required in the vendor specifications.	These MNCRs did not introduce an unreviewed safety question. The use of a wire lug with a large hole has no effect on its capability to deliver required voltage and current to the associated fiber optics and control relays. All the necessary design requirements are met. It does not present any operability concerns that would prevent the diesel generator from performing its design function.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-DG-0019 & 90-DG-0020	These MNCRs allowed the use of 3/8" O.D. 0.065 wall tubing to replace 3/8" O.D. 0.035 wall tubing in the Unit 2 and Unit 3 diesel generator pressure indication gauges.	These MNCRs did not introduce an unreviewed safety question. The replacement tubing is stronger and has a higher rating. It does not affect the function and operation of diesel generator lube oil, jacket water and spray pond pressure indication gauges. It does not impact any accident analyses of the UFSAR.
90-CH-0011, 90-CH-0012 & 90-CH-0013	These MNCRs allowed a condition release for continued use of the Boric Acid Makeup Pumps (BAMPs) with non-conforming pump hold down bolts in Units 1, 2 and 3.	These MNCRs did not introduce an unreviewed safety question. The nonsafety-related function of the BAMPs is not considered in any UFSAR accident analyses. It does not adversely affect any safety equipment regardless of pump hold down bolt material. It does not impact the pressure integrity of boration flow path.
90-CH-0006	This MNCR accepted the existing manway bolt and nut material of the refueling water tank and the holdup tank although they do not match the design drawings for Unit 3.	This MNCR did not introduce an unreviewed safety question. The installed bolt material has a higher ultimate and yield strength than the material referred to in the drawing. The material is carbon steel in both cases. There are no safety concerns because the installed material is equivalent to the design material in form, fit and function.
89-FP-0015	This MNCR allowed the use of an astragal made of "Non ASTM A-36" carbon steel instead of "ASTM A-36" type steel (as required by NFPA 80) in Unit 1. The purpose of astragals is to retard the passage of smoke, flame or gases during a fire.	This MNCR did not introduce an unreviewed safety question. This change does not affect the doors as currently described in UFSAR Fire Protection System. An astragal made of "Non ASTM A-36" carbon steel performs the same function as "ASTM A-36" type steel.
89-FP-0003	This MNCR accepted the addition of 3-hour rated penetration seals to penetrations 486-14 and 486-15 in Unit 3. The penetration schedule was also matched with the field conditions for penetration 486-2 and conduit no. 3EZCAERK69.	This MNCR did not introduce an unreviewed safety question. The penetration seal details are approved for use in accordance with an approved specification. The addition of these seals will maintain the integrity of the barrier and make the as-built condition of the barrier consistent with the barrier description in the UFSAR.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
89-AF-0006	This MNCR allowed the replacement of the stem material in three auxiliary feedwater valves of 316 stainless steel with ASTM 479 Grade 410 for motor-operated regulating valves in Unit 2.	This MNCR did not introduce an unreviewed safety question. This material change has been evaluated in an Engineering Evaluation Request (EER 89AF056) and found to have no impact on the function or operation of the system. The stem is the same design as the original and meets the original design intent. It does not change the form, fit or function of the valves.
89-CP-0001	This MNCR allowed two 42" containment purge valves to have partially drilled bottom covers and remain operable. This conditional release ensures that one operable valve exists in containment penetrations 56 and 57.	This MNCR did not introduce an unreviewed safety question. The containment boundary would maintain containment isolation capability. The pressure integrity of the valves is not impacted. The valves will continue to perform their intended safety function.
90-AF-0005	This MNCR accepted the substitution of a 110V DC relay in the Unit 2 AFW "A" pump control circuit for 120V DC rated relay CR4.	This MNCR did not introduce an unreviewed safety question. This substitution poses no change to the circuit. The relay is being replaced with a qualified relay within the same design parameters and thus, no new variables are inserted into any assumption for accident analysis. Therefore, the single failure of one train of Auxiliary Feedwater System remains as the bounding case. This change does not alter the form, fit or function for the replacement relay.
90-SA-0010	This MNCR accepted the use of damaged mounting hole threads which did not allow proper installation of an upper right mounting screw for a Control Element Assembly (CEA) and Control Position Isolation Assembly (CPIA) channel "A" in Unit 3.	This MNCR did not introduce an unreviewed safety question. The missing mounting screw does not affect the CPIA failure modes because failure of CPIA has no effect on systems required for safe shutdown. Failure of CPIA results in the loss of 22 CEA position signals to the CEA calculator initiating a plant trip which is an analyzed condition in the UFSAR.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-ZG-0002	This MNCR accepted the installation of conduit no. 1EZG1AARX26 which was not installed per sketch. The sketch calls for a separation of 7" center to center from an existing 3" conduit on top of cabinet no. 1JDCAB01. However, the conduit was installed with about 3"-4" center to center.	This MNCR did not introduce an unreviewed safety question. This change only concerns the specified spacing between class 1E' raceway and the installation conforms to all seismic and separation requirements.
90-ZC-0004	This MNCR accepted the deviation in installation of the Upper Guide Structure (UGS) laydown pads from the design drawings in Unit 1.	This MNCR did not introduce an unreviewed safety question. This deviation does not affect the structural configuration of UGS. The worst case scenario would be the eccentric placement of the UGS on the laydown pads resulting in improper alignment of the CEA spiders on the refueling port floor. The CE calculation determined that the amount of out of tolerance condition experienced here would not result in the postulated misalignment.
90-HJ-0002 & 90-HJ-0003	These MNCRs accepted that the wiring installation for fire damper 2-FD-HJN-061 did not conform to detail E on drawing 13-10407-M598-993-5 in Unit 2 and Unit 3. The wiring for the damper was approximately 24" long and stretched across the internal diagonal width of the duct. Since the vertical distance from the electrical penetration to the damper centerline is 16" and since the wires are 24" long, the dropping of the wire could prevent the fire damper from closing completely. Detail E on the subject drawing specifies that the wires would be routed through eyebolts to prevent the wires from interfering with damper closure.	These MNCRs did not introduce an unreviewed safety question. The normal ESF switchgear HVAC system functions only during normal plant operation. The function of the fire damper is not changed and this change does not introduce any additional combustibles.
90-SP-0007	This MNCR accepted the temporary replacement of non-magnetic, non-copper alloy material oil drain plug of two piece construction with carbon steel or cast iron one piece construction for the lower bearing housing of the essential spray pond pump motor in Unit 1.	This MNCR did not introduce an unreviewed safety question. The replacement material minimizes galvanic corrosion. There is no mass difference between the old plug and the new plug. Therefore, there is no seismic impact. Since it is an oil drain plug for motor lower bearing housing, ASME code rules are not applicable.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-SB-0017 & 90-SB-0018	These MNCRs accepted the soldered connections for certain wire terminations in place of terminal lug for the AC power display on four and three channels of the supplementary protection logic assemblies of Units 2 and 3, respectively.	These MNCRs did not introduce an unreviewed safety question. The soldered connection is equivalent to a lugged termination. This change does not alter the form, fit or function of the system or component.
90-SQ-0005	This MNCR accepted the discrepancies between the installed radiation monitor (no. 3-J-SQB-RE-145) and the design drawings in Unit 3.	This MNCR did not introduce an unreviewed safety question. The structural differences are determined to meet the original design basis requirements to maintain monitor operability during an SSE event. The monitor continues to perform its safety-related function.
90-SP-0006	This MNCR accepted the installed corrosion protection coating thickness for the essential cooling water heat exchanger channel head greater than 25 mils identified by Spec. AO-AN-331, MCS-36 in Unit 2.	This MNCR did not introduce an unreviewed safety question. The additional coating on the internal diameter (ID) of the heat exchangers causes a negligible decrease in the ID and a negligible increase in mass per coating manufacturer product data sheet for Belzona S metal. Thicker coating improves corrosion resistance. Since the increased coating thickness has not interfered with the ability to reassemble the heat exchanger covers, the leak-tightness of the heat exchangers remains unaffected. Also, since there is no impact on water volume, temperature, heat transfer, flow path and valve alignment, the function and the operation of the heat exchangers are not affected.
89-HD-0002, 89-HD-0003 & 89-HD-0004	These MNCRs allowed the use of the existing filters in the diesel generator control room HVAC system in Units 1, 2 and 3. The existing filters do not meet the 5-hour dust storm requirement and the existing condition was accepted for a short period during the winter months (the dust storm season does not fall during the winter months).	These MNCRs did not introduce an unreviewed safety question. During periods of no dust storms the DG control room essential air handling units will function as described in the UFSAR. During the periods when dust storms are expected, Engineering Evaluation Report 89-HD-008 showed that the probability of an accident previously evaluated in the UFSAR is not increased with interim compensating actions in place.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
89-SQ-0008 1 89-SQ-0011	These MNCRs identified the installation and continued use of components in various radiation monitors without appropriate Q-class traceability in Unit 3. The conditional release for the MNCRs allowed continued operation until components could be procured with appropriate traceability.	These MNCRs did not introduce an unreviewed safety question. There is no difference (manufacturers and part numbers) between the equipment presently installed and that which will be installed with Q-class traceability. Therefore, these installations do not alter the form, fit or function of the components.
89-HJ-0002	This MNCR allowed the continued operation of control building HVAC with stripped threads in the bolt hole of the access panel (no. 3MHJAZ04) in Unit 3.	This MNCR did not introduce an unreviewed safety question. A calculation was performed to determine the seismic response of the panel. It concluded that the existing condition does not adversely affect the seismic qualification of the component. Also, it is inconceivable that a leak of any significance will be found in the resulting gap between the remaining bolts.
89-ZJ-0001	This MNCR allowed the conditional release of an unsealed penetration (Bus Duct ENBNA06) at elevation 109'-0" of the east wall of stairwell JA08 in the corridor building in Unit 1. The penetration is not appropriately sealed to maintain the integrity of the barrier in which it is located.	This MNCR did not introduce an unreviewed safety question. The wall containing the unsealed penetration is located within the corridor building which has no safe shutdown equipment or cables. The absence of the seal has no impact on any fire brigade activities required to take place in the control building.
90-DG-0029	This MNCR accepted the rotation of the contact blocks on pushbuttons ESPB-1 and ESPB-2 through 90 for a simulated "LOP" and "ESF" starts on diesel generators 2A and 2B in Unit 2. The contact block orientation differs from that specified in the drawings by 90 degrees.	This MNCR did not introduce an unreviewed safety question. This change only affects the contact orientation on pushbuttons used for simulating emergency start during surveillance testing for the diesel generators. It has no impact on the function or operation of the diesel generators.
90-FP-0039	This MNCR accepted the existing bedding material for use as backfill for the fire protection line FP283-12" even though it does not conform to the specifications for bedding set forth in Specification 13-CN-335 (Installation of Underground Utilities) in Unit 3.	This MNCR did not introduce an unreviewed safety question. The existing bedding material does not affect the form, fit or function of the backfill. The safety design basis for the fire protection system is not changed.

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90-FP-0042

This MNCR accepted welding the existing base channel and adding U-channel to fire door A-204 in Unit 1. The door was apparently modified to fit the door opening, which was not allowed by Specification 13-AN-006 Section 7.3.

This MNCR did not introduce an unreviewed safety question. The proposed configuration of door A-204 does not affect the form, fit or function of the door. The safety design basis for the fire protection system is not changed. It does not adversely affect the ability of quality related structures to perform their safety-related function.

89-NC-0002

This MNCR accepted 302 stainless steel instead of 420 stainless steel for some thrust collar/bearing pins in Henry Pratt valves in essential cooling water and nuclear cooling water systems to preclude hydrogen embrittlement failures.

This MNCR did not introduce an unreviewed safety question. The calculated shear load of the thrust collar pin and the thrust bearing stud shows that the calculated shear load is well below the Code Allowable shear strength of the AISI 302 material. Therefore, the use of the AISI 302 does not impact the operation or functionality of the valve. In addition, the AISI 302 is more suitable because it has a lower Rockwell Hardness value and is not susceptible to hydrogen embrittlement.

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
88-CW-045	This EER recommended replacement of a damaged 4-inch diameter Mark 220 gate valve in the turbine cooling water return line from the circulating water pump oil cooler with a Mark 222 gate valve in Unit 1.	This EER did not introduce an unreviewed safety question. The replacement does not affect overall performance of the turbine cooling water system and the original design requirements are still met. The replacement valve provides the same form, fit and function as the original valve.
90-EC-001	This EER evaluated all six chemical addition tank drain valves which are welded on both ends instead of threaded in Unit 3; it recommended no change to the as-built conditions.	This EER did not introduce an unreviewed safety question. The welds in lieu of threaded connections do not affect the performance or integrity of the system because the piping conforms to ANSI B31.1. The chemical addition tank and drain valves do not provide a safety related function.
90-CE-002	The EER accepts the replacement of a stator cooling water pump drive motor, a GE Model 5K445BL123PEF2 with a US electric motor S02R27303L4-1 on the basis that a new relay setting sheet has been issued along with safety reviews, design reviews and required drawing changes for Unit 3.	This EER did not introduce an unreviewed safety question. The replacement motor was rated at the same horsepower. The adjustment of protective relay settings eliminated differences in electrical characteristics. The cooling water pump drive motor is not a part of a safety-related system and the functioning of the related systems including the stator cooling system is unaffected by this change.
90-ED-022	This EER authorized a weld repair to the outside of several turbine extraction steam lines to increase the wall thickness in order to comply with code.	This EER did not introduce an unreviewed safety question. This weld repair is being performed to ANSI B31.1 requirements to return the extraction steam piping to its original strength.
89-CM-008	This EER authorizes replacing the original chemical waste neutralizing tank agitators, which are no longer manufactured, with a replacement type that is recommended by the original manufacturer.	This EER did not introduce an unreviewed safety question. The replacement agitator provides the same form, fit and function as the original agitator, with improved corrosion resistance.
90-DG-021	This EER accepts Model #830W-11-2236DJ 3" butterfly valve as a replacement for valve 8126-DA Mod B which is no longer	This EER did not introduce an unreviewed safety question. An equipment change evaluation (ECE) was performed which demonstrated

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that the conditions of the proposed valve meet and exceed the design requirements of the existing valve. They are also seismically and environmentally qualified. This replacement will not degrade the required function of the valve.

87-ZR-009

This EER accepts the installation of a quick release connection on the transom for door A-204 (located between the auxiliary and radwaste bldgs.) to facilitate removal of the transom. In addition, the material which makes up the transom and doorframe is to be reinforced with 3/16" plate at their connection points. The removable transom for door A-204 is currently attached to the side of the doorframe, which makes removal of transom difficult resulting in unsafe practices.

This EER did not introduce an unreviewed safety question. This change does not affect the form, fit or function of the transom. The proposed change maintains the design requirements for this component within the door assembly. Based on the low fire loading, manual suppression features, smoke detection and automatic water sprinkler system, the fire barrier between zones 48 and 62L is not compromised. Also, removal of the transom can be achieved only after entry into the vital area. Therefore, the security of the vital area is not compromised by this change.

90-AF-016

This EER authorizes replacing the turbine driven auxiliary feedwater pump governor actuator, which is no longer manufactured, by a replacement actuator that is recommended by the original manufacturer.

This EER did not introduce an unreviewed safety question. This is a design equivalent change which ensures that AFW system continues to operate in the originally designed manner. The replacement is an identical part in form, fit and function to the original.

90-LR-016

This EER accepts the reuse of an old O-Ring on the new evaporator steam condensate pump seal and the use of a Faulks type G12 spacer, 3-1/2 inches long which is unavailable for Unit 2.

This EER did not introduce an unreviewed safety question. The Evaporator Steam Condensate pump is nonsafety-related and provides no safety function. It is not a pressure boundary for radioactive material and is not taken credit for in analyzing any accident. Any leakage would be bounded by accidents already analyzed and described in the UFSAR.

89-SG-333

This EER allowed the replacement of the existing O-ring with a new smaller size O-ring and seating washer for the port "A" for the main steam isolation valves (MSIVs) as recommended by the valve vendor.

This EER did not introduce an unreviewed safety question. This change does not require any physical modifications to the existing subcomponents of MSIVs for the O-ring replacement. The washer and smaller size O-ring avoid the protrusion of the O-ring into the oil

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-LR-020	This EER accepted two spiral wound gaskets with a thickness of 0.175" and a field fit spacer to bridge the gap between flanges which was found to be excessive after the tightening of a nipple at the Liquid Radwaste System (LRS) concentrate monitor pump casing drain for Unit 3. The EER also accepted the spacer being made of NQR304 or NQR316 SS plate cut to fit in the interim, if ASTM B-424 (Incoloy steel) is not available.	flow path during compression and provide better sealing capacity. The existing single failure analysis bounds the failure of O-ring. Also, the change does not result in any common mode failure.
90-ZY-056	This EER accepted installation of a craft shack directly behind Craft Shack (#4-157), which would serve as an additional storage facility for a Banyon LAN workstation and as a burn-in and testing facility.	This EER did not introduce an unreviewed safety question. The LRS concentrate monitor pump is nonsafety-related and it does not have any safety function. This is a design equivalent change because a similar arrangement is used with the pump suction removable spools.
90-EC-006	This EER recommended that in order to stop an oil leak past the oil drain plug on Unit 3 essential chilled water-A train circulation pump, the drain hole be drilled to a larger diameter, a bushing be placed in it with inside diameter equal to that of the original drain plug and then a new drain plug with the original diameter be fitted into the bushing.	This EER did not introduce an unreviewed safety question. This change is an addition of temporary facilities outside the protected area. The impact of additional tornado generated missiles, potential fire hazards, concerns about radiologically protected areas and American Nuclear Insurers (ANI) requirements have been considered in the safety evaluation. No unreviewed safety question of concern has been found.
90-ZY-057	This EER allowed relocation of a trailer (B-19) and a craft shack (4-186) out of the Unit 1 protected area to the storage yard located south of Water Reclamation Facility.	The essential chilled water pump will continue to function as before. This repair will not increase the probability of a malfunction of the pump because the replacement bushing and plug comply with ANSI B16.11, and perform the same function as the original plug.
		This EER did not introduce an unreviewed safety question. Moving temporary facilities out of the protected area does not create conditions that have not been addressed in the licensing basis. Considerations with regard to tornado generated missiles, potential

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-IA-017	This EER accepted modification of the scales and ranges of the Instrument Air after-filter pressure differential indicating switches from (0-25.0 psid) to (0-6.0 psid) so that more sensitivity can be provided in reading low differential pressure across the filters.	fire hazards, and ANI requirements do not pose any safety concerns. This EER did not introduce an unreviewed safety question. This change involves nonsafety-related equipment. It has no adverse impact on the function performed by the instrument air system. This change provides better monitoring and allows timely indications in the unlikely event the filters are torn.
88-RD-004	This EER accepted the installation of grout in a penetration (number 418/31), which will provide a penetration seal between the 'A' shutdown heat exchanger room and the corridor below to prevent water leakage for Unit 3, and comply with the original design requirement.	This EER did not introduce an unreviewed safety question. This change restores the watertight seal to an analyzed configuration as defined in Bechtel Engineering Study 13-CS-A05.
90-CD-020	This EER recommended that the condensate crosstie header by-pass valve (CDN V252) seat material, Stellite 6, can be replaced with Stellite 21 material.	This EER did not introduce an unreviewed safety question. This installation does not alter the operation of the condensate system. The lower carbon content of Stellite 21 is not a problem because of the relative purity of the condensate water supply and the low incidence of abrasive material in the condensate water. The installation does not cause any modification, alteration or physical changes to the component or the plant. Stellite 21 is similar in composition to Stellite 6. The form, fit and function of Stellite 21 is equivalent to the Stellite 6 for all pertinent areas of evaluation.
90-RI-017	This EER accepted the resistance of 4.5×10^5 ohms between the thermocouple and the heater for a heated junction thermocouple in Unit 2. The acceptance criteria is $\geq 1 \times 10^8$ ohms.	This EER did not introduce an unreviewed safety question. The heated junction thermocouple (HJT) passed its functional test. If the HJT fails or shorts between the heater and thermocouple, the reactor vessel level monitoring system will still meet the Tech Spec operability requirements, because three HJTs will still be operable and only two are required by Tech Specs.

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90-QD-001	This EER authorized replacing an emergency lighting fixture in the guard house basement that is defective and no longer manufactured, with a vendor-recommended replacement fixture.	This EER did not introduce an unreviewed safety question. The emergency lighting fixture will be replaced with an equivalent which will assure proper functioning, and provide adequate illumination for egress of the personnel from the basement of the Guard House upon loss of normal lighting. This replacement will not adversely affect essential and emergency lighting systems. The replacement fixture meets all technical requirements of the original fixture.
90-IA-029	This EER allowed repairing the oil scrapes gland in a Unit 2 instrument air compressor by welding a broken ear to the gland.	This EER did not introduce an unreviewed safety question. The repair of the oil scraper gland will restore safe operation of the instrument air compressor to its normal function. Welding performed does not affect the function of any safety system.
90-SQ-038	This EER accepted replacing the single digit LED Display (TIL311) used in all the KAMAN radiation monitor displays with the vendor-recommended replacement LED display (TIL311A) for a longer life.	This EER did not introduce an unreviewed safety question. This replacement ensures a longer life and is a direct replacement which has no impact on the function and operation of radiation monitoring system. It has no effect on engineered safety features and accident analyses. The replacement LED display has the same form, fit and function as the original.
90-TC-005 & 90-TC-004	These EERs allowed the replacement of existing pressure gauges in the turbine control system with ASHCROFT pressure gauges, (no. 4830-000565) to prevent damage due to overranging in Unit 2. In Unit 1, the existing gauges were allowed by EER 90-TC-004 to be replaced with ASHCROFT gauge no. 4830-000565.	This EER did not introduce an unreviewed safety question. The existing gauges overrange on pump startup. The new gauges with the increased range will perform the same form fit and function as the existing gauge while providing system reliability and reducing maintenance requirements. The turbine control system is not quality elated. This installation does not alter the operation, response and reaction of the turbine control system to plant conditions.
90-SG-180 (BL0004)	This EER accepted that the packing area of a valve (3JSCNFV1122)	This EER did not introduce an unreviewed safety question. This

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90-ZY-064

be leak sealed by drilling a hole in the valve bonnet, installing the appropriate injection valve and then injecting the valves packing area with Atlantic Colt sealant material in Unit 3.

change does not affect the process or control functions of the valves and it will not change the operation of the valve. If a packing failure would occur, the valve would still assume its failed position.

90-CH-055

This EER allowed Trailer 26 located in the storage yard to be moved to the north side of Trailer 90, which is outside the protected area.

This EER did not introduce an unreviewed safety question. Adding temporary facilities outside the protected area does not affect the safety function of any system or equipment of the plant. Furthermore, considerations with regard to tornado generated missiles, fire hazard, ANI requirements do not pose any safety concerns.

90-SC-009

This EER accepted modification of the limit switch actuator cam for the condensate demineralizer system Hill McCanna valves with a R708 actuator. It would increase the size of the Allen head set screw used to hold the cam in place from a 1/8" x 20 to a 1/4" x 20 and add a 1/4" x 20 set screw to hold the Allen head screw in place.

This EER did not introduce an unreviewed safety question. This change will not affect the functionality and performance capability of the system. The charging system safety function and corresponding protective actions, initiating initial conditions and allowable limits for all applicable design basis events are unchanged. The readings from this gauge are only used for trending, and the larger range will not reduce this capability.

89-HR-004

This EER concludes that the radwaste drywaste compactor does not need to have ventilation ductwork connecting it into the Radwaste building HVAC system because it has its own HEPA filter.

This EER did not introduce an unreviewed safety question. This change does not impact the function and operation of condensate cleanup system, radioactive waste management system and accident analyses. It does not involve quality related structures, systems on components.

This EER did not introduce an unreviewed safety question. This change does not affect operation and functionality of any equipment or system of the plant. The built-in HEPA filter in the trash compactor will prevent unnecessary radiation exposure from airborne

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90-CH-020	This EER allowed Maxi-Bolt expansion anchors for the Unit 3 boric acid makeup pumps A & B to be installed, which would not meet minimum edge distance and embedment length criteria.	particulates. This EER did not introduce an unreviewed safety question. This change which allows a deviation from installation requirements of the specification, does not affect the system operation or design criteria. A calculation has been performed to show that the deviation will still allow a full torque value, which in turn, will allow for full loading conditions on the maxi-bolts.
89-CW-069	This EER recommended Plasite #7156 as an alternate to Plasite #7122H and #7155 HHB pipe linings for immersion service in chemical environments.	This EER did not introduce an unreviewed safety question. Plasite #7156 will utilize the same surface preparation and application. Additionally, it can withstand higher water service temperatures than Plasite 7122H and 7155HHB.
89-CH-059	This EER accepted the reduction in the cross sectional area of the load bearing section of a lug (pipe support 3-CH-259-H-00H) by 18%.	This EER did not introduce an unreviewed safety question. The reduction of material of the pipe support has negligible effect on the bearing capacity of the lug. The stress increase on the pipe supporting lug is about 53 psi which is insignificant. The pipe support stress limits as given in the FSAR are not exceeded and the structural integrity of the pipe support is maintained.
89-SB-099	This EER accepted replacement of the damaged spacers with flanged spacers to secure the Core Protection Calculator/Control Element Assembly Calculator (CPC/CEAC) turnkey panel for Units 2 & 3.	This EER did not introduce an unreviewed safety question. The replacement of the damaged spacers does not change the original design and the function and operation of CPC/CEAC system.
89-NG-010	This EER recommends that the silver plated aluminum bus bars in certain nonsafety-related load centers (1E-NGN-L26, 1E-NGN-L28 and 1E-NGN-L30) be replaced with solid copper bus bars in Unit 1. These load centers primarily provide nonsafety-related power to the cooling tower fans and other miscellaneous non-safety related loads. The reason for this change is that silver plating on the	This EER did not introduce an unreviewed safety question. This change does not alter the function of the load centers. The function of the bus bar is not altered. It does not alter any interface characteristics with equipment that is important to safety. The copper bus bars are not subject to corrosion by chlorides or other heavily concentrated chemicals in the

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	present bus bars is corroding off in flakes and sheets.	circulating water system.
89-ZA-053	This EER accepted Valspar 84 series epoxy enamel that has been used to coat various conduit at elevation 140' in the auxiliary building at Unit 1 although it has a lower decontamination factor (DF).	This EER did not introduce an unreviewed safety question. Valspar 84 series epoxy is chemically compatible with the galvanizing on conduits. The galvanized conduit does not require a protective coating for corrosion protection. Coating conduit is strictly for aesthetics.
89-XM-080	This EER accepted welding of a "T" (made of 3/8" round stock) to the vent and drain pipe caps and attaching a cable wire from the pipe stubs to the pipe caps in Unit 1.	This EER did not introduce an unreviewed safety question. Installation of pipe cap attachments will not cause the design stress limits for the affected piping and its pipe supports to change due to the negligible increase in weight (0.25 lbs) of the pipe cap attachments. The structural integrity of the piping system and its pipe supports is maintained.
89-FP-143 89-FP-088	This EER allowed changes to the Specification 13AN006, Installation Specification of Fire Doors (Fenestra only), upgrading fastener spacing requirements and clearance requirements between the floor and the fire door on existing door installations to one inch.	This EER did not introduce an unreviewed safety question. The doors are not connected to equipment nor are they located near vital equipment. It is a like for like replacement for the same design intent or a tested configuration. The specification change is in conformance with manufacturer standard fastening spacing.
90-CW-001	This EER allowed retaining the circulating water pump wear rings and the cutless bearings in the pump assembly by the installation of Al-Ni-Bronze bolting and set screws. Since Al-Ni-Bronze is difficult to obtain at a short notice, this EER also accepted the use of the alternate materials, such as, ASTM B-150 Alloy and Stainless Steel A-193, Gr. 8, 8M, or 8S or material with equivalent composition.	This EER did not introduce an unreviewed safety question. The form, fit and function of the bolting will not change. The system and system components will not be altered or changed. It does not affect the operation, response or reaction of the system to plant conditions. The circulating water system has no safety design basis and is not required for the safe shutdown of the plant.
90-FP-046	This EER allowed Kennedy Model K1211 fire hydrants to be replaced with K81 Model in Unit 3 because K1211 Model is not manufactured	This EER did not introduce an unreviewed safety question. the Kennedy Models K81 and K1211 hydrants are designed to operate in

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	any more.	similar applications. This replacement does not alter the form, fit or function of the existing system.
90-SP-035	This EER allowed installation of unions on drain piping A-075-HCDA-1" and B-042-HCDA-1" from the PSVs in Unit 3 to facilitate valve removal and replacement.	This EER did not introduce an unreviewed safety question. This installation does not affect the structural integrity of the piping system and pipe supports. It has been determined by calculation that the allowable stress limits per code as required by the UFSAR are not exceeded because of this change.
86-DG-131	This EER accepted that the missing latch spring in Unit 3, which is used for pneumatic reset of the overspeed shutdown butterfly valve for the emergency diesel generator, would not be replaced. Since the valve is only reset manually when pneumatic reset is non-operational, the use of the spring is not required.	This EER did not introduce an unreviewed safety question. Since the spring is not required for function of the diesel engine, the drawing change shows the spring as an option. The valve without the spring is functionally equivalent to the normal component configuration. Removal of the spring will not degrade the capabilities of the Diesel Generators to provide onsite emergency power during the postulated events described in UFSAR.
90-ZA-035	This EER provided a Design Equivalent Change for the access barrier installed at the entrance (El 129 ft) to the Auxiliary Building 120' East Purification Pipe Chase. the subject barrier proves control of personnel access to the 120' East Purification Pipe Chase (Locked High Radiation Area).	This EER did not introduce an unreviewed safety question. This change to the existing access barrier enhances personnel safety by restricting access to a Locked High Radiation Area. The subject access barrier has no degrading structural impact upon this Q-class building. It has no interface with any quality related structure, system or component.
88-CH-089	This EER accepted the replacement of ASTM A194 Gr. 8M nut material with ASTM A194 Gr. 8B material for a valve in the Unit 2 Chemical Volume Control System (number 2PCHEV405).	This EER did not introduce an unreviewed safety question. It is a "Design Equivalent Change." It does not affect the form, fit and function of the valve. Therefore, it does not affect the operation of Chemical Volume and Control System.
89-HP-010	This EER evaluated the failure of a link connecting the yoke to the control arm for the Unit 2 "B" train hydrogen recombiner	This EER did not introduce an unreviewed safety question. This change corrects a potential failure mode for a damper that is

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	outside air damper, and authorized the use of locktite on the linkage connection.	required to operate under post-accident conditions. The addition of Loctite to the linkage connection does not affect the design performance of the damper or the associated system.
89-LR-029	This EER accepted a Design Equivalent Change for the overload heaters and breaker trip settings for a Motor Control Center (MCC) in Unit 2. The use of auxiliary cooling with MCC doors open during summer months was eliminated.	This EER did not introduce an unreviewed safety question. This change is required to maintain continuous operability and reduce spurious trips mainly due to environmental conditions. The equipment change is like for like in form, fit and function for the overload heaters. The components changed and systems affected are non-class 1E and are not required during emergency conditions.
90-FB-058	This EER accepted inverting the location of active/inactive leaves of fire doors J-110 in Units 1, 2 & 3.	This EER did not introduce an unreviewed safety question. This change is an equivalent change. Reassigning the swing to these doors does not affect the function as a part of the fire barrier. The doors are not located in the proximity of safety-related equipment.
90-ZY-067	This EER accepted the installation of a trailer for Technical Training located 280 feet plant east from the Central Processing Facility.	This EER did not introduce an unreviewed safety question. Adding temporary facilities outside the protected area does not create conditions not addressed in the licensing basis. Consideration with regard to tornado generated missiles, potential fire hazard, American Nuclear Insurers requirements do not pose any safety concerns.
90-FB-020	This EER recommended the addition of a steel shim beneath the threshold of a fire door (A-125) in Unit 2 to reduce the gap between the bottom of the fire-door and the top of the threshold to meet the 3/8 inch maximum allowed gap.	This EER did not introduce an unreviewed safety question. It does not affect the fire rating of the door. It does not adversely affect the ability of Quality Related structures to perform their safety related or important to safety function.
90-SC-066	This EER accepted installation of temporary clamps to fasten the Condensate Demineralizer Action Regeneration Vessel Acid	This EER did not introduce an unreviewed safety question. This change does not affect the function and operation of Condensate

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	Distribution Header to the existing support clips in Unit 3. The existing support clips were damaged by corrosion and the header could no longer be bolted to the support clips.	Cleanup System and Radioactive Waste Management System. The condensate Demineralizer System does not have any safety-related function.
90-GA-022	This EER accepted the replacement of a nitrogen supply header pressure indicator in Unit 2. The existing pressure gauge (Model P602) reported failures due to vibration and pressure surges. The pressure gauge provides at the control cabinet indication of the pressure downstream of the pressure control valve in the nitrogen supply header in the Service Gas System.	This EER did not introduce an unreviewed safety question. The subject pressure gauge is nonsafety-related and the proposed pressure gauge will operate in the same manner. It does not affect the function and operation of the Service Gas System, because it will continue to provide pressure indication as did the original gauge.
90-LR-036	This EER accepted upgrading the Unit 3 liquid radwaste system gland studs and nuts to a more corrosion resistant material.	This EER did not introduce an unreviewed safety question. The valve and its packing gland studs and nuts are nonsafety-related and have no safety function. The liquid radwaste system (LRS) evaporator does not involve or interface with any equipment which is safety-related or important to safety.
89-RK-008	This EER accepted the replacement of a fuse rated for low voltage in an Inverter Assembly with a fuse of a higher voltage rating. This will enable the arc to be quickly extinguished after the fuse has melted and thus prevent the open system circuit voltage from restriking across the open fuse element.	This EER did not introduce an unreviewed safety question. This change is in accordance with the manufacturer's recommendation. It does not change the performance of the inverter or interfacing systems. This change is an enhancement in the system subcomponent of the inverter. It does not impact the function or operation of any safety related-system or equipment.
90-SG-191	This EER accepted the replacement of a defective Dresser Valve Mark No. 345 with a Kerotest Valve Mark No. 345 in Unit 1.	This EER did not introduce an unreviewed safety question. This replacement does not result in exceeding the allowable stress limits for affected piping and supports. The affected piping, components and supports remain fully functional and operational. The replacement valve material and type are the same as the original valve to perform the same functions.

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88-FW-023	This EER provided for installation of Carlode Equalizer seals in place of existing main feedwater pump inboard housing seals in Unit 3. This would resolve the continuing oil leakage problems.	This EER did not introduce an unreviewed safety question. The replacement of this seal does not change the form, fit or function of the existing design. It does not affect the function and operation of the system or component.
90-IA-035	This EER authorized the replacement of a damaged vendor-supplied temperature probe housing on the service/breathing air compressor with one that was fabricated by the PVNGS machine shop as an identical replacement.	This EER did not introduce an unreviewed safety question. The failure mode of the new part has not changed because of the reproduction of the fitting and therefore, the failure of the compressor remains to have no impact on equipment important to safety.
89-QG-002	This EER provided an alternate mounting detail for ground cable supports on all three cooling towers. It would enhance the integrity of the ground cable system.	This EER did not introduce an unreviewed safety question. The ground cable system, including cable supports on cooling tower, are not quality related and not required for safe shutdown. There is no interface with Q class equipment. The change does not alter the operation of QG system and therefore, response and reaction to plant conditions do not change.
90-ED-023	This EER accepted the replacement of the Solenoid Valve operator for equipment Tag No. J-EDN-LY-501 & 502 from model no. WJHK8316C14 to model no. JKB8316GA4, in Unit 3. The Solenoid Valve Operator controls the instrument air signal for the feedwater heater drain tank level controller valves EDN-LC/LV-501 & 502.	This EER did not introduce an unreviewed safety question. The solenoid valve operator will operate in the feedwater extraction steam drains, and vent system in the same manner as before since it is a design equivalent change. The subject valves are nonsafety-related and it does not create any new failure mechanism.
90-CE-012	This EER accepted the replacement of an existing stator cooling annunciator switch (5-1) in Unit 3 with a different switch which is a design equivalent.	This EER did not introduce an unreviewed safety question. In any failure mode, this switch does not affect any equipment important to safety. It is a design equivalent change and therefore, the replacement does not change the form, fit or function of the design.

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90-SC-068	This EER recommended that the Condensate Demineralizer and Condensate Hotwell Sample Coolers be insulated to prevent the coolers from sweating during periods of high humidity.	This EER did not introduce an unreviewed safety question. This change does not affect the function and operation of Condensate Demineralizer and Condensate Hotwell Sampling Systems which have no safety-related function. The form, fit and function of the system is unchanged.
90-HJ-034	This EER accepted temporary installation of duct end caps (blanks). These duct end caps replaced spool pieces in the control building normal air supply duct (outside the control room). The end caps maintain the control room pressure boundary during inspection of fire dampers HJA-M120 and HJA-M122, Units-1 and 3 only.	This EER did not introduce an unreviewed safety question. The integrity of the control room pressure boundary and the seismic qualification of the duct/support system assembly, will be maintained at all times. It has no impact on the accidents evaluated in the UFSAR because it does not adversely affect the ability of quality related structures to perform their Safety Related or Important to Safety Function.
90-SC-007	This EER accepted the decision to repair a circumferential crack on line SCNL003 between the hub/spigot joint and the penetration of the turbine building using "Belzona" Ceramic R in Unit 2.	This EER did not introduce an unreviewed safety question. Line SCNL003 is a gravity drain line leading to the high total dissolved solids (TDS) waste sump and has no safety function and is non-quality related. The condensate polisher waste handling system is not safety-related and has no interface with safety related systems.
90-HD-004	This EER accepted the installment of a shrink fit sleeve to the bearing area on a fan shaft for an Air Handling Unit in the Unit 1 diesel generator building to replace the shaft metal which was inadvertently removed.	This EER did not introduce an unreviewed safety question. The sleeve can withstand the maximum torque that can be generated by the fan motor. Therefore, the sleeve functions as a part of the fan shaft. This change does not affect the function and operation of diesel generator building HVAC system.
90-CH-028	This EER accepted replacement of a brass pipe nipple on the charging pump lube oil system with a 316 stainless steel pipe nipple (Cajon 22-4-HLN-4.00 hex long nipple) in Unit 3.	This EER did not introduce an unreviewed safety question. The Cajon fitting has a working pressure rating of 7500 psig. Since the system operating pressure is less than 50 psig, it will outperform the existing nipple. There are no corrosion or material

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90-HD-003	This EER allowed removal of approximately 1/16" from the diameter of the fan blower shaft at the coupling location for an Air Handling Unit in the Unit 1 diesel generator building HVAC system.	compatibility concerns for this change. This EER did not have an unreviewed safety question. The amount of material removed is insignificant compared to the nominal shaft diameter of 1-15/16". Removal of material does not affect the function and operation of diesel generator building HVAC system.
90-SG-030	This EER modified the existing Steam Generator sample tubing to add seal welds to all the threaded and Swagelok fittings in order to repair the existing steam leaks for Unit 1.	This EER did not introduce an unreviewed safety question. A postulated failure of the sample line is bounded by the accident scenarios currently evaluated in the UFSAR. This modification does not adversely affect the operation of the system and does not prevent them from performing their intended safety function.
90-SC-010	This EER accepted a design equivalent change by authorizing replacement of 1/2" Watts No. B6000 Ball Valves with 1/2" Crane No. 88 Needle Valves. These valves control cooling water to sample coolers for the conductivity analyzers in Unit 3.	This EER did not introduce an unreviewed safety question. The new valves have the same function, form and fit of the originally specified valves.
90-ZY-024	This EER evaluated the installation of trailer 3-7 to the north of Human Resources trailer in the Central Processing Facility area.	This EER did not introduce an unreviewed safety question. This change is an addition of temporary facilities outside the protected area. It does not create conditions not addressed in the licensing basis. Considerations with regard to tornado generated missiles, potential fire hazards, American Nuclear Insurers requirements do not pose any safety concerns.
90-LR-013	This EER accepted the liquid radwaste system hold up pump motor mounting hardware to maintain the motor within the alignment criteria supplied by the coupling vendor in Unit 3.	This EER did not introduce an unreviewed safety question. The equipment is nonsafety-related; it has no safety function; it is not a pressure boundary for radioactive material. The pump has not been taken credit for in any accident analysis described in the UFSAR.

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90-RC-068	This EER accepted leaving the plug top in place, which had separated from the main body in Unit 2, Steam Generator 1 Hot Leg tube plug in Row 78 Line 21. A 17" stabilizer was installed to limit the potential loads of the plug top on the newly installed plug.	This EER did not introduce an unreviewed safety question. The in-depth study performed by Westinghouse (Plug Top Release Dynamic Analysis) concluded that plug top release resulting in a penetration of the tube is not a credible event for PVNGS. The condition with the separated plug top propelling down onto the top of the new hot leg plug and possibly dislodging the new plug does not result in a steam generator tube rupture.
90-ZC-082	This EER accepted the optional installation of a redesigned equalizing valve disk and O-rings in the containment building personnel airlocks.	This EER did not introduce an unreviewed safety question. The O-rings are of the same material and will perform the same design function of the rubber vulcanized to the disk. The design basis form, fit and function of the equalizing valve disk assembly are not affected. The redesign makes only minor dimensional changes and it does not compromise the integrity of the seals.
90-SC-27	This EER accepted the installation of flanges in the Blowdown Heat Exchanger Relief Valve discharge line (281-HBDB-1). The current configuration of the line is of socket weld construction which must be cut and rewelded each time the relief valve is removed for maintenance or calibration.	This EER did not introduce an unreviewed safety question. The affected portions of the Blowdown Heat Exchanger and Blowdown Demineralizer System have no safety-related functions. This change does not involve any quality related structures, systems or components.
90-ZY-042	This EER allowed relocation of trailers 4-398, 4-111, 4-345 and 4-298, from the Unit 1 area to the storage yard located south of the Water Reclamation Facility.	This EER did not introduce an unreviewed safety question. Moving temporary facilities out of the protected area does not create conditions not addressed in the licensing basis. Considerations with regard to tornado generated missiles, potential fire hazards, American Nuclear Insurers requirements do not pose any safety concerns.
90-ZR-009	This EER accepted the replacement of a latchset installed on door R-309 (Class B 1-1/2 hour rated fire door) with a lockset in Unit 3 so that the locking function is placed on the outside of room R-	This EER did not introduce an unreviewed safety question. The door's ability to function as a fire barrier is not impacted by this change. The fire rating of the door is not degraded. The

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318 which would allow egress from within this room without any special key or tool.

lockset installation meets the safety design basis as identified in UFSAR for the Fire Protection System. This change does not change the operation of the door.

90-HA-009

This EER authorized a change to the weld configuration of a drain line in a non-quality related auxiliary building HEPA filter unit, in order to repair the drain line.

This EER did not introduce an unreviewed safety question. The drain lines are connected to the non-quality related air filter units and there is no potential for this repaired line to impact equipment important to safety. It does not affect the licensing basis. This repair will ensure that uncontrolled release of airborne radioactivity is prevented. Similar design materials and same piping diameter will ensure identical form, fit and function as the original piping.

90-CW-035

This EER accepted the replacement of a carbon-fiber fan motor driveshaft with a driveshaft of a different material (Addax "Composite Wound Filament") for the cooling tower fans. This is a design equivalent change for the cooling tower fans.

This EER did not introduce an unreviewed safety question. The form, fit, function and material composition of the ADDAX driveshaft assembly are identical to those of the carbon-fiber driveshaft assembly. This replacement does not alter the operation of the system and so, the response and reaction of the system to plant conditions do not change.

90-HA-022

This EER accepted the replacement of American Air Filter (AAF) Varicell I prefilters in certain Air Filter Units (AFU) with either AAF Varicell II filters or Farr RIGI-FLOW filters.

This EER did not introduce an unreviewed safety question. These AFUs are non-quality related and are not required for safe shutdown or to mitigate any accident. The filters are located inside a closed filter housing on the roof of the Auxiliary Building. Any physical damage to or caused by the new prefilters will be contained within the housing. Therefore, the UFSAR safety analyses remain valid.

90-GA-019

This EER evaluated and accepted the rewiring of the internal wiring of the nitrogen storage and supply pump control panels (1JGANE01 & 3JGANE01) to match the Unit 2 as-built wiring

This EER did not introduce an unreviewed safety question. The change does not affect the original component/system operation and response.



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	condition of the panel.	
89-AS-003	This EER accepted the replacement of the existing valve actuator spring in a Demineralizer Makeup Valve to the Deaerated Feed tank on the Auxiliary Boiler (AJASNLV0111A) with a new stiffer spring in Unit 1. This spring replacement changes the air regulator setpoint and the valve bench set.	This EER did not introduce an unreviewed safety question. This change enables the valve to work properly per its original design. The effect of the Auxiliary Steam System on equipment important to safety does not change.
90-SB-055	This EER accepted changing the Plant Protection System (PPS) power supply mounting screws to a longer length to improve the thread engagement in Unit 1.	This EER did not introduce an unreviewed safety question. This change improves the strength of the PPS power supply mounting to withstand a seismic event. Sufficient clearance exists not to ground the internal components of the power supply although the mounting screws are longer. The longer screws have no impact on the function and operation of PPS.
90-CH-108	This EER accepted replacement of a defective Dresser valve (3 PCHNV076) with a Kerotest valve in Unit 3.	This EER did not introduce an unreviewed safety question. The allowable stress limits per code as required by the UFSAR for affected piping and supports are not exceeded. It does not affect the design, operation or function of CVCS. The type and material of the Kerotest valve meet the requirements of the piping specification, and therefore have the same form, fit and function of the Dresser valve.
90-SG-159	This EER accepted the packing and packing configuration in the Steam Generator 2 Upper Feedwater Control Valve (2JJSGNFV1123) which is different than as specified in the valve vendor's technical manual at Unit 2.	This EER did not introduce an unreviewed safety question. The Garlock packing and configuration has no detrimental effects on the form, fit and/or function of the valve. The failure of this valve would not affect "Loss of Normal Feedwater Flow" and "Feedwater System Pipe Break" accidents analyzed in the UFSAR. This valve is classified Not Quality Related.
88-IA-024	This EER allowed the replacement of petcocks on the bottom of the	This EER did not introduce an unreviewed safety question. The

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	inline filters of the instrument air compressor unloader in Unit 3. It allowed the use of either Imperial-Eastman special service valves, part no. 41-E or 320-E.	Instrument air system is nonsafety-related. No credit is taken for the active function of the system to mitigate an accident. This change results in greater efficiency in performing draining procedures and therefore, enhances the system. This change meets the form, fit and function requirement for a design equivalent change.
90-XI-003	This EER evaluated and accepted the use of Pomona test jacks as an alternative to using jumpers in plant equipment (BOP/NSSS ESFAS) in Unit 2.	This EER did not introduce an unreviewed safety question. This change does not alter any of the input parameters or assumptions made for the analyses of accidents involving any safety system. Further, the post accident plant/operator safety response actions will not be affected by the proposed changes. This adapter installation does not change the function or operation of any safety equipment.
90-ZY-017	This EER accepted the relocation of a trailer (4-242) currently located in front of Unit 2 to the northwest yard area of Unit 1.	This EER did not introduce an unreviewed safety question. The ultimate heat sink (spray pond) annual failure rate acceptance criteria (SRP 2.2.3) have not been exceeded. Considerations with regard to tornado generated missiles, potential fire hazards, American Nuclear Insurers requirements do not pose any safety concerns.
89-SE-021	This EER accepted the replacement of rotary switches having silver contacts used in the Linear and Log calibrate switches of the Excore Safety Channel Drawer with identical rotary switches with special gold plated parts.	This EER did not introduce an unreviewed safety question. The use of gold coating actually establishes a better circuit continuity at the low voltage/low current applications thereby eliminating or reducing the possibility of switch failures causing erratic signal or loss of signal in the excore neutron flux system. This replacement does not degrade the function or operation of the excore neutron flux system.
89-QD-005	This EER recommended that the Design Manual, the System	This EER did not introduce an unreviewed safety question. The

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Description Manual and the UFSAR be modified to reflect that emergency lighting fixtures are typically powered from the essential lighting system in areas designated specifically in the UFSAR, but that some D.C. powered battery packs which are located in remote areas or stairways not provided with essential lighting are powered from the normal lighting system.

90-ZC-038

This EER accepted the drilling and tapping of 1/4" diameter x 1/2" deep holes in the packing glands that seal the handwheel shaft to the personnel hatch in Unit 1 containment. This installation alters the as-built condition of the personnel hatch. Prior to replacing the packing gland into the personnel hatch, set screws are to be installed into the tapped holes, so that the seals have a continuous surface to bear upon.

90-ZF-013

This EER evaluated the installation of temporary shielding to reduce the dose rates to the general area from decontamination work with RCP components in the 100' truck bays of the Unit 3 fuel building during refueling outages.

90-ZC-013

This EER accepted a tolerance deviation for the Upper Guide Structure (UGS) laydown pad placement in high contamination, high radiation and hot particle zone at Unit 1.

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lighting fixtures in question have been powered from the normal rather than essential lighting system. However, since emergency lighting system is provided to these fixtures and the fixtures are not located in the safe shutdown areas or paths, such areas would not remain dark in the event the normal system shuts down and the essential system remains active.

This EER did not introduce an unreviewed safety question. This change will not compromise the integrity of the packing gland and its seals from performing their intended function. It does not change the form, fit or function of the packing gland. The packing gland will still provide a seal between the handwheel shaft and the personnel hatch.

This EER did not introduce an unreviewed safety question. The additional floor loading from the shielding and equipment has been qualified. Transient materials that are needed to support the work have been analyzed for seismic concerns. In order to maintain seismic separation of the shielding and transients, minimum distances have been defined.

This EER did not introduce an unreviewed safety question. This tolerance deviation does not affect the structural configuration of the UGS system since the pads will provide proper UGS support. A CE calculation determined that the out of tolerance condition which can cause eccentric placement of the UGS on the laydown pads, would not result in improper alignment of the CEA spiders on the refueling pool floor where the UGS is stored during refueling operations.

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90-CD-001	This EER accepted the retermination of the power cables at the condensate pump motor no. 3MCDNP01C to conform with the elementary diagram and EE580 circuit schedule in Unit 3.	This EER did not introduce an unreviewed safety question. The change does not affect equipment that is important to safety and it does not alter the control or operation of any Quality Related equipment.
90-NQ-001 & 90-NQ-003	This EER accepted the replacement of a damaged resistor, resistor bank (R2) jumpers, and resistor bank connection cables for the 10KVA inverter with new components in Unit 1.	This EER did not introduce an unreviewed safety question. This change upgrades equipment performance, since new cable and jumpers are rated at higher ambient temperature. It assures proper operation, performance and reliability of the inverter. It does not add to nor affect the operation or function of the existing system.
90-RI-010	This EER accepted the use of a heated junction thermocouple with sensor #1 damaged for the "B" train Reactor Vessel Level Monitoring system (RVLMS) in Unit 1.	This EER did not introduce an unreviewed safety question. With sensor #1 inoperable, the remaining seven sensors are available, which meets the Tech Spec requirement of two operable sensors in both the head and pole room. Train "B" still provides level monitoring and train "A" is unaffected by this change. So, the function of reactor vessel level monitoring system is not impacted. It does not affect the operation of any other system.
89-ZC-108	This EER accepted the removal of the thermolag fire wrap from certain conduits and flexible conduits through which cables are run to a steam supply motor operated valve (MOV) (1J-SGA-UV-134) in Unit 1. This removal of thermolag from Train "A" safe shutdown raceways will allow access to the valve operator for maintenance. The thermolag fire wrap was not required on this train per design documents.	This EER did not introduce an unreviewed safety question. Removal of thermolag fire wrap from only Train "A" safe shutdown related raceways does not affect the FSAR commitments, Appendix R requirements or Reg. Guide 1.75 separation criteria considerations. The FSAR analyses that deal with loss of either the steam supply or one train of the auxiliary feedwater system encompass failure of valve 1J-SGA-UV-134. This change does not alter, modify or impact any safety system or equipment except steam supply valve 1J-SGA-UV-134 and the normal operation of this valve remains unaffected.
90-ZC-045	This EER accepted drilling out and tapping one 1/2" - 13" by 2"	This EER did not introduce an unreviewed safety question. Although



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	deep hole in the flange of the handwheel assembly of the personnel hatch in Unit 1. The existing 5/16" - 18 by 2" deep tapped hole has been stripped during performance of preventive maintenance tasks. The increase in the size of the bolting connection would provide for increased structural values.	the installation makes a change to a component involved in maintaining the containment pressure boundary, the increase in the size of the bolting connection provides improved structural values and does not affect the integrity of the door and seals. It does not impact the function or operation of any system or equipment taken credit for in the accident analyses.
90-FB-018	This EER accepted the addition of a non-combustible "Radiant Energy Shield" to a solenoid valve (1J-CHA-HV-205) in Unit 1 according to 10CFR50 Appendix R and the UFSAR Appendix 9B and Question 9A.130. It accomplishes separation of redundant equipment or separation of alternate paths required to perform a safety function when equipment is not totally redundant.	This EER did not introduce an unreviewed safety question. This modification has been performed in accordance with current plant installation and inspection procedure. The radiant energy shield protects redundant safe shutdown equipment (valve 1J-CHA-205) during modes 1, 2, 3 and 4.
90-SP-019	This EER accepted a change of valve stem key material from carbon steel to ASTM A564GR630 or ASME SA564GR630. These keys connect the spray pond valve upper stem to the torque tube pipe for all valves (2 per unit).	This EER did not introduce an unreviewed safety question. The replacement material (564GR630) is corrosion resistant, to prevent the valve from sticking. This is a design equivalent change which does not affect the function or operation of any system or equipment. It complies with the combined water inventory provisions of the UFSAR.
90-ZC-050	This EER recommended machining the shaft and spur gear keyseats to receive a 5/16" key in lieu of reworking or replacing items machined for a 1/4" key, for the Unit 1 containment personnel air lock operator.	This EER did not introduce an unreviewed safety question. Because of the increased key size, there is a minor material reduction in the keyseat of approximately 1/32" on all three sides of the shaft keyseat and the spur gear keyseat. It does not affect the form, fit or function of the Personnel Air Lock. This change does not compromise the integrity of the shaft or spur gear.
90-ZY-027	This EER evaluated the relocation of trailer 4-380 from the storage yard to an area north of Unit 2.	This EER did not introduce an unreviewed safety question. This change is an addition of temporary facilities outside the protected area. It does not create conditions not addressed in the licensing

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86-XM-046	<p>This EER evaluated and accepted the changes to ensure that safety-related systems with excess flow check valves installed as isolation devices between Q-class piping and non-Q instrumentation loops will be capable of performing their design function in the event of a postulated failure in the non-Q pressure boundary. These excess flow check valves are purchased "Q" and qualified to Seismic Category I. The design of these valves includes an inherent leak rate through the reseating orifice. These changes ensure that leakage would not impact system operation. Such systems are Auxiliary Feedwater (AFW) system, Chemical Volume and Control System (CVCS), Condensate Storage and Transfer System (CTS), Diesel Fuel Oil (DF) System, Diesel Generator (DG) System, Essential Chilled Water (EC) System, Essential Cooling Water (EW) System, Safety Injection (SI) System and Essential Spray Pond (SP) System.</p>	<p>basis. Considerations with regard to tornado generated missiles, potential fire hazards, American Nuclear Insurers requirements, do not pose any safety concerns.</p> <p>This EER did not introduce an unreviewed safety question. In the cases where the associated block valve has been changed from open to closed, the probability of the system degradation due to an instrument line break is eliminated. In the cases where the block valves remain open but extra procedures are instituted for valve isolation following an SSE, the probability of system degradation due to an instrument line break has been found to be the same or less than under the existing conditions. For the CVCS which contains radioactive materials, it has been demonstrated that the total leakage from charging system excess flow check valves for 60 minutes does not exceed the total leakage from the double-ended guillotine break of the letdown line. The changes ensure that the "Q" portions of these systems will be isolated from the non-Q portions of these systems to the extent necessary to assure that a line break in the "non-Q" portion will not adversely affect the design functions of the systems. The changes provide a margin of safety to the design basis by closing the block valves or instituting operator action.</p>
89-AF-053	<p>This EER accepted the replacement of some 316 stainless steel stems of AFW system valves with 410 stainless steel stems in Unit 2.</p>	<p>This EER did not introduce an unreviewed safety question. All trains of AFW will remain operable. The AFW system reliability is not reduced below that credited in Appendix 10B of the UFSAR. The consequences of accidents such as, overfilling steam generators and potential for positive addition of reactivity as a result of the valve not seating due to a bent stem, will not be increased. This change reduces the chance of a bent stem and does not affect the function and operation of the valves. The form, fit and function</p>

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		of the valve stems remain the same.
90-ZY-033	This EER accepted the installment of a galvanized steel cover on the seismic gap located on the 100' elevation of the yard area between the north side of the equipment hatch and the auxiliary building concrete missile door in Unit 1.	This EER did not introduce an unreviewed safety question. The installation helps maintain the negative pressure in the auxiliary building by reducing the air flow into the auxiliary building. It does not affect the form, fit or function of the original design.
90-RC-032 & 90-RC-026	This EER accepted the replacement of a Corner and Lada load pin by a Grinnell tapered load stud for a pipe support.	This EER did not introduce an unreviewed safety question. The new sway strut component has higher load capacity than that of the replaced component. The purpose of this change to the subject pipe support is to ensure that the reactor coolant system will perform its intended function per the safety design basis described in Section 5.0 of the UFSAR.
90-DG-001	This EER accepted the existing lube oil routing to the diesel generator turbocharger although it does not agree with the vendor drawings and vendor applied seismic analysis.	This EER did not introduce an unreviewed safety question. The existing routing meets the project criteria for seismic category I components and all project seismic stress requirements. It also meets the PVNGS criteria for seismic response requirements. This condition does not affect the function and operation of the emergency diesels in any manner.
89-SQ-061	This EER accepted the operation of the Radiation Monitor sampler in a fixed flow rate mode as opposed to its current mode of isokinetic sampling for radiation monitors RU-141, 143 & 145.	This EER did not introduce an unreviewed safety question. None of the radiation monitors in question have any bearing on accidents analyzed in UFSAR. One of the monitors (RU-145) provides ESF actuation signals upon a High-High alarm (FBEVAS). This change has no effect on the monitor operation. This change permits operation of the monitor in a simpler and more reliable mode.
90-HF-008	This EER allowed the use of replacement differential transmitters that deviate from the original supplied/qualified transmitters. The replacement instruments are exactly the same except that they	This EER did not introduce an unreviewed safety question. The addition of the filters is a design enhancement which reduces the possibility of particulate contamination and insect intrusion into

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	are now supplied with process post filters. The output of the transmitters are to provide indication in the control room during operation of Fuel Handling Building Essential Ventilation System.	Instrument's sensing cell.
90-SB-030	This EER accepted the rework on some stripped panel threads in a plant protection system (PPS) cabinet.	This EER did not introduce an unreviewed safety question. This repair will meet or exceed the original design requirement. It will provide equal strength of the mounting of the bistable control panel in case of a seismic event.
89-RC-294	This EER accepted the division of insulation on the bottom of the pressurizer into smaller pieces for quicker and easier removal.	This EER did not introduce an unreviewed safety question. The change in effectiveness of the insulation and pressurizer heat loss would be insignificant. It does not affect the pressurizer operability while in continuous use. The modified insulation maintains the same form, fit and function as the original design.
90-SG-041	This EER accepted changing the existing limit switch arms on the atmospheric dump valves (ADV's) so that the limit switches would be in contact with the striker plate.	This EER did not introduce an unreviewed safety question. The modification of the ADV limit switch arms does not adversely affect the operation of ADV's and does not prevent them from performing their intended safety function. The postulated failure of ADV's is bounded by the existing worst case scenarios presented in UFSAR accident analyses.
90-CH-024	This EER allowed an optional bolted connection for a support for a Gas Stripper Column Level Control valve in Unit 1.	This EER did not introduce an unreviewed safety question. The valve support optional connection is designed in every respect to be equivalent or exceed the existing support connection design criteria.
90-EW-007	This EER accepted the use of SAE 1018 steel versus SAE 1020 steel for the pump coupling key for the ECW Pumps at Unit 1.	This EER did not introduce an unreviewed safety question. Alternate material does not alter the form, fit or function of the original material. This is a design equivalent change.

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90-CH-018	This EER accepted the replacement of a Purification Ion Exchanger (No. 1MCHND01B) in Unit 1 with a replacement unit supplied from another nuclear plant. It required schedule 40 versus schedule 10 pipe connections to match the unit's nozzles.	This EER did not introduce an unreviewed safety question. The safety-related function of the ion exchanger/piping interface is to maintain reactor coolant pressure boundary. The nozzle interface change from schedule 10 to schedule 40 actually improves and strengthens the pressure boundary capability. Welds proposed for the new nozzle interface are technically consistent with other schedule 40 welds utilized in the letdown subsystem which have been evaluated from a line break perspective. This is a design equivalent change.
90-SB-005	This EER evaluated the use of three screws and alternate screw materials and sizes to restrain the data acquisition system (DAS) modules on the main control board in Unit 3.	This EER did not introduce an unreviewed safety question. This change does not affect the design requirement to restrain the DAS. The threads will not strip and the screws can carry seismic (tensile) loads without failure.
88-HD-004	This EER accepted that for one of the 4 mounting bolts of temperature switch TSA-29 in Unit 2, one thread does not show past the tightened nut.	This EER did not introduce an unreviewed safety question. The temperature switch is for automatic shutdown of the essential exhaust fan after the diesel generator is stopped to maintain the diesel generator design room temperature. The discrepancy does not affect the intended function of the subject switch. Evaluation shows that the mounting bolt will provide the proper strength to maintain its design function.
90-CW-006	This EER accepted the addition of an option to use jam nuts or nylon inserted locknuts to the existing manufacturer's method of securing the fan shroud cylinder bolting for cooling tower #2 in Unit 2.	This EER did not introduce an unreviewed safety question. The addition of the nut would not affect the structural integrity of the connection. The fan shrouds are nonsafety-related and they are not addressed in UFSAR accident analyses.
88-CW-060	This EER accepted the grouting of a lower nut on a fan shroud to prevent the fan shroud access panel to the bolt assembly from turning when the upper nut is being removed.	This EER did not introduce an unreviewed safety question. The grouting does not affect the structural performance of the bolt but it increases safety and efficiency.

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90-SG-034	This EER accepted the relocation of a pipe whip restraint (No. 03-SG-011-H-904) in Unit 3 so that the energy absorption material and the bearing plate center lines align properly.	This EER did not introduce an unreviewed safety question. The pipe whip restraints do not affect function or operation of any safety system of the plant. They are passive during plant normal operation.
90-FP-010	This EER accepted the repair of a broken Faston connector inside a fire protection panel (1JFPNE45) in order to restore the zone/trouble indication in Unit 1.	This EER did not introduce an unreviewed safety question. The repaired connector provides power to an indication (alarm/warning) light; it does not involve control of the panel. The repair does not affect the function or operation of the panel.
90-RI-012	This EER accepted the modified bullet nose of the incore detector in Unit 2. The bullet nose is used to ease entrance of the detector into the guide tube.	This EER did not introduce an unreviewed safety question. This modification does not affect the incore's pressure boundary or the detector's operability. The failure of a single incore does not prevent the system from meeting Tech Spec requirements.
90-ZC-075	This EER accepted the optional installation of redesigned packing glands and O-rings in the Personnel Air Lock handwheel hub assembly.	This EER did not introduce an unreviewed safety question. The materials that these parts are made of are unchanged. The redesign makes only minor dimensional changes. It does not compromise the integrity of the packing gland and seals from performing their intended function. The airtightness of the seal has not been compromised either.
89-CH-102	This EER accepted a modification for the Fisher Type 2625 volume boosters on the valve actuators for the CVCS charging line to the Reactor Coolant Loop 2A Isolation Valves in Unit 2. In addition, the bench set for these valves is being changed from 14-32 psig to 18-36 psig. It also requires that the air regulator setpoint be increased from 40 to 50 psig.	This EER did not introduce an unreviewed safety question. This change assures that the valves will meet their design requirements reliably. These valves are required to open and close within a certain time under all operating conditions. This plant change assures that valve function by implementing a valve bench set that incorporates operating conditions. The spring changeout on the volume boosters increases booster reliability and reduces the possibility of booster damage or wear.

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90-ZY-048	This EER accepted the installation of two (2) temporary craft shacks to be located 135 ft. plant of Trailer D-99 for the additional storage space for Facilities Planning and Design and Telecommunications.	This EER did not introduce an unreviewed safety question. Adding temporary facilities outside the protected area does not create conditions not addressed in the licensing basis. Considerations with regard to tornado generated missiles, potential fire hazard, America Nuclear Insurer's requirements do not pose any safety concerns.
90-ZZ-013	This EER allowed the application of Valspar 76 Series High Build Epoxy with T101 curing agent in lieu of Valspar 46X29 High Build Epoxy under Specification AO-AN-331, MCS2. (Repair of Epoxy Concrete Surfacers and Finish Coat, Outside of Containment) at Unit 1.	This EER did not introduce an unreviewed safety question. Non-Quality Related protective coatings outside of containment are neither considered nor evaluated in the UFSAR.
90-CM-003	This EER accepted the replacement of the existing John Crane Mechanical Seals Type 21 in the Neutralizer Transfer Pumps A&B with John Crane Type 2 Mechanical Seals.	This EER did not introduce an unreviewed safety question. It does not affect the function and/or operation of the equipment and floor drainage system. It does not involve any quality related structures, systems or components. It does not affect the concentration of radioactive material discharged to the Chemical Waste Neutralizer Tanks. It also does not affect the ability to sample and analyze the tank contents prior to their batchwise discharge to the onsite evaporation pond. This is a design equivalent change.
90-SG-101 (supersedes 90-SG-089)	This EER accepted the replacement of the existing unqualified Masonellian pressure regulator in the air/nitrogen supply system for the atmospheric dump valves (ADVs) with a qualified Fisher pressure regulator.	This EER did not introduce an unreviewed safety question. The replacement Fisher pressure regulator has the same form, fit and function as the existing Masonellian pressure regulator. This design equivalent change does not change the operation of the ADVs.
90-ZY-043	This EER accepted the relocation and set up of the Tendon Testing Trailer currently located in Unit 3 to a location 15 ft. south of the Auxiliary Steam line and 80 ft. west of Trailer 4-380 in Unit	This EER did not introduce an unreviewed safety question. Adding temporary facilities inside the protected area does not affect the conditions that have not been addressed in the licensing basis.



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	2.	Considerations with regard to tornado generated missiles, potential fire hazards, American Insurers requirements do not pose any safety concerns.
90-SA-008	This EER accepted the addition of cut-outs for relay covers for certain relays in Unit 2.	This EER did not introduce an unreviewed safety question. The cover modification has no effect on normal relay operation, dependability or human interface methods. The cut-outs decrease the probability of grounding or opening a conductor associated with the subject relays. The train separation within the ESFAS cabinet required by Reg. Guide 1.75 is not violated by putting cut-outs in the lower right edge of the cover.
90-XM-027	This EER accepted the change in the bolting material and torque value for a Borg-Warner valve bolting.	This EER did not introduce an unreviewed safety question. This change does not affect the fit, form or function of the valves. There is no negative impact on system operability and reliability due to this change. The new torque values and bolting material exceed the original design requirements.
89-CD-027	This EER accepted a modification to eliminate the grouting under the base plates for a pipe support (13-CD-056-H-004) and the installation of shim plates instead between the base plates and concrete slab to ensure full contact between the pipe support and concrete surface per design requirements.	This EER did not introduce an unreviewed safety question. The purpose of installing the shim plates to the subject pipe support is to ensure that the Condensate System (CD) will perform its intended function per the safety design basis described in the UFSAR. This change does not alter or modify the function and operation of the CD system as described in the UFSAR.
90-SG-065	This EER allowed a design equivalent change to replace the existing 3" diameter, 900 lbs. rating globe valve with a new globe valve equipped with Limitorque manual operator in Unit 2.	This EER did not introduce an unreviewed safety question. The proposed valve for substituting the old valve has the same C_v and same 900 lbs. pressure rating, and would pass through the same amount of steam flow. The new gear ratio provides faster valve opening and closing when required. The change in weight and size does not impact the existing piping supports or nearby

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90-SI-115	This EER accepted the justification of the use of Controlotron Series 990 ultrasonic flowmeters for Contrologron Series 240 and Series 480 ultrasonic flowmeters in the Chemical Volume Control System (CH) and Safety Injection System (SI).	components/systems. The new valve end-to-end dimension and welding details remain the same. This EER did not introduce an unreviewed safety question. This change does not affect the fit, form or function of the affected systems as described in the UFSAR/CESSAR. The equipment installed does not present a hazard to safety system in a seismic event. The design and operational requirements of the affected systems are not changed. This change improves reliability.
90-HD-001	This EER accepted the replacement of existing Varicel filters with Duracel XL-90 filters on the Diesel Generator Control Equipment Room Essential Air Handling Units as part of the permanent solution to meet the Design Bases dust holding capacity for the filters.	This EER did not introduce an unreviewed safety question. This change does not impact any of the accidents previously evaluated in the UFSAR. The new filters perform their design function to hold the design bases dust load. This change to install filters with design basis dust holding capacity achieves design basis operational reliability.
90-FT-001	This EER allowed resizing of a feedwater pump turbine drain valve MOV O/L Heater to allow the motor to approach, but not exceed, its thermal design limit and preclude nuisance trips at normal load.	This EER did not introduce an unreviewed safety question. The replacement O/L heater has no effect on circuit breaker nor feedwater pump turbine drain valve. This heater protects the feedwater pump turbine drain valve MOV motor from malfunction.
90-RI-005	This EER accepted the use of Nitronic 60 as the material in the construction of replacement ICI retainer nuts.	This EER did not introduce an unreviewed safety question. The fixed Incore Detector nut material is an upgrade over the chrome plated 304 stainless steel. The Fixed Incore Detector System is not used to mitigate any accident scenarios. The replacement material Nitronic 60 has equivalent mechanical properties and is non-galling.
90-SC-018	This EER accepted the use of Belzona Super Metal to fill in steam cuts on the Unit 3 Blowdown Demineralizer Heat Exchanger end	This EER did not introduce an unreviewed safety question. The affected portions of the Condensate Cleanup System have no safety

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	flange.	related function. This change does not impact any quality related structures, systems or components.
90-ZY-028	This EER accepted the installation of trailer #78 currently located in the facility storage yard and its relocation to the north side of trailer 4-99 by the medical facility area.	This EER did not introduce an unreviewed safety question. Adding temporary facilities outside the protected area does not create conditions that have not been addressed in the licensing basis. Considerations with regard to tornado generated missiles, potential fire hazard, American Nuclear Insurers requirements do not pose any safety concerns.
90-IA-002	This EER accepted the installation of a window in the cover of an Oxygen Analyzer NEMA enclosure to prevent erroneous alarms due to radio frequency interference (RFI) while operations takes readings. This change facilitates operations with the monitoring of the Oxygen Analyzer's meter which is not visible unless the NEMA12 cover is open.	This EER did not introduce an unreviewed safety question. The original design requirements of the NEMA12 enclosure to provide suppression of RFI and physical protection of the analyzer from personnel and the environment are maintained. This is a Design Equivalent Change which does not impact plant operations, in-service procedures or "As-Built" drawings. This change reduces unnecessary maintenance caused by the erroneous alarms.
90-SG-057	This EER accepted the replacement of originally supplied vendor Copper Tubing with 316 Stainless Steel for the supply and signal air of the Atmospheric Dump Valves (ADV's).	This EER did not introduce an unreviewed safety question. The replacement of Copper Tubing with Stainless Steel Tubing enhances the design and operability of the ADV. The Stainless Steel is stronger material and it has a larger wall thickness that reduces the possibility of breakage or leakage that occurred with Copper Tubing. The change of material does not change the form, fit and function of the ADV's.
90-NB-005	This EER accepted the fact that one bus duct filter breather blocked by fire stop foam due to fire penetration seal installation would not reduce its bus conductor characteristic or its enclosure as per the specification requirement in Unit 2.	This EER did not introduce an unreviewed safety question. This charge does not add a new system and the operation of the existing systems does not get altered. This change does not affect any electrical system. The bus duct filter breather/enclosure and its conductor installation and function are within the original

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<u>EER Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
90-ZC-056	This EER allowed leaving the scaffolding, Herculite, loose reflectorized metallic insulation and a Kelly Klosure test shack to support RCS flow measurement during operational modes 3 and 4 in Unit 1. These materials are normally excluded inside containment during modes 1 through 4.	specification. This EER did not introduce an unreviewed safety question. The scaffolding has been verified to be in accordance with Seismic Category IX requirements. The handrails have been tied down and will not impact any safety related equipment. The insulation material has been evaluated and found acceptable. The seismic concerns of the test shack have been evaluated using probabilistic risk assessment techniques. The additional aluminum mass has been addressed by comparing the actual to the allowable amount stored inside containment. The impact of the washdown of Herculite inside containment affecting sump performance during a LOCA has been evaluated and accepted because this material will be restricted by sleeving in the test shack. The installed hydrogen control equipment will maintain hydrogen within UFSAR 62.5 limits.
90-ZC-055	This EER accepted the machining of two new keyseats 180 degrees from the existing keyseats in lieu of repairing a shaft of the Personnel Air Lock in Unit 1.	This EER did not introduce an unreviewed safety question. The change to the shaft does not prevent the individual components or the Personnel Air Lock from performing its intended function. The integrity of the Personnel Air Lock has not been reduced.
90-ZY-036	This EER accepted relocation of trailer 26, trailer 4-384 and the craft shack within the protected area.	This EER did not introduce an unreviewed safety question. Moving temporary facilities within the protected area did not create conditions that have not been addressed in the licensing basis. Considerations with regard to tornado generated missiles, ANI requirements and exposure protection do not pose any safety concerns.
90-SA-009	This EER allowed a 5/16 - 18 x 1/2" screw to be used in lieu of the original 1/4 - 20 x 1/2" screw to secure ESFAS Relay K111 in Unit 2.	This EER did not introduce an unreviewed safety question. This change does not affect the ability of the cabinet to perform the required safety function. This design equivalent change makes the



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		attachment method meet or exceed the capabilities of the original mounting screw and method.
90-HC-008	This EER accepted the replacement of a 1/2" ANSI 1010 stud with a 1/2" A307 Bolt on the CEDM normal Air Handling Unit fan mounting plates.	This EER did not introduce an unreviewed safety question. CEDM cooling is not postulated to initiate or contribute to any accident scenario already analyzed. It is not required to mitigate any accident consequences. It retains the existing Seismic Category IX construction.
90-SS-009	This EER accepted a Kerotest Valve as a suitable replacement for a Dresser Hancock Valve.	This EER did not introduce an unreviewed safety question. This is a design equivalent change. It does not change the form, fit and function of the original valve.
90-ED-012	This EER accepted the use of an Atlantic Colt steam leak repair for an upper isolation valve in the feedwater heater extraction system in Unit 3.	This EER did not introduce an unreviewed safety question. Increase in feedwater flow and loss of normal feedwater flow accident scenarios bound the worst possible accident type for this valve.
90-ED-014	This EER accepted the relocation of a craft shack (4-333) currently located in storage yard to the south side of the existing craft trailer 4-118 in Unit 2.	This EER did not introduce an unreviewed safety question. The ultimate heat sink (spray pond) annual failure rate acceptance criteria (SRP 2.2.3) have not been exceeded. Considerations with regard to tornado generated missiles, fire protection and ANI requirements do not pose any safety concerns.
90-ED-013 & 90-ED-014	This EER accepted the welding of two lugs to the feedwater heater extraction steam bleeder trip valve discs in Unit 2 and Unit 3.	This EER did not introduce an unreviewed safety question. Eliminating disc rotation reduces likelihood of valve malfunction. This change does not increase the likelihood of turbine overspeed.
90-CH-036	This EER allowed the use of a replacement bearing in the RMWPs which has a slightly difference race configuration and the cage is heat hardened.	This EER did not introduce an unreviewed safety question. The change of bearing type on the Reactor Makeup Water Pumps (RMWPs) is immaterial to safety. The RMWPs are nonsafety-related and are not used for safe shutdown of the plant.

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90-SC-012	This EER accepted the replacement of the existing flow elements for the feedwater demineralizer in Units 1 and 2 with the acceptable replacement flow element.	This EER did not introduce an unreviewed safety question. The model DFF-25 flow element annubar is an acceptable replacement for the model 758-316S annubars. They are not safety related. This change does not alter the fit, form or function of the system.
89-RD-013	This EER accepted the replacement of the Hypalon bearings with Bronze Graphalloy bearings in radioactive waste drain system sump pumps in Unit 1.	This EER did not introduce an unreviewed safety question. The Hypalon bearings when exposed to Petroleum products have a tendency to swell and bind the pump shafts. This change does not alter the fit, form or function of the system.
90-SI-003	This EER accepted a change in the bonnet bolting material from ASTM A540 Grade B23 to either ASME SB637, Grade 718, or SA564, Grade 630 in Unit 2.	This EER did not introduce an unreviewed safety question. Two substitute bolting materials meet the design strength requirements for ASME Section III, Class 1, 2, or 3 valves. The corrosion resistance of the replacement bolting is superior to the original bolting material. The proposed substitution materials decrease the probability of potential failure modes for the valve and loss of operability or pressure retaining function as evaluated in the UFSAR.
90-CH-049	This EER accepted the replacement of a plastic air hose on the Gas Stripper Column Level Control Valve with one made of a rubber core and braided copper shield in Unit 3.	This EER did not introduce an unreviewed safety question. The braided shield type hose is much stronger and much less prone to failure than the plastic tubing. This change does not alter the fit, form or function of the valve.
90-CW-020	This EER accepted the replacement of the oil filled clutch type device for the cooling tower fan motor backstop with a mechanical backstop manufactured by Zurn Industries.	This EER did not introduce an unresolved safety question. This installation is a direct replacement and it will not affect the design, function or operation of the component or system. Therefore, the response and reaction of the system to plant conditions will not change. The Cooling Water (CW) system has no safety design basis and is not required for the safe shutdown of the plant.

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90-CW-012

This EER accepted the replacement of the eight blade fiberglass reinforced plastic (FRP) assembly with a ten blade FRP fan assembly which would fit the original gear reducer shaft.

This EER did not introduce an unreviewed safety question. The new fan assembly dimensions and weight are within the criteria and design specifications of the original fan assembly. This replacement does not alter the operation of the system. Therefore, the response and the reaction of the system to plant conditions do not change. The CW system will perform as per original specifications and evaluations.

90-RC-071

This EER accepted the replacement of the surge capacitors on the Unit 2 RCP motors (Westinghouse Part #s 633A918A02 and 634A169A02, which are currently unavailable) with Westinghouse Part #634A269A02.

This EER did not introduce an unreviewed safety question. This change replaces parts only and does not change the electrical function of the equipment which is to provide surge voltage protection to the motor during operating modes. In the unlikely event of capacitor failure, the voltage/current relaying equipment will create a breaker trip, resulting in a reactor trip which is within the design basis of UFSAR. This replacement is identical in form, fit and function of the original component.

90-FW-001

This EER allowed the use of the model L40 Series valves as acceptable replacements for the Model LCT-30, LCT-20 and LCT-40 Series valves in Unit 3. These are pressure relief valves for feedwater heater 5A and 5B.

This EER did not introduce an unreviewed safety question. The L40 Series valves operate in the feedwater system the same as the LCT-20, LCT-30 and LCT-40 Series valves. This replacement does not affect the function or operation of the feedwater system.

90-FP-024

This EER accepted minor changes in drain line orientation to correct an interference and potential leak hazard

This EER did not introduce an unreviewed safety question. This change only rotates the existing drain line off the fire protection header to containment. This action does not affect the ability of quality related structures, components or systems from performing their safety related function. The modified line is equal in quality to the existing line and does not affect system or plant operation.

90-ZY-010

This EER accepted the relocation of Trailer 4-237 from the storage

This EER did not introduce an unreviewed safety question.

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	yard to an area north of the Unit 1 Turbine Building.	Relocation of temporary facilities into the protected area does not create conditions that have not been addressed in the licensing basis. Considerations with regard to tornado generated missiles and ANI requirements do not pose any safety concerns.
90-ZY-011	This EER accepted the relocation of equipment trailers to Zone 112E which is more than 800 ft. but less than 1200 ft. from the Unit 1 spray ponds.	This EER did not introduce an unreviewed safety question. The ultimate heat sink (spray pond) annual failure rate acceptance criteria (SRP 2.2.3) have not been exceeded. Consideration with regard to tornado generated missiles do not pose any safety concerns.
89-ZA-056	This EER accepted Valspar 84 series epoxy as an alternate to Valspar 89 series epoxy in the Unit 1 Auxiliary Building because it provides a higher decontamination factor.	This EER did not introduce an unreviewed safety question. The Auxiliary Building coatings are Non-Quality Related and therefore, the coatings are not specified in UFSAR. The surface preparation and application remain the same. The alternate coating complies with Regulatory Guide 1.52, to prevent degradation of the charcoal filters in the Auxiliary Building.
89-WC-011	This EER accepted the replacement of the originally specified switch modules for the High Bearing Oil Temperature and High Refrigerant Discharge temperature trips on normal water chillers due to unavailability of the model currently used in Unit 1. The current manufacturer's replacement part for the MP11-1028 is model number 3412-002.	This EER did not introduce an unreviewed safety question. No credit has been taken for the operation of normal chilled water system in UFSAR analysis. Loss of normal chiller operation does not affect the operation of any equipment important to safety.
90-ZR-001	This EER accepted the addition of safety engineered hoist rings to the underside of the radwaste building roof hatch plugs for rigging evaporator vapor body flange assembly.	This EER did not introduce an unreviewed safety question. Hoist rings are used for maintenance work on evaporator vapor body when it is inoperable. This change does not affect the function or operation of the system.
89-FP-111	This EER accepted increasing the door to frame gap (top and hinge	This EER did not introduce an unreviewed safety question. An

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	side only) allowance for quality control acceptance criteria for inspection of existing doors in the units.	additional fire test performed demonstrates that the deviation on door to frame gap does not change the ability of the fire door to perform its intended function described in the UFSAR.
89-CH-006	This EER accepted the replacement of plastic flexible conduit fittings with steel fittings for the nonquality-related cooling tower motor raceways in Unit 2.	This EER did not introduce an unreviewed safety question. This change strengthens the conduit connection improving the reliability of the cooling tower raceway system. It replaces only non-quality related conduit fittings.
89-SG-110 & 89-SG-329	This EER allowed the revision to the Atmospheric Dump Valve (ADV) and Steam Bypass Valve calibration.	This EER did not introduce an unreviewed safety question. The revision to calibration for the subject valves does not affect the operability of the systems. It will result in valve operation consistent with vendor design requirements.
90-ZY-007	This EER accepted the relocation of trailers into or from Unit 2 to support Unit 2 outage.	This EER did not introduce an unreviewed safety question. The ultimate heat sink (spray pond) annual failure rate acceptance criteria (SRP 2.2.3) have not been exceeded. Considerations with regard to tornado generated missiles, potential fire hazard, ANI requirements do not pose any safety concerns.
90-ED-001	This EER accepted the Furmanite repair of a steam leak on heater 7A level controller flange of Unit 2.	This EER did not introduce an unreviewed safety question. The Furmanite process has no impact on Important to Safety equipment. The UFSAR analysis for loss of normal feedwater accident bounds the worst case accident type for the loss of feedwater heater 7A.
90-SG-006	This EER allowed a valve bonnet flange leak to be repaired by using "Furmanite" injection method for a steam isolation valve in Unit 2. This injection method fills the void between the two flange surfaces.	This EER did not introduce an unreviewed safety question. A postulated failure of the main steam lines is bounded by the accident scenarios that are currently evaluated in the UFSAR. The repair method does not change the form, fit or function of the valve.

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89-ZY-063	This EER accepted relocation of three trailers from the area south of Unit 3 Transformer A to the area south of the Unit 3 spray ponds.	This EER did not introduce an unreviewed safety question. Moving temporary facilities within the protected area does not create conditions that have not been addressed in the licensing basis. Considerations with regard to tornado generated missiles and ANI requirements do not pose any safety concerns.
89-CH-152	This EER accepted the permanent installation of 30 lbs. of lead shielding at three locations of line N-054-HCDA-1" and at one location of line N-052-HCDA-1".	This EER did not introduce an unreviewed safety question. The allowable stress limits for the affected piping and its pipe supports are not exceeded per the relevant conditions of the UFSAR. Therefore, no accident probability, nor accident consequences nor malfunctions of equipment important to safety will be increased. The lead shielding is securely fastened to the piping so that it does not become a potential missile against other Q-systems or field personnel.
90-PV-001	This EER accepted an increase in the maximum allowed closure time for the Nuclear Cooling Water System containment isolation valves (NCB-UV-401, 402 and 403) from 10 seconds to 12 seconds.	This EER did not introduce an unreviewed safety question. The assumptions used in accident analyses in the UFSAR and results of the analyses are unaffected by the change in the valve closure time. It does not increase the probability of safety-related equipment failure. Additionally, an increased closure time does not degrade the ability to isolate NCWS lines. It does not increase the consequences of a single failure.
90-FB-051	This EER accepted the change to Sargent Model 8G71 BC lockset specified for door J-319.	This EER did not introduce an unreviewed safety question. The function of the bullet-proof fire doors remains unaffected by the lockset change. They are not taken into account in the accident scenarios in the UFSAR. This change does not affect form, fit or function of the component.
89-NC-006	This EER authorized replacing the nuclear cooling low-flow instrument electronic circuit board with a newer revision of the	This EER did not introduce an unreviewed safety question. This replacement does not adversely affect the ability of Quality

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	circuit board from the same vendor.	Related structures, components and systems to perform their safety-related or important to safety functions. This is a design equivalent change, with no change from the form, fit or function of the original circuit board.
90-RC-128	This EER accepted the removal of the stem extension of a Controlled Seal Bleed-off Valve (RCV-433) and installation of a roll pin through the valve stem and stem nut connection in Unit 2. This allows the valve to perform its design function of opening and closing per remote manual operation from the control room to isolate or restore RCP controlled seal bleed-off (CBO) as desired.	This EER did not introduce an unreviewed safety question. This repair does not adversely affect the form, fit or function of the valve.
90-CD-023	This EER accepted the temporary repair of 4C feedwater heater vent valve by injecting leak sealant into the vent pipe in Unit 1.	This EER did not introduce an unreviewed safety question. The leak seal injection of the vent valve does not affect operation or response of the condensate system. The interface between the condensate system and other systems is not affected.
90-FP-039	This EER accepted an increase in the setpoint for the Carbon Dioxide (CO ₂) refrigeration compressor discharge pressure high pressure cutout switch from 175 psig to 210 psig in Unit 2.	This EER did not introduce an unreviewed safety question. The possible failure modes of the CO ₂ system caused by changing the setpoint will heat up CO ₂ , thus increasing the pressure. The relief valve will then open, causing loss of CO ₂ . The current Fire Protection Program provides for monitoring of CO ₂ level, replacement of lost CO ₂ and required actions. The possible loss of CO ₂ was accounted for in the original analyses. The high pressure cutout does not stop compressor as frequently during hot weather which allows compressor to cool the CO ₂ and maintain pressure in the CO ₂ tank within the desired range.
90-EC-015	This EER accepted the use of a replacement temperature switch for the monitoring of Essential Chiller high temperature in Unit 1.	This EER did not introduce an unreviewed safety question. Failure or malfunction of this temperature switch is not postulated to initiate an accident event. The new switch meets the Essential

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90-CM-011	This EER accepted repairing the damage to the west wall of the Unit 3 Condensate Demineralizer HI-TDS sump liner plate caused by a leaking inlet pipe. A patch plate of the same material and thickness is installed to cover the damaged area of the sump.	Chillers' safety design basis as stated in the UFSAR. This EER did not introduce an unreviewed safety question. The addition of the plate represents a change in sump configuration but it does not affect the equipment and floor drainage system operation. The patch plate serves as an equivalent replacement to the damaged area of the original liner. This action has no adverse effect upon the performance of any of the quality related structures, systems or components.
90-FP-045	This EER accepted the replacement of an existing Stockham Valve in the fire protection system with a Crane valve.	This EER did not introduce an unreviewed safety question. The replacement valve has been evaluated to be equivalent or better than the original valve. Quality control receipt and inspection in conjunction with post-installation testing assures that the new valve is acceptable for QAC use.
90-ZY-063	This EER accepted the relocation of trailers B-39, B-40, B-41, B-44 and "Snack" craft shack from the area near Unit 3 to the storage yard located south of the Water Reclamation Facility.	This EER did not introduce an unreviewed safety question. Moving temporary facilities out of the protected area does not create any conditions that have not been addressed in the licensing basis. Considerations with regard to tornado generated missiles and ANI requirements do not pose any safety concerns.
90-EC-006	This EER accepted the replacement of the essential chilled circulating pump oil drain plug with a flush bushing and a hex head plug in Unit 3.	This EER did not introduce an unreviewed safety question. Failure of the drain plug causes the chilled water pump to fail. This failure has been evaluated in the UFSAR. The flush bushing and hex head plug conform to ANSI B16.11 to preclude a failure that could lead to an accident.
90-XE-010	This EER accepted the installment of a new cable/raceway in Unit 3 to correct a damaged cable. It also recommended that a spared cable be pulled back to a J-box and that raceway 3E2T2KNRX37 be	This EER did not introduce an unreviewed safety question. This change only pulls or spared, non-Q cable back into the J-box and removes a spare raceway. It does not physically or procedurally

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	removed from the plant.	affect the operation of any PVNGS system. The new cable and raceway does the same function as the spared cable and raceway.
90-CW-025	This EER accepted the change in documentation from type "E" to type "K" thermocouples to facilitate unit operations in monitoring of bearing condition remotely with existing instrumentation in Unit 2.	This EER did not introduce an unreviewed safety question. The change maintains continuous operating status of circ. water upper bearing assembly per design from the control room. It does not alter the operating parameters of motor 2MCWNP01B which is to provide cooling to the condenser.
89-SI-324	This EER accepted the replacement of two existing circuit boards with two new circuit boards which have a signal damping feature to Safety Injection System flow transmitters. It also accepted removal of existing snubbers and modification of tubing to improve venting.	This EER did not introduce an unreviewed safety question. This change does not affect the safety function of the flow transmitters. The new mounting and tubing installation is an approved Q Class arrangement. It does not have any effect on the accident analyses of the UFSAR.
88-CO-003	This EER recommended revising piping supports to prevent hanger failure and excessive pipe stresses due to the Main Turbine Control Valve thermal displacements in Units 2 and 3.	This EER did not introduce an unreviewed safety question. This change prevents further failure and possible pipe overstress related to the lines that supply/drain hydraulic fluid to the Main Turbine Control Valves. It does not affect the function and operation of any PVNGS system.
90-CH-015	This EER accepted the installation of a plug on the vent and drain port of the Reactor Makeup Water Pump's mechanical seal housing in Unit 2. Present configuration does not allow the throttle bushing to prevent excessive leakage as designed.	This EER did not introduce an unreviewed safety question. The only postulated accident associated with the RMWPs is inadvertent boration. This change has no bearing on that accident scenario. In the event of a mechanical seal failure it decreases the consequences of a malfunction since it allows throttle busing to restrict leakage and not all leakage to bypass the throttle bushing by running out the vent and drain pool.
90-ED-004	This EER accepted the Furmanite repair of steam leak on heater drain tank "B" in Unit 3.	This EER did not introduce an unreviewed safety question. The Furmanite process has no impact on Important-to-Safety equipment.

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90-ED-003	This EER accepted the Furmanite repair of a body to bonnet steam leak on the high pressure turbine to condensor "A" check valve in Unit 3.	The UFSAR analysis for "Decrease in Feedwater Temperature" bounds the worst case accident that the loss of drain flow could cause. This EER did not introduce an unreviewed safety question. The Furmanite process has no impact on Important-to-Safety equipment. The UFSAR analysis for "Decrease in Feedwater Temperature" bounds the worst case accident that the loss of extraction steam could cause..
90-ED-005	This EER accepted the Furmanite repair of a hinge pin cover steam leak on the feedwater heater 6A extraction steam line bleeder trip valve in Unit 3.	This EER did not introduce an unreviewed safety question. The Furmanite process has no impact on Important-to-Safety equipment. The UFSAR analysis for "Decrease in Feedwater Temperature" bounds the worst case accident that the loss of extraction steam could cause.
89-FP-160	This EER provided additional details for U-channel installation which may be used for repair or rework of Presidential "W" series fire doors manufactured by Fenestra Corporation.	This EER did not introduce an unreviewed safety question. This action has no bearing on systems used to safely operate the plant. The modified fire door meets the 3 hour fire barrier rating criterion. It does not involve any equipment or system design parameters or configurations not previously evaluated.

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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
3126R1	This change to Sections 9.5.1, 9A, 9B.1 and 9B.3 added the specific version (1976) of ASTM E119 and E84, and replaced ASTM E152 with UL555-79, because PVNGS as licensed was built to these standards.	This change did not introduce an unreviewed safety question. The design, ratings and testing of the fire barriers have not changed, but the UFSAR was clarified to identify the specific versions of the standards that the reviewed and accepted design was built to.
3141R1	This change to Section 11.4.2.5 revised the description of the dose rates at the Dry Active Waste Processing (DAWPS) Facility to reflect the conclusions of the 50.59 for DCP AOA-SR-086, Installation of the DAWPS Facility.	This change did not introduce an unreviewed safety question. The DAWPS does not interfere or affect the operation of any safety-related system since the DAWPS is an independent structure, remotely located, with no interaction with safety-related equipment or systems necessary for safe shutdown.
3142	This change to Section 1.8, concerning the applicability of Regulatory Guide 1.52 response, added a clarification that the drain lines for the fuel building and auxiliary building air filtration units, and the control building air handling units are designated as Quality Class "R" and seismic category IX.	This change did not introduce an unreviewed safety question. Engineering calculations demonstrated that the drain lines will be able to meet their structural integrity during and after a SSE, thereby providing seismic equivalency.
3143	This change to Section 8.3.1.1.4 reflected the addition of manual emergency start pushbuttons at the local control panels of train A diesel generators, via DCP-1,2,3 OE-DG-059.	This change did not introduce an unreviewed safety question. This change does not affect the function or operation of the diesel generators during the emergency mode, but it improves the availability of the diesel generators by providing the capability to determine operability under simulated emergency conditions.
3144	Editorial change to Section 8.3.1.1.4.10.D clarifying the description of the DG <u>fuel</u> system trouble alarm. The word "fuel" was added to eliminate a source of confusion.	N/A
3145	This change to Section 2.5 reflected the addition of 5 settlement markers to the 37 originally planned in each power block.	This change did not introduce an unreviewed safety question. The addition of settlement markers do not affect any active or passive safety-related functions, but only provide for measurement of settlement.

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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
3146	This change to Section 9.5.4.2.3 corrected the description of the diesel generator fuel oil day tank from providing 2.5 hours of operation to 1.9 to 2.7 hours at the low and high levels, respectively.	This change did not introduce an unreviewed safety question. Technical specifications require a minimum day tank level of 2.75 feet (550 gallons). The low level setpoint is 3.33 feet (726 gallons) which is well above this level. Further, the ANSI N195 requirement for a 60 minute run time plus 10% is far exceeded by both the Tech Spec limit and the low level setpoint.
3147	This change to Section 9.5.5.2 replaces a specific temperature range for the diesel generator water jacket while shutdown with the requirement to maintain the water jacket temperature within the manufacturer's recommendation.	This change did not introduce an unreviewed safety question. The reliability and availability of the diesel generators will be increased because this change will allow (and require) the manufacturers recommended shutdown temperature be maintained.
3149R2	This change to Tables 8.3-1 and 8.3-2 updates the lists of class 1E loads to reflect the most current design basis.	This change did not introduce an unreviewed safety question. The diesel generators remain within design load limits.
3151	This change to Table 3.2-1 added a footnote to diesel fuel day tanks, diesel generator cooling water system and diesel generator starting system, stating that certain valves within these subsystems are not ASME Section III, however engineering evaluation determined their acceptability and use.	This change did not introduce an unreviewed safety question. The subject valves were determined to be acceptable for continued operation and that they would function as required during accident conditions.
3152	This change to Section 10.3.5.3 removes an incorrect reference to CESSAR Section 10.3.4.3.	This change did not introduce an unreviewed safety question. Section 10.3.4.3, concerning iodine partitioning, was removed from CESSAR prior to NRC review of the PVNGS FSAR and therefore not part of the plant license basis. Section 11.1.8 of the UFSAR is referenced.
3154	Editorial change to Sections 3.11.1 and 3.11.2 removing references to Appendix 3E. This appendix was deleted in SAR change no. 2315 dated 9/6/87, and the 50.59 evaluation was summarized in the annual 50.59 report to NRC dated 6/27/88.	N/A

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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
3155	This change to Figure 2.1-1 added an exit to I-10 at Wintersburg Road and showed a railroad spur into the site.	This change did not introduce an unreviewed safety question. The changes are outside the site boundary and do not affect any site structures, systems, or components.
3156	This change to Sections 9.5 and 14B clarified that the battery powered emergency lights that are located in areas not provided with essential lighting are automatically energized upon loss of normal lighting.	This change did not introduce an unreviewed safety question. The battery powered emergency lights will provide light upon loss of normal lighting in areas that are not provided by essential lighting. This will ensure safer operations, because those areas would otherwise be dark upon loss of normal lighting.
3157	This change to Table 8.3-6 reflects new load data for DC loads using updated vendor information.	This change did not introduce an unreviewed safety question. The new load values show a greater margin in capacity of class 1E batteries to meet plant demands.
3158	This change to Section 11.5.2.1.1.3.2 clarifies the description of the radiation monitoring system accuracy to include calibration uncertainty and deadtime correction error, and to delete the reference to a specified dose rate range (5 decades) for $\pm 20\%$ accuracy.	This change did not introduce an unreviewed safety question. The change in the required accuracy in the highest decade is well above the actuation setpoints of the monitors. UFSAR 13.5.2.2C and Tech Spec 6.8.1 are not affected by this change.
3159	Editorial change to Sections 6.5.2.8.A and 18.II.F.1.5 correcting the containment water level wide range instrumentation to 12 foot range, to ensure consistency within the License Bases.	N/A
3160	Editorial change to various sections removing references to Appendix 3E. This appendix was deleted in SAR change no. 2315 dated 9/6/87, and the 50.59 evaluation was summarized in the annual 50.59 report to NRC dated 6/27/88.	N/A
3161	Editorial change to Section 17.2.11 clarifying that each plant manager is responsible for the overall conduct of testing in the	N/A

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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
	respective unit.	
3162	This change to Section 9.2.5.2 corrects the descriptions of the piping systems that extend into the essential spray ponds, and clarifies that non-seismic systems cannot inadvertently drain the ponds below the minimum usable water depth.	This change did not introduce an unreviewed safety question. Technical Specification 3/4.7.5 specifies the minimum usable spray pond water depth of 12 feet, which continues to be observed. The functional capabilities of the essential spray ponds are not being reduced from those specified in Tech Specs and used for accident analysis.
3163	Editorial change clarifying the commitment to Regulatory Guide 1.97, Rev. 1, and IEEE 450-1980 as provided in Technical Specifications.	N/A
3164	This change to Table 9B.3-1 adds an exception to BTP APCSB9.5-1 allowing wood furniture to be used in safety-related areas where it is included in the fire hazard analysis.	This change did not introduce an unreviewed safety question. Adequate protection of safe shutdown equipment or alternate shutdown capability exists in all areas covered by this change.
3165	This change to Section 6.5.2.2 replaces valves IR-128 and 148 with IR-985 and 984, in order to facilitate pressure/flow stabilization without lifting the containment spray chemical storage tank relief valves.	This change did not introduce an unreviewed safety question. The replacement valves are of the same quality and seismic classification as the original valves, and have been determined by engineering evaluation to be acceptable for use in this application. The valves are normally locked closed except for testing.
3166	This change to Tables 8.3-3 and 11.5-1 changes the power supplies specified for certain radiation monitors and RMS minicomputers from instrument power to non-1E power backed up by the Train A diesel generator.	This change did not introduce an unreviewed safety question. This change will provide additional radiation monitors and associated DCU operability in the control room during an accident. The DG will remain within design loading capability. Non-1E equipment associated with this change is isolated from the class 1E power source in accordance with IEEE 384.

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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
3167	This change to Section 13.1.1.3 provides an exception to the qualification requirements for headquarters staff which will allow nuclear fuel management department personnel to substitute a bachelor degree in the physical sciences or 5 years professional level experience in nuclear fuel management or reactor engineering for a bachelor degree in engineering.	This change did not introduce an unreviewed safety question. The appropriate basis to obtain the knowledge to perform nuclear fuels management work will be obtained by personnel meeting the revised criteria. Further, the checks and balances of the nuclear fuels department are not being changed with this change.
3168	Editorial changes to Section 6.2.4.2.3 and Tables 7.2.4 and 7.3-11A to ensure License bases consistency. Containment isolation setpoint of 3 psig as per Table 7.2-4, clarify wording of "Lower" to "Low", change EFAS to AFAS.	N/A
3169	These changes to Table 3.2-1 and Section 9.3.1 reflect the installation of a breathing air compressor and separation of the instrument air system from the service/breathing air system.	This change did not introduce an unreviewed safety question. The function of the instrument air system is not being changed and the failure mode of valves assumed in the UFSAR accident analysis are not being changed.
3170	This change to Table 3.6-2 corrects data for high energy lines outside containment to reflect as-built conditions.	This change did not introduce an unreviewed safety question. Calculations were reviewed to ensure that line break (HELB) was considered for all lines modified by this change, excluding lines in the turbine building for which line break calculations were not required.
3171	These changes to various sections define "radioactive liquid" as having activity greater than or equal to the LLD values of Technical Specification 3/4.11.1.	This change did not introduce an unreviewed safety question. No liquid is discharged from this site. The liquid discharging to the on-site evaporation ponds is below Technical Specification limits and below 10CFR50 Appendix I limits. Further, radioactivity levels in the evap pond have no effect on evaluated accidents or equipment important to safety, and the failure of the evap pond to contain liquid is considered to fall under the UFSAR Section 15.7.3 category of evaluated accidents.

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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
3172	This change to Section 9.3.4 allows the charging pump cylinder block assemblies to be fabricated of martensitic stainless steel as well as austenitic stainless steel as originally specified.	This change did not introduce an unreviewed safety question. Engineering evaluation concluded that martensitic stainless steel will make the assembly more resistant to stress corrosion cracking, and that the replacement assembly is equivalent to the original assembly.
3173	This change to Section 13.4.1 updates the responsibility description of the Plant Review Board (PRB) to reflect recent Technical Specification changes.	This change did not introduce an unreviewed safety question. This change which was approved by the NRC as Technical Specification amendments 51, 37 and 23 for PVNGS Units 1, 2 and 3 respectively, is being incorporated into the UFSAR.
3174	This change to Section 6.3.2.2.3 corrects the description of the HPSI pumps from 910 HP, as listed in the referenced CESSAR, to 1000 HP as-built.	This change did not introduce an unreviewed safety question. The function or capability of the HPSI pumps is not being reduced, and the increased load to the diesel generators is within the load capability of the generators.
3175	These changes to Section 7.2 incorporate changes from the Unit 2, cycle 3 Reload Analysis Report (RAR).	These changes did not introduce an unreviewed safety question. The changes are from the RAR which was approved by the NRC.
3176	These changes to Section 4.4 incorporate changes from the Unit 2, cycle 3 Reload Analysis Report (RAR).	These changes did not introduce an unreviewed safety question. The changes are from the RAR which was approved by the NRC.
3177	These changes to Chapter 15 incorporate changes from the Unit 2, cycle 3 Reload Analysis Report (RAR).	These changes did not introduce an unreviewed safety question. The changes are from the RAR which was approved by the NRC.
3178	These changes to Sections 4.1 and 4.2 incorporate CESSAR into the UFSAR.	These changes did not introduce an unreviewed safety question. The information from CESSAR was previously reviewed and accepted by NRC, and is only receiving editorial corrections.
3179	These changes to Section 4.3 incorporate changes from the Unit 2, cycle 3 Reload Analysis Report (RAR).	These changes did not introduce an unreviewed safety question. The changes are from the RAR which was approved by the NRC.

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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
3180	These changes to Sections 6.3 incorporates CESSAR into the UFSAR with changes from the Unit 2, cycle 3 Reload Analysis Report (RAR).	These changes did not introduce an unreviewed safety question. Information from CESSAR and the RAR was previously reviewed and approved by the NRC.
3181	This change to Section 9B.2 allows smoke detectors to be used in the spray pond pump houses that are not specifically of the ionization type.	This change did not introduce an unreviewed safety question. Smoke detectors that are utilized will continue to comply with NFPA 72D which allows various types of smoke detectors for fire detection.
3182	This change to Section 9.5.1 removes any potential inconsistency in the UFSAR regarding compliance with portable fire extinguishers guidance by referencing Table 9B.3-1 and NFPA 10-1975.	This change did not introduce an unreviewed safety question. Applicable fire extinguisher standards continue to be maintained.
3183	This change to Sections 9.5.1 and 13.2.10, and Table 9B.3-1 reflect the current fire department qualifications and training.	This change did not introduce an unreviewed safety question. The training and qualifications of the fire department are increased. Also, compliance with all applicable codes and standards continue to be maintained.
3184	This change to Table 1.8-1 revises the instrument numbers for the Refueling Water Storage tank level instruments, to show instruments that are actually used to meet Reg. Guide 1.97 requirements.	This change did not introduce an unreviewed safety question. The instruments listed continue to meet the requirements of Regulatory Guide 1.97, Rev. 2, and therefore provide the functions required in the original FSAR commitment.
3185	Editorial change to correct page numbering sequence for pages 2.2-11, 12, 13 & 14.	N/A
3187	This change to the response to question 9A.106 deletes door #A104 as a door with fire rating protection.	This change did not introduce an unreviewed safety question. An engineering review revealed that door #A104 is installed in a non-fire rated barrier. Since the barrier is not fire rated, removing the fire rating from door #A104 does not reduce protection that is provided by the barrier.

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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
3188	This change to Section 13.2 revises the descriptions for the PVNGS technical training programs.	This change did not introduce an unreviewed safety question. No commitments or responsibilities are being reduced.
3189	Editorial change to clarify that the radwaste baler is also known as the dry waste compactor in Section 11.4.2.2.	N/A
3190	This change to Sections 12.1.1.2 and 12.5.1.1 revises the description of the radiation protection organization to reflect the organization as of 9/25/90.	This change did not introduce an unreviewed safety question. No commitments have been reduced, and responsibilities have been reassigned. These organizational changes will allow greater management oversight in the radiation protection areas, and provide for a greater focus of management accountability.
3191	This change to Section 17.2 updates the Quality Assurance Program Description to reflect the PVNGS organization as of 9/25/90.	This change did not introduce an unreviewed safety question. No commitments have been reduced, and responsibilities have been reassigned.
3192	This change to Section 13.1 updates the Organization Description to reflect the PVNGS organization as of 9/25/90.	This change did not introduce an unreviewed safety question. No changes are being made to structures, systems, or components (SSC) or the operation or maintenance of SSC. These changes are designed to improve performance of both production and service functions and more clearly define lines of functional responsibility.
3193	Editorial changes throughout the UFSAR to correct misspelled words and acronyms, correct section numbering, insert a page that was left out during a previous revision, and delete references to CESSAR where it has been incorporated.	N/A
3194	Editorial change to Chapter 8 to ensure consistency in identifying five 525 KV transmission lines into the site.	N/A
3195	This change to Section 3.9.3.2.2.3 added seven charging system	This change did not introduce an unreviewed safety question.



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<u>SAR Change No.</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
	valves to the list of active valves.	Designating the subject valves as active confirms the valves capabilities to respond appropriately under accident conditions.
3197	Editorial change to Section 2.4.3.5 to incorporate information from the Safety Evaluation Report (SER) Supplement 4 concerning a construction road crossing the East Wash.	N/A
3199	Editorial change to Section 7.1.2.3.3 correcting a spelling error.	N/A
3200	Editorial change to Table 9B.3-1 incorporating changes to hose houses that were previously incorporated in the UFSAR revision 2.	N/A
3202	This change to Section 12.5.1.1 reflects that the General Manager, Chemistry is responsible for maintaining effluents ALARA.	This change did not introduce an unreviewed safety question. No responsibility is being changed or otherwise lessened, but is only being reassigned to a corresponding level of management as previously assigned.
3203	Editorial changes revising the Forward to the UFSAR.	N/A
3204	Editorial changes to Section 11.5 changing the references to CESSAR Chapter 16 to read Technical Specifications, which superseded CESSAR Chapter 16.	N/A
3217	Editorial changes updated the List of Effective Pages and Table of Contents.	N/A
3218	Editorial changes updating the lists of drawings in Tables 1.7-1 and 1.7-2.	N/A

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2-90-SQ-008

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2-90-SQ-009

These temporary modifications installed a filter capacitor across the 24V DC input supply to flow system electronics in Unit 2. The effect of this capacitor is to reduce voltage fluctuations that contribute to excessive high count rates on detectors 2JSQBRU0146 & 2JSQNRU0144 channel 2.

These temporary modifications did not introduce an unreviewed safety question. The detectors will continue to respond as designed both during normal conditions as well as during accidents analyzed in the UFSAR. Therefore, the operation and the design of detectors are not affected by this change.

1-89-SQ-091

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1-89-SQ-093

These temporary modifications insulated the housings of detectors 1JSQNRV0143 and 1JSQNRV0141 from plant ground and connected them to the signal ground to reduce the spurious high readings in Unit 1.

These temporary modifications did not introduce an unreviewed safety question. The detectors will continue to respond as designed both during normal conditions as well as during accidents analyzed in the UFSAR. Therefore, the operation and the design of detectors are not affected by this.

1-90-SQ-014

This temporary modification installed temporary power to energize the control room radiation monitoring system (RMS) printer, and display and control unit. This change supplies non-class power to the RMS, which is needed to support radiation monitoring system surveillance testing.

This temporary modification did not introduce an unreviewed safety question. The radiation monitor system components and the radiation monitors being surveilled would continue to respond as designed both during normal conditions as well as during accidents analyzed in the UFSAR.

1-89-ZC-088

This temporary modification provided temporary 480V AC power for maintenance activities to be performed in the surrounding area at or above the containment polar crane elevation in Unit 1. This power was capable of maintaining 100 amps continuous for Scissor Jack, welding and maintenance support organization.

This temporary modification did not introduce an unreviewed safety question. This modification affects only non-class 1E electrical power which is used to temporarily feed nonsafety-related equipment. It does not affect safety of personnel and equipment based upon ground fault protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

3-90-SC-005

This temporary modification added conductivity cells, tubing, valves, tubing fittings, and readout equipment to the Conductivity Analyzer Rack (3JSCNE018). In addition, the temporary modification provided changes to address flow problems at the

This temporary modification did not introduce an unreviewed safety question. This change does not affect the operation or function of condensate cleanup system or radioactive waste management system. These systems are not modeled as part of the accident/transient

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Sodium Analyzer Rack (3JSCNE017) by removing the pressure reentry valves and adding additional bypass piping for Unit 3.

analysis for the plant and thus they have no impact on the accident analyses of the UFSAR.

3-90-SQ-002

These temporary modifications removed ineffective moisture separators, installed thermal insulation, removed the sample chamber from lead shield and mounted it on unistrut on top of the lead shield. These were performed in Units 1 and 3 because moisture was found condensing in the gas sample chamber of RE-0141.

These temporary modifications did not introduce an unreviewed safety question. The modification increased the reliability of RE-0141 to obtain representative samples by reducing moisture condensation. Since it involved only the relocation of the sample chamber, not its design, the function and the operation of the gas sample chamber remain unaffected.

2-90-SR-081

This temporary modification removed the suction and discharge piping spools from the spent resin transfer/dewatering pump and connected a rubber hose located inside to bypass the pump at Unit 2. This modification was performed due to the fact that the drive mechanism of the spent resin/dewatering pump had failed and replacement parts were not readily available.

This temporary modification did not introduce an unreviewed safety question. The spent resin transfer/dewatering pump and the associated piping are not safety-related and have no safety function. The pressure rating of the hose which is 150 psi is essentially the same as the operating discharge pressure of the pump which is 120 psi. Therefore, the probability of leakage of radioactive liquid, as discussed in UFSAR accident analyses is not increased. Furthermore, it does not interface with any safety related equipment described in the UFSAR.

1-90-SI-033

This temporary modification installed a strip chart recorder at the LPSI Pump A motor breaker of Unit 1. The strip chart recorder is required to monitor motor current such that vortexing at the pump suction could be detected.

This temporary modification did not introduce an unreviewed safety question. It does not change or modify the design function of the motor breaker. Therefore, it does not have any effect on the operation of LPSI Pump A and thus it has no impact on the accident analyses of the UFSAR.

1-90-SI-034

This temporary modification installed a strip chart recorder at the Containment Spray Pump A motor breaker of Unit 1. The strip chart recorder is required to monitor motor current for detecting the onset of vortexing at the pump suction.

This temporary modification did not introduce an unreviewed safety question. This modification does not change or modify the design function of the motor breaker. Therefore, it does not have any effect on the operation of Containment Spray Pump A and thus it has no impact on the accident analyses of the UFSAR.

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1-89-NK-023

This temporary modification provided non-class 1E 125V DC power from bus 1E NKN-M46 to bus NKN-M45 bus in Unit 1 during the outage of the normal supply bus 1E NAN-S01 in order to operate 125V DC distribution panels 1E-NKN-D43, D41 & D42.

This temporary modification did not introduce an unreviewed safety question. The change only affects non-class 1E electrical power which is used to temporarily feed nonsafety-related equipment. Consideration has been made for safety of personnel and equipment based upon ground fault protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

1-90-ZF-012

2-90-ZF-002

These temporary modifications deleted the "Fuel Bundle" mode of operation for Unit 1 and Unit 2 10-ton fuel handling crane (1MZFNG02) and did not allow the new fuel handling crane to enter spent fuel pool area. This was due to the fact that the existing methods and procedures for verifying the 2,000 lb weight interlock to prevent loads in excess of 2,000 lbs being brought over the spent fuel pool by the fuel handling crane was shown to be inaccurate.

These temporary modifications did not introduce an unreviewed safety question. This change does not allow the 10-ton fuel handling crane over the spent fuel pool. The hoist weight interlocks remain unaffected as a result of this change. The maximum load of 5,000 lbs remains analyzed. The crane will operate and function as stated in the UFSAR except that it will not be used in the spent fuel area.

3-90-MA-004

This temporary modification modified the existing control circuit for main transformer coolers in Unit 3. Per manufacturer's recommendations, the transformer oil pump controls were changed from two banks of three pumps each to three banks on staggered sequence and bypass switches were added.

This temporary modification did not introduce an unreviewed safety question. The main transformer cooler control is not taken into account in the accident analysis in the UFSAR. This modification improves the control of transformer coolers by allowing slower oil flow rates as the transformer is heating up thereby minimizing the possibility of static electrification of the oil. It does not alter the intent of the original design because bypass switches permit operation of the pumps in the event that the automatic controls fail.

01-90-NH-002

This temporary modification provided 120V non-class 1E power from 1E-NHN-D2011 to bus 1E-NHN-M1029 during an outage of the normal supply bus 1E-NAN-S02 for the charging pump seal lube pump A in Unit 1.

This temporary modification did not introduce an unreviewed safety question. This modification affects only non-class 1E electrical power which is used to temporarily feed nonsafety-related equipment. It does not affect safety of personnel and equipment

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based upon ground fault protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

These temporary modifications did not introduce an unreviewed safety question. The modification only affects non-class 1E electrical power which is used to temporarily feed nonsafety-related equipment. It does not affect safety of personnel and equipment based upon ground fault protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

This temporary modification did not introduce an unreviewed safety question. This modification only affects non-class 1E electrical power which is used to temporarily feed nonsafety-related equipment. It does not affect safety of personnel and equipment based upon ground protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

This temporary modification did not introduce an unreviewed safety question. This modification only affects non-class 1E electrical power which is used to temporarily feed nonsafety-related equipment. It does not affect safety of personnel and equipment based upon ground fault protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

This temporary modification did not introduce an unreviewed safety question. This modification only affects non-class 1E electrical power which is used to temporarily feed nonsafety-related

01-90-NH-001
&
01-90-NH-008
This temporary modification provided 120V non-class 1E power from convenience outlet source to bus 1E-NHN-D2619 during an outage of supply bus 1E-NAN-S02 in Unit 1 in order to operate the containment access purge outlet damper.

01-90-NH-003
This temporary modification provided temporary non-class 1E power from bus 1E-NHN-M2002H from bus 1E-NHN-M1019 during an outage of supply bus 1E-NAN-S02 in Unit 1 in order to operate the reactor makeup water pump.

01-90-NH-007
This temporary modification provided temporary non-class 1E 120V AC power from bus 1E-NHN-D2714 from bus 1E-NHN-D1413 (1-J-LRN-E01) during an outage of the normal supply bus 1E-NAN-S02 in Unit 1 in order to operate the liquid radwaste evaporator control panel.

01-90-NG-006
This temporary modification provided non-class 1E 480V AC power from bus 1E-NGN-L09-B3 from bus 1E-NGN-L16-C4 to feed MCC 1-E-LRN-M01 during an outage of the normal supply bus 1E-NAN-S02 in Unit 1

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in order to operate the liquid radwaste evaporator.

equipment. It does not affect safety of personnel and equipment based upon ground fault protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

01-90-SQ-010

This temporary modification provided temporary 120V AC non-class power from bus 1E-NHN-D2-015 to bus 1E-SQN-J01 in order to allow operation of radiation monitor RU-07 during outage of 1E-NAN-S02 in Unit 1.

This temporary modification did not introduce an unreviewed safety question. This modification only affects non-class 1E electrical power which is used to temporarily feed nonsafety-related equipment. It does not affect safety of personnel and equipment based upon ground fault protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

01-90-NH-009

This temporary modification provided temporary non-class 1E 120V AC power from bus 1E-NHN-D2016 to the charging pump #1 packing lube system that is normally fed from 1E-NHN-D1016 during outage of the normal supply bus 1E-NAN-S02 in Unit 1.

This temporary modification did not introduce an unreviewed safety question. This modification only affects non-class 1E electrical power which is used to temporarily feed nonsafety-related equipment. It does not affect safety of personnel and equipment based upon ground fault protection and downstream breaker coordination. It does not affect any safety-related system or equipment taken credit for in the UFSAR accident analyses.

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<u>Site Modification Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
1SM-AR-001	This site modification changed the design of the Condenser Air Removal (AR) system from a single trap drain to five (5) loop seal drains. The purpose of the modification was to improve moisture separation and extraction from the AR system process air system. This was required to reduce moisture contamination/fouling of radiation monitors RE-141 and RE-142.	This site modification did not introduce an unreviewed safety question. Modification was performed on the Condenser Air Removal system which has no safety function per UFSAR 10.4.2.3.
1SM-AR-002	This site modification installed a shaft guard on Condenser Air Removal system Post Filter Blower 1M-ARN-A02. The modification was required to meet the requirements of OSHA 1910.219.C.2.	This site modification did not introduce an unreviewed safety question. The addition of the shaft guard does not affect the operation or performance of the equipment as described in UFSAR Sections 10.4.2, 10.4.3 and 11.3. The equipment have no safety function.
2SM-CD-005	This site modification replaced Pressure Differential Valve to Polishing Demineralizer Bypass (2J-CDN-PDV-195). The valve was replaced since the original valve would not operate more than six (6) months without failing. The new valve was installed to support eighteen (18) months operation.	This site modification did not introduce an unreviewed safety question. The description of facility as described in UFSAR section 10.47.2 was not altered. The new valve functions in the same manner as the old valve; therefore, there was no increase in the possibility of accidents discussed in UFSAR section 15.2.3. The modification was made to condensate system which is nonsafety-related. The condensate system does not supply or interact with systems that are identified as "Important to Safety" in any way that it would impact the malfunction scenarios included in section 15 of UFSAR.
1SM-CH-004 & 2SM-CH-004	These site modifications routed the discharge of Charging Pumps Discharge Pressure Safety Valves (PSV) from the Charging Pump suction lines directly to the Equipment Drain Tanks. The change was made to eliminate the possibility of gas binding the pumps during a discharge bladder rupture.	These site modifications did not introduce an unreviewed safety question. The Charging Pumps Discharge PSVs were not described in the Technical Specifications. The facility as described in UFSAR 9.3.4 was not changed.

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2SM-CH-009

This site modification changed the setpoint for Reactor Coolant Pump Seal Injection Filter Differential Pressure alarm (2J-CHN-PDIA-241) from 15 PSID to 18 PSID. The 15 PSID setpoint caused frequent conservative filter cartridge changes. In addition, setpoint of Nitrogen to the Reactor Drain Tank Pressure Control Valve (2J-CHN-PCV-484) was changed from 0.5 PSIG to 0.8 PSIG (\pm 0.3 PSIG). This change was made to allow high side of the setpoint tolerance to fall within the 20% to 80% operating range of the PCV.

This site modification did not introduce an unreviewed safety question. These setpoint changes modified the criteria in UFSAR 9.3.1.4; hence, it was considered a change to the facility. Both revised setpoints are within the original design criteria and did not effect previously evaluated accidents. These setpoints are not described in the Technical Specifications.

1SM-CH-011

This site modification installed a vent to the upper section of the Charging Pump suction line. The inability to vent the upper section of the Charging Pumps suction line had resulted in gas binding of the Charging Pumps. The new vent line is hard piped to the Equipment Drain Tank via the recycle Drain Header. The vent is also routed to the existing Charging Pump hydrogen vent as specified in PVNGS SSER #9.

This site modification did not introduce an unreviewed safety question. The new vent line permitted the venting of the upper section of the Charging Pump per UFSAR Section 9.3.4.1.M.C which requires that the Charging Pump suction piping be arranged to preclude the collection of vapor or gas. This modification did not change the function of the charging pump suction line nor the existing hydrogen vent. Technical Specification 3/4.1.2, Boration Systems, was not impacted by this change. The addition of this vent line was to ensure the availability of the Charging Pumps.

2SM-CP-003

This site modification installed access panels for the maintenance of Containment Building Refueling Purge Exhaust Duct Isolation Damper (2J-CPA-UV-2B) and Supply Duct Isolation Damper (2J-CPB-UV-3A). A negative pressure access panel was installed on elbow upstream of 2J-CPA-UV-2B. A positive pressure access panel was installed on elbow downstream of 2J-CPB-UV-3A.

This site modification did not introduce an unreviewed safety question. The containment isolation valves UV-2B and UV-3A are part of the Technical Specifications Section 3/4.6.3. The access panels are installed in duct pieces adjacent to these valves. These panels did not change any valve characteristics. The panels were fabricated per seismic category 9 which is the same category as the ductwork.

1SM-CW-006

These site modifications made the following changes to the Circulating Water Pump Discharge Valves (1/2/3J-CWN-UV-5/6/7/8):

These site modifications did not introduce an unreviewed safety question. The Circulating Water system is not covered in the

2SM-CW-006

The valve position meters were not tracking the valve positions.

Technical Specifications. These modifications did not increase the

(BL0012)

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3SM-CW-006

Resistors were added to the valve indication circuits to correct the indication problem.

The valves required excessive force to open from the closed position. The valves control circuits wiring were changed to place limit switches in parallel with the torque switches.

The valve operators were being changed based on an Engineering Evaluation Request resolution. The upgraded valves were not wired per the existing valves. The wiring was changed for the upgraded valves per these site modifications.

likelihood of a circulating water system postulated failure evaluated in UFSAR 10.4.5. The Circulating Water system is not important to safety. The modifications increased the reliability of the valves by increasing the torque switch open bypass time avoiding premature cutout. Also, the control room indication would more closely mimic the valve position. The operation of the system was enhanced by this change, but the system function was unchanged.

1SM-CW-008

This site modification changed the low flow alarm setpoints for the cooling water flow to the Circulating Water Pump Motor Bearing Lube Oil Coolers. The setpoints for the alarm switches 1J-CWN-FISL-140/141/142/143 were changed from 11 GPM to 9 GPM to reduce occurrence of nuisance alarms. Changing the setpoints to 9 GPM will continue to provide the low flow alarm above the minimum required flow of 8 GPM. The new setpoints allow margin for the instrument error. The setpoint changes were made to nonsafety-related equipment.

This site modification did not introduce an unreviewed safety question. The flow value stated in UFSAR Table 9.2-25 is 20 GPM for the Circulating Water Pump Motor Lube Oil Coolers. The 20 GPM value was used for the system design. Since this value is not a minimum or maximum, a change to the UFSAR was not required. No changes to the Technical Specifications Sections 3/4.3, 3/4.7, 5.0 and associated bases were required since the Technical Specifications do not address this equipment or these setpoints.

1SM-DG-016

3SM-DG-016

These site modifications installed structural braces at the motor end of Emergency Diesel Generator starting air compressors (1M-DGN-C01A / C02A) base plates. These starting air compressors vibrated excessively when running. The modification shifted the resonance frequency and reduced vibration levels.

These site modifications did not introduce an unreviewed safety question. These modifications did not affect the operability of any safety-related, important to safety or safe shutdown system. These modifications are not included in the Technical Specifications; therefore, the margin of safety remains the same as the Diesel Generator will start and load as previously assumed in the Technical Specifications. The probability of an accident to the starting air system will go down as the structural braces are designed to reduce the vibration levels of the compressor base

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1SM-DG-019

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3SM-DG-019

This site modification installed hour meters to the Emergency Diesel Generators Air Compressors. The hour meters were needed to determine preventive maintenance interval. The hour meters were installed in the Motor Control Center cubicles. These modifications were considered nonsafety-related.

plate.

These site modifications did not introduce an unreviewed safety question. Addition of the run time meters did not impede the diesel generators from mitigating the consequences of an accident. This modification has no impact on other equipment; therefore, probability of an accident as analyzed in the UFSAR was not increased. No changes to the Technical Specifications were required.

3SM-DG-021

This site modification added a time delay relay which blocks the trip function of the temperature controller for the Emergency Diesel Generator (DG) B, Unit-3, main bearing #2 in a loss of non-class 120 VAC power event. This modification was required to prevent a loss of DG control air and invalid alarm annunciation upon power restoration. This deficiency was introduced by installation of site modification 3SM-DG-010.

This site modification did not introduce an unreviewed safety question. This modification only effected a diesel generator trip that operates only in the "TEST" mode of diesel generator operation. There was no impact on the "EMERGENCY" operation of the diesel generator; therefore, it did not increase consequences of an accident as indicated in UFSAR Chapter 15. This modification had no effect on the Technical Specifications Section 3/4.8.1; therefore, the margin of safety was not reduced.

ASM-DS-009

This site modification added isolation valves, piping, and fitting to the Domestic Water (DS) System to allow for future connection and isolation of general use area irrigation systems.

This site modification did not introduce an unreviewed safety question. Per UFSAR 9.2.4, the DS System has no safety-related function. The probability of an accident previously evaluated in the UFSAR will not be increased since the Domestic Water System serves no safety function and has no safety design basis per UFSAR Section 9.2.4.1.1 and UFSAR Table 3.2-1. No changes to the Technical Specifications was required.

3SM-ED-009

This site modification converted the manway closure on the Feedwater Heater Extraction Steam First and Second Storage Drain Tanks (3M-EDN-X01A/B/C/D and 3M-EDN-X02A/B/C/D) to a seal welded diaphragm with a bolted flange serving as a mechanical strong back

This site modification did not introduce an unreviewed safety question. This modification was nonsafety-related and had no impact on equipment important to safety. No changes to the UFSAR or the Technical Specifications were required. This hardware

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for the hydrostatic load. The old manway design was a conventional bolted gasket which resulted in a number of manway leaks in PVNGS Units 1 and 2.

1SM-FH-010

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2SM-FH-010

These modifications installed a protective cover to protect the Refueling Machine Bridge Uppender Zone Limit Switches (LS-RTMZ). The limit switches were occasionally mispositioned by the feet of people walking along the north rail. These switches are energized when the machines are in motion. These modifications would prevent inadvertent stopping of the machines due to mispositioned switches.

1SM-FP-013

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2SM-FP-013

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3SM-FP-013

These site modifications installed low-density silicone foam into the pipe trench openings of the Diesel Generator Building (total 4 per Unit) that open into the seismic gap between the Diesel Generator and Control Buildings. These modifications were required to comply with Appendix R, Section IIG and UFSAR requirements.

2SM-GA-003

This site modification installed a filter upstream of the interface between the Low Pressure Nitrogen System and the Instrument Air System. The modification was required to decrease the size of the particles going into the Instrument Air Header to less than or equal three (3) Microns to meet the air quality requirement of NRC Generic Letter 88-14 and ISA Standard 57.3, 1975.

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change did not effect the event analysis performed in UFSAR Chapter 15.

These site modifications did not introduce an unreviewed safety question. The limit switches were not associated with Technical Specifications Section 3/4.9.6. The switches are not part of the basis of any Technical Specifications. No changes to the UFSAR or the Technical Specifications were required. The modification had no effect on the operation of the Refueling Machine operation. This change did not involve or affect any equipment important to safety. The probability or consequences of the accidents evaluated in the UFSAR Sections 15.4.7 and 15.7.4.2. were not increased since all the interlocks and design features were unchanged.

These site modifications did not introduce an unreviewed safety question. The penetration seals are not part of the Technical Specifications and are not considered in the basis for any Technical Specifications. Therefore, no changes to the Technical Specifications were required. The probability of an accident previously evaluated in the UFSAR and/or malfunction of equipment important to safety did not increase as described in Section 15 of UFSAR because the function of penetration seals is passive.

This site modification did not introduce an unreviewed safety question. This change required a change to Figure 9.3-14 of UFSAR (i.e. P&ID Diagram). Since the N2 system serves no safety function, the margin of safety defined in the basis for any technical specifications was not increased. No changes to the technical specifications were required. The change was made to a nonsafety-related system. The probability of an accident previously

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evaluated in the UFSAR was not increased since there is no such accident postulated involving this filter. The Low Pressure N2 System backs-up the Instrument Air System which has no safety design basis.

1SM-GA-004

These site modifications changed pressure regulators and check valves. In addition, they replaced some in-line globe valves with ball valves. The modifications were required to reduce pressure drop incurred by the Nitrogen (GA) System under high flow conditions, specially when the GA System is being used to supply a failed Instrument Air System.

These site modifications did not introduce an unreviewed safety question. The GA System is nonsafety-related and serves as a backup supply to the Instrument Air (IA) System which is also nonsafety-related and has no safety design basis; therefore, no changes to the technical specifications were required. Since the N2 system serves no safety function, the margin of safety defined in the basis for any Technical Specifications was not increased. No changes to the Technical Specifications were required. The probability of an accident previously evaluated in the UFSAR was not increased since there is no change to safety-related systems.

1SM-HA-001

This site modification re-routed the Ion Exchanger vent line to prevent the possibility of radioactive gas from entering the Auxiliary Building from the Auxiliary Building HVAC (HA) System exhaust duct work during filling and venting of the Ion Exchangers.

This site modification did not introduce an unreviewed safety question. This modification decreased the probability of releasing radioactive gas back into the Auxiliary Building. There were no technical specifications requirements for the Ion Exchanger vent header. This vent header was not safety-related or important to safety, and did not affect important to safety equipment. UFSAR Chapter 15 did not address this vent header in the accident analysis.

1SM-HA-003

This site modification changed the setpoint for the Auxiliary Feedwater Pump Room A High Temperature Alarm (1J-HAN-TSH-52) from 105 degrees Fahrenheit to 112 degrees Fahrenheit. The reason for this change was to clear the "locked in" high temperature alarm for this switch. This modification was nonsafety-related.

This site modification did not introduce an unreviewed safety question. The maximum allowed environmental temperature in the Auxiliary Feedwater Pump Room A is 120 degrees Fahrenheit per UFSAR Table 3E-1. UFSAR 3.11.4 requires the room temperature alarm setting to be below the qualification temperature. No changes to the procedures, tests or experiments mentioned in UFSAR was

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required. No changes to the Technical Specification Sections 3/4.5.2, 3/4.7.1.2, 3/4.7.3, 3/4.7.11 or 3/4.8.3 were required.

These site modifications did not introduce an unreviewed safety question. These design changes were nonsafety-related. UFSAR 1.2-8 and 9.4.2 did not address accidents in the HA System ductwork. The HA System had one safety design basis which states that the ductwork below elevation 140' be designed to retain structural integrity. These modifications were made on the Auxiliary Building roof; therefore, they did not affect the ductwork integrity below 140' elevation. No changes to the Technical Specifications were required.

This site modification did not introduce an unreviewed safety question. The MSSS ventilation provided no safety-related function per UFSAR 9.4.6 and 9.4.15; however, the system was designed to preclude failure of safety-related equipment per UFSAR 9.4.6.1.1. The MSSS ventilation was not addressed in the basis of any technical specification. No changes to the Technical Specifications were made. The modification was consistent with seismic category IX construction to preclude failure of safety-related equipment.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The accident probability was not increased due to this modification. A seismic analysis was performed which confirmed that the added damper in not a problem. This addition did not effect the margin of safety as defined in the basis for the Technical Specifications. The addition of volume damper did not alter the total design flow of air to the Control Room area. The

1SM-HA-005

These site modifications installed injection manifolds and flow measurement / flow distribution devices to the Auxiliary Building HVAC (HA) System ductwork to support Air-Aerosol mixing uniformity tests (73TI-0ZZ07).

3SM-HA-005

3SM-HC-002

This site modification relocated the high pressure ports of the Main Steam Support Structure (MSSS) Cooling Supply Dampers Differential Pressure Switches (3J-HCN-PDSL-200A & B) to downstream of the dampers. These dampers were designed to fail closed. Upon a single damper failure, the differential pressure switches would have sensed the fan pressure and would have prevented the redundant unit from starting. The modification allow start of the redundant unit upon a damper failure.

2SM-HJ-001

This site modification installed a balancing volume damper and a diffuser plate in the Control Room Train B HVAC supply duct. Additionally, this modification provided increased cooling to the North cabinet area. The modification was required to lower the excessive noise levels resulting from the high velocity air exiting the ceiling vents in the control room. The excessive noise condition was reported by the NRC during inspection no. 50-528/85-12. This modification was considered safety-related.

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addition helped in re-balancing and re-distributing the flows to various areas of the Control Room. This modification provided increased margin of safety due to increased cooling in the North cabinet area.

1SM-HP-002

This site modification installed needle valve cartridges in the Containment Hydrogen Analyzer Reagent Gas Flowmeters (1SM-HPA-FIC-9B and 1SM-HPB-FIC-10B). The existing flowmeters had too coarse of adjustment resulting in many surveillance test failures. This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. The change was made to the facility as described in UFSAR 6.2.5. Hydrogen analyzer was not postulated to initiate an accident event; therefore, the probability of an accident previously evaluated in the UFSAR was not increased. No changes to the Technical Specification were required. Needle valves were designed consistent with design basis 6.2.5.1; therefore, the analyzer would function as required by UFSAR 6.2.5. and Technical Specifications B3/4 6.4.

1SM-HR-003

This site modification installed drains under the Radwaste Building HVAC duct, rerouted Boric Acid Concentrator (BAC) discharge line, and installed a relative humidity meter with remote chart recorder. The modification was required due to significant amounts of tritiated water being accumulated in the HVAC exhaust duct and leaking on to the Auxiliary Building roof due to BAC discharge. The modification was made to provide permanent drains, record relative humidity to maintain R.H. below 80% in plant stack, and to provide more dilution air. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. No changes to the UFSAR or the Technical Specifications were required. The process conditions for BAC discharge were not affected. The drain line was routed away from all safety-related equipment; therefore, it did not increase probability of malfunction of equipment important to safety. The BAC discharge is not included in any Technical Specifications design basis.

1SM-IA-004

2SM-IA-004

These site modifications installed test connections on each of the instrument air dryers and added silencers on each instrument air compressor. The modifications were required due to excessive vibration and moisture found in the instrument air lines. These modifications were considered nonsafety-related.

These site modifications did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The Instrument Air System was not part of the Technical Specifications and did not reduce margin of safety for any technical specifications. The probability and consequences of an

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accident as previously evaluated in the UFSAR Chapter 15 were not increased.

2SM-IA-008

This site modification installed an instrument panel and associated hardware to provide backup air supply and alarms for the Steam Generator Nozzle Dams and Spent Fuel Pool Gate Seals to improve reliability of these systems. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The Instrument Air System is not part of the Technical Specifications and does not reduce margin of safety for any technical specifications. The probability of an accident, and consequences of an accident as previously evaluated in the UFSAR Chapter 15 were not increased. The modification provided additional redundancy and alarm to reduce the possibility of occurrence of an undetected loss of air supply to the Steam Generator Nozzle Dams or the Spent Fuel Pool Gate Seals.

2SM-IA-009

This site modification added Control Room indication of the Steam Generator Nozzle Dam Air Supply Panels (2J-IAE-E04A & B) to improve the reliability of the air supply to the dams. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. This modification is not part of any technical specifications and does not reduce margin of safety for any technical specifications. The probability of an accident, and consequences of an accident as previously evaluated in the UFSAR Chapter 15 were not increased. The modification provided additional redundancy and alarm to reduce the possibility of occurrence of an undetected loss of air supply to the Steam Generator Nozzle Dams .

2SM-LR-001

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3SM-LR-001

These site modifications replaced the rupture disc on the Surface Condensers of the Liquid Radwaste Systems (LRS) Evaporators. The replacement were required due to frequent failure of the rupture discs. The Surface Condensers were rated for 40 PSIG at 250 degrees Fahrenheit. The graphite rupture discs were rated for 30 PSIG at 72 degrees Fahrenheit. The disc failures were due to

These site modifications did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The margin of safety for any technical specifications was not reduced. The probability and consequences of an accident as previously evaluated in the UFSAR Section 15.7, "Radioactive Material Release from a Subsystem or Component", were not

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degradation caused by elevated temperature. The graphite discs were replaced with stainless steel discs rated at 40 PSIG at 225 degrees Fahrenheit.

3SM-LR-005

This site modification installed an interlock defeat switch to allow Radwaste Evaporator operation when Concentrate Monitor Tanks are full. The modification eliminated the need for Temporary Modifications when it was required to override the interlocks.

3SM-LR-007

This site modification replaced Radwaste Evaporator Vent Condenser to provide for proper venting during operation. This modification was needed to support continued plant operation during secondary system cleanup following a primary to secondary leak.

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increased. The LRS evaporator and the Surface Condenser were not safety-related and there was no safety-related equipment in the radwaste building. The Surface Condenser was not a part of the basis of any technical specifications.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. UFSAR Chapter 15 safety analysis made no assumptions concerning the Liquid Radwaste System. The Concentrate Monitor Tank level indication and alarm functions were not altered and are always available to the Control Room Operators. The tank overflow interlock provided backup protection to prevent spillage/contamination. The operating procedures were revised to ensure that concentrate transfers to the Concentrate Monitor Tanks are prevented when the switch is in the "DEFEAT" position. The Technical Specifications Basis B3/4.11 was not affected. These site modifications did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The accident analysis of UFSAR Chapter 6 and 15 made no assumptions concerning the Radwaste Evaporator. The site modification made no changes that could alter the UFSAR analyses. The Evaporator Vent Condenser was replaced with a larger model which has increased draining capacity. This was done to increase the processing capability. Possible malfunctions were decreased by this modification since operating pressure fluctuations caused by inability for the Vent Condenser to drain were eliminated. One radiation penetration seal around a 2 inch pipe was eliminated by this modification. The seal was unnecessary since the penetration level was high enough that there was no direct shine through the hole. The contribution to radiation levels for personnel would be minimal to non-detectable.

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2SM-LR-011

This site modification added two supports and modified others for lines connecting to the Liquid Radwaste anti-foam pump. The vibrations from the positive displacement anti-foam pump were over stressing line fittings at the pump casing.

This site modification did not introduce an unreviewed safety question. The Technical Specifications made no assumptions concerning this portion of Liquid Radwaste System. Therefore, no changes to the Technical Specifications were required. These supports were not addressed in the UFSAR. The anti-foam pump lines were nonsafety-related. These lines do not contain any radioactive fluid. A rupture in these lines could only result in leakage of anti-foam solution to the floor drain. This modification had no impact on UFSAR Chapters 6 and 15 analyses since there is no safety-related equipment in the building. The design bases of Technical Specifications B3/4.11 were not affected. Therefore, the margin of safety is defined in the basis for any technical specifications was not reduced.

1SM-MA-010

This site modification enlarged the Main Electrical Generator vent ports to provide design cooling flow of 100 CFM. The Generator terminals were overheating, resulting in premature aging of gasket material. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. Isophase bus cooling was not postulated to initiate any accident scenario per UFSAR Chapter 15. Isophase bus cooling did not provide any safety function and did not impact any equipment important to safety. Isophase bus cooling was not addressed by any technical specifications. The cooling system would function as designed in providing generator terminal cooling. The structural integrity was not impacted by this modification.

1SM-MA-017

This site modification corrected the wiring for the negative sequence relay. This relay was replaced previously with a new relay by Design Change Package (DCP) 1FE-MA-057. The wiring as shown by the DCP was incorrect; however, the DCP was closed prior to correcting the wiring. DCP closure resulted in issuing this site modification for swapping the wires at the relay terminals. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The modification was made to a nonsafety-related relay which is used for protection of the Generator. There was no impact on safety or important to safety equipment. The generator negative sequence relay had no related Technical Specifications basis.

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1SM-NA-001

This site modification replaced 13.8 KV key operated synchronizing switches with new ones which were keyed differently from the motor operated valve and annunciator reset switches. This change was required to prevent blowing the common synchronizing fuse due to availability of multiple switch keys which allowed multiple synchronizing switches being on at the same time. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. This change was not described in UFSAR. The modification improved reliability of the system. The synchronizing switches were not described in the Technical Specifications.

1SM-NA-003

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2SM-NA-003

These site modifications cut openings in the top of the 13.8 KV switchgear enclosures to provide a better access for cleaning, inspecting and maintaining the bus. A channel frame was constructed and welded around each opening. A watertight removable cover was bolted to each channel frame. In addition, the existing plate covers welded on the side of enclosures were modified to make it easier to remove for access. These modifications were considered nonsafety-related.

These site modifications did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. These changes did not involve any technical specification basis described in UFSAR Chapters 3 or 4.

1SM-NC-002

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2SM-NC-002

These site modifications changed the wiring of Letdown Heat Exchanger Nuclear Cooling Water System Low Flow Switches (1 & 2J-NCN-FSL-613). The wiring changes were made to ensure that the Regenerative Heat Exchanger to Letdown Heat Exchanger Isolation Valves (1 & 2J-CHB-UV-523) would close on a Loss of Power (LOP).

These site modifications did not introduce an unreviewed safety question. These switches were not described in the Technical Specifications; therefore, no changes to the Technical Specifications were required. The function of the switches were not altered. No new failure mechanisms were introduced as described in UFSAR 9.2.2.2. The margin of safety as described in the Technical Specifications Sections 3/4.1 and 3/4.4 was not reduced.

1SM-NH-002

This site modification rewired and added a switch to the Motor Control Center Cubicle (1E-NEN-M3013), replaced a discontinued GE ground fault relay with a Westinghouse relay and installed a receptacle on a nearby junction box to provide an alternate source of power for conducting Integrated Leak Rate Test (ILRT). This

These site modifications did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The non-class power was not described in the UFSAR and the Technical Specifications. MCC M3013 was non-class and was supplied from non-class bus 1E-NGN-L04. If a fault occurs, Load



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power source would be used for supplying 480 VAC to the submergible water pump utilized to cool the ILRT compressor. MCC 1E-NHN-M3013 was a spare. This modification was considered nonsafety-related.

1SM-NK-001

This site modification swapped the 125 VDC power sources for the battery chargers 1E-NKN-H17 and 1E-NKN-H21. The modification was made by swapping the input cables at the battery chargers. Two new cables were also added since some of the cables were too short to reach the other battery charger. This change was required to ensure both DC control centers 1E-NKN-M45 and 1E-NKN-M46 can be fed from either 13.8 KV busses 1E-NAN-S01 or 1E-NAN-S02. This modification was considered nonsafety-related.

1SM-NQ-001

This site modification replaced a Uninterruptible AC Power Regulator with a Sola Regulator. The Regulator was not operating per design and no spare parts were available for repair. The change was required in order to provide system operability. This modification was considered nonsafety-related.

1SM-PB-001

This site modification relocated temperature sensors for Calvert Bus Duct Space Heaters (1E-NBN-A03). The bus duct and these temperature sensors were originally outside the building. The location of these equipment had since been enclosed requiring relocation of the temperature sensors to ensure correct temperature sensing. This modification was considered nonsafety-related.

2SM-RJ-015

This site modification rewired (swapped) field cable terminations for a number of analog flow and level inputs to the Plant

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Center L04 or MCC M3013 would trip; therefore, the probability of a malfunction of equipment important to safety was not increased.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The modification improved reliability of the system. The Non-1E DC Battery System was not described in the UFSAR Chapters 6, 15 and Section 8.3.2.1. The margin of safety in Technical Specifications 3/4.8.2 was not reduced since there was no margin established for the Non-1E DC Battery System.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The modification improved availability of the system. Non-1E AC System was not required for safe shutdown. The margin of safety in Technical Specifications was not reduced since the Technical Specifications do not address the Non-1E AC System.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The modification relocated the temperature sensors to meet their original design requirements. The margin of safety in Technical Specifications was not reduced.

This site modification did not introduce an unreviewed safety question. Core Operating Limit Supervisory System (COLSS) portion

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Monitoring System (PMS) computer. The PMS software was also changed to show correct input addresses. The change was required to eliminate possibility of a plant trip due to a PMS card failure shared by these inputs. This modification was considered nonsafety-related.

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of PMS is described in Technical Specifications 3/4.2 and 3/3.1.3.6; however, this modification did not require a change to the Technical Specifications. The modification rewired inputs to the PMS computer and changed the PMS software. The margin of safety in Technical Specifications was not affected by these changes since the PMS was nonsafety-related with no role in mitigation of any event and it was not described in the Technical Specifications.

The probability of a Turbine Trip and Loss of Normal Feedwater Flow accidents evaluated in the UFSAR decreased by this change. The PMS did not initiate any direct functions and its capacity to cause a turbine trip or loss of feedwater flow signals would occur only if a malfunction by equipment failure or human error occurs first.

1SM-RJ-020

This site modification changed the Cycle 2 Core Operating Limit Supervisory System (COLSS) databases and programs (i.e. package). The COLSS changes must be made with each fuel cycle to maintain accurate information. The COLSS is an integral part of the Plant Monitoring System (PMS). The COLSS is used to continually monitor certain limiting conditions for operations (LCO's) and aids the operators in maintaining core conditions within the LCO. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. The COLSS serves to monitor reactor core conditions in accordance with the Technical Specifications. Therefore, a change to the Technical Specifications was not required. UFSAR Section 14.2.12.1.34 defined a pre-operational test to verify proper operation of COLSS for the initial cycle of operations. The same test was applied for the Cycle 3 COLSS. Therefore, this modification did not involve tests or experiments not described in the UFSAR. UFSAR Section 7.7 stated that the COLSS is not safety-related. Therefore, the margin of safety as defined in the basis for any technical specification was not reduced.

1SM-RJ-021

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3SM-RJ-021

These site modifications changed the Core Monitoring Computers (CMC) CEA position constants for Cycle 2 to match the Core Element Assembly Calculator's (CEAC) CEA calculation constants. The CEAC's calculations were changed for the Cycle 2 earlier. CMC is an integral part of Plant Monitoring System (PMS). These

These site modifications did not introduce an unreviewed safety question. The changes were made to the PMS software. The PMS was not evaluated in the Technical Specifications and the margin of safety was not reduced. The PMS is not important to safety and it does not interface with important to safety equipment. PMS

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modifications were considered nonsafety-related.

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procedures were not defined in the UFSAR and no changes were required to the procedures describe in the UFSAR.

1SM-SI-007

This site modification substituted the bottom cover plate bolts and gaskets on the Shutdown Cooling Temperature Control Train A and B Butterfly Valves (1J-SIA-HV-657 and 1J-SIB-HV-658). The original bolts had failed on these valves. The substitute bolts were stronger and were more readily available. The gaskets were replaced with Asbestos free gaskets to eliminate Asbestos hazard. These modifications were considered safety-related.

This site modification did not introduce an unreviewed safety question. The Technical Specifications did not require any changes. Based on engineering evaluations accident probability was not increased due to replacing theses bolts and gaskets. The replacement bolts were stronger and the gaskets provided improved sealing characteristics. The pressure boundaries were not impacted; therefore, the margin of safety was not reduced.

1SM-SI-025

This site modification changed the rotor 1 limit switch setpoint for the High Pressure Safety Injection (HPSI) Pump A and Pump B Long Term Cooling Control Isolation Valves (1J-SIC-HV-321 and 1J-SID-HV-331) to allow approximately 600 GPM flow through the valves. The change allowed sufficient valve stroke for the operator to manually throttle these valves and balance the hot and cold leg flows. This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The modification allows the operators to manually balance HPSI flow between the hot and cold legs in the two to three hour time frame after a LOCA rather than relying on the open limit switch to the balance flow. This change affected the means of flow control only by changing from an electric position stop to manual flow balancing. The UFSAR description and procedures did not require a change. The probability and consequences of an accident previously evaluated in UFSAR were not changed or affected. The modification met the original design intent. The margin of safety as defined in Technical Specifications Sections 3/4.5.1, 3/4.5.2 and 3/4.5.3 was not affected since flow requirements and test requirements were not altered.

Accident consequences as evaluated in UFSAR could have been impacted if the flow balance function was not performed. However, this was not considered credible since initiation of hot leg flow is already an operator action and since HPSI flow is continuously verified by the Control Room operator to ensure safety functions

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are being performed. The modification required changes to the operating procedures for manual flow balancing.

1SM-SI-026

These site modifications changed the torque settings for the High Pressure Safety Injection (HPSI) Pump A and Pump B Long Term Cooling Valves (1/2J-SIA-HV-604 and 1/2J-SIA-HV-609) Torque Switches. The original closing thrust requirements were developed from unrealistically high differential pressures. This had led to unnecessarily high opening thrust requirements. Reducing these thrust requirements lessened the chance of over stressing the valves. These modifications were considered safety-related.

These site modifications did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The UFSAR description and procedures did not require a change. The probability and consequences of an accident previously evaluated in UFSAR were not changed or affected. The function of the valves were not changed by these modifications. Since the setpoint changes did not create a system configuration or operating condition such that the Technical Specifications Limiting Conditions for Operation or Surveillance Requirements were no longer adequate nor did it invalidate the automatic actuation features required to be operable, it was concluded that the margin of safety as defined in Technical Specifications was not reduced.

3SM-SP-005

This site modification extended the length of Spray Pond corrosion rack discharge Lines to extend 3 inches below the Technical Specifications low limit for the Spray Pond Water depth. The existing discharge line ended above the ponds water surface which allowed the lines to drain when the pumps were not running. This was producing artificial corrosion data due to alternate wetting and drying of corrosion samples. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The UFSAR description and procedures did not require a change. The probability and consequences of an accident previously evaluated in UFSAR were not increased. The extended tail pipes were still over 13 feet from the pumps suction. The turbulence was not expected to produce loads high enough to break the CPVC pipe. The margin of safety as defined in Technical Specifications was not affected since the corrosion racks were not considered in any margin of safety.

2SM-SP-008

This site modification raised the high level alarm settings for the Essential Spray Ponds High-Low Level Switches (2J-SPN-LSHL-27 and 2J-SPN-LSHL-28). The setpoint changes were required since the high level alarms were staying on. The blowdown weirs in the side

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The UFSAR description and procedures did not require a change. The probability and consequences of an accident previously

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of the Essential Spray Pond Walls permit overflow. These alarms actuate if the weirs are plugged. This modification was considered nonsafety-related.

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evaluated in UFSAR were not increased. Technical Specifications Section 3.7.5 and UFSAR 9.2.5 established requirements for the minimum Essential Spray Pond water level for heat removal, but there were no requirements for the high level alarm. Therefore, the margin of safety as defined in Technical Specifications was not reduced. Raising the high level setpoints were in the conservative direction. The Spray Pond walls are designed to handle wind driven waves up to 15.7 feet high. The setpoint change did not result in a water level greater than analyzed condition. No malfunction of equipment important to safety was postulated.

1SM-SP-009

These site modifications installed syphon breakers in the non-seismic piping of the Essential Spray Pond (ESP) Filter Pumps. A filter pump piping failure below the ESP surface may have resulted in the loss of ESP inventory below the Technical Specifications level due to a syphon effect. This modification was considered nonsafety-related.

2SM-SP-009

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The UFSAR description and procedures did not require a change. The probability and consequences of an accident previously evaluated in UFSAR were not increased. UFSAR Section 9.2.5.2 stated that the ESP Filter Pumps are provided with syphon breakers. Therefore, these changes ensured that the basis for the safety analysis was met. The margin of safety as defined in Technical Specifications was not reduced.

1SM-SP-010

These site modifications updated the Emergency Response Facility Data Acquisition and Display System (ERFDADS) computer software for the high level settings of the Essential Spray Ponds High-Low Level. The actual high-low level switch setpoints were changed by the Site Modifications 1SM-SP-008 and 3SM-SP-008. However, the changes to the ERFDADS computer were not included in those Site Modifications. These modifications were considered nonsafety-related.

3SM-SP-010

These site modifications did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The UFSAR description and procedures did not require a change. The probability and consequences of an accident previously evaluated in UFSAR were not increased. Technical Specifications Section 3.7.5 established requirements for the minimum Essential Spray Pond water level, but did not address any maximum level requirement. Therefore, the margin of safety as defined in technical specifications was not reduced. Raising the high level setpoints were in the conservative direction. These site



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modifications only revised the ERFDADS computer software to correct the setpoints.

3SM-SQ-009

This site modification replaced a resistor in the Iodine Channels of a number of Radiation Monitors. The modification provided adequate range for calibrating these monitors. The change was required to reduce the number of special reports and LER's to the NRC by improving component reliability. This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The UFSAR description and procedures did not require a change. Technical Specifications Section 3/4.3.3, Table 3.3-6 3.7.5 did not address Iodine Channel of these radiation monitors. The modification did not change the design intent or the performance of the equipment. The mechanism for the equipment failure were the same as those for the original equipment design. Therefore, the probability and consequences of a malfunction of the equipment did not increase. These Iodine Channels were not a part of the basis for any technical specifications. Therefore, the margin of safety was not reduced.

1SM-SQ-011

This site modification cut the back panel of the Radwaste Building Exhaust Radiation Monitor (1J-SQN-RU-14) into two pieces to provide a maintenance access panel. The modification was required to reduce the number of manhours required for removing the one piece back panel for maintenance. This was a cost saving modification.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. The UFSAR description and procedures did not require a change. The probability and consequences of an accident previously evaluated in UFSAR were not increased. Technical Specifications did not address this radiation monitor. Therefore, the margin of safety as defined in technical specifications was not reduced.

1SM-SQ-012

This site modification replaced filter holder assembly, installed moisture trap and deleted standby filter train to the Condenser Air Removal Radiation Monitor (1J-SQN-RU-141). The change was required to reduce the number of special reports and LER's to the NRC by preventing equipment damage and improving component reliability. This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. This radiation monitor was not taken into consideration in any safety analysis evaluated in the UFSAR. Therefore, the probability and consequences of an accident were not increased. The mechanism for the equipment failure remain the same as before.

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This radiation monitor was not part of the basis for any technical specifications. Therefore, the margin of safety was not reduced.

1SM-SQ-022

This site modification removed the air flow switches S101 and S102 from the Nuclear Cooling Water System Radiation Monitor (1J-SQN-RU-6) and the Radwaste Building Exhaust Radiation Monitor (1J-SQN-RU-14). The switches were removed due to high failure rate. The air fans that used these air flow switches were located in the lower cavity of the radiation monitors where little cooling was needed. This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. These radiation monitors were not addressed in the Technical Specifications. Therefore, no changes to the Technical Specifications were required. The probability and consequences of an accident were not increased. No changes to the procedures described in UFSAR were required. The margin of safety as defined in Technical Specifications Section 3/4.3.3 was not reduced.

3SM-SQ-029

This site modification eliminated the ground loop on BETA scintillation detectors checksource circuitry of Condenser Air Removal Radiation Monitor (1J-SQN-RU-141) and the Plant Vent Radiation Monitor (1J-SQN-RE-143). This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. The Technical Specifications Section 3/4.3.3.8, Table 4.3-8 requirements did not require any changes. The probability and consequences of an accident were not increased since they are independent of operation of the radiation monitors. No changes to the procedures described in UFSAR was required. The margin of safety as defined in Technical Specifications Section 3/4.3.3.8 was not reduced since the basis made no reference to the checksource utilized.

1SM-SQ-031

This site modification provided adequate power supply voltage at the flow transducers for Condenser Exhaust Radiation Monitor (1J-SQN-RU-142), the Plant Vent Radiation Monitor (1J-SQN-RE-144) and the Fuel Building Vent Exhaust Radiation Monitor (1J-SQB-146). The modification was required for proper calibration of the flow transmitters. An inverter board was causing reduction in the 24 VDC input to the flow transducers. This modification bypassed the inverter boards. This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. The Technical Specifications Section 3/4.3.3.8, Table 4.3-8 requirements did not require any changes. The probability and consequences of an accident were not increased since they are independent of operation of the radiation monitors. No changes to the procedures described in UFSAR were required. The margin of safety as defined in Technical Specifications Section 3/4.3.3.8 was not reduced since the basis made no reference to the checksource utilized.

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1SM-SR-008

This site modification installed backflush capability for resin retention screens in the Solid Radwaste Spent Resin Tanks. These screens were becoming plugged with resin fines and needed backflush otherwise the tanks would have been unusable. This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. This modification altered the initial design by changing the piping. The UFSAR did not address details such as component backflushing. Therefore, a change to the UFSAR was not required. The Technical Specifications Section 3/4.11 was not impacted. Therefore, the Technical Specifications did not require any changes. The probability and consequences of an accident were not increased. The piping was routed to the Radwaste Building Sump. All potential flow paths through this line were filtered to preclude excessive sump contamination. The Technical Specifications basis was not impacted. Therefore, the margin of safety as defined in Technical Specifications Section B3/4.11.3 was not reduced.

1SM-SR-011

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2SM-SR-011

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3SM-SR-011

These site modifications added a permanent spool and flush lines in place of the temporary spool which was used to transfer spent resin from the permanent plant piping to the vendor skid. These modifications were considered safety-related.

These site modifications did not introduce an unreviewed safety question. The UFSAR and the Technical Specifications did not require any changes. The probability and consequences of an accident were not increased. The spent resin piping was not referenced or addressed in the Technical Specifications. These changes had no impact on equipment important to safety. The only possible malfunction would be a leak of radwaste material from the added piping. However, this scenario was already evaluated in UFSAR Section 15.7. The new piping was installed in accordance with ASME B31.1. Therefore, it would not be more prone to leakage than the rest of the piping. The margin of safety as defined in Technical Specifications Section 3/4.11 was not reduced since the spent resin transfer was not part of any technical specifications.

1SM-SV-004

This site modification changed the test signal wiring of the Reactor Coolant Pumps vibration monitoring system and the Core Internals loose parts and vibration monitoring system. The changes were required to make the wiring consistent between PVNGS

This site modification did not introduce an unreviewed safety question. The UFSAR and the Technical Specifications did not require any changes. The probability and consequences of an accident were not increased. This modification did not change the

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Units 1, 2 and 3, and to comply with the vendor drawings. This modification was considered nonsafety-related.

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function of the system. The loose parts and vibration monitoring system only provides data for analysis and has no controls for equipment operation. This system is isolated from the safety-related and important to safety systems. The modification did not impact the data collection capability of loose parts or the alarm function. Therefore, the margin of safety as defined by the Technical Specifications basis 3/4.3.3.7, Amendment 40 was not reduced.

1SM-XM-002

These site modifications added/modified supports for a number of vent and drain lines in the Reactor Coolant and Safety Injection Systems. This has resulted from an investigation of previous failures of small bore vent and drain lines in those systems to identify similar piping configurations which were susceptible to vibration (fatigue failure). This modification was considered safety-related.

These site modifications did not introduce an unreviewed safety question. Technical Specifications Sections 3/4.4 and 3/4.5 did not detail pipe supports. Therefore, the Technical Specifications did not require any changes. UFSAR Section 3.9.3 described the analysis of ASME Code Class 1, 2, and supports. The probability of an accident previously evaluated in the UFSAR was not increased. The possibility of a small break LOCA as described in CESSAR Section 6.3.3.3 was decreased by these modifications. The Technical Specifications Section 3/4.4.5 requirement to monitor RCS leakage was unaffected by these modifications. Therefore, the margin of safety as defined in Technical Specifications was not reduced.

2SM-XM-002

3SM-ZA-004

This site modification removed the existing handrails, cut off the existing studs and installed new handrails. The protruding studs from the equipment hatch handrails of Auxiliary Building posed a safety hazard to the personnel. This violated OSHA requirements. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. The Technical Specifications did not require any changes. This modification had no effect on any safety related, safe shutdown or important to safety systems. Hence, the consequences of malfunction of equipment important to safety was not increased. The probability of an accident previously evaluated in the UFSAR was not increased. Handrails were not included in the Technical Specifications. Therefore, the margin of safety as defined in the Technical Specifications was not reduced.

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2SM-ZA-006

These site modifications installed air tight seals in the vertical pipe chases located in the Auxiliary Building. The seals were required to prevent migration of noble gas to low radiation areas. These modifications were considered safety-related.

These site modifications did not introduce an unreviewed safety question. The Technical Specifications did not require any changes. These modifications had no adverse effect on safety related, safe shutdown or important to safety structure, components and systems. Hence, the consequences of malfunction of equipment important to safety was not increased. The probability of an accident previously evaluated in the UFSAR was not increased. The margin of safety as defined in Technical Specifications was not reduced. The seals increased safety functions of Emergency Auxiliary Building HVAC and would reduce the man-rem exposure during normal operation.

1SM-ZC-008

This site modification installed safety cages on ladders that provide access to the Containment Equipment Hatch platforms. The cages were required to meet OSHA requirements for ladders with intermediate platforms. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. The Technical Specifications did not require any changes. This modification had no effect on the operation of any safety related, safe shutdown or important to safety systems since the cage was installed as class R-9. Hence, the consequences of malfunction of equipment important to safety was not increased. The probability of an accident previously evaluated in the UFSAR was not increased. The margin of safety as defined in the Technical Specifications was not reduced.

1SM-ZC-009

2SM-ZC-009

These site modifications provided a safer, more permanent way to gain access to the Containment Building Equipment Hatch bolts by adding ladder rungs to the existing hatch guide beams and installing a safety cable with attachments. Previously, erection of scaffolding was needed to torque the Containment Building Equipment Hatch bolts. Use of scaffolding was not feasible in the event of loss Residual Heat Removal since the NRC commitments required closure of the hatch within one to four hours. This modification was considered nonsafety-related.

These site modifications did not introduce an unreviewed safety question. Operation of the equipment hatch as described in the Technical Specifications 3/4.9.4 was not affected. Therefore, the Technical Specifications did not require any changes. This modification had no effect on the operation of any safety-related, safe shutdown or important to safety systems. The consequences of malfunction of equipment important to safety was not increased. The probability of an accident previously evaluated in the UFSAR was not increased. The Limiting Condition for Operation as described in the Technical Specification Section 3/4.9.4 and the

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structural integrity of the liner as described in the Technical Specifications Section 3/4.4.9 were not affected. Therefore, the margin of safety as defined in the Technical Specifications was not reduced.

2SM-ZF-001

This site modification changed the controls of the Fuel Handling Crane by adding relays and wiring. The change in the controls were made to prevent entry of loads in excess of 2000 lbs over the spent fuel pool when the crane is in the hoist interlock "Bypass" and "Fuel Bundles" modes, as required by the Technical Specifications Section 3/4.9.7. In addition, the interlocks were changed to prevent travel of the hoist loads over 5000 lbs into the fuel container area, unless the crane was switched to the new "Gate Mode", as permitted by the UFSAR Section 9.1.4.2.2.17. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. This modification was required to meet the requirement of the Technical Specifications 3/4.9.7. Therefore, the Technical Specifications did not require any changes. The probability of dropping a new fuel assembly as described in UFSAR Sections 9.1.1.3.1 and 9.1.2.3.1 was not increased because no load bearing crane capabilities were changed. The consequences of fuel handling accidents remained the same as previously evaluated. The procedures described in the UFSAR were affected by this modification. The change was implemented to ensure that loads in excess of the stated limits in the Technical Specifications Section 3/4.9.7 are not carried over the spent fuel pool. Therefore, the margin of safety was not reduced.

1SM-ZF-004

This site modification verified/installed shackles and chain hoists which would be used as safety strains when the Fuel Pool Gates are lifted and removed when spent fuel is in the Spent Fuel Pool. With the safety restraints in use the gates would not come in contact with spent fuel or the racks in the event of complete failure of the crane hoisting system and drop of the gate over the fuel. This modification resulted from evaluation of NUREG 0612. This modification was considered safety-related.

This site modification did not introduce an unreviewed safety question. The Technical Specifications did not require any changes. This modification did not increase the probability and consequences of an accident as evaluated in the UFSAR. This modification increased the margin of safety as defined in the Technical Specifications Section 3/4.9.7 since the installation of the safety restraints would prevent the gates to come in contact with the fuel or the racks in the event the crane hoisting system failed.

2SM-ZZ-002

This site modification replaced the locksets for the wire mesh gates with a different type. In addition, door closers were

This site modification did not introduce an unreviewed safety question. The Technical Specifications did not require any

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Installed for the gates that did not have closers. The old locksets were too difficult to operate because of small knob at the in-side of gates. The plant operators needed a more expeditious locking system to control areas when they became hot. This modification was considered nonsafety-related.

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changes. The consequences of malfunction of equipment important to safety was not increased. The probability of an accident previously evaluated in the UFSAR was not increased. The margin of safety as defined in the Technical Specifications was not reduced. The keying structure in the security plan remained the same with the same master keying. Replacing the locksets enhanced the operation of the gates. Locksets of this type were used on others doors at the plant.

2SM-RJ-022

This site modification modified the COLSS software to change the tilt alarm algorithm and the Unit 2 cycle 3 constant values to accurately monitor the core functions for the new cycle. This change is done prior to every new fuel cycle.

This site modification did not introduce an unreviewed safety question. Procedures for COLSS are not defined in the UFSAR. However, the reactor core monitoring system (COLSS) and protective system are integrated with the plant technical specifications (in which operating limits and limiting conditions for operations are specified) to assure that all safety requirements are satisfied. This modification does not increase the probability or consequences of an accident previously evaluated in the UFSAR because the COLSS monitors information and does not initiate any direct functions.

2SM-RK-004

This site modification deleted Cooling Tower Chlorine Panel trouble alarms which were annunciated in the Unit main control room. These alarms were considered to be nuisance alarms and are responded to by the Water Reclamation Facility (WRF) operators.

This site modification did not introduce an unreviewed safety question. This modification deletes the two Cooling Tower Chlorine trouble alarms from annunciating in the Unit main Control Room. The equipment being monitored is under the jurisdiction of WRF and the WRF operators respond to the alarms. No procedures as they are described in the UFSAR and no technical specifications were affected or changed as a result of this modification. A malfunction of this equipment or this modification will not increase the probability or consequences of an accident previously evaluated in the UFSAR.

ISM-RZ-002

This site modification relocated the four Pressurizer Relief Valve acoustical flow sensors closer to the relief valves. Excessive

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required.

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ISM-RZ-002

This site modification relocated the four Pressurizer Relief Valve acoustical flow sensors closer to the relief valves. Excessive distance and pipe bending between the sensors and the relief valves had resulted in significant signal attenuation and erroneous reading. This modification was considered nonsafety-related.

This site modification did not introduce an unreviewed safety question. No changes to the Technical Specifications were required. Pressurizer Relief Valve flow monitoring system is an independent system and does not perform any safety-related function; therefore, probability of an accident as previously evaluated in the UFSAR was not increased. The flow monitoring system provides indication of valve position. This change enhanced the system operability and provided more reliable indication only. Therefore, the margin of safety as defined in the Technical Specifications Section 3.3.3.6, Table 3.3-10 was not reduced.

ISM-SB-002

This site modification replaced contact block type PTCC with a gold sliding contact block type PTCR and changed the main control board wiring to accommodate the new block.

This site modification did not introduce an unreviewed safety question. This modification replaces the ESFAS contact block with a more reliable gold sliding contact block. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification. The function and operation of the new contact block has not changed, thus there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR. The margin of safety remains unchanged and there is no degradation to the trip path circuit by this change. The new gold contacts are recommended contact for the low voltage and current in this circuit.

2SM-SB-015

This site modification changed out the Variable Setpoint (VSP) Cards to an upgraded model in the Plant Protection System cabinet local control room. The old VSP cards occasionally drop when the clock circuit is enabled.

This site modification did not introduce an unreviewed safety question. This modification replaces three VSP cards in the Plant Protection System (PPS) cabinet local control room with an upgraded model. The change out was deemed necessary to prevent the occasional drop whenever the circuit clock is enabled. The function and operation of the new VSP card has not changed, thus there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR. No procedures as they

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are described in the UFSAR and no technical specifications are affected or changed by this modification.

2SM-PC-001

This site modification changed out the existing 10" blind flange with 1" drain line to a 10" blind flange with a 10"x4" and 4"x1" reducers to the 1" drain line on the refueling pool LOCA drain line.

This site modification did not introduce an unreviewed safety question. This modification was done to prevent the potentials for a radioactive crud trap. This modification makes a change to the facility by modifying the permanent plant drain piping on the refueling pool LOCA drain line. The change out was necessary to prevent a radioactive crud trap. The function and operation of the modified line has not changed, thus there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-QA-001

This site modification added an additional dedicated circuit from a normal lighting panel to a receptacle to power non-class portable radiation monitors.

This site modification did not introduce an unreviewed safety question. This modification makes a change to the facility by adding a dedicated non-class receptacle and circuit from a normal lighting panel to power portable radiation monitors. This change was necessary as the existing available circuit has insufficient capacity for more than one receptacle. The function and operation of the new circuit and existing circuit has not changed, thus there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification. This change will aid in meeting technical specification 3/4.3.3, Table 3.3-6, action statement 27 by providing a positive reliable source of non-class power.

1SM-QD-004

This site modification installed one emergency light at 100 ft elevation of stairway south of train "A" switchgear room. This

This site modification did not introduce an unreviewed safety question. This modification makes a change to the facility by

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light will provide sufficient lighting to locate the ACAD reader for access to switchgear room.

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adding a dedicated emergency light to allow personnel to locate the ACAD reader. This change was necessary as the existing lighting was insufficient to allow entry into the train "A" switchgear room, via the ACAD reader, which is along the safe shutdown path for plant personnel safety. The function and operation of the new emergency light will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change/addition. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-QD-008

This site modification modified the inverter DC input low voltage relay (LVR) setpoint from 105 VDC to 101 VDC to compensate for voltage drop due to long cable run.

This site modification did not introduce an unreviewed safety question. This modification resets the inverter DC input low voltage relay (LVR) setpoint from 105 VDC to 101 VDC. This was deemed necessary to compensate for a voltage drop due to long cable run. The function and operation of the inverter has not changed and a revision to the setpoint will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. Lighting is not discussed in chapter 15 of the UFSAR or the technical specifications. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

2SM-QD-008

3SM-QD-008

3SM-QK-001

This site modification replaced two existing ionization smoke detectors in the spray pond pump house to photoelectric detectors.

This site modification did not introduce an unreviewed safety question. This modification replaces two existing ionization smoke detectors to photoelectric detectors in the spray pond pump house. This change was deemed necessary to eliminate spurious alarms. The function and operation of the new detectors has not changed and the

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previously evaluated in the UFSAR by this change. The proposed change will require a change to the UFSAR page 9B.2.7-1 and 9B.2.8-1, noting the use of photoelectric detectors. No other sections of the UFSAR or the technical specifications are affected by this change. No procedures as they are described in the UFSAR are affected or changed by this modification.

3SM-QM-003

This site modification changed the heat trace system controller setpoint and alarm temperatures on the LRS Evaporator and Radwaste Caustic. The LRS evaporator operational temperature is in the 210°-to-215°F range, while the listed maximum process temperature for alarm setpoint is 190°F. This causes an alarm for normal system conditions.

This site modification did not introduce an unreviewed safety question. This modification changes two existing heat trace system controller setpoint and alarm temperatures on the LRS. This change was deemed necessary to eliminate the nuisance alarms in the control room. The function and operation of the controller has not changed and the change will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-RC-003

This site modification modified an existing welded hanger design to a bolted type design to allow removal and reinstallation of the CEDM support structure.

This site modification did not introduce an unreviewed safety question. This modification changes one existing RC system welded hanger design to a bolted type design. The function and operation of the hanger has not changed and the modification will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-RC-006

This site modification added an elapse time counter to the reactor

This site modification did not introduce an unreviewed safety

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by this modification.

ISM-RC-006

This site modification added an elapse time counter to the reactor coolant pump control scheme to establish the run time on the reactor coolant pump.

This site modification did not introduce an unreviewed safety question. This modification adds an elapse time counter to the RCP control scheme to monitor the run time of the RCP. The function and operation of the RCP does not changed and the addition of the counter will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

ISM-RC-014

This site modification removed snubber on 1" Reactor Vessel leak off drain line.

This site modification did not introduce an unreviewed safety question. This modification removes a snubber on the 1" Reactor Vessel leak off drain line. This change was deemed necessary due to ALARA concerns. The function and operation of the Reactor Vessel leak off line does not changed by the removal of this snubber. The removal of the snubber will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

ISM-RC-015

This site modification removed snubber body on the pressurizer main spray line.

This site modification did not introduce an unreviewed safety question. This modification removes the snubber body on the pressurizer main spray piping. This change was deemed necessary due interferences with the operation of the handwheel on the pressurizer spray line valve. The function and operation of the

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shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

2SM-SC-010

This site modification changed the existing setpoint on the Condensate Demineralizer Resin Transfer water supply pressure controller from 45 ± 2 psig to 55 ± 5 psig.

This site modification did not introduce an unreviewed safety question. This modification changed the setpoint on the Condensate Demineralizer Resin Transfer water supply Pressure Controller. This change was deemed necessary to allow an effective resin transfer. The function and operation of the controller has not changed and the change will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-SF-001

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2SM-SF-001

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3SM-SF-001

This site modification wired the existing unused NC contacts in each of the 4 CEDMCS UV Relays in parallel to allow more current carrying capability to the turbine trip relays without damaging them and to minimize the downtime following a turbine trip.

This site modification did not introduce an unreviewed safety question. This modification wired two spare NC contacts in parallel in lieu of one contact to improve the current carrying capability. The function and operation of the contacts due to this wiring has not changed and the change will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

2SM-SG-006

(BL0012)

This site modification installed Spectacle Flange upstream of

This site modification did not introduce an unreviewed safety

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Steam Generator wet layup pump discharge isolation valves and downstream of suction isolation valves.

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question. This change was deemed necessary to prevent interferences, as a result of the leakage, with the RCS leak detection system. The function and operation of the SG wet layup pump discharge isolation valves and suction isolation valves has not changed as a result of this modification. This change will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-SG-008

This site modification installed Lanyard Transducers on the Steam Bypass Control Valves (SBCV) for Temporary Data Acquisition System (TDAS) hookup.

This site modification did not introduce an unreviewed safety question. This modification installed Lanyard Transducers on the Steam Bypass Control Valves to provide TDAS position input. The function and operation of the transducers will have no impact on the operation of the SBCV. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-SG-017

This site modification installed a 3/8" carbon steel furmanite shutoff adaptor on each ADV bonnet to allow for periodic inspection and surveillance of the ADVs.

This site modification did not introduce an unreviewed safety question. This modification installed a 3/8-inch furmanite shutoff adaptor on each ADV bonnet. The function and operation of the ADVs due to the installation of the pressure tap and shutoff adaptor has not changed. The modification will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and



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no technical specifications are affected or changed by this modification.

1SM-SG-018

This site modification installed the ADV upgraded packages to improve valve reliability and extend valve life.

This site modification did not introduce an unreviewed safety question. This modification installed an ADV upgraded package to improve the response characteristics of the ADVs. The function and operation of the ADVs due to the installation of the upgraded internal components has not changed. However, the response characteristics of the ADVs will be improved as a result of this modification. The modification will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-SG-019

This site modification installed the SBCV upgraded packages to improve valve reliability and extend valve life.

This site modification did not introduce an unreviewed safety question. This modification installed an SBCV upgraded package to improve the response characteristics of the valves. The function and operation of the SBCVs due to the installation of the upgraded internal components will improve the operability of the valves. The modification will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

2SM-SG-019

1SM-SG-020

This site modification increased the nitrogen supply setpoint to the ADVs from 95 psig to 105 psig to improve the overall

This site modification did not introduce an unreviewed safety question. This modification raises the backup nitrogen supply

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2SM-SG-020

performance of the ADVs while operating off the nitrogen system.

system setpoint to the ADVs. The setpoint change will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR are affected by this modification. Technical specification section 3/4.7.1.6 will require a change to the accumulator verification pressure to cover the new nitrogen supply setpoint pressure range.

1SM-SG-022

This site modification modified the manual override mechanism on the ADVs to allow a counter clockwise operation of the handwheel.

This site modification did not introduce an unreviewed safety question. This modification modifies the manual override assembly (Jactuator) on the ADVs such that all ADVs open when operating the handwheel in the counter clockwise direction. The function and operation of the ADVs due to the installation of the modified manual override assembly has not changed. However, the handwheel direction during manual operation has been changes to be consistent on all valves. The modification will not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

2SM-SG-022

3SM-SG-022

1SM-SG-026

This site modification installed SBCV bonnet pressure tap and associated instrument connections.

This site modification did not introduce an unreviewed safety question. This modification installed a SBCV pressure tap and associated instrument connections and hardware to allow pressure reading to be taken. The function and operation of the SBCVs due to the installation of the pressure tap and associated instrument connections and hardware has not changed. The modification will

2SM-SG-026

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not affect the operation and function or cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR and no technical specifications are affected or changed by this modification.

1SM-SG-027

This site modification modified the instrument air setpoint pressure switches on the downcomer valves to allow the switch to reset.

This site modification did not introduce an unreviewed safety question. This modification lowers the setpoint of the switches on the downcomer valves. The setpoint change will enhance the operation and function of the downcomer valves. This modification will not cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR or technical specifications are affected by this modification.

1SM-SG-028

This site modification installed ADV handwheel set screw.

This site modification did not introduce an unreviewed safety question. This modification installed a set screw to the ADV manual override assembly handwheel. The modification was deemed necessary to improve the operability and reliability of the handwheel operator. This modification will not cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR or technical specifications are affected by this modification.

2SM-SG-028

1SM-SG-029

This site modification installed SBCV set screw to the manual override assembly handwheel.

This site modification did not introduce an unreviewed safety question. This modification installed a set screw to the SBCV manual override assembly handwheel. The modification was deemed

2SM-SG-029

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necessary to improve the operability and reliability of the handwheel operator. This modification will not cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR or technical specifications are affected by this modification.

1SM-SG-034 This site modification increased the setpoint of the pressure
& safety valves associated with the backup nitrogen supply to the
2SM-SG-034 ADVs from 125 psig to 131 psig.

This site modification did not introduce an unreviewed safety question. This modification increases the setpoint of the pressure safety valves associated with the backup nitrogen supply to the ADVs. This was deemed necessary to protect the line and the ADVs against overpressurization. This modification will not cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR or technical specifications are affected by this modification.

2SM-SG-038 This site modification reset the time delay relays on the Steam
Driven Aux Feedwater Pump Turbine.

This site modification did not introduce an unreviewed safety question. This modification lightens the relay setting for the delay from initial steam driven aux feedwater pump start sequence until the main steam supply valve begins to open. This modification will not cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR or technical specifications are affected by this modification.

1SM-SI-003 This site modification installed an oil drain system to the LPSI
and Containment lower motor bearing and add a spray deflector

This site modification did not introduce an unreviewed safety question. This modification will not cause any malfunction of

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between the shaft seal and lower motor bearing. This modification will reduce radiation exposure and prevent damage to the lower bearing.

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existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR or technical specifications are affected by this modification.

3SM-SI-006

This site modification added stiffer spring pack on the safety related gate valve electric motor actuators, located on the discharge piping of the HPSI pump to the hot leg injection piping.

This site modification did not introduce an unreviewed safety question. This modification added design margins for 2 MOV's in the SI system when the associated SI valves were operated during abnormal or transient conditions. This modification will not cause any malfunction of existing safe shutdown equipment. Thus, there is no increase in the probability or consequences of an accident previously evaluated in the UFSAR by this change. No procedures as they are described in the UFSAR or technical specifications are affected by this modification.



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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
2FJ-AF-091	This DCP replaced the valve yoke assembly including the motor operated valve actuators on four Auxiliary Feedwater System valves.	This DCP did not introduce an unreviewed safety question. The motor operated valves are still activated by ESPAS as identified in the UFSAR and they still constitute part of the safe shutdown equipment as listed in the UFSAR. The design basis of the motor operated valves as part of engineered safety features or as part of the safe shutdown system has not been changed, no new challenges to safety have been raised.
2FJ-AF-093	These DCPs dedicated a specific rotor on the Motor Operated Valve (MOV) to be used exclusively for the torque switch bypass. The valve position indication contacts were moved to a specific rotor performing the identical function. These DCPs involved activities to comply with INPO SOER 86-02.	These DCPs did not introduce an unreviewed safety question. Motor operators rotor, rotor wiring and rotor setpoints are not discussed specifically on the UFSAR and CESSAR. However, the reliability of the systems, which rely upon MOVs to perform their safety functions as discussed in the UFSAR and CESSAR, would be improved because this change improves MOV performance and does not change the function of the MOVs. For that reason, the previously analyzed accidents of the UFSAR are not affected.
2FJ-CD-092		
2FJ-CH-238		
1FJ-CT-017		
2FJ-CT-017		
3FJ-CT-017		
2FJ-CW-049		
2FJ-ED-094		
2FJ-EW-032		
2FJ-FW-025		
2FJ-GR-045		
2FJ-HC-053		
2FJ-HP-044		
2FJ-MT-148		
2FJ-NC-038		
2FJ-RC-158		
2FJ-RD-039		
2FJ-SG-161		
2FJ-SI-178		
1FJ-SP-059		
2FJ-SP-059		
2FJ-SP-059		



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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
2FJ-NC-046		
10J-AF-088	This DCP involved removing the flow indicator and associated valves from the full flow recirculation lines on auxiliary feedwater pumps and capping the end connection. This prevents fatigue failure due to excessive vibrations.	This DCP did not introduce an unreviewed safety question. Flow indicators on the full flow recirculation lines are not required for the operation of the system. Therefore, this change does not have any impact on the function or the operation of the auxiliary feedwater system and components. As a matter of fact, this change would bring the associated piping in compliance with the seismic category I requirements.
20M-AF-090 & 30M-AF-090	These DCPs changed the auxiliary feedwater pump sealing system from packing to mechanical seals.	These DCPs did not introduce an unreviewed safety question. Mechanical seals do not affect any accidents already analyzed in the UFSAR. Also, since packing or mechanical seals are offered by the manufacturer as qualified and acceptable shaft sealing mechanisms, consequences of an accident previously evaluated in the UFSAR would not increase.
1FJ-CH-234 & 3FJ-CH-234	These DCPs added a narrow range pressure instrumentation loop for nitrogen blanket monitoring including transmitter and control room indication for the reactor drain tanks (RDTs)	These DCPs did not introduce an unreviewed safety question. This change does not involve safety-related equipment and the equipment added does not perform any control function for any equipment important to safety. Therefore, this change does not create or increase the possibility of an accident which has not been already analyzed in the UFSAR.
1FC-CH-235	This DCP modified the pipe supports to allow the maintenance of the charging pumps in the auxiliary building at elevation 100'.	This DCP did not introduce an unreviewed safety question. This modification did not change the function or the operation of the Chemical Volume Control System as described and taken credit for in the accident analyses of the UFSAR. Therefore, it does not increase the probability or consequences of already analyzed accidents.



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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
10E-CW-801	This DCP added a 600 volt terminal block in each Motor Operated Valve (MOV) for the motor terminations.	This DCP did not introduce an unreviewed safety question. This modification is nonsafety-related and it meets an industrial safety standard. It did not impact the function or operation of MOVs and it does not affect any accident previously analyzed in the UFSAR. Therefore, the probability of consequences of already analyzed accidents did not increase.
10M-CW-042	This DCP provided drain valves to drain condenser legs in Unit 1 so the water level in the condenser would be low enough to allow entry through the manway.	This DCP did not introduce an unreviewed safety question. This change is nonsafety-related and did not alter any safety system function. Also, this equipment is used only during Mode 6 when the condenser is not in operation. Therefore, it does not affect any analyses decided in the UFSAR. Addition of drain lines is within the flooding analysis provided in the UFSAR and it does not create any new pathways for flooding. So, no new type of accident is created.
10E-DG-049 & 20E-DG-049	These DCPs replaced the existing power supplies on each diesel generator with new DC to DC converters to eliminate the possibility of AC noise entering the system in case of an inverter failure. These DCPs also removed the power resistor for the diesel generators governor control power and used DC/DC converter output instead.	These DCPs did not introduce an unreviewed safety question. The installation of the DC-DC converter prevents the diesel generator speed sensing circuit from receiving false signals from AC interference signals. These interference signals can make the diesel generators unavailable for emergency operation. So, this change does not affect the function or operation of the system; as a matter of fact, it improves the reliability of the system. Since the function or operation of any system is not affected, the probability of consequence of any previously analyzed accidents is not affected.
AOM-DS-085	This DCP replaced existing 4 inch vessels and membranes with 8 inch vessels and membranes, replaced cleaning pump and replaced miscellaneous piping, valves and fittings of the Domestic Water System (PS). It also increased the maximum output flow from 800	This DCP did not introduce an unreviewed safety question. This modification does not have any impact on safety-related components or systems taken credit for in the accident analysis in the UFSAR. Therefore, it does not increase the probability or consequence of



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	to 1000 gpm.	any analyzed accidents.
10J-EW-030	This DCP replaced existing high discharge pressure switch with one that has a narrower deadband to eliminate the constant alarm in the Control Room.	This DCP did not introduce an unreviewed safety question. Since the new switch has a deadband that is compatible with the process pressure, it eliminated a nuisance alarm in the Control Room. It did not impact the function or operation of any component or system considered in an accident situation. Therefore, it does not affect the accident analyses already described in the UFSAR.
10M-FH-025	This DCP relocated the CEA elevator cable hook plate on the CEA cutter rack base, 5 inches to south.	This DCP did not introduce an unreviewed safety question. This change did not change any assumptions or methodology for UFSAR accident analyses. The worst case accident is bounded by the existing analyses. Therefore, the probability of an accident or any new accident was not increased.
10-QK-023	This DCP replaced Honeywell TC100C ionization detectors with Honeywell T4057A-1015 (200°F) combination rate-of-rise and fixed temperature fire detectors in Unit 1.	This DCP did not introduce an unreviewed safety question. The replacement of the ionization detector with thermal detectors did not affect any equipment or system taken credit for in the UFSAR accident analyses. Nor, did it have any impact on the elements of the fire protection program.
10P-FT-032	This DCP re-routed piping and lowered the elevation of steam traps to eliminate a source of water hammer.	This DCP did not introduce an unreviewed safety question. This modification did not change the system function or operation. The components and piping are nonsafety-related and the accident analyses of UFSAR sections 6 and 15 make no assumptions concerning the portions of the piping system involved. Any potential failures or accidents which could be resulting from this modification would be bounded by the streamline break analysis of UFSAR.
1SM-FX-003	This DCP reworked structural modifications that were added to new fuel storage racks in order to have a Q-class acceptable	This DCP did not introduce an unreviewed safety question. This change did not affect directly or indirectly the function,



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	installation.	operation or reliability of any safety-related equipment or system taken credit for in the accident analyses of the UFSAR. Therefore, the probability and the consequences of any accident are not increased.
10J-GA-025	This DCP replaced hard seats and plugs in nitrogen supply line regulators with soft seats and plugs.	This DCP did not introduce an unreviewed safety question. The operation of nitrogen regulators is not evaluated in the UFSAR. This change did not adversely affect the operation of any safety-related equipment which have been considered in the UFSAR accident analyses and remains bounded by the results of these analyses.
10N-CR-809	This DCP removed pressure switches JGRN-PSL 19 & 20 from compressor and cap connections and replaced the tempered steel fittings and tubing with annealed tubing and Swagelok fittings.	This DCP did not introduce an unreviewed safety question. This replacement did not impact safety-related components or equipment taken credit for in the UFSAR accident analyses. This change made the system stronger and better able to withstand the system design pressure and, therefore, it did not increase the probability or consequences of any other accidents.
10M-CS-015	This DCP re-routed gland seal piping away from several junction boxes to prevent possible overheating of the junction boxes.	This DCP did not introduce an unreviewed safety question. This modification did not affect the function, operation or reliability of the safety-related equipment or system considered in the UFSAR accident analyses. It did not create any new condition that is not bounded by the UFSAR analyses. Therefore, the probability or consequences of any analyzed or new accidents is not increased.
3FM-HC-052	This DCP added transition duct and backdraft dampers on Control Element Drive Mechanism (CEDM) air conditioning unit fan discharge stacks.	This DCP did not introduce an unreviewed safety question. An analysis has been performed to insure that the structural integrity of the whole CEDM air conditioning unit was not jeopardized. Since the system has been assumed to fail for the purpose of existing accident analyses, any new accident would be bounded by the present analysis assumptions.



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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
10M-HJ-045 & 20M-HJ-045	These DCP added elapsed time meters to Essential Air Handling Units.	These DCP did not introduce an unreviewed safety question. This modification did not impact the function and operation of any safety-related system or equipment considered in the accident analyses. Therefore, the probability of any analyzed accident or any other accidents did not increase.
10M-HR-010	This DCP re-routed the non-radioactive air washer drain line from the roof scupper to the Control Building Sump.	This DCP did not introduce an unreviewed safety question. This change did not impact any safety-related equipment system function or operation as taken credit for in the accident analyses of the UFSAR. So the probability or the consequences of an analyzed or an unanalyzed accident are not increased.
10M-IA-062 30M-IA-062	These DCPs modified the existing Service Air header installing a piping system to provide Breathing Air to the Containment.	These DCPs did not introduce an unreviewed safety question. The failure or malfunction of the modified piping has no impact on any system important-to-safety that has been accounted for in the safety analysis of the UFSAR. The modified piping was installed with seismic category IX supports. Therefore, the possibility and the consequences of any analyzed or unanalyzed accidents was not increased.
30E-LO-032	This DCP introduced changes to start the Emergency Bearing Oil Pump (EBOP) on loss of power to the Turning Gear Oil Pump (TGOP) and to add redundant pressure switches to EBOP start circuit.	This DCP did not introduce an unreviewed safety question. The changes did not impact any equipment used in mitigating the consequences of any accident analyzed in the UFSAR. It improves the reliability of the turbine according to General Electric's recommendation. Therefore, it did not increase the probability or consequences of any analyzed or unanalyzed accidents.
1FE-MA-063 2FE-MA-063 3FE-MA-063	These DCPs reduced the possibility of the Units going into natural circulation by initiating auto-fast transfer upon receipt of a signal from the relays.	These DCPs did not introduce an unreviewed safety question. This modification did not affect the load sequencing or any safety-related equipment/system described in the UFSAR. It did not impact the accident analyses of the UFSAR. Therefore, the probability and

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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
1FE-MA-057	This DCP replaced the existing GE negative sequence relay with a new type of relay.	the consequences of any analyzed or unanalyzed accident do not increase. This DCP did not introduce an unreviewed safety question. This replacement did not have any impact on any UFSAR evaluations. This relay is for generator protection and it serves no safety-related purpose. Therefore, this change did not increase the probability or consequences of any analyzed or unanalyzed accidents.
10M-MT-143 30M-MT-143	These DCPs modified the turbine Electro-Hydraulic Control (EHC) system to provide sequential operating of the turbine intercept valves.	These DCPs did not introduce an unreviewed safety question. None of the inputs or the outputs into the EHC system was changed by this modification. Therefore, the turbine control operation remains unchanged resulting in no impacts on the accident analyses in the UFSAR. Also, since the function of the turbine was not changed, the probability and the consequences of any unanalyzed accidents have not been increased.
1FE-NA-041 2FE-NA-041 3FE-NA-041	These DCPs installed creepage extenders on the high voltage bushings of the "NB" transformers e.g. ESF transformer (13, 8 RV side).	These DCPs did not introduce an unreviewed safety question. This installation improved the capability of bushing and insulator, thereby improving their capabilities of mitigation of design basis accidents described in the UFSAR. This change did not create a condition which is not bounded by the existing accident analyses. Therefore, the probability and the consequences of any analyzed or unanalyzed accidents was not increased.
10E-NC-036	This DCP removes field installed jumpers to allow valves to be limit stopped instead of torque seated.	This DCP did not introduce an unreviewed safety question. The Normal Chiller Nuclear Cooling Water System (NCHS) outlet valve operation is not considered in UFSAR accident analyses. Also, the affected NCWS butterfly valves have no safety function. Therefore, the probability and the consequences of any analyzed or unanalyzed accidents were not increased.

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10E-QA-019	This DCP provided for improved lighting in Fuel Building at elevation 186' for exhaust monitors RU-145 and 146.	This DCP did not introduce any unreviewed safety question. The addition of light provides improved visibility for surveillance testing and personnel safety. Also, it has been installed per seismic requirements. The function and operation of the Radiation Monitors, as taken credit for in the UFSAR accident analyses, were not affected by this change.
2FE-QA-020	This DCP added six electrical outlets to the Radwaste Control Room a for fisking station, computer equipment and clock.	This DCP did not introduce an unreviewed safety question. Receptacles do not affect any safety-related equipment nor are used with equipment designated to mitigate the consequences of an accident. They do not affect any equipment that is important-to-safety and equipment that has been taken credit for in the accident analyses.
1FE-QB-009 2FE-QB-009 & 3FE-QB-009	These DCPs changed two (2) fixtures at the Main Steam Supply System (MSSS) 140' elevation from the Normal to the Essential Lighting System.	These DCPs did not introduce an unreviewed safety question. These two (2) essential lights were installed to the same design as previously been evaluated in the UFSAR. This change did not involve any safety-related equipment used for mitigating the consequences of an accident analyzed in the UFSAR.
1FE-QD-022 2FE-QD-022 & 3FE-QD-022	These DCPs provided eight (8) hour emergency lights for the manual safe shutdown use of the Atmospheric Dump Valves.	These DCPs did not introduce an unreviewed safety question. Emergency lighting is not covered in the UFSAR accident analyses. So, the probability and consequences of an analyzed accident were not changed. Furthermore, these lights are recharged from essential power and so, a small additional load will be added to the diesel generator. This, however, is well within the margin on the diesel generator load. Therefore, it did not affect either the probability or the consequences of the malfunction of any equipment important-to-safety.
1FE-QD-023 (BL0007)	These DCPs modified eight (8) hour emergency lighting in the	These DCPs did not introduce an unreviewed safety question.

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2FE-QD-023	Diesel, Control and Auxiliary Buildings.	Emergency lighting is not discussed or considered in the UFSAR accident analyses. Therefore, it did not affect the probability or consequences of an already analyzed accident. It involves nonsafety-related equipment. This small additional essential load has already been accounted for in the diesel generator loading study and is within the capability of the diesel generator. Therefore, it did not affect either the probability or the consequences of the malfunction of any equipment important to safety.
10E-QD-013	This DCP added new emergency lights at 140' elevation in the Fuel Building for additional illumination for the stairwell and open pit.	This DCP did not introduce an unreviewed safety question. The addition of the emergency lights enhances personnel safety in the area where the light is installed. The installation meets Seismic requirements. It did not affect the function of operation of any equipment or system considered in the UFSAR accident analyses. Therefore, the probability or the consequences of the UFSAR accidents is not increased.
1FE-QD-025 2FE-QD-025 3FE-QD-025	These DCPs replaced the Emergi-Lite emergency lighting units with two (2) new modular AC power stations and lighting fixtures.	These DCPs did not introduce an unreviewed safety question. Emergency lighting is not discussed or considered in UFSAR accident analyses. So, the probability and consequences of an analyzed accident have not been changed. It involves entirely nonsafety-related equipment. This small additional load has already been accounted for in the diesel generators loading study and is within the capability of the diesel generator. Therefore, it did not affect either the probability or the consequences of the malfunction of any equipment important to safety.
AOE-QB-008	This DCP added emergency lights in the Technical Support Center (TSC) Building.	This DCP did not introduce an unreviewed safety question. Emergency lighting is not discussed or considered in the UFSAR accident analyses. Therefore, the probability and consequences of

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an analyzed accident have not been changed. Since it did not affect the function of any equipment important-to-safety, the probability and consequences of an unanalyzed accident did not increase.

1FJ-RC-159

These DCPs added pressure regulators on the Instrument Air Supply lines for the Pressurizer Spray Valves J-RCE-PV-100E and 100F.

These DCPs did not introduce an unreviewed safety question. The reliability of the valve diaphragms, positions and volume boosters was increased due to the reduction of the Instrument Air supply pressure. No safety-related equipment is affected and the valve is spring closed upon loss of Instrument Air. Therefore, it did not affect the probability or consequences of the UFSAR analyzed accident. Nor did it increase the probability or consequences of an unanalyzed accident.

13M-RC-122

This DCP deleted the time delay to isolate Reactor Coolant Pump (RCP) seal bleedoff automatically after stopping the RCPs.

This DCP did not introduce an unreviewed safety question. The time delay deletion did not impact the safety functions of the RCPs and therefore, the UFSAR analyses that take credit for the RCP operation were not affected by this change. Also, this change is nonsafety-related. Therefore, the probability and the consequences of an analyzed or an unanalyzed accident was not increased.

1FM-RC-157

These DCPs installed replacement center-based Reactor Coolant Pump (RCP) shafts and replacement impellers in Unit 1 and Unit 2.

These DCPs did not introduce an unreviewed safety question. The inclusion of the small 25 mm center base has negligible effect on strength of the 7.75 inch diameter shaft. Therefore, the probability of a sheared shaft event as analyzed in the UFSAR was not increased. The new impellers do not have stellite hardfacing on the lower inlet shroud. Operating experience shows that hardfacing is not required to prevent galling of the impellers. Therefore, the probability of a locked rotor event is not increased. The loss of flow or loss of affected power events is not initiated by or with the RCP shafts or impellers. Therefore,

2FM-RC-161

Also, the Unit 2 DCP established an alternate flow measurement method.

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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
1FM-RC-154	This DCP installed Guide Structure Support System (GSSS) to provide guidance/alignment of the Control Element Assemblies extension shafts without the use of the external alignment tool.	the probability of a loss of flow or loss of power event was not increased. The performance of the flow closedown tests and the alternate flow measurement method ensures that the RCP coastdown and the minimum RCS flow rate assumed in the safety analyses of the events is achieved. Since no other accident, mitigating systems or equipment, are impacted by these changes, the consequences of these accidents were not increased.
10J-RC-819	This DCP provided additional supports to instrument tubing running from the root valves to their respective transmitters. The supports prevents the tubing from vibrating.	This DCP did not introduce an unreviewed safety question. The GSSS is a permanent CEA extension shaft guidance system to satisfy the original design intent. It is connected to the Upper Guide Structure with 16 studs and nuts which are locked and secured. Therefore, it will not increase the probability of an analyzed accident. The GSSS is a non-pressure retaining structure. So, it cannot create pipe breaks, missiles, flooding or loss of coolant type of accidents. Also, it provides CEA extension shaft alignment during reactor vessel head removal and installation. So, it did not create the possibility of a malfunction of a different type than previously analyzed in the UFSAR.
10M-FH-027	Permanently set the Upper Guide Structure (UGS) Lifting Flipper Assembly (no longer used) in the upright position to prevent	This DCP did not introduce an unreviewed safety question. The additional support that prevents vibration of the tubing improve transmitter output. Also, these supports do not adversely affect any systems or equipment considered in the accident analyses of the UFSAR. It does not affect the function of system or equipment important-to-safety. Therefore, the probability and the consequences of an analyzed or an unanalyzed accident were not increased.

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damage to the Control Element Assembly (CEA) Support Plate during refueling.

longer used. The UGS Lifting Flipper Assembly was no longer needed because of a change to a Deadbolt Assembly instead of the Flippers. This DCP permanently set the Flippers in the upright position to reduce the possibility of damaging the CEA Support Plate during refueling operations. The UGS Lifting Flipper Assembly is not referred to in the UFSAR or Technical Specifications. This modification increased the potential reliability and availability of the UGS Lift Rig.

10J-RC-147

This DCP changed the Reactor Coolant Pump (RCP) Bleedoff Flow Instrumentation (1J-RCN-FT-156,166,176&186) to a narrower flow range, from 0-16 gpm to 0-9.5 gpm, to obtain more accurate flow information at low flow rates.

This DCP did not introduce an unreviewed safety question. This DCP changed the flow transmitter float assembly and the Control Room scales of the RCP Bleedoff instrumentation. The RCP Bleedoff Flow instrumentation overall design and system operation were not affected. This change gives the operators better information about the RCP bleedoff flow to better determine when an RCP must be shutdown for maintenance. This instrumentation is nonsafety-related and does not impact the UFSAR accident analyses.

3FE-RD-037

Part 1: Changed the power supply to the Containment Sump Level Transmitters (3J-RDE-LT-410, 411) to Class 1E power.

Part 2: Removed Sump Low-Low Level Alarms from the Control Room that have been identified as nuisance alarms - Fuel Building Sump (3J-RDN-LSLL-200), ESF Sump (3J-RDN-LSLL-107), ESF Sump (3J-RDN-LSLL-108), Reactor Cavity Sump (3J-RDN-LSLL-013).

This DCP did not introduce an unreviewed safety question.

Part 1 of this DCP did not introduce an unreviewed safety question because the electrical isolation prevents any affect on safety-related systems involved with mitigating the consequences of an accident as described in Chapter 15 of the UFSAR. This DCP upgraded the power supply of the Containment Sump Level Transmitters from Non-1E to Class 1E power. This change was implemented to provide additional information to operators during non-accident post trip recoveries involving the loss of Non-1E Power. Electrical isolation was maintained at the level transmitter (qualified to Reg. Guide 1.89).

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		<p>Part 2 of this DCP did not introduce an unreviewed safety question because it did not involve any safety-related components. This part of this DCP removed four sump low-low level alarms from the Control Room that were identified as nuisance alarms. These sump low-low level signals are used to protect the sump pumps from loss of NPSH and subsequent pump damage. The Sump Pumps are Non-1E and not needed for nuclear safety. These Sump Pumps are not used in the mitigation of any UFSAR Chapter 15 Accident Analysis or in Section 3/4.4.5 of the Technical Specifications. Since these sumps are normally dry, the alarms were nuisance alarms and, therefore, deleted from the Control Room.</p>
10J-RE-009 20J-RE-009 30J-RE-009	These DCPs removed the Radiation Exposure Management System (REM) in preparation for the installation of the new Radiological Records and Access Control System (RRACS).	<p>These DCPs did not introduce any unreviewed safety questions. The FSAR and Technical Specifications did not contain requirements for or take credit for the REM System for responding to or mitigating the effects of analyzed accidents. The FSAR did describe the REM System in Paragraph 12.5.2.2.7. The REM System did not impact any safety-related systems at PVNGS.</p>
AOJ-RE-010	Install the Radiological Records and Access Control System (RRACS).	<p>This DCP did not introduce any unreviewed safety questions. RRACS has no safety-related system interfaces or impacts. It does not provide any safety-related functions and does not affect any systems that are safety-related. It also has no impact on any accident analyses in the UFSAR.</p>
20J-RI-008 30J-RI-008	These DCPs modified the Plant Monitoring System (PMS) Computer software and hardware to enable the Plant Computer to successfully drive the Movable Incore Detector System (MICDS).	<p>These DCPs did not introduce any unreviewed safety questions. The MICDS is not required to mitigate the consequences of any UFSAR analyzed accidents. The MICDS is a nonsafety-related system. The MICDS was designed to be a backup for the Fixed Incore Detector System. Therefore, by making the MICDS operable this modification provides more operational flexibility. The margin of safety as</p>

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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
10J-RK-031	This DCP modified the Foxboro wiring to provide a Loss of Cabinet Power Supply signal for the NSSS Control System Cabinet (1J-SFN-C03) to alarm in the Main Control Room.	defined in the Technical Specifications was not affected. This DCP did not introduce any unreviewed safety questions. The modification of the Foxboro power supply internal wiring necessary to provide the Loss of Power Alarm in the Main Control Room for the NSSS Control System Cabinet did not increase the probability of occurrence or the consequences of an accident, nor did it create the potential of a new accident category. The Technical Specifications were not involved in this change. Loss of power indication for this nonsafety-related cabinet did not affect any safety-related or important to safety equipment or the margin of safety as defined in the Technical Specifications.
1FJ-SA-019 2FJ-SA-019	These DCPs replaced all Potter and Brumfield Rotary Relays in the Nuclear Steam Supply System (NSSS) Engineered Safety Features Actuation System (ESFAS), Balance of Plant (BOP) ESFAS, and Reactor Trip Switchgear (RTSG) with redesigned relays that correct a design defect discovered at PVNGS.	These DCPs did not introduce any unreviewed safety questions. The old relay materials were susceptible to offgassing and corrosion which potentially led to mechanical binding of the rotary portion of the relay. ECE-SA-A049 verified that the IEEE-344 Seismic Qualification and the IEEE-323 Environmental Qualification were unaffected by this component change. The new relays were identical in "fit" and "function" with minor internal material changes that had a minimal affect on "form". There were no changes to the UFSAR (Sections 6 & 7) or the CESSAR (Section 7). This change did not affect the UFSAR accident analyses or introduce any new failure risks, it did remove an unanalyzed common mode failure mechanism. The margin of safety, as described in the bases of the Technical Specifications, was unchanged by this change.
1FJ-SA-020 2FJ-SA-020	These DCPs replaced the Engineered Safety Features Actuation System (ESFAS) Relay Power Supplies in the Auxiliary Relay Cabinets (1,2J-SAA-C01 and 1,2J-SAB-C01) located in the Main Control Room.	These DCPs did not introduce any unreviewed safety questions. The ESFAS power supply failure modes were not changed and the degree of regulation is as good or better than the original installation. ECE-SA-A050 concluded that the LAMBDA Power Supply, Model LRS-58-

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		<p>48-43050 is an acceptable substitute for the original Power Mate Power Supply, Model FPS-36-20-P2400, in the ESFAS Auxiliary Relay Cabinets. The power supplies are safety-related components. The safety-related, seismic category I classifications are maintained in all respects and the Failure Modes and Effects Analysis (FMEA) is unchanged by this replacement. As shown in the FMEA of CESSAR Table 7.2-5, Item 63, a failure of an auxiliary relay power supply will not cause an accident and will not degrade the protection provided by these cabinets. There are also, no changes to the malfunction probability, modes, or consequences for these components. The UFSAR, Section 6 and 15 accident analyses remain unaltered by this change and there is no probability of new accidents introduced by this change.</p>
10J-SA-801	<p>This DCP changed the engraving of the annunciator lense on the Balance of Plant (BOP) Engineered Safety Features Actuation System (ESFAS) from "SIAS" to "CSAS/SIAS" to reflect the proper initiation inputs to the Diesel Generator Start System (DGSS) module.</p>	<p>This DCP did not introduce an unreviewed safety question. The probability and consequences of an UFSAR analyzed accident are unchanged by this DCP. This was a limited scope DCP that corrected the engraving on an annunciator lense in the BOP ESFAS. This change had no direct or indirect effect on safety-related or important to safety equipment. The Technical Specifications are unchanged by this DCP.</p>
20E-SB-057	<p>This DCP modified the Supplementary Protection System (SPS) to open the Control Element Drive Mechanism (CEDM) Motor-Generator Set (M-G) output load contactors to provide a diverse reactor trip device. This change provided conformance to 10CFR50.62, Anticipated Transient Without Scram (ATWS) Rule.</p>	<p>This DCP did not introduce an unreviewed safety question. 10CFR50.62 requires a diverse scram system; independent of the reactor trip system, from sensor output to interruption of power to the control rods. At PVNGS, the SPS provided this design function with the exception of a diverse power interruption device. This DCP interfaced the control signals from the SPS Logic Assembly (SPLA) panels to the CEDM M-G control panels to provide a selective two-out-of-four open signal to the M-G output load contactors. This control logic is consistent with the two-out-of-four Reactor</p>

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Trip Breaker (RTB) logic for interrupt power to the RTBs, thus providing the same effect as tripping the required combination of RTBs to interrupt power to the control rods. The UFSAR accident analyses depend on the primary trip actuation device, the RTBs, which are unchanged by this DCP. The probability or consequences of a malfunction of equipment important-to-safety was not increased since the interface signal to the M-G Set was installed with electrical isolation in accordance with IEEE 384. Since this is a diverse system that was added as a backup to the RTB, the failure of the M-G contactors to open would not expose the plant to any accident not previously evaluated in the UFSAR. This change does not impact the existing functional design/operation of the RTBs, therefore, the margin of safety is not reduced for any Technical Specifications.

1FJ-SB-061	These DCPs replaced the power supplies in the Plant Protection
2FJ-SB-061	System (PPS) Cabinets from Todd Power Supplies, now obsolete and
3FJ-SB-061	unavailable, to Lambda Power Supplies.

These DCPs did not introduce an unreviewed safety question. The PPS Power Supplies, manufactured by Todd Engineering, were replaced because spares were no longer available. These power supplies are safety-related. The Lambda Power Supplies were evaluated environmentally and seismically by ECE-SB-A040/A041 and Qualification Report N001-13.02-1732. This change replaced the power supplies but did not change or modify any functional circuits. The UFSAR does not specify the types and manufacturers of power supplies, therefore, no UFSAR changes were required. This change did not affect the probability or consequences of an accident or malfunction or potentially create a new accident/malfunction as described in the UFSAR. The margin of safety as described in the Technical Specifications (Section 3/4.3.1,2) was unchanged by this power supply change.

1FJ-SB-062	These DCPs replaced the Digital Voltmeter (DVM) (CE Tag No. M601),
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These DCPs did not introduce an unreviewed safety question. The

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2FJ-SB-062	which was out of production, in the Plant Protection System (PPS) Cabinets J-SBA-C01, J-SBB-C01, J-SBC-C01, and J-SBD-C01. The DVM was also wired to a panel mounted external test jack.	DCP replaced the safety-related PPS DVM and added wires between the DVM and the external DVM test jacks. The changes were made to the PPS signal readout circuits. The PPS safe shutdown circuits were not affected. The Technical Specifications (TS) and the UFSAR descriptions were unchanged by this DCP. The TS margin of safety was not affected by changing the DVM. The new DVM was qualified by ECE-SB-039 in accordance with IEEE 344-1975. The new DVM fit in the existing panel cut out for the originally furnished DVM. Therefore, this DCP did not increase the probability of an accident or the consequences of an accident previously evaluated in the FSAR.
3FJ-SC-134	This DCP replaced the Secondary Chemistry (SC) Sample Temperature Controller 3J-SCN-TIC-610 and its associated Control Valve 3J-SCN-TV-610 with more reliable, accurate and more correctly sized components.	This DCP did not introduce an unreviewed safety question. This DCP changed a control valve in the SC System which is a nonsafety-related system. Therefore, this change did not affect any safety-related equipment or components. The UFSAR accident analyses are unaffected by this change since the SC System does not impact systems related to safe shutdown or accident mitigation. The SC System does not impact the Technical Specifications dealing with margin of safety.
1FJ-SD-032	As part of the Scram Reduction Program, this DCP rewired the Steam Generator Steam Flow Signals to the Emergency Response Features Data Acquisition and Display System (ERFDADS). This rewiring separated the signals on two different analog input cards such that a single failure to one card will not cause a loss of all four signals which would cause a Steam Bypass Control Valve quick open signal resulting in a reactor trip.	This DCP did not introduce an unreviewed safety question. This DCP involved minor rewiring changes in ERFDADS Cabinet 1J-SDN-C08 and did not affect any process parameters, ERFDADS screen displays or other equipment. This change involved nonsafety-related equipment. There was no impact to the UFSAR test descriptions, procedures or accident analyses. The margin of safety, defined in the bases of the Technical Specifications, was not reduced by this DCP.
10P-SG-136 20P-SG-136	These DCPs added Manual Isolation Valves (12" Gate Valves) upstream of the Atmospheric Dump Valves (ADV) along with Spectacle	These DCPs did not introduce an unreviewed safety question. The ADVs are safety-related valves and are potentially impacted by the

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30P-SG-136

Blinds downstream of the ADVs. These changes were made to facilitate maintenance and testing of the ADVs.

installation of these manual isolation devices. These isolation devices meet the ASME Section III Class 2 Code requirements as stated in the Design Criteria Manual, SG System. The configuration for the ADV isolation devices is normally "locked" open to allow the ADVs to perform their intended function. Procedural controls (UFSAR Section 13.5 procedures) were instituted to ensure that no more than one ADV per steam generator would be isolated at a time while in operating modes 1,2,3 or 4, to prevent the plant from being placed in a Limiting Condition for Operation (LCO) per Technical Specification (TS) 3.7.1.6. The manual valve operators require lubrication which required revising UFSAR Section 9B to reflect the addition of this combustible material to Fire Zones 74A and 74B. The postulated ADV failures evaluated in UFSAR Sections 15.1 and 15.6 are without isolation valves and this remains the bounding condition. Therefore, the consequences of accidents previously evaluated in UFSAR Section 15 will not be increased since the isolation devices are "locked" open. If the manual gate valve for one ADV is closed and it cannot be reopened, the other ADV is still available. Therefore, no change was required for the FMEA of UFSAR Section 10.3. Since the isolation devices are manually operated, normally open and they meet the required ASME Code, the probability or consequences of a malfunction of equipment important-to-safety was not increased. Since the isolation devices meet the design requirements and are aligned so as not to interfere with the operation of the ADV, there is no possibility of an accident of a different type than any previously evaluated in the UFSAR. Maintaining an alignment to ensure that at least one ADV per steam generator is available for plant cooldown operation does not decrease the margin of safety as defined in the basis for TS 3/4.7.1.6.

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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
20M-SI-169	This DCP replaced the hard metal seats on Containment Sump Isolation Valves (2J-SIA-UV-673,674 and 2J-SIB-UV-675,676) with soft seats.	This DCP did not introduce an unreviewed safety question. The UFSAR, procedures and Technical Specifications do not address the seat material of these butterfly valves. This change improved the leak tightness of the Containment Sump Isolation Valves and, therefore, did not impact the UFSAR accident analyses or the margin of safety as defined in the Technical Specifications.
2FM-SI-173	This DCP installed a spectacle flange and test connection on the Shutdown Cooling (SDC) Relief Valves (2J-SIA-PSV-0179, 2J-SIB-PSV-0189) to allow in-place Local Leak Rate Testing (LLRT).	This DCP did not introduce an unreviewed safety question. This change resulted in these relief valves being able to be tested in place. The SDC Relief Valve function and design remained unchanged. The LLRT Type C testing remained unchanged. UFSAR Figure 6.3-1 was revised to show the addition of the test connection and flange for leakage testing. No UFSAR Chapter 15 accident analyses or Technical Specification safety margins are impacted by this change.
20A-SK-061	This DCP moved the Radwaste High Level Storage Bay Camera (2N-SRN-V01C) to facilitate maintenance and resolve As Low As Reasonably Achievable (ALARA) concerns.	This DCP did not introduce an unreviewed safety question. This camera is used by the Radwaste Department in handling of radioactive material containers with the overhead crane. Neither the camera, nor it's function, is described in the UFSAR or in the Technical Specifications. There were no safety-related concerns associated with this change.
30A-SK-063	This DCP modified the Refueling Water Tank (RWT) Hatches (3E-QFN-CY-1H01A, B) to add hinges, handles and access slots for testing the magnetic switches.	This DCP did not introduce an unreviewed safety question. This change did not affect any safety-related systems, the UFSAR or Technical Specifications (TS). The TS margin of safety is not affected by this change.
10E-SK-070	This DCP modified an alarm only Security Door, 1E-SKN-A101, to be a normal egress and ingress door, equipped with card readers and electric strike. This DCP also corrected other minor Security	This DCP did not introduce an unreviewed safety question. This change had no impact on plant procedures described in the UFSAR and had no impact on Technical Specifications. These modifications to

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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
	Barrier discrepancies.	the Security Equipment had no impact on any accident analyses or on any safety-related equipment.
10M-SP-052	This DCP replaced the Essential Spray Pond (ESP) Hypochlorite Metering Pumps (1E-SPN-P02A,B) and the Sulfuric Acid Metering Pumps (1E-SPN-P04A,B) and replaced some plugged Sulfuric Acid Lines.	This DCP did not introduce an unreviewed safety question. Changing these metering pumps and the acid piping did not affect the UFSAR procedures, tests or accident analyses. There was also no reduction in safety as defined in the Technical Specifications.
1FE-SQ-058 3FE-SQ-058	These DCPs changed the Radiation Monitoring System (RMS) Minicomputer and Radiation Monitors (RU-9 and RU-10) to Class 1E electrical power.	These DCPs did not introduce an unreviewed safety question. The nonsafety-related equipment associated with this change is isolated from the Class 1E power supply by dual qualified circuit breakers meeting the requirements of IEEE 384. These power supply changes did not affect the UFSAR accident analyses or the surveillance requirements or Limits for Continued Operation (LCO) in the Technical Specifications. The RMS Min-computer and the Radiation Monitors (RU-9, 10) will be more reliable powered by Class 1E power and due to the electrical isolation, any failure of these components will be electrically isolated from the 1E power source.
2FC-SQ-059	This DCP added restraints to Radiation Monitors RU-1, RU-34 RU-29, and RU-30 in the Auxiliary and Control Buildings to conform the mounting details of these components to the Seismic Qualification Report.	This DCP did not introduce an unreviewed safety question. These Radiation Monitors are part of the process radiological monitoring systems which are designed to assist the operator in evaluating and controlling the radiological consequences of normal plant operation, anticipated operational occurrences and postulated accidents. The purpose being to keep radiation exposures and releases as low as reasonably achievable. Addition of these restraints to the Radiation Monitors conformed this equipment to the tested condition in the Seismic Qualification Report, N997-164, Addendum 2, to assure operability of these monitors during or after a seismic event. Therefore, the probability or consequences of an UFSAR analyzed accident or a malfunction of equipment important to



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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
10N-SR-077	This DCP raised the Hittman Solidification System Drum Level Detector Element, 1J-SRN-LE-311, out of the cement splash zone to prevent it from continued fouling.	safety was not increased by this change. Likewise, the margin of safety as defined in the basis for any Technical Specification was not reduced by this change.
10M-SR-080	This DCP relocated the Solid Radwaste Camera #2 to the north end of the Transfer Aisle to prevent damage and to improve viewing.	This DCP did not introduce an unreviewed safety question. The Solid Radwaste System is not safety-related and not required for safe shutdown. Raising the level detector element did not affect the UFSAR accident probabilities or analyses, nor did it reduce or affect the margin of safety as defined in the Technical Specifications.
30M-TC-025	This DCP replaced the Main Turbine Lube Oil Cooling Water Control Valve, 3J-TCN-TV-183, with a Vee-ball valve for more accurate control at low load and low temperature conditions.	This DCP did not introduce an unreviewed safety question. The Solid Radwaste System is nonsafety-related and does not impact any safety-related equipment. The location of this camera has no impact on UFSAR accident analyses or Technical Specification bases (3/4.11.3).
2FE-ZA-143	This DCP installed a lighting fixture in Stairway "F" of the Auxiliary Building (approximately 184 ft. elevation) to resolve a safety hazard.	This DCP did not introduce an unreviewed safety question. The Turbine Cooling Water System is not safety-related and has no safety-related functions. This change did not affect the Technical Specifications (3/4.7) or the UFSAR (Sections 9.2.8, 13.5, and 14.2).
10C-ZC-165 (BL0007)	This DCP modified some of the lighting fixtures along the	This DCP did not introduce an unreviewed safety question. The Normal Lighting System is not associated with any equipment or systems required to mitigate the consequences of an accident as described in the UFSAR. There was no impact to the Technical Specifications (Section 3/4.8). This change was not safety-related and did not affect nuclear safety.

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<u>DCP Number</u>	<u>Description</u>	<u>Safety Evaluation Summary</u>
	Refueling Pool side to provide needed clearance for the Control Element Assembly (CEA) Cutter.	underwater lighting in the Refueling Pool is not safety-related and does not impact safety-related systems. This DCP did not affect the UFSAR accident analyses or Technical Specifications (3/4.9).
10M-ZC-185	This DCP installed a removable guard over the Main Hoist Inching Motor Chain Drive and a non-removable handrail on the Inching Motor Platform on the Polar Crane, 1M-ZCN-G01.	This DCP did not introduce an unreviewed safety question. This change was implemented to address personnel safety hazards and did not affect nuclear safety. There was no change or impact to the UFSAR or Technical Specifications. There was no impact to accident analyses or margin of safety.
10J-ZJ-123 20J-ZJ-123 30J-ZJ-123	These DCPs replaced unengraved lenses of the white Override lights for the Backup Heater Handswitches with engraved lenses on the Remote Shutdown Panel (RSP) to match the lenses in the Main Control Panel (MCP). The Override lights were rewired so that the light configuration on the RSP matched the MCP.	These DCPs did not introduce an unreviewed safety question. This DCP changes the RSP to more closely duplicate portions of the MCP. Changing the light arrangement and providing accurately engraved lenses enhances the operators ability to respond to challenges and therefore, enhances nuclear safety. FSAR procedures and accident analyses were not impacted by this change because the function and operation of the equipment was not changed by this DCP. The possibility of an accident of a different type than previously evaluated in the UFSAR could only decrease as a result of this change because the information conveyed to the operator at the RSP was improved and now matches the instrumentation arrangement in the MCP. This DCP did not decrease the Technical Specifications margin of safety, if anything, the improved human factors at the RSP improved margins of safety.
10J-ZJ-800	This DCP modified the Remote Shutdown Disconnect Panel to provide indication of the control output signal for the Train B Atmospheric Dump Valve (ADV) Control Stations, 1J-SGB-HY-178E and 185E, at the RSP.	This DCP did not introduce an unreviewed safety question. This equipment is safety-related. The DCP did not involve any changes to the UFSAR. The RSP ADV control stations operate the ADVs when the Main Control Room is not available. The ADVs provide a safety function of furnishing a means for NSSS heat removal by releasing steam to the atmosphere. The ADVs are used when the condenser is

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1FJ-ZZ-010

This DCP installed a permanent sample station near each to the Effluent Monitoring Station (1/2/3J-SQN-RE-141/143, 1/2/3J-SQB-RE-145). Each sample station was powered by Class 1E power for the sample blower. Sample lines were heat traced and each station capable of grab sampling for particulate/Iodine, noble gas and Tritium.

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not available or when the Main Steam Isolation Valves are closed. The ADVs are discussed in Section 3/4.7.1.6 of the Technical Specification. However, since this change only adds indication of the control output signal on the Train B ADV control stations located on the RSP and had no effect on the operation of the control stations or the ADVs, there was no effect on the Technical Specification or the margin of safety. This design change is an improvement of existing control station operation because it provided the operator with additional information. Therefore, this change had no impact on the UFSAR Chapter 6 and 15 accident analyses.

This DCP did not introduce an unreviewed safety question. The grab samplers do not perform any safety functions and they are normally isolated to preclude interfering with any instrument that does perform safety functions. The new permanent grab samplers are merely collection facilities to obtain samples when the normal range effluent unit is out of commission. Grab sampling is not addressed in the UFSAR (Sections 8, 11.5). Making this installation permanent did not impact the UFSAR Chapter 15 previously analyzed accidents since the grab samplers are only backups for the normal range effluent monitors. The Technical Specification Section 3/4.3.3 margin of safety was not reduced since the electrical modifications were designed in accordance with the Project Design Criteria, UFSAR and existing design requirements associated with safety-related electrical systems and isolation from non-1E components.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
02OG-9ZZ05	0	-	This canceled procedure, "Unit Radiation Protection Department Organization and Responsibility Policy," provided a description of the organizational structure and defined the mission, responsibility, and policy of the Unit Radiation Protection Department prior to reorganization.	The cancellation of this procedure did not introduce an unreviewed safety question. Those responsibilities formerly residing with the Unit Radiation Protection Department, prior to consolidation of the department into the PVNGS Site Radiation Protection Organization, were distributed among new departments but no functions were eliminated and there was no decrease in the overall level of responsibility.
75OG-ORP01	1	-	The revision to this procedure, "Radiation Protection Organization," modified the mission statement, clarified the policy and responsibilities of department personnel, and effected editorial changes.	This Procedure revision did not introduce an unreviewed safety question. The revision realigned responsibilities within the Radiation Protection Organization but no functions were eliminated and there was no decrease in the overall level of responsibility.
75OG-0ZZ01	0	-	This canceled procedure, "Radiation Protection and Chemistry Organization and Responsibility Policy," provided a description of the organizational structure and defined the mission, responsibility, and policy of the Radiation Protection and Chemistry Department prior to reorganization.	The cancellation of this procedure did not introduce an unreviewed safety question. Those responsibilities formerly residing with the Radiation Protection and Chemistry Department, prior to consolidation of the department into the PVNGS Site Radiation Protection Organization, were distributed among new departments, but no functions were eliminated and there was no decrease in the overall level of responsibility.
81OG-0ZZ01	2	2	This procedure change notice (PCN) to the "Nuclear Engineering Department Organization and Responsibility Policy" reflected the formation of a new department, Nuclear Engineering Assurance, which assumed certain responsibilities previously assigned to the Nuclear Engineering Department. The PCN modified the organizational structure and redefined the mission, responsibility, and policy of the Nuclear Engineering Department.	This PCN did not introduce an unreviewed safety question. Certain responsibilities formerly residing with the Nuclear Engineering Department, prior to formation of the Nuclear Engineering Assurance Department, were transferred to the new department, but no decrease in the overall level of responsibility occurred.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
86OG-OZZ01	0	-	This new procedure, "Engineering Standards & Training Organization & Responsibility," established the organizational structure and defined the mission, responsibility, and policy of the new Nuclear Engineering Assurance Department.	This new procedure did not introduce an unreviewed safety question. The establishment of the Nuclear Engineering Assurance Department resulted in a shift of existing responsibilities from other engineering areas and did not result in a reduction of programs described, or commitments enumerated, in the licensing basis documents.
88OG-OZZ01	0	-	This new procedure, "Site Nuclear Engineering Department Organization and Responsibility Policy," established the organizational structure and defined the mission, responsibility, and policy of the new Site Nuclear Engineering Department.	This new procedure did not introduce an unreviewed safety question. The establishment of the Site Engineering Department resulted in a shift of existing responsibilities from other engineering areas and did not result in a reduction of programs described, or commitments enumerated, in the licensing basis documents.
75PR-ORP01	1	-	The revision to this procedure, "Radiation Protection Program," modified titles and associated responsibilities to reflect a reorganization of the Radiation Protection Department.	This procedure revision did not introduce an unreviewed safety question. The modified titles and associated responsibilities reflecting the formation of the new Radiation Protection Organization did not result in the elimination of any functions or an overall reduction in the level of responsibility.
75RP-ORP03	1	-	The revision to this procedure, "ALARA Program," modifies titles and associated responsibilities to reflect a reorganization of the Radiation Protection Department.	This procedure revision did not introduce an unreviewed safety question. The modified titles and associated responsibilities reflecting the formation of the new PVNGS Site Radiation Protection Organization did not result in the elimination of any functions or an overall reduction in the level of responsibility.
01AC-OAP02	1	-	The revision to this procedure, "Review and Approval of Nuclear Administrative and Technical Procedure," incorporated changes in the allowable duration and expiration date of temporary procedures.	This procedure revision did not introduce an unreviewed safety question. The changes to the procedure, which established a duration and expiration date for temporary procedures to gain consistency with the UFSAR, improve the effectiveness of temporary procedures and improve overall plant safety.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
02AC-0AP01	0	-	This new procedure, "Plant Review Board," which replaced a previous procedure on the same subject, implemented additional requirements for the Plant Review Board (PRB) arising from a revision to the Technical Specifications.	This new procedure revision did not introduce an unreviewed safety question. The effect of this procedure change, which implemented NRC approved changes in the technical specification description of Plant Review Board (PRB) responsibilities, was to increase the effectiveness of the PRB by increasing management involvement and concentrating their focus on safety issues.
75AC-ORP01	1	-	The revision to this procedure, "Review of Radiological Protection and Chemistry Program Performance," reflects a realignment of responsibilities within the procedure due to the formation of the new PVNGS Site Radiation Protection Organization.	This procedure revision did not introduce an unreviewed safety question. The revision realigned responsibilities within the Radiation Protection Organization but no functions were eliminated and there was no decrease in the overall level of responsibility.
75AC-9RP01	1	1	The PCN to this procedure, "Radiation Exposure and Access Control," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75AC-ORP03	1	2	The PCN to this procedure, "Radiological Controls Problem Reporting," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
75AC-9RP04	2	-	The revision to this procedure, "Radiological Reports," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This procedure revision did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75AC-9RP05	1	1	The PCN to this procedure, "Source Control," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
40DP-90P14	1	2	The PCN to this procedure, "Control of Operator Information Aids," added a new operator information aid (a mimic to delineate the shutdown cooling system warm-up bypass line) to the existing safety injection mimic on the control panel in the control room.	This PCN did not introduce an unreviewed safety question. The addition of this mimic enhanced the human engineering design features in the control room. It is intended to aid the control room operators in performing system lineups and help to prevent operator error. This change resulted in an overall improvement in plant safety.
41OP-1NA01	4	15	The PCN to this procedure, "13.8KV Electrical System (NA)," added new guidance to ensure that the secondary winding of a startup transformer is not overloaded when it is powering two units.	This PCN did not introduce an unreviewed safety question. The changes were required to help ensure that the intent of the technical specifications are accomplished in that a startup transformer winding is not overloaded and that sufficient power is available to the ESF equipment in the condition when two units are sharing a single startup transformer secondary winding.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
41ST-1SG05	0	3	The PCN to this procedure, "ADV Nitrogen Accumulator Drop Test," modified a test not described in the UFSAR by changing the pressure band of the nitrogen regulator and providing a means of temperature compensation.	This PCN did not introduce an unreviewed safety question. The changes increased the accuracy of the test and thereby increased overall plant safety.
42OP-2NA01	3	13	The PCN to this procedure, "13.8KV Electrical System (NA)," added new guidance to ensure that the secondary winding of a startup transformer is not overloaded when it is powering two units.	This PCN did not introduce an unreviewed safety question. The changes were required to help ensure that the intent of the technical specifications are accomplished in that a startup transformer winding is not overloaded and that sufficient power is available to the ESF equipment in the condition when two units are sharing a single startup transformer secondary winding.
42ST-2SG05	1	5	The PCN to this procedure, "ADV Nitrogen Accumulator Drop Test," modified a test not described in the UFSAR by changing the pressure band of the nitrogen regulator and providing a means of temperature compensation.	This PCN did not introduce an unreviewed safety question. The changes increased the accuracy of the test and thereby increased overall plant safety.
43OP-3NA01	2	13	The PCN to this procedure, "13.8KV Electrical System (NA)," added new guidance to ensure that the secondary winding of a startup transformer is not overloaded when it is powering two units.	This PCN did not introduce an unreviewed safety question. The changes were required to help ensure that the intent of the technical specifications are accomplished in that a startup transformer winding is not overloaded and that sufficient power is available to the ESF equipment in the condition when two units are sharing a single startup transformer secondary winding.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
43ST-3SG05	0	4	The PCN to this procedure, "ADV Nitrogen Accumulator Drop Test," modified a test not described in the UFSAR by changing the pressure band of the nitrogen regulator and providing a means of temperature compensation.	This PCN did not introduce an unreviewed safety question. The changes increased the accuracy of the test and thereby increased overall plant safety.
73TI-9HA01	0	-	This new procedure, "Tracer Gas Testing in the Auxiliary Building," involves a test not described in the UFSAR and provides a method of testing air flows in the auxiliary building to verify proper operation of the auxiliary building HVAC.	This new procedure revision did not introduce an unreviewed safety question. The test has no effect on the safety design basis of the auxiliary building HVAC system. The test will serve to increase the reliability of the auxiliary building HVAC system by periodically proving system operability.
73TI-9RC06	0	-	This new procedure, "RCS ASME XI Pressurizer Hydro Test," increases pressure within the RCS, to a test pressure required to perform ASME Section XI pressurizer hydrostatic testing, by raising the pressurizer heater high pressure cutout setpoint.	This new procedure did not introduce an unreviewed safety question. The pressurizer heater high pressure cutout setpoint established temporarily during this test is equal to the setpoint previously established during normal operation. The test is performed during MODE 3 and the RCS is maintained within all safety margins. The test results in no decrease in plant safety.
74CH-9FP01	0	-	This new procedure, "Fire Protection Water System Sampling and Corrosion Monitoring," involves a test, not described in the UFSAR, to monitor and sample corrosion products and effects within the fire protection water system.	This new procedure did not introduce an unreviewed safety question. The test will not degrade the fire protection system as the test equipment and test performance will not affect system operation or in any other way affect system effectiveness.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
74RM-9EF42	0	-	This new procedure, "Radiation Monitoring Alarm Setpoint Determination," replaces a previous procedure and provides methodology for the determination and control of alarm setpoints for installed radiation monitors and provides the mechanism for evaluation of monitor performance during power ascension and routine operation.	This new procedure did not introduce an unreviewed safety question. Changes in setpoints of radiation monitors RU-29, RU-30, or RU-145 have no effect on either control room or fuel building essential ventilation system actuation as the control room and fuel building essential ventilation systems are actuated by a containment isolation actuation signal (CIAS) or a safety injection actuation signal (SIAS). Therefore, these changes do not have the potential to increase the probability or consequences of accidents, increase the probability or consequences of malfunction of equipment important to safety, or create the possibility of an accident or malfunction of a different type than previously evaluated.
75RP-ORP01	1	-	This revised procedure, "Radiological Posting," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This revised procedure did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9AL03	0	1	The PCN to this procedure, "ALARA Pre-Job Review/Briefing," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
75RP-9ME21	1	1	The PCN to this procedure, "TLD Issue, Exchange and Termination," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9ME24	0	2	The PCN to this procedure, "Dosimetry Processing, Evaluation and Documentation," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9ME25	0	1	The PCN to this procedure, "TLD Reader Operation," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9ME26	0	1	The PCN to this procedure, "Dosimetry Performance Testing," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
75RP-9RP03	0	1	The PCN to this procedure, "Bioassay Analysis," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9RP05	0	1	The PCN to this procedure, "Contamination Dose Evaluation," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9RP06	0	3	The PCN to this procedure, "Hot Particle Control," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9RP13	1	1	The PCN to this procedure, "Routine Unit/Support Radiation Protection Review," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
75RP-9RP14	1	1	The PCN to this procedure, "Radiation Protection Monthly Trending," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9RP15	0	-	This new procedure, "Control and Storage of Radioactive Material," which replaced a previous procedure, includes modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9RP18	0	1	The PCN to this procedure, "Medical Uptakes of Radioisotopes," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9ZZ11	3	2	The PCN to this procedure, "Special Dosimetry," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.

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Procedure No.	Rev	PCN	Description	Safety Evaluation Summary
75RP-9ZZ12	5	1	The PCN, "Lost or Damaged Dosimetry," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
75RP-9ZZ14	4	2	The PCN, "TLD Area Monitoring," modified position titles to reflect the formation of the new PVNGS Site Radiation Protection Organization.	This PCN did not introduce an unreviewed safety question. The new position titles introduced as the result of the formation of the new PVNGS Site Radiation Protection Organization have no effect on the safety of the plant as no functions were eliminated and there was no decrease in the overall level of responsibility.
76CP-9NP20	0	-	This new procedure, "Operation of the RVR-800 Liquid Volume Reduction System," provided procedural control for the operation of a new portable system used to process liquid radwaste into a form suitable for transportation and burial.	This new procedure did not introduce an unreviewed safety question. The new portable radwaste system is a nonsafety-related system which, by removing all water from the liquid waste, produces a very stable waste product that will meet all requirements for shipping and burial. Use of this process will result in an increase in overall plant safety.

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