LR-N17-0088

Enclosure 1

PSEG Nuclear, LLC

Quality Assurance Topical Report, NO-AA-10, Revision 86

Summary Of Changes

QATR Approval Form
Page 1 of 1

PSEG Nuclear LLC

NO-AA-10
Revision 86

QUALITY ASSURANCE TOPICAL REPORT (QATR)

Effective: 2/24/17
Date

Reviewed by:

Jonathan E. Sears
Nuclear Oversight Director (Print/Sign)

2/16/17
Date

Approved for Implementation by:

Peter P. Sena III
President & CNO, PSEG Nuclear (Print/Sign)

2/16/17
Date

PSEG NUCLEAR LLC - QUALITY ASSURANCE TOPICAL REPORT NO-AA-10, REV. 86, REVISION SUMMARY

Revision 86 Effective Date - February 24, 2017

The following is a description of the changes being made to the PSEG Nuclear Quality Assurance Topical Report (QATR) in revision 86. Some of the changes are a result of organizational changes that have taken place at PSEG Nuclear, while others are being made to clarify, update, or correct the content of PSEG Nuclear's QA Program document. This revision to the QATR will be submitted to the NRC for post implementation review as tracked by Order 80095829 Operation 580. A review, in accordance with HU-AA-1101, determined that formal change management plans were not required for the changes taking place.

The key changes to the QATR made in this revision include:

- Identification of organizational changes made at PSEG, such as the Organizational Effectiveness Director position in Chapter 1
- Incorporation of changes to reflect the NRC approval of a Hope Creek Technical Specification change regarding the use of ANSI ANS-3.1-1981
- Incorporation of changes to reflect the NRC approval of a Salem Unit 1 & Unit 2 Technical Specification change regarding the use of ANSI ANS-3.1-1981
- Making a title change for the Nuclear Safety Review Board to the Fleet Excellence Oversight Board

* Some of the changes in these sections are centered on current NRC regulatory guidance or exemptions from previously approved NRC Safety Evaluation Reports (SERs).

Based on the results of 10 CFR 50.54(a) / 10 CFR 71.106(b) evaluations, the changes being made to the QATR in revision 86 do not represent a reduction in commitment and thus do not require prior approval from the NRC before implementation.

A more detailed summary of the changes is provided on the following pages.

NO-AA-10, REV. 86, QATR REVISION SUMMARY (CONT'D)

Revision details -

1. CHAPTER 1, ORGANIZATION

Specific changes to this chapter included:

- In the second bullet under Section 2.2.2, the name of the Nuclear Safety Review Board was changed to the Fleet Excellence Oversight Board.
- In section 2.2.2, subsection 2 from "... and reactor engineering activities at the stations; to; "...and reactor engineering / reactor controls activities at the stations;...
- In section 2.2.3 item 3., second paragraph, the title of the Performance Improvement Director was changed to the Organizational Effectiveness Director.
- In the third bullet of Section 2.4, text associated with the function of the off-site review committee was changed from "nuclear safety" to "operational excellence".
- In section 2.2.3 item 6., changed "Nuclear Safety Review Board" to "Plant Operations Review Committee".
- *In Figure 1-1, the block for the* Nuclear Safety Review Board was changed to the Fleet Excellence Oversight Board. Also in this figure, the reporting relationships and titles of certain groups' matrixed to the NOS Director were updated. [Request # 16-50]

2. CHAPTER 2, QUALITY ASSURANCE PROGRAM

Specific changes to this chapter included:

- The text in the second sentence in Section 2.5 was changed from "These programs shall meet or exceed the requirements in applicable federal regulations as well as appropriate industry standards, including ANSI/ANS 3.1-1981 Section 5, and the accreditation standards set by the National Nuclear Accrediting Board." to "These programs shall meet or exceed the requirements in applicable federal regulations as well as appropriate industry standards, as described in Appendix C, and the accreditation standards set by the National Nuclear Accrediting Board." [Request # 16-49]

3. CHAPTER 18, AUDITS/ASSESSMENTS

Specific changes to this chapter included:

- In Section 2.1.3 last paragraph, the text was changed from "off-site review committee" to "on-site review committee" since it is now the on-site review committee (along with the Nuclear Oversight department) that is performing the required independent review function. [Request # 16-50]

NO-AA-10, REV. 86, QATR REVISION SUMMARY (CONT'D)

4. APPENDIX C, CODES, STANDARDS, AND GUIDES

Specific changes to this appendix included:

- Section 1.1 added words to see section 1.3.1 and 1.3.2 respectively for exceptions to the listed standard.
- In Section 1.3.1 item 1, and Section 1.3.2 item 1, the text in the first paragraph was revised to align with the NRC's regulatory position in Regulatory Guide 1.8, Revision 2 for the use of ANSI standards ANS-3.1-1981 and N18.1-1971.
- In Section 1.3.1 item 1. e., and Section 1.3.2 item 1. e., the text describing the qualification requirements for members of the off-site review committee was eliminated and replaced with text describing the expectation for qualification of on-site committee members, since it is now the on-site review committee (along with the Nuclear Oversight department) that is performing the required independent review function for the company.
- In Section 1.3.2, deleted the entire "Note" following item c., since this guidance is no longer applicable following NRC's approval to allow removal of ANSI ANS-3.1-1981 from the Salem Unit 1 and Unit 2 Technical Specifications. [Request # 16-50 & 16-49]

5. APPENDIX D, DEFINITIONS

Specific changes to this appendix included:

- In Section 2.77, the title was changed to "Independent Review" to align with ANSI 18.7. The wording was revised to reflect that the independent review function is now being performed by a combination of on-site review committee and Nuclear Oversight independent review activities.
- Section 2.78 was deleted, since it is a duplication of 2.77. [Request # 16-50]

NO-AA-10, Revision 86, Prepared By:

Charles J. Brown / Charles J Brown Date: 2/16/2017
Acting QA Programs Manager (print/sign)

LR-N17-0088

Enclosure 2

PSEG Nuclear, LLC

Salem and Hope Creek Generating Stations

QUALITY ASSURANCE TOPICAL REPORT (QATR)

NO-AA-10

Revision 86

Salem and Hope Creek Generating Stations

QUALITY ASSURANCE TOPICAL REPORT (QATR)

NO-AA-10

Revision 86

Effective Date: 2/24/17

PSEG Nuclear, LLC

Corporate Headquarters
80 Park Plaza
Newark, New Jersey 07102

1. POLICY STATEMENT

PSEG Nuclear, LLC, is responsible for assuring that the operation, maintenance, refueling, and modification of the Salem and Hope Creek Generating Stations are accomplished in a manner that protects public health and safety and that it is in compliance with applicable regulatory requirements.

To carry out this responsibility, Public Service Electric and Gas (PSE&G) developed and implemented a comprehensive Quality Assurance Program (QAP) that was applicable to the design, construction, and testing phases and is now applied to the operation phase of its nuclear units. On August 21, 2000, the operating licenses for the Salem and Hope Creek Generating Stations were transferred from PSE&G to PSEG Nuclear, LLC (hereafter "The Company").

The Quality Assurance Topical Report (QATR) is the highest tiered document that assigns major quality assurance functional responsibilities for the nuclear plants owned or operated by the Company. The QAP as detailed in the QATR provides measures to assure the control of activities affecting the quality of structures, systems, and components (SSCs) (that is, SSCs that provide reasonable assurance that facilities can be operated without undue risk to the health and safety of the public), to an extent consistent with their importance to safety.

Key management representatives, including the President and Chief Nuclear Officer (P&CNO), issue Quality Assurance (QA) policy statements. These policy statements are mandatory throughout the Company for nuclear facilities.

Key policy elements, as they apply to nuclear safety, include the following:

1. Nuclear safety is of the highest priority and shall take precedence over matters concerning power production.
2. The public's health and safety is the prime consideration in the conduct and support of Company operations and shall not be compromised. All decisions, which could affect the health and safety of the public, shall be made conservatively.
3. The QAP is an essential part of the Company's commitment to safe and reliable nuclear power operation. Applicable program requirements shall be strictly adhered to in the performance of activities covered by the QAP.

2. APPLICABILITY

Implementing documents assign more specific responsibilities and tasks and define the organizational interfaces involved in conducting activities and tasks within the scope of this plan. These requirements apply to those organizations and positions, which manage and perform activities within its scope.

All Company personnel who work directly, or indirectly, for the Company are responsible for the achievement of quality in their work. Accordingly, all Company personnel and its contractors engaged in supporting nuclear generation activities shall comply with the requirements of our QAP.

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1. SCOPE

This chapter identifies those portions of the Company organization as it applies to the Quality Assurance Program (QAP), and defines the responsibility and authority for establishing, executing, and verifying its implementation. The responsibility for the program is retained and executed by the Company exclusively.

Organizational responsibilities are described for assuring that activities affecting quality are prescribed and implemented by documented instructions, procedures, and drawings. The achievement of quality in the performance of quality related activities are the responsibility of each individual in support of nuclear operations.

The requirements and commitments contained in the QAP are mandatory and must be implemented, enforced, and adhered to by all individuals and organizations.

2. REQUIREMENTS

Note: Minor variations may occur between the titles contained herein and those used in practice. Specific position descriptions may be contained in approved Company documents. Certain functions may be named differently at each site or location.

2.1 Organization

The organizational structure of the Company consists of corporate functions, and the nuclear facilities. Organizational titles for the quality assurance functions described are identified in Company policies and procedures. (Refer to Figure 1-1 for a simplified organizational relationship chart.)

Lines of authority and responsibility are established from the highest management level through intermediate levels to the implementing personnel. The responsibility, authority, and relationships of the various personnel and organizations are documented and maintained current.

The authority to accomplish the quality assurance functions described herein may be delegated to the incumbent's staff as necessary to fulfill the identified responsibilities.

The line organization, consisting of corporate executives and station personnel, is the primary source of information and is the only source of direction for plant activities.

Line management is responsible for establishing the QAP requirements in appropriate instructions, procedures and drawings, and ensuring that the achievement of quality receives emphasis in the planning, implementing, verifying, and documenting of quality-related work activities.

2.2 Corporate Organization

2.2.1 Chairman and Chief Executive Officer

The Chairman and Chief Executive Officer (CEO) of Public Service Enterprise Group (PSEG) is responsible for overall corporate policy and provides executive direction and guidance for the corporation as well as promulgates corporate policy through the Company's executive management staff.

2.2.2 President and Chief Operating Officer

Reporting to the PSEG CEO is the President and Chief Operating Officer (P&COO) of PSEG Power LLC who is responsible for PSEG Power policy, providing executive direction and guidance for the company, and promulgating corporate policy through Power's senior management staff. Reporting to the P&COO are executives in charge of three subsidiaries, including PSEG Nuclear LLC, PSEG Fossil LLC, and Energy Resources and Trading LLC. Overall responsibility for the implementation of the QAP as described in this document is delegated to the President and Chief Nuclear Officer (P&CNO) of PSEG Nuclear LLC.

The P&COO participates in the formulation of nuclear group strategy and policy, and remains cognizant of the performance of the nuclear stations through:

- Periodic attendance at station meetings, receipt of Nuclear Oversight (NOS) audit and assessment reports, station reports, and business-related performance indicators.
- An off-site review committee reports to and advises the P&COO of the results of their oversight of plant operations related to safe operation of the station and the Company's nuclear program relative to nuclear safety. In lieu of ANSI N18.7-1976/ANS-3.2 requirements, the committee operates in accordance with the Company's written procedures and instructions which delineate committee composition, responsibility, authority, member qualifications, meeting frequency, subjects to be reviewed, reporting requirements, and administrative controls under which the board operates. The off-site review committee is responsible for notifying the P&CNO of any issues identified by the committee related to the safe and reliable operation of the nuclear facilities. This committee is referred to as the Fleet Excellence Oversight Board.

2.2.3 President and Chief Nuclear Officer

The P&CNO of PSEG Nuclear LLC is responsible the safe and reliable operation of the Company's nuclear facilities. This position provides executive direction and guidance and is responsible for setting and implementing policies, objectives, expectations and priorities to ensure activities are performed in accordance with the QAP and other requirements. Reporting to the P&CNO is corporate level management that includes the Station Vice Presidents, the Vice President of Engineering, the Executive Director Corporate Operations, the Regulatory Operations Director, the Nuclear Training Director, and the Nuclear Oversight (NOS) Director. Also reporting to the P&CNO are select matrixed personnel providing business support, human resources support, legal, procurement, and communications support.

The P&CNO regularly assesses the scope, status, adequacy, and compliance of the QA Program to 10CFR50, Appendix B, in support of the nuclear operating units and independent spent fuel storage installation through:

- Frequent attendance at meetings, receipt of NOS audit and assessment reports, audits by independent auditors, NRC inspection reports, and department status reports.
- Periodic audits and assessments of the QA program are preplanned, documented, and disseminated to the senior management team. These independent reviews address the scope, status, and adequacy of the QA program at each of the nuclear facilities.

1. The Station Vice Presidents are responsible for overall plant operation and make recommendations for performance improvement, as appropriate. Reporting to this position are management positions responsible for day-to-day activities at the stations. Refer to section 2.3 for the responsibilities and authorities of the station level managers.

2. The Vice President of Engineering reports to the P&CNO and is responsible for executive oversight of the engineering, fuels, and projects organizations in support of the nuclear units.

   The Director of Engineering Services reports to the Vice President of Engineering and is responsible for providing engineering governance and oversight, as well as in some cases providing direct engineering support and perform functions. This organization oversees all engineering tasks, such as procurement engineering,

design control, and system, component, and reactor engineering / reactor controls activities at the stations; maintains the plant design basis drawings and documentation; provides direction and control of the implementation of the required ASME code-based plant repair program; oversees implementation and control of special processes required to maintain the nuclear units; facilitates component maintenance optimization and monitors system health to improve overall equipment reliability; and oversees the records management program, ensuring the station's quality assurance records are properly processed, approved, and stored.

The Nuclear Fuels Director reports to the Vice President of Engineering and is responsible for providing governance and oversight of the purchase and use of the nuclear fuels required to operate the nuclear units. The Fuels organization is responsible for providing direction and control of the nuclear fuel processes including new fuel receipt inspections, fuel reliability, and spent fuel management; for the plant's reactivity management processes; and for the special nuclear material control processes at the stations.

The Nuclear Projects Director reports to the Vice President of Engineering and is responsible for direction and control of unique activities such as a plant system, structure, or component modification or replacement project. The Projects organization is responsible for ensuring that each project is appropriately planned, monitored, controlled, executed, and closed in accordance with approved processes that support long term asset management and continuous improvement in plant safety and reliability.

In order to centralize and improve the efficiency within the Company's Engineering function, the Station Engineering Directors also report to the Vice President of Engineering. Refer to section 2.3.3 for the responsibilities and authorities of the Station Engineering Directors.

Matrixed to the Engineering organization is corporate support for information technology that includes the acquisition and enhancement of computer hardware, communication and software systems, established to support the operational requirements of the nuclear units. The Information Technology Manager administers the digital technology software quality assurance program and ensures that cyber security and the stability of the computer based local area network, the distributed network, plant process systems, and related digital equipment is properly maintained.

3. The Executive Director Corporate Operations advises Company management regarding the overall performance and reliability of plant operations and makes recommendations for performance improvement as appropriate. Reporting to the Executive Director Corporate Operations are the performance improvement, fire protection, maintenance services, and outage services organizations.

   The Organizational Effectiveness Director reports to the Executive Director Corporate Operations and is responsible for providing the leadership team with a comprehensive picture of station performance. The performance improvement organization provides direction and control of the station's learning programs, including the corrective action program, the operating experience program, the self-assessment and benchmarking programs, and human performance tools usage. Reporting to the Organizational Effectiveness Director are corporate functional area managers and learning program managers that have been established to provide functional area governance and oversight and to monitor station performance and drive improvement in key functional areas, such as operations, maintenance, chemistry, radwaste, work management, and plant outages.

   The Fire Protection Manager reports to the Executive Director Corporate Operations and is responsible for providing fire protection and control services to the nuclear stations. The Fire Protection organization maintains the fire protection program, including operation, maintenance and testing of the fire protection systems and equipment, and overseeing processes such as transient combustible controls and confined space activities.

   The Maintenance Services Manager reports to the Executive Director Corporate Operations and is responsible for providing the nuclear stations with comprehensive support to make repairs and to assist in post maintenance tests at the nuclear units as scheduled. The Maintenance Services organization provides supplemental maintenance technicians to support scheduled work; provides control and calibration of measuring and test equipment used in safety-related work activities; and performs calibration of station radiation protection devices. This department also provides facilities maintenance support; resources for protecting the environment from day-to-day plant operations; and is responsible for maintaining the site's meteorological tower and equipment.

   The Outage Services Manager reports to the Executive Director Corporate Operations and is responsible for coordinating refueling outage support and overseeing the in-service testing and inspection

program. The Outage Services organization provides support to the stations during outages in the areas of reactor services, turbine services, and inspection services, including non-destructive examination and quality verification independent inspections. This department also oversees and is responsible for the independent spent fuel storage installation and dry cask storage related activities associated with spent fuel handling, loading, and cask processing.

4. The Regulatory Operations Director provides direction and control of regulatory functions that support the stations, including licensing, environmental, nuclear security, and emergency preparedness activities required for safe operation of the nuclear units. This position is responsible for developing policies and standardized processes for maintaining the station's licensing basis, and for the preparation of correspondence and required submittals to the NRC and other federal, state, and local regulatory agencies. Reporting to this position are managers for licensing, regulatory compliance, environmental affairs, security, and emergency preparedness.

   The Regulatory Operations organization maintains:

   - The plant operating licenses and final safety analysis reports,
   - The biological and environmental programs for the site,
   - The nuclear security program, including site access controls for badging, background investigations, and fitness for duty, as well as testing and maintenance of security systems, and
   - The emergency preparedness program, including maintenance of the emergency organization staffing and training, as well as maintaining the emergency response facilities.

5. The Nuclear Training Director provides direction and control of the training functions that support the stations, including accredited training, management and supervisory training, initial and continuing training, and specialty training. This position is responsible for developing policies and standardized processes for implementing and maintaining a knowledgeable and proficient station work force. Reporting to this position is a technical training manager, and station training managers for operations and maintenance.

   The training program established ensures that those personnel performing activities affecting quality are able to achieve and maintain suitable proficiency in their work discipline. The training also includes the administrative controls and QAP requirements that will enable workers to understand and fulfill policies and procedurally driven job expectations.

6. The NOS Director provides direction and control of functions that audit and assess the safe operation of the nuclear stations, the quality of work performed by support personnel, compliance with the QAP, nuclear safety requirements, company policies, regulatory commitments, governmental regulations, and vendor quality program oversight. This position has been delegated the authority and has the independence to interpret quality requirements, identify quality problems and trends, and provide recommendations or solutions to quality problems. Functional responsibilities include:
   - Establishing quality assurance practices and policies
   - Ensuring effective implementation of the independent safety review function
   - Maintaining independent audit and assessment activities
   - Initiating stop work, ordering unit shutdown, or requesting any other actions deemed necessary to avoid unsafe plant conditions or a significant violation of the QAP
   - Overseeing implementation of the three-tiered approach to accomplish the oversight of nuclear safety
   - Maintaining a trained and qualified staff of personnel within the NOS organization and ensuring orientation of all Company personnel to the QAP is performed as part of general employee training
   - Ensuring the planning, scheduling, and performance of audits and assessments are conducted within the Company as defined in the QAP and NOS procedures
   - Overseeing the initiation, trending, and recommendation of solutions for deficiencies identified by the NOS organization
   - Controlling the maintenance and content of the QAP and the program for employee concerns
   - Overseeing the nuclear station NOS activities, including day-to-day and emergent plant performance issues
   - Coordinating assessments/observations of selected operation, maintenance, testing, engineering, and contractor activities
   - Periodically apprising the President and CNO and the Plant Operations Review Committee of the status of quality assurance functions at Company nuclear facilities, and immediately notifying them of significant issues affecting quality
   - Settling disputes between NOS and other organizations
   - Serving as the certifying authority for Lead Auditor and Independent Inspector candidates
   - Verifying satisfactory implementation of solutions for significant conditions adverse to quality
   - Overseeing implementation of the independent inspection program

described in Chapter 10, including use of independent inspection hold points to verify conformance to applicable codes and standards
- Verifying compliance to the QAP by ensuring associated quality activities are conducted thru rigorous procedure use and adherence

Company policies and organizational structure assure that this management position has sufficient organizational freedom and independence to carry out its responsibilities. This management position assures that an appropriate QAP is established, maintained, and effectively executed throughout the nuclear organization. Reporting to this position is an audit manager, a QA programs manager, an employee concerns program manager, and station assessment personnel.

Certain quality activities governed by this QAP reside and are managed by PSEG organizations outside of the NOS Department. In order to ensure the associated quality functions, i.e., the Laboratory and Testing Services Quality Assurance Manager, the Procurement Design Engineering Manager, the Warehouse Receipt Inspector Supervisor, and the Non-Destructive Examination (NDE) Independent Inspection Superintendent, can perform their quality functions with sufficient independence from cost and schedule when opposed to safety considerations, a matrixed relationship (i.e., a dotted line reporting relationship) has been established from these individuals to the NOS Director. This arrangement bestows the NOS Director with the authority to intervene in an inappropriate decision being made by a member of line management when a quality issue has been factually identified by any of these four entities.

7. Of the management positions matrixed to the P&CNO:
   - The Business Support Director ensures integrated support to senior management and the nuclear stations for associated business and financial functions. This organization is responsible for business planning and financial process improvement, business operations records management, and financial actions associated with nuclear unit decommissioning reporting and trust fund activities.
   - The Nuclear Procurement Director ensures that the quality requirements of this QAP are met in the area of procurement and warehousing. This includes establishing priorities and providing operational control of the purchase of non-fuel goods and services required for nuclear operations. This organization is responsible for the procurement of safety-related materials and services, material receipt inspection, inventory control, and parts storage and warehousing.
   - The Human Resources, Legal, and Communications management personnel facilitate support as needed by the P&CNO.

2.3 Station Organization

The Station Vice President (SVP) is the senior manager directly responsible for the activities involving the safe, efficient and reliable operation and maintenance of the Company's nuclear units. These activities include plant operation, maintenance, work management, outage management, engineering support, training, chemistry, radiation protection, liaison activities with regulatory and other agencies, and general administration and process control. This individual is responsible for station compliance with its NRC operating license, associated governmental regulations, and ASME code requirements.

In support of the SVP, day-to-day direction and management oversight of activities associated with effective nuclear station operational performance is provided. The following functions have station management who report directly to the SVP:

- Overall plant operations
- Organizational effectiveness

The following functions have management that is matrixed to the SVP:

- Plant Engineering
- Business Operations
- Human Resources

2.3.1 The management position for overall plant operations, i.e., the Plant Manager, assures the safe, reliable, and efficient operation of the plant within the constraints of the plant's operating license, administrative controls, and QAP. This includes ensuring the prompt reporting of unusual plant events, the thorough evaluation of plant safety-related activities and issues, implementation of effective corrective actions, and ensuring that necessary support and resources are available. Functional areas of responsibility include:

1. An on-site multi-disciplined review committee responsible for review of activities that affect nuclear safety, reports to, and advises the management position responsible for plant operation on matters related to nuclear safety. The committee shall review safety-related changes to Technical Specifications and License Amendments prior to implementation; root cause evaluations; and corrective actions for significant conditions adverse to quality. The committee shall also ensure that plant activities are conducted safely and that changes do not require NRC review and approval prior to implementation.

The committee functions in accordance with written instructions which delineate committee composition, responsibility, authority, member qualifications, meeting frequency, subjects to be reviewed, reporting requirements, and administrative controls under which the group operates. The committee chair shall have the authority to obtain assistance from outside consultants or organizations if sufficient expertise is not available from within the Company to enable it to perform its review responsibilities.

In performing its independent review responsibilities, the on-site review committee shall keep safety considerations paramount when opposed to cost or schedule considerations. Also, should a voting member have direct responsibility for prior preparation or technical review of an item being presented to the committee, or where similar conflicts may be likely, that member shall be replaced (if necessary to fulfill the quorum) by another voting member not having such potential conflict. This committee is referred to as the Plant Operations Review Committee.

2. Management positions responsible for chemistry, environmental, operations, maintenance, on-line work management, radiation protection, and outage management report directly to the position responsible for overall plant operations thereby providing control over those activities necessary for safe operation and maintenance of the plants.

   The management position responsible for operations oversees the plant operations personnel and crews that control the nuclear units on a day-to-day basis. This individual ensures that the nuclear units are operated within the constraints of the plant's operating license. On each crew, the reactor operators have the authority and responsibility for shutting the reactor down whenever it is determined to be appropriate from a nuclear safety standpoint or when an automatic shutdown should have occurred but did not. The management position responsible for operations has the responsibility to determine the circumstances, analyze the cause, and determine that operations can proceed safely before the reactor is returned to power after a trip or an unscheduled or unexplained power reduction.

2.3.2 The management position for organizational effectiveness is responsible for overseeing station performance assessments and trending, recommending, and initiating solutions for identified gaps in performance. This individual ensures the station takes steps as needed to resolve identified performance gaps through effective implementation of the station's learning programs.

Reporting to the management position for organizational effectiveness is a staff of performance improvement and learning program specialists that facilitate implementation of the following programs:

- corrective action
- self-assessment
- benchmarking
- operating experience

2.3.3 The management position for plant engineering reports to the Vice President of Engineering, but has direct interface with the SVP. This individual has the responsibility and authority for day-to-day engineering support activities, develops and maintains engineering programs, policies, procedures, and provides engineering services in accordance with the QAP. A staff of supervisory, technical, and administrative personnel supports plant operations and maintenance activities.

The station's management position for engineering reports directly to the Vice President of Engineering in order to promulgate independence from the cost and scheduling pressures associated with plant operations to allow the engineering staff to remain focused on their nuclear safety-related tasks.

Functional areas of responsibility include:

- design engineering
- engineering administration
- modifications and their implementation
- plant configuration control
- system engineering
- system testing
- technical support

2.3.4 Management positions for business operations and human resources are matrixed to the SVP to assist in controlling the financial, administrative, and personnel (staffing) activities associated with running the station.

2.4 Oversight of Nuclear Safety

In association with the NUREG-0737 Independent Safety Engineering Group (ISEG) requirements, the Company uses a three-tiered approach to accomplish the oversight of safety which comprises:

- A collection of program elements for implementing and/or reviewing areas of quality of plant operations and nuclear safety. These elements include system performance monitoring, review of operating experience information, operability evaluations, and reviews of changes to technical specifications and final safety analysis reports that affect design bases. Specific guidance is contained in applicable procedures and programs.
- An NOS staff that assesses and audits aspects of Company activities within the scope of the QATR relating to safety. This provides for an overview of activities affecting or potentially affecting safety.
- An on-site review committee that reports to and advises the Plant Manager on all matters related to nuclear safety associated with plant operations; and an off-site review committee that reports to and advises the P&COO of the results of oversight of plant operation relative to operational excellence. The off-site committee also notifies the P&CNO of any nuclear safety-related issues that may effect operation of the nuclear units.

2.5 Responsibility

Each holder of a position as identified in this Chapter, has the responsibility for the scope and effective implementation of the QAP in their functional area and may delegate all or part of the activities of planning, establishing, and implementing the QAP to other qualified individuals, but retains the responsibility for the program's effectiveness.

The head of each department/functional area performing quality activities is responsible for:

- Administering those activities within their organization which are required by this QAP;
- Establishing and maintaining clear definitions for the duties and responsibilities of personnel within their organization who perform quality activities;
- Planning, selecting, and training personnel to meet the requirements of this QAP; and
- Performing and coordinating the quality activities within their department and ensuring appropriate interface occurs with the NOS department.

The Company is responsible for ensuring that the applicable portion(s) of the QATR is properly documented, approved, and implemented before an activity within the scope of the QAP is undertaken by the Company or by others.

Personnel performing independent audit, assessment, and inspection functions for the Company have the responsibility, authority, organizational freedom, and sufficient independence from cost and schedule when opposed to safety considerations to:

- Assure that further processing, delivery, installation, or use is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred.
- Identify quality problems.
- Initiate, recommend, or provide solutions to quality problems through designated channels.
- Initiate stop work or request other actions deemed necessary to avoid unsafe plant conditions or a significant violation of the QAP.
- Verify implementation of solutions for significant conditions adverse to quality.
- Escalate unresolved quality problems to the level of management necessary to effect resolution.

The Company may delegate certain phases of the work to non-company labor and contracted services, which act as the Company's agents in assigned areas. They shall work to a Company accepted quality program (or in accordance with the Company's program) under overall site direction, and document their organization and any delegated responsibilities necessary to establish, execute, and verify their quality program. The Company may also assign the authority for certification and stamping in accordance with the ASME Code. Delegation of commercial grade services shall be controlled through procurement documents and purchasing requirements.

2.6 Authority

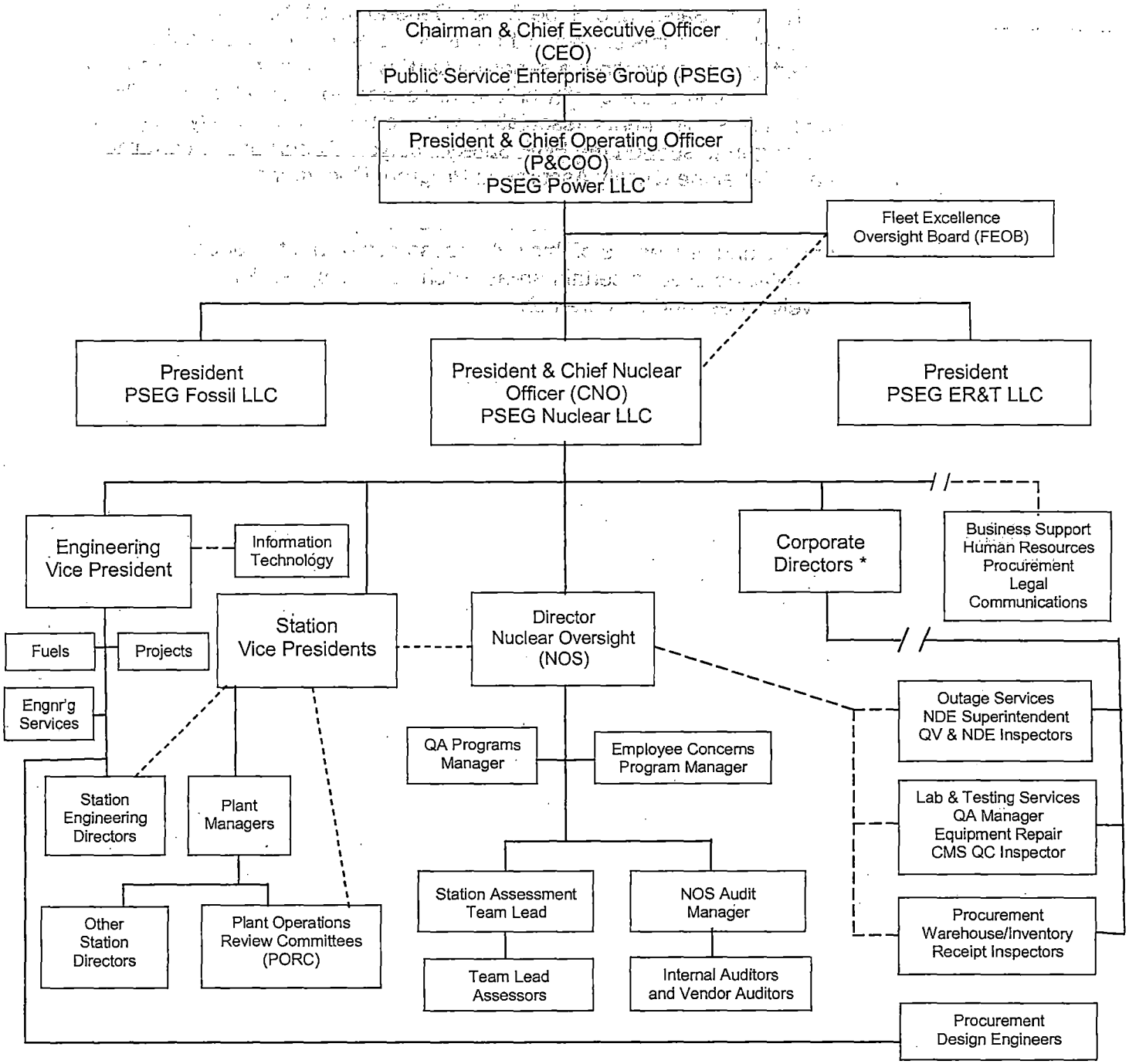
When the Company delegates responsibility for planning, establishing, or implementing any part of the overall QAP, sufficient authority to accomplish the assigned responsibilities is delegated. Regardless of delegation, the Company retains responsibility.

2.7 New Nuclear Development

The Company has obtained an Early Site Permit (ESP) from the Nuclear Regulatory Commission for the potential development of a new nuclear facility at the Salem and Hope Creek Generating Station site. The responsibility for this project is the Site Regulatory Compliance Director. As part of the application, a separate QAP was established to govern the implementation of the quality criteria necessary to satisfy the 10CFR52 Subpart A requirements associated with the ESP. This quality program was written to support the ESP Safety Analysis Report and is contained in a stand-alone Quality Assurance Program Document.

On a limited basis with respect to the ESP project, administrative controls and processes of this QAP (associated with the operating units) will be used in certain areas, such as audits, vendor surveillances, and procurement.

Simplified Organizational Relationship Chart
Figure 1-1



Legend:

——————— Responsibility

– – – – – – – – – – – Matrixed Responsibility

- - - - - - - - - - - - - - - - - Explicit Communication

* For Corporate Operations, Regulatory Operations, and Nuclear Training.

1. SCOPE

The purpose of this chapter is to define how the Company's QAP applies to those activities such as training, design, procurement, fabrication, installation, modification, maintenance, repair, refueling, operation, inspection, and tests related to structures, systems, and components. The QAP also applies to certain non-safety related structures, systems, components and activities to a degree consistent with their importance to safety. Policies, directives, procedures, guidelines, manuals, or instructions shall be reviewed, approved, distributed, and revised in accordance with administrative procedures.

2. REQUIREMENTS

2.1 General

The QAP comprises all those planned and systematic actions necessary to provide adequate confidence that structures, systems, and components will perform satisfactorily in service. Quality assurance includes quality verification, which comprises the examination of those physical characteristics of material, structure, component, or system, which provide a means to control the quality of the material, structure, component, or system to predetermined requirements. All persons and organizations involved in activities in support of the nuclear sites and governed by this program are responsible for implementing the requirements of this manual.

The QAP is based upon 10CFR50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." The requirements of 10CFR50.54, "Conditions of Licenses," 10CFR50.55a, "Codes and Standards," 10CFR50.59, "Changes, Tests, and Experiments," 10CFR50 Appendix A, "General Design Criteria for Nuclear Power Plants," 10CFR50 Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," are included in the basis for the QAP.

The requirements of 10CFR21, "Reporting of Defects and Non-Compliance," 10CFR71, Subpart H, "Packaging and Transportation of Radioactive Material - Quality Assurance," and 10CFR72, Subpart G, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste - Quality Assurance" are also included. The Company is committed to carrying out the provisions of various NRC regulatory guides and industry standards, which further define QAP requirements (see attached Appendix C).

Nuclear safety-related activities, including activities affecting the fire protection of safety-related areas, are to be accomplished under suitably controlled conditions; taking into consideration the need for procedures, special controls, cleanliness, special processes, test equipment, tools, and personnel qualifications and skills necessary to achieve the required quality. The verification of quality occurs by inspection, testing, examination, and operational monitoring of SSC performance, as well as implementation of formal assessment, audit, and independent review activities.

2.2 Supplier's Quality Assurance Program

The Company's procurement documents require that each vendor, supplier, or contractor maintain a quality assurance program that satisfies 10 CFR 50 Appendix B and the applicable portions of:

- ASME NQA-1 or the ANSI N45.2 series of standards for previously accepted non-ASME QAPs
- ANSI N18.7 standards
- ASME Section III, Appendix XXII for suppliers of ASME code design services

2.3 Planning

Planning establishes the systematic, sequential progression of actions to meet the defined requirements. The Company documents these plans in appropriate communications, approvals, instructions, and procedures. Activities described in the QAP are planned, as appropriate for the situation, so they are accomplished under controlled conditions which include appropriate equipment, qualified personnel, suitable environment, and use of appropriate procedures.

2.4 Program Description

The Company's total program for providing administrative controls and quality assurance is incorporated in many diverse documents. The Company's nuclear document hierarchy describes the implementation of the QAP. Approved implementing procedures and instructions are written to the extent necessary to implement the quality requirements of 10 CFR 50 Appendix B. Line, staff, administrative, and quality oversight organizations issue and control these implementing procedures. All activities affecting quality are described in sufficient detail to assure quality.

2.5 Indoctrination & Training

Formal indoctrination and training programs for personnel performing or verifying activities within the scope of this QAP are established and maintained. These programs shall meet or exceed the requirements in applicable federal regulations as well as appropriate industry standards, as described in Appendix C, and the accreditation standards set by the National Nuclear Accrediting Board.

A training organizational element is established and staffed with qualified instructors and is responsible for planning, scheduling, developing and providing training to Company personnel. The indoctrination and training programs are established by on-site and by off-site organizational units responsible for the performance or verification of activities within the scope of the QAP. Indoctrination, training, and qualification programs are established such that:

- Certificate of qualification clearly delineates the specific functions personnel are qualified to perform and the criteria used to qualify personnel in each function.
- Formal training and qualification programs documentation includes the objective, content of the program, attendees, and date of attendance.
- Personnel responsible for performing quality-affected activities are instructed as to the purpose, scope, and implementation of the quality-related manuals, instructions, and procedures.
- Personnel verifying activities affecting quality are trained and qualified in the principles, techniques, and requirements of the activity being performed.
- Proficiency of personnel performing and verifying activities affecting quality is maintained by re-training, re-examining, re-qualifying, and/or re-certifying as determined by management or program commitment.
- Proficiency tests are given to those personnel performing and verifying activities affecting quality, and the acceptance criteria are developed to determine if individuals are properly trained and qualified.

In addition to knowledge and demonstrated abilities, personnel performing or verifying activities associated with this QAP must also be evaluated for trustworthiness and the physical capabilities that are required to successfully perform their assigned tasks. This includes such things as visual acuity, hand dexterity, and their ability to manage fatigue and remain fit to perform their assigned work.

2.6 Program Review

The effectiveness of the QAP and its implementation is periodically reviewed by various organizations at various levels using various tools, such as focused area self-assessments, development and trending of key performance indicators, causal analysis reports, and industry peer review visits. The results of these reviews are documented in reports to senior management for evaluation and corrective action is initiated as required. The effectiveness of the QAP is also evaluated and reported by NOS through this organization's on-going monitoring, assessment, and inspection functions. Other organizational elements provide additional information/ evaluations as requested.

2.7 Quality Assurance Manual

This QATR is a Quality Assurance Manual (QAM) that contains the Company's QAP for its operating units. The QAM is made available to NRC, Company personnel, the Authorized Nuclear Inspector (ANI), and other regulatory authorities. The Company submits revisions to the QAP document (as a topical report) to the NRC for acceptance in accordance with 10 CFR 50.54, Conditions of Licenses, Section (a).

The Company developed and maintained a separate Quality Assurance Program Document (QAPD) for the ESP project activities described in section 2.6 of Chapter 1. The QAPD implements quality assurance measures equivalent in substance to the measures described in 10 CFR 50 Appendix B applicable to the project. Because the ESP is for new generation nuclear designs, the QAPD is based on different codes and standards than is committed to in the QATR. For this reason, the two QAP documents are maintained and implemented separately in every respect; meaning that the QAP for the ESP project will be strictly based on the content of the QAPD, while the QAP for the operating nuclear units will be strictly based on the content of the QATR. Where resources of the operating nuclear units are needed to support the ESP, procedures will be prepared and utilized to govern the utilization of these resources in a manner that meets the requirements of both QAPs. With the issuance of the permit from the NRC, the ESP project activities have ceased and the QAPD has been placed in a dormant condition under the control of the Director Regulatory Affairs. These controls will remain in effect until such time as the Company deems it appropriate to modify its stance on new nuclear facilities and actions are taken to re-activate the QAPD to align with the needs of the business.

1 SCOPE

The purpose of this chapter is to establish the requirements and control measures for assuring design bases and regulatory requirements are correctly translated into design documents. The scope of design control covers all phases of engineering design, including: identification of design inputs (criteria and bases); identification and control of design interfaces; production of design documents, calculations and analyses; procurement related engineering and design verification.

2 REQUIREMENTS

2.1 General

The Company has overall responsibility for design and design control activities including, preparing, reviewing, approving, and verifying design documents related to the plant's structures, systems, and components within the scope of the QAP. Additionally, the Company is responsible for reactor core design analysis, core design specifications and design reviews, for nuclear fuel and in-core components.

Qualified personnel perform detailed design activities or review and control design work involving electrical, mechanical, structural, and instrumentation and control designs. Design activities are conducted to written procedures that include consideration of quality standards, quality assurance requirements, suitability of material parts, equipment, and processes, control of design interfaces, analytical or testing requirements, design basis, and configuration management.

2.2 Design Input

The Company has the responsibility to properly translate applicable safety analysis reports, regulatory requirements, ASME Code requirements, and design bases into specifications, drawings, procedures and instructions. The Company is responsible for electrical, mechanical, structural, instrumentation and control, nuclear engineering activities involved in nuclear station modifications, and also maintains a configuration management program.

Design inputs, such as design bases, performance requirements, regulatory requirements, codes, and standards shall be identified and documented. Their selection shall be reviewed and approved by the responsible design organization. The design input shall be specified and approved in a timely manner and be to the level of detail necessary to provide a consistent basis for making design decisions, accomplishing design verification, and evaluating design changes. Changes from approved design inputs, including the reason for the changes shall be identified, approved, documented, and controlled.

2.3 Design Process

The Company is responsible for design changes, performs detailed design activities, and issues design documents in accordance with approved procedures. The responsible design organization shall prescribe and document design activities in a timely manner and to the level of detail necessary to permit verification that the design meets requirements.

Included in this scope of activities are considerations for field design engineering, fire hazards, human factors, physics, seismic, stress, compatibility of materials, application of special process, associated computer programs, thermal, hydraulic, ALARA and radiation factors, the safety analysis accident scenarios, and accessibility for in-service inspection, maintenance and repairs, and quality standards. Design documents shall be adequate to support facility design, construction, and operation. Selection of the appropriate quality standards shall be documented, reviewed and approved.

Reasons for changes from specified quality standards, shall be identified, documented, approved and controlled. Design methods, materials, parts, equipment, and processes that are essential to the function of the structure, system, or component shall be selected and reviewed for suitability of application. Applicable industry experience, as set forth in reports or other documentation, shall be made available to cognizant design personnel.

The final design output documents and approved changes thereto shall be relatable to the design input by documentation in sufficient detail to permit design verification. The final design shall identify assemblies and/or components that are part of the item being designed. If materials, parts, equipment, or processes are different from the published supplier information, these differences shall be documented.

Commercially standard (catalog items) materials, parts, or equipment, which have been previously approved for different applications, are reviewed for suitability in the design process.

2.4 Design Analyses

Design analyses shall be performed in a planned, controlled, and documented manner. Design analysis documents shall be legible and suitable for reproduction, filing, and retrieval. They shall be sufficiently detailed as to purpose, method, assumptions, design input, references, and units such that a person technically qualified in the subject can review, understand the analysis, and verify the adequacy of the results without recourse to the originator. Calculations shall be identified for retrievability by subject including structure, system, component, originator, reviewer, and date or by other unique identifiers.

Computer programs shall be controlled to assure that changes are documented and approved. Verification shall be required for changes to previously verified computer programs including evaluation of the effects of these changes as specified below.

Computer programs may be utilized for design analysis without individual verification of the program for each application provided:

- The computer program has been verified to show that it produces correct solutions for the encoded mathematical model within defined limits for each parameter employed.
- The encoded mathematical model has been shown to produce a valid solution to the physical problem associated with the particular application.

2.5 Design Verification

Design control measures shall be applied to verify the adequacy of design, such as by one or more of the following:

- Performance of design reviews.
- Performance of qualification tests.
- Use of alternate calculations.

The results of design verification shall be documented including the identification of the verifier. Design verification shall be performed by competent individual(s) other than those who performed the original design, but may be from the same organization. This verification may be performed by the originator's supervisor, provided the supervisor did not specify a singular design approach, rule out certain design considerations, did not establish the design inputs used in the design, or the supervisor is the only individual in the organization competent to perform the verification. Cursory supervisory reviews do not satisfy the intent of design verification.

Verification shall be performed in a timely manner. Design verification, for the stage of design activity accomplished, shall be performed prior to release for procurement, manufacture, construction, or release to another organization for use in other design activities provided sufficient data exists. Any unverified portion of the design shall be identified and controlled. In all cases the design verification shall be completed prior to relying upon the component, system, structure, or computer program to perform its function.

2.5.1 Extent of Design Verification

The extent of the design verification required is a function of the importance to safety, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proven designs.

Where the design has been subjected to a verification process, the process need not be duplicated for identical designs. For each application the applicability of standardized or previously proven designs for design inputs shall be verified.

Known problems affecting the standard or previously proven designs and their effects on other features shall be considered. The original design and associated verification shall be adequately documented and referenced in subsequent applications.

Design verification shall be required for changes to previously verified designs. This includes evaluation of the effects of those changes on the overall design and on any affected design analyses.

2.5.2 Design Reviews

Verification consists of a check of design adequacy by such methods as design reviews, use of alternate calculations or methods, or performance of verification or qualification testing. The method, or combination of methods, used to verify a design will be selected on a case-by-case basis

Acceptable verification methods include one or more of the following items:

- Alternate calculations using alternate methods that verify the correctness of original calculations or analyses.
- Critical design reviews providing assurance that the final design is correct and satisfactory.
- Where design adequacy is to be verified by qualification tests, the tests are identified.

2.6 Change Control

Changes to final designs, field changes, modifications to operating facilities, and nonconforming items dispositioned use-as-is or repair shall be justified and subject to design control measures commensurate with those applied to the original design.

These measures shall include assurance that the design analyses for the structure, system, or components are still valid. A 10CFR50.59/72.48 review is performed for changes to the facility.

Changes shall be approved by the same affected groups or organizations, which reviewed and approved the original design documents. In the case where the original organization is no longer responsible for design approval, then a new responsible design organization shall be designated. The designated organization shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design.

When a design change is approved, other than by revision to the affected design documents, measures shall be established to incorporate, where appropriate the change into these documents. Plant personnel will be made aware of design changes/modifications, which may affect the performance of their duties. Where a significant design change is necessary because of an incorrect design, the design process and verification procedure shall be reviewed and modified as necessary.

2.7 Design Errors

The Company detects deficiencies or errors in design or in the design quality assurance program by:

- Actual failure during operation.
- Assessments.
- Design verification measures.
- Other means.
- Personnel using the design documents.
- Tests conducted.

2.8 Interface Control

Design interfaces shall be identified and controlled. The Company shall coordinate design efforts among the participating organizations. Interface controls shall include the assignment of responsibility and the establishment of procedures among participating design organizations. Controls shall be for the review, approval, release, distribution and revision of documents involving design interfaces. Design information transmitted across interfaces shall be documented and controlled.

2.9 Vendor Design Control

The Company reviews and accepts the specifications and drawings for electrical, mechanical, instrumentation, nuclear and structural material, equipment, and erection work, prepared by the Architect Engineer and NSSS Supplier. The purpose of these reviews is to verify inclusion of inspection, testing and acceptance criteria.

The Architect Engineer's evaluation of fabricator and erector's detailed designs, drawings, and work instructions are reviewed for reasonableness and completeness. Audits are conducted by the company for design review systems of architect engineers, nuclear fuel, and NSSS suppliers.

The Company assures that:

- Architect engineers and NSSS suppliers maintain procedures to assure that their personnel certifying ASME Section III design activities are qualified Registered Professional Engineers in accordance with ASME Section III, Appendix XXIII.
- Personnel certifying ASME Section III design activities are qualified Registered Professional Engineers in accordance with ASME Section III, Appendix XXIII.

The Company provides qualified personnel to review and approve the resolution of non-conformances relating to electrical, mechanical, instrumentation and structural portions of the plant and to evaluate discrepant modification test results for operating plants.

2.10 Modifications

The Company performs modifications that may affect the function of safety-related structures, systems, or components in a manner to assure quality at least equivalent to that specified in original design bases and requirements, materials specifications, and inspection requirements.

2.11 Documentation and Records

The Company notifies jurisdictional authorities of the location of ASME Code related permanent records. Design documentation and records, which provide evidence that the design and design verification process were performed in accordance with the requirements of this chapter, shall be stored and maintained.

Documentation of design analyses shall include the following:

- List of any computer calculation and the bases for its use.
- List of assumptions and indication of those that must be verified as the design proceeds.
- List of design inputs and their sources.
- Results of literature searches or other applicable background data.
- Review and approval.
- Statement of the objective of the analyses.

1 SCOPE

This Chapter identifies the requirements for preparation, review, approval, release, and retention of procurement documents.

2 REQUIREMENTS

2.1 General

The Company establishes measures for the preparation, review, and approval of procurement documents for those items and activities within the scope of the QATR. Procurement documents at all tiers include or reference the appropriate regulatory, technical, and quality requirements necessary to assure adequate quality. These requirements include reference to 10CFR21 when applicable.

2.2 Content of Procurement Documents

Procurement documents at all tiers include the following items as deemed necessary by the Company.

2.2.1 Scope of Work

Procurement documents describe the scope of the items or services to be furnished by a supplier. For those items that are important to plant safety, applicable requirements should be specified in the procurement document.

2.2.2 Technical Requirements

The Company establishes measures in controlled procedures to; specify technical requirements by reference to the appropriate specific drawings, specifications, codes, standards, regulations, procedures, or instructions, including revisions thereto that describe the items or services to be furnished.

The procurement documents identify test, inspection and acceptance requirements as appropriate. These documents identify as appropriate special instructions and requirements for such activities as design, material and component identification, fabrication, special process controls, cleaning, erecting, packaging, handling, shipping, and extended storage.

2.2.3 Quality Assurance Program Requirements

Measures are established, in controlled procedures, to ensure the appropriate technical and quality requirements are established, by qualified personnel, for the material, equipment, and services purchased from vendors, suppliers, or contractors.

Any changes to these requirements require prior approval by the Company. Each vendor, supplier, or contractor has an acceptable quality assurance program, which is consistent with applicable regulatory requirements for the item or service.

The Nuclear Oversight Vendor Audit Group (NOVA) maintains a controlled list of evaluated suppliers that are audited on a triennial basis. The evaluated list of such vendors, suppliers, and contractors is described in controlling procedures for the appropriate safety classification except for procurement from other licensees that has a NRC approved quality program.

Procurement documents require the vendors to incorporate quality assurance program requirements in sub-tier procurement documents and allow right of access to the vendors, sub-tier vendors, and contractors facilities and records for inspection or audit by the Company or designated representative.

Commercial Grade Items (items not originally designed or manufactured as a basic component) shall be subject to a Commercial Grade Dedication process before such items are approved for safety-related applications within the Company's nuclear units. The process is consistent with the guidance contained in Generic Letter 89-02 and 10 CFR 21 for the supply of basic components.

2.2.4 Non-conformances

The Company procurement documents specify the requirements for reporting and approving the disposition of supplier non-conformances. "Use-as-is" or "Repair" requires approval of the supplier disposition by the appropriate Company representative.

2.2.5 Documentation Requirements

The procurement documents shall identify, at all tiers, the documentation required to be submitted for information, review, and approval including the time requirements for submittal. The Company procurement documents require the supplier to maintain specific quality assurance documents including retention times and disposition requirements.

When purchasing commercial grade calibration or testing services from a laboratory holding accreditation by an accrediting body recognized by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA), commercial grade surveys need not be performed provided each of the following conditions are met:

1. A documented review of the supplier's accreditation is performed and includes a verification of the following:
   a. The calibration or test laboratory holds accreditation by an accrediting body recognized by the ILAC MRA. The accreditation encompasses ISO/IEC-17025:2005, "General Requirements for the Competence of Testing and Calibration Laboratories."
   b. For procurement of calibration services, the published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.
   c. For procurement of testing services, the published scope of accreditation for the test laboratory covers the needed testing services including test methodology and tolerances/uncertainty.
2. The purchase documents require that:
   a. The service must be provided in accordance with their accredited ISO/IEC-17025:2005 program and scope of accreditation.
   b. As-found calibration data must be reported in the certificate of calibration when calibrated items are found to be out-of-tolerance. (for calibration services only)
   c. The equipment/standards used to perform the calibration must be identified in the certificate of calibration. (for calibration services only)
   d. The Company must be notified of any condition that adversely impacts the laboratory's ability to maintain the scope of accreditation.
   e. Additional technical and quality requirements, as necessary, based upon a review of the procured scope of services, which may include, but are not necessarily limited to, tolerances, accuracies, ranges, and industry standards.
3. It is validated, at receipt inspection, that the laboratory's documentation certifies that:
   a. The contracted calibration or test service has been performed in accordance with their ISO/IEC-17025:2005 program, and has been performed within their scope of accreditation, and
   b. The purchase order's requirements are met.

2.2.6 Spare and Replacement Parts

The procurement documents require the identification of appropriate spare and replacement parts or assemblies and the appropriate delineation of the technical and quality assurance related data required for ordering these parts or assemblies. These spare parts and replacement items are at least equivalent to the original design requirements or those specified by a properly reviewed and approved revision.

2.3 Procurement Document Review

Measures are established in controlled procedures to ensure the appropriate technical and quality requirements are established for the material, equipment, and services purchased from vendors, suppliers, or contractors prior to release for bid and contract award.

These documented reviews, including changes to the specification or purchase order, ensure the technical and quality requirements are correctly stated, inspectable, and controllable and have adequate acceptance and rejection criteria and are prepared, reviewed, and approved in accordance with QAP requirements.

Review of the exceptions or changes requested by the supplier are reviewed to ensure they do not change or impact the technical or quality requirements and are incorporated in to the procurement documents, prior to the supplier proceeding, using the same review and approval process as appropriate except for commercial terms and editorial changes.

Personnel who have access to pertinent information and who have an adequate understanding of the requirements and intent of the procurement documents shall perform reviews required by this chapter.

2.4 Procurement Records.

Records as required by the procurement documents or the QATR are retained in the Company's department files, vendor files, or both locations.

1 SCOPE

Activities governed by the Company's QAP shall be performed as directed by documented instructions, procedures, and drawings appropriate for the activity. The requirements for the use of these procedures shall also be prescribed in writing. These instructions, procedures, and drawings shall include responsibilities and acceptance criteria as applicable or appropriate for the activity.

Those participating in any activity shall be aware of and use the proper and current revision of instructions, procedures, drawings, and engineering requirements for performing the activity. Procedures may include reference to vendor equipment manuals, design drawings and specifications, prerequisites, special precautions, and the delineation of work to be performed. Equipment Manuals and manufacturers instructions shall be readily available for use.

2 REQUIREMENTS

2.1 General

Operation, maintenance, or modification of equipment shall be preplanned and performed in accordance with written procedures that are appropriate to the circumstances and that conform to applicable codes, standards, specifications, and criteria. Documents identify and specify the content of records to be generated in conducting the activity. The establishment and execution of quality procedures shall occur based on industry standards accepted by the Company. Procedures shall be used by station staff, as well as those under their direction, and adhered to during all safety-related activities, including operating, maintenance, modifications, in-service inspection, refueling, and stores functions.

Temporary procedures may be issued to provide guidance in unusual situations that are not within the scope of the normal procedures. Temporary procedures shall be subject to review and approval, and shall include designation of the time period during which they may be used. In the event of an emergency not covered by an approved procedure, authorized personnel shall provide appropriate direction to minimize personnel injury and damage to the facility and to protect the health and safety of plant personnel and the general public.

2.2 Preparation and Review

Procedures shall be prepared, reviewed, approved, and used as prescribed in writing, and shall contain step by step instructions in the degree of detail necessary for qualified individuals to perform the required function or task. Where appropriate, these procedures will include checklists containing the necessary attributes to be observed or measured.

These documents shall include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily accomplished.

The procedures will be independently reviewed and evaluated by other involved company organizations with interface responsibilities and the comments forwarded to the issuing department.

2.3 Procedures and Programs

Review and approval of site procedures are performed in accordance with technical specification requirements as delineated in the Technical Review or Station Qualified Review (SQR) programs.

2.3.1 Technical Review and Control

1. Procedures required by a station's Technical Specifications and other procedures which affect nuclear safety, as determined by the manager responsible for station operation, and changes thereto, other than editorial or typographical changes, shall be reviewed as follows prior to implementation, except as noted in item 5 (below).
   - Each procedure or procedure change shall be independently reviewed by a qualified individual knowledgeable in the area affected other than the individual who prepared the procedure or procedure change. This review shall include a determination of whether or not additional cross-disciplinary reviews are necessary. If deemed necessary, the reviews shall be performed by the qualified review personnel of the appropriate discipline(s).
   - Proposed change to the approved fire protection program will include a review to determine if the change will have an adverse effect on the ability to achieve and maintain safe shutdown, including whether NRC review and approval is required prior to the implementation of the change.

- Review of procedures or proposed changes to those procedures that describe the means for controlling or operating structures, systems, and/or components as described in the UFSAR, will include a review to determine if NRC review and approval is necessary prior to the implementation of the procedure activity. This review is based on the review of a written 10 CFR 50.59/72.48 review and evaluation prepared by qualified individual(s), or documentation that a 10 CFR 50.59/72.48 evaluation is not required.
- The on-site review committee shall review and recommend approval of items requiring NRC review and approval prior to station approval for implementation. NRC approval shall also be obtained prior to station approval for implementation.
- Department head approval authority shall be as specified in station procedures.
- Written records of reviews performed in accordance with this specification shall be prepared and maintained.
- Editorial and typographical changes shall be made in accordance with station procedures.

2. Technical reviewers shall advise their supervisors and/or the on-site review committee on all matters related to nuclear safety that are identified during reviews. The reviewer shall be other than the originator. The reviewer shall determine if additional cross-disciplinary reviews are required to ensure all applicable technical disciplines are included. This review shall ensure technical accuracy, compliance with regulatory requirements, and shall verify the originator's determination of whether items reviewed constitutes a change to the Technical Specifications, Operating License, or if NRC review and approval is required prior to implementation.
   - Corporate procedures used to support the stations and that serve to govern activities important to safety shall undergo a technical review prior to initial issuance and following subsequent substantive revisions.

3. Technical reviewers shall be qualified to perform technical reviews based on the individual's training, experience, and knowledge level. Technical reviewers, assigned the responsibility for reviewing 10CFR50.59/72.48 reviews and evaluations, shall receive training in this process. Technical reviewers shall be qualified to perform this function and meet or exceed the education and experience requirements of ANSI 3.1-1981. Personnel shall have expertise in one or more of the following disciplines as appropriate, for the subject or subjects being reviewed:

   - Chemistry.
   - Instrumentation and controls.
   - Mechanical and electrical systems.
   - Nuclear power plant technology.
   - Radiological controls.
   - Reactor engineering.
   - Reactor operations.

4. Technical reviews shall be documented and records maintained.

5. Temporary Changes

   Temporary changes to procedures required by 2.3.1.1 (above) may be made provided:

   - The intent of the original procedure is not altered.
   - The change is approved by two members of the plant management staff knowledgeable in the areas affected by the procedures; at least one of whom holds a Senior Reactor Operator's License on the unit affected.
   - The change is documented, reviewed, and approved in accordance with 2.3.1 (above) within 14 days of implementation.

1 SCOPE

Measures shall be established to control and coordinate the classification, review, approval, issuance, revision, and change of documents that prescribe methods or provide the technical and/or quality requirements for activities and items within the scope of this program. These measures shall ensure that such documents are reviewed for adequacy, approved for release and use, and distributed to the location where the activity is performed.

2 REQUIREMENTS

2.1 General

The Company document control process ensures that procedures are reviewed and approved before initial use. The Company has in place programmatic controls, which ensure that procedures are technically and administratively correct before use. These programmatic controls ensure that procedures are reviewed and revised as needed, when pertinent source material is changed, when the plant design is changed, or when deficiencies are identified and corrected.

Provisions shall be established to ensure that infrequently used procedures are reviewed prior to use, unless they have been reviewed within the previous two years. Due to their importance to safety, biennial reviews of abnormal procedures (such as emergency operating procedures) shall be part of the required review process. Periodic biennial review requirements are satisfied by implementation of several processes and programs. These processes and programs provide the programmatic controls that ensure the required reviews are accomplished and include the following:

- Commitment Management and Tracking Process
- Integrated Reporting/Corrective Action Program
- Operational Experience Feedback Program
- Plant Modification Program
- Procedure Feedback/Revision Process
- Technical Specification and Updated Final Safety Analysis Report Revision Programs
- Vendor Information Program

2.2 Reviews

The company has also established provisions to ensure that the following reviews are conducted:

- Inspection, identification of inspection personnel, and documentation of inspection results.
- Maintenance, modification, and inspection procedures are reviewed by qualified personnel; knowledgeable in quality assurance disciplines.
- Necessary inspection requirements, methods, and acceptance criteria have been identified.

2.3 Controlled Documents

Written document control procedures shall be established to provide for the control of approved documents. Documents that are controlled include, but are not limited to, the following items:

- As-built drawings.
- Calibration procedures.
- Computer codes and software.
- Corrective action reports.
- Design specifications.
- Emergency operating procedures.
- Engineering calculations.
- Inspection and test reports.
- Nonconformance reports.
- NOS procedures.
- Operating procedures.
- Purchase orders and related documents.
- Safety analysis reports.
- Supplier audit and surveillance procedures.
- Technical specifications (station and Independent Spent Fuel Storage Installation)
- Temporary and emergency procedure changes.
- Topical reports.
- Work instructions and procedures.

2.4 Control Measures

The Company document control process includes the following document control measures:

- Coordinating and controlling interface documents.
- Distributing documents approved for issuance in accordance with updated and current distribution lists.
- Establishing document control procedures to assure that proper documents are accessible and are being used.
- Establishing lists of documents controlled by organizations involved with activities affecting quality.
- Establishing procedural requirements for the protection of safeguards information
- Identifying and assuring that proper documents are used in performing activities affecting quality.
- Identifying qualified individuals or organizations responsible for preparing, reviewing, approving and issuing documents, including revisions.
- Recalling or identifying obsolete documents.

2.5 Document Changes

The Company document control process ensures changes to documents are reviewed and approved by the same organizations that performed the original review and approval, unless delegated to another responsible organization. The reviewing organization has access to pertinent background data or information upon which to base their approval. To avoid a possible omission of a required review, the Company document control process includes provisions to control minor changes.

1 SCOPE

The Company establishes measures to assure the quality of purchased material, equipment and services conform to procurement document requirements for items contained within the QATR.

2 REQUIREMENTS

2.1 Supplier Selection

2.1.1 General

The Company establishes measures to assure that purchased material, equipment, and services conform to the procurement documents for safety related and ASME code specifications as appropriate. This assurance is accomplished by controlling both the selection of procurement sources and acceptance of the product at the source and/or upon receipt at the appropriate location.

The Company procedures, which address the procurement process and receipt and storage of material and equipment, clearly define the responsibilities and interfaces between the line requisitioning organization, engineering, supply and quality assurance.

2.1.2 Methods

The Company establishes measures for evaluation and selection of procurement sources. For safety-related items, the measures must be completed prior to the award of the contract. These measures include one or more of the following:

- Evaluation of the supplier's history of providing an identical or similar product that performs satisfactorily in actual use.
- Supplier's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.
- Supplier's technical and quality capability of meeting the applicable quality requirements of 10CFR50 Appendix B as determined by a direct evaluation of its facilities and personnel and the implementation of its quality assurance program.

- Review and evaluation of audits, surveys, and inspections conducted by other utilities, or American Society of Mechanical Engineers (ASME).
- If there is insufficient evidence of a QAP, the initial evaluation is of the existence of a QAP addressing the scope of the services to be provided. The initial audit is performed after the supplier has completed sufficient work to demonstrate that its organization is implementing a QAP.

The Company documents and files the results of these measures and maintains a list of approved suppliers that have been evaluated to determine their ability to provide acceptable products and/or services.

Suppliers of non-safety-related products and/or services do not need to meet these measures, however, if being used for an augmented quality (refer to Appendix A) application, a procurement plan will be used to specify and control source quality.

2.2 Bid Evaluations

The Company reviews and evaluates bids and awards contracts using written procedures and documents the results. The Company designates individuals or organizations to review bids to assure that they conform to the procurement document requirements and the supplier has the appropriate technical ability, Quality Program, production capability, personnel, and acceptable past performance to supply the product or service. The Company obtains commitments to resolve unacceptable quality conditions identified as part of the bid evaluation before award of the contract and ensure exceptions and alternatives do not impact the technical or quality requirements.

2.3 Supplier In-Process Control

2.3.1 General

The Company establishes measures to interface with and to verify supplier performance. These measures include the following items:

- Establishing an understanding between the Company and the supplier of the provisions and specifications contained in the procurement documents.
- Establishing a method of document information exchange between the Company and the supplier.

- Establishing the extent of source surveillance and inspection activities.
- Identifying and processing necessary change information.
- Requiring the supplier to identify planning techniques, tests, inspections, and processes to be used in fulfilling procurement document requirements.
- Reviewing supplier documents that are generated or processed during activities fulfilling procurement requirements.

2.3.2 In-Process Control and Verification Planning

The Company and the supplier establish as appropriate, notification points including hold and witness points, and incorporate into the appropriate documents based upon the complexity and scope of the item or service. When required by the procurement document or specification, surveillances and evaluations at the supplier's facility are conducted to verify continued compliance with the quality assurance requirements of the procurement documents.

Qualified individuals or its agents accomplish source inspections at the supplier's facility to verify that the procurement item or service is being supplied in accordance with the requirements of the procurement documents.

Such inspections, examinations or tests are accomplished in accordance with written procedures, plans, and/or checklists containing or referencing appropriate acceptance criteria. Upon acceptance by source verification, the Company furnishes documented evidence of acceptance to the receiving destination of the item, to the purchaser, and to the supplier.

2.3.3 Programmatic Verification

The Company or its agents verify the effectiveness of the supplier's quality program by survey, audit or surveillance. Verification is performed at intervals consistent with the importance to safety, complexity and quality of the product or services furnished. Activities are witnessed or observed and the results documented when source verification is performed.

The Company conducts audits per the requirements established in Chapter 18 or reviews audits performed by other license holders as defined in procedures. The results of these audits are used to support the maintenance of the list of evaluated suppliers. Verification activities are conducted as early as practicable so that subsequent activities do not prevent disclosure of deficiencies. The Company's verification activities do not relieve the supplier of its responsibility for quality verification.

2.3.4 Supplier and Verification of Supplier Performance Records

The Company establishes methods to control, handle and approve supplier documents. Suppliers submit their documents per procurement requirements. Acceptance criteria are used for the acquisition, processing, and record evaluation of technical inspection and test data.

The Company records activities to verify supplier conformance with the requirements of procurement documents. Source surveillances, procurement plans, inspections, audits, surveys, receiving inspections, non-conformance dispositions, waivers and corrective actions concerning supplier activities are documented. This documentation is used to determine the supplier's quality assurance program effectiveness.

2.3.5 Control of Procurement Changes

The Company documents changes to procurement documents involving technical or quality assurance matters. These changes are subjected to the same review and approval process as the original procurement document except for commercial terms and conditions and editorial changes.

2.4 Acceptance of Purchased Items and Services

2.4.1 General

Upon receipt the applicable materials, parts, and components are controlled. Qualified inspection personnel are responsible for inspecting, releasing, and maintaining the inspection status of purchased material and equipment. After receipt inspection, the purchased material is placed in a controlled storage area or issued for installation or further work.

2.4.2 Acceptance by Receiving Inspection

The Company uses approved procedures to accept purchased items and services. Acceptance of an item or service from a supplier includes certificate of conformance, source verification, receiving inspection or post installation testing at the plant location or a combination thereof. Items are inspected during receipt using approved procedures and checklists.

The Company does receiving inspections using procedures and inspection instructions to verify conformance to the specified requirements, using objective evidence to check such features as: complete documentation and visual inspection of: proper configuration; identification; dimensional, physical and other characteristics; freedom from shipping damage; and cleanliness. Items, which cannot meet the purchase order requirements, will be segregated and controlled as defined in the applicable procedures.

The Company coordinates the review of supplier documentation with the receiving inspection when procurement documents require such documentation to be furnished prior to the receiving inspection. Source verification and audit activities are factored into the receipt inspection activities as appropriate.

2.4.3 Acceptance by Source Verification

The Company considers acceptance by source verification when the item or service is:

- Complex in design, manufacture, and test; or
- Difficult to verify quality characteristics after delivery; or
- Vital to plant safety.

Source verification shall be implemented in accordance with plans to perform inspections, examinations, or tests at pre-determined points. Upon acceptance by source verification, the Company furnishes documented evidence of acceptance to the receiving destination of the item, to the purchaser, and to the supplier.

2.4.4 Acceptance by Certificate of Conformance

The supplier's certificate of conformance attests the product or service provided is in accordance with the procurement documents is reviewed during source and/or receipt inspections to verify compliance. This document provides the purchase order number; codes, standards or other specifications required to be met in the purchase order. Requirements which cannot be met must be included with an explanation why and a means to resolve the non-conformances. A person who is responsible for quality assurance function attests to this certificate.

The validity of a supplier's certificate of conformance is ascertained through any of the following methods:

- An independent inspection agency
- Quality assurance audits or surveillances at intervals commensurate with the suppliers past performance.
- Receipt inspections.
- Source inspection.
- Surveillance.
- Testing of hardware.

Inspection and test activities verify that the hardware performs in accordance with applicable technical requirements and serve to demonstrate that the hardware meets the requirements stated in a certificate of conformance.

The results of the source and/or receipt inspections, the acceptability of supplier furnished documentation, and the resulting determination of conformance or nonconformance is documented.

2.4.5 Acceptance by Post Installation Testing

When post-installation testing is used, the Company and the supplier mutually establish post-installation test requirements and acceptance documentation. Acceptance by this method is satisfactory when performed following the accomplishment of at least one preceding method and when:

- It is difficult to verify the quality characteristics of the item without it being installed and in use; or

- The item requires an integrated system checkout or test with other items to verify its quality characteristics; or
- The item cannot prove its ability to perform its intended function except when in use.

2.4.6 Acceptance of Services Only

In cases involving procurement of services only, the Company accepts the service by any of the following methods:

- Technical verification of data produced.
- Surveillance, audit, survey, or assessment of the activity.
- Review of objective evidence for conformance to the procurement document requirements such as certifications, stress reports, etc.

In lieu of the above the Company performs a receiving inspection for items arriving back onsite that were sent offsite for repair, testing, or rework.

2.4.7 Commercial Grade Items

Where the safety related design utilizes commercial grade items, the following requirements are a permissible alternative for acceptance, to other requirements of this Chapter:

1. An approved design document identifies the commercial grade item. (An alternate commercial grade item may be applied, provided the cognizant design organization provided verification that the alternate commercial grade item will perform the intended function and will meet design requirements applicable to both the replaced item and its application.)

2. The Company performs source evaluation and selection, where determined necessary, based on complexity and importance to safety.

   - Commercial grade dedication plans for use in safety-related applications state responsibility for 10CFR21 requirements.
   - The Company identifies commercial grade items in the purchase order by the supplier's published product description.

3. One or a combination of the following methods shall be utilized to provide reasonable assurance that the item meets the acceptance criteria for the characteristics identified to be verified for acceptance:
   - Acceptable supplier/item performance records.
   - Commercial grade survey of the supplier.
   - Source verification.
   - Special test(s) or inspection(s) or both.

4. After receipt of a commercial grade item, the Company determines the following:
   - Damage was not sustained during shipment.
   - Documentation, as applicable to the item, was received and is acceptable.
   - Inspection and/or testing are accomplished, as required by the purchaser, to assure conformance with the manufacturer's published requirements.
   - The item received was the item ordered.

2.4.8 Acceptance of Calibration Services

For suppliers of commercial grade calibration services with accreditation by a nationally recognized accrediting body, a documented review of the supplier's accreditation by the purchaser may be used in lieu of inspections or tests following delivery or in-process surveillances during performance of this service. The review shall include, at a minimum, all of the following:

1. The accreditation is to ANSI/ISO/IEC 17025.
2. The calibration laboratory holds a domestic accreditation by one of the following accrediting bodies, which are recognized by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA):
   - The National Voluntary Laboratory Accreditation Program (NVLAP), administered by NIST
   - The American Association for Laboratory Accreditation (A2LA)
   - ACLASS Accreditation Services (ACLASS)
   - International Accreditation Services (IAS)
   - Laboratory Accreditation Bureau (L-A-B)
3. The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.

4. The purchase documents impose additional technical and administrative requirements, as necessary, to satisfy the company QAP and technical requirements. The technical requirements include the following items included in the calibration/certificate report:
   - As-found data.
   - As-left data.
   - Identification of the laboratory equipment and standards used.
5. The purchase documents require reporting as-found calibration data when calibrated items are found out-of-tolerance.

2.5 Presence of Documentary Evidence

Documented evidence that material or equipment conforms to procurement requirements is present at the site before use or installation. This documentary evidence is traceable to the item and shall be retained at the nuclear power plant site and shall be sufficient to identify the specific requirements such as codes, standards, or specifications met by the purchased material and equipment.

Nonconforming material may be issued for use or installation using a conditional release method provided authorization and technical justification for the conditional release is obtained and becomes part of the material's documentary evidence.

2.6 Spare or Replacement Items

Procedures control the procurement, storage and issuance of materials and components including spare and replacement parts. Procurement documents for these items identify the appropriate technical and quality related requirements. The Company purchases spare parts and replacement items, equipment and components to at least the original design requirements or those specified by a properly reviewed and approved revision.

Where the QA requirements of the original item cannot be determined, qualified individuals conduct an engineering evaluation to establish appropriate requirements and controls. This evaluation insures that interfaces, interchangeability, safety, fit and function are not adversely affected or are contrary to applicable regulatory or ASME Code requirements. The evaluators document their results.

Where the Company procured the original item with no specifically identified quality assurance program requirements, or from an Original Equipment Manufacturer/Supplier (OEM/OES) who no longer is on a list of evaluated suppliers identical (like-for-like) items may be similarly procured from the OEM/OES through the use of procurement plans.

In such cases, the Company conducts a joint technical engineering and quality assurance documented evaluation to established requirements and controls to assure at least equivalent product performance. The evaluation shall assure that interfaces, interchangeability, safety, fit and function are not adversely affected or are not contrary to applicable regulatory or ASME Code requirements.

2.6.1 Procurement from Other Utilities

Purchases of safety related items can be made from other utilities who have had an NRC approved QA Program in effect at the time of their procurement and receipt and such utility has maintained a quality system program for storage, handling, and maintenance with documented traceability to the manufacturer of the items.

Certificates-of-Conformance to the above requirements and associated required documentation are provided.

2.6.2 Maintenance or Modification

The Company performs maintenance or modifications that may affect the function of safety related structures, systems, or components in a manner to assure quality at least equivalent to that specified in original design bases and requirements, materials specifications, and inspection requirements.

1 SCOPE

Controls are established to assure that only correct and accepted items are used or installed. Identification shall be maintained on the items or in documents traceable to the items, or in a manner, which assures that identification is established and maintained.

2 REQUIREMENTS

2.1 General

The Company establishes measures for the identification and control of materials, parts and components, including partially fabricated assemblies, and assures that only correct and accepted items are used or installed. Identification is maintained on the items or in documents traceable to the items. Physical identification shall be used to the maximum extent possible.

Provisions are in place to maintain markings, which could be damaged during shipping or handling or deterioration due to environmental exposure. Provisions are also established to control nonconforming items and maintain parts, material, and equipment in storage traceable to quality assurance documents. Nonconforming material issued for use or installation on a conditional release basis is controlled in a manner that ensures appropriate follow-up is performed.

2.2 Traceability

Items within the scope of the QAP shall be identified, so that they can be traced to the appropriate documentation, which provides objective evidence that the technical and quality requirements are met.

Responsible organizations document and maintain identification and traceability of items from initial receipt, throughout fabrication, installation, and use of the items such as: subassemblies, components, equipment numbers, part numbers, serial number, heat treatment number, batch or lot numbers.

When installed material or equipment is removed for maintenance, repair, or modification, control measures are implemented to ensure proper identification and traceability is maintained. Before use or installation of an item, the installer verifies that identification has been maintained.

2.3 Identification Methods

Identification is on the item where practicable. Identification is clear, unambiguous and indelible. Identification does not affect the fit, function, quality, and service life of the item. If the item cannot be practicably marked, the Company uses records traceable to the item for identification.

If physical identification is either impractical or insufficient for proper control, the Company controls an item by physical separation, procedural control or other appropriate means.

2.4 Transfer of Markings

Prior to cutting or dividing material, each new piece shall be marked with the same traceability markings of the original piece to ensure that the traceability of the material is maintained. These markings shall not be obliterated or hidden by surface treatment or coatings unless other means of identification are substituted. The Company independently verifies proper identification of each piece.

2.5 Limited Life Items

The Company identifies and controls items having limited life to preclude use of items whose shelf life or operating life has expired.

2.6 Stored Items

The Company uses procedures to assure proper control of identification for items in storage.

2.7 Software Items

To the extent appropriate, the Company establishes controls to permit authorized and prevent unauthorized access to computer software.

1 SCOPE

Processes affecting quality of items or services shall be controlled. Special processes that control or verify quality shall be performed by qualified personnel using qualified procedures in accordance with specified requirements, and are properly documented and evaluated. These requirements are defined in codes, standards, specifications, or special instructions. The quality of such processes is assured through reliance on operator skill and in-process control. Examples of special processes include, but are not limited to welding, heat-treating, chemical cleaning, and non-destructive examination (NDE).

2 REQUIREMENTS

2.1 General

The Company organization directing work during repair, replacement, modification, or in-service inspection (ISI) activities is responsible for controlling special processes. Special process controls are assured through independent assessment and inspection activities.

2.2 Process Control

Instructions, procedures, drawings, checklists, or other appropriate means control processes. Process controls specify the prerequisite steps, processing details, conditions to be maintained during the process, equipment requirements, inspection and test requirements, acceptance criteria, and record requirements. Controlling includes:

- Maintenance and retention of records.
- Personnel qualification.
- Procedure development and qualification.
- Procedure implementation.
- Qualification of equipment.

2.3 Special Processes

Measures shall be established and documented to assure that special processes are accomplished under controlled conditions in accordance with applicable codes, standards, applications criteria, regulatory requirements and commitments, and other special requirements including the use of qualified personnel and procedures. Special processes are controlled by: instructions, procedures, drawings, checklists, travelers, or other appropriate means.

Special process controls specify the preparatory steps, processing details, conditions to be maintained during the process, equipment requirements, inspection and test requirements, acceptance criteria, and record requirements. Special process procedures are written and qualified in accordance with applicable requirements. Special process procedures are reviewed and approved as follows:

- Coating and ASME Code concrete placement procedures are reviewed and approved by the appropriate Company organizations.
- Company, contractor and sub-contractor heat-treating, welding, brazing, and other non-NDE procedures are reviewed and approved by Engineering.
- Company NDE procedures are reviewed and approved by the appropriate Company Level III.
- Contractor, subcontractor, Section III, XI, and other ISI-related NDE procedures are reviewed and approved by the Company NDE Level III.
- The responsible Company engineering organization reviews contractor and subcontractor special process procedures.

When permitted by applicable requirements, the Company may direct contractors or subcontractors to use Company special process procedures. The Company assures that qualification of Company, contractor and subcontractor ASME Code NDE procedures, is verified by an Authorized Inspection Agency (AIA). When there is a specific reason to question whether special process procedure requirements are being met, the Company or the AIA may require re-evaluation of the procedure before work may proceed.

For special processes not covered by the existing codes or standards, or when the quality requirements of an item exceed the requirements of established codes or standards, the necessary qualifications of personnel, procedures and equipment shall be defined in the procedure.

2.4 Personnel Qualification

Company, contractor, and subcontractor personnel performing special processes are trained, tested, qualified, or certified in accordance with a procedure that meets applicable requirements. When permitted by applicable requirements, the Company may qualify and control contractor and subcontractor personnel.

The Company assures that qualification of Company, contractor, and subcontractor ASME Code NDE personnel is verified by the AIA. When there is a specific reason to question the ability of an individual performing special processes, the Company, or the AIA may require re-evaluation before that individual will be permitted to resume work. Individuals failing any retest will be removed from applicable operations pending re-qualification.

The appropriate NDE Level III is responsible for personnel and procedure development and qualification to ASME Code requirements for nondestructive examination. This position holder is qualified and certified in accordance with ASNT SNT-TC-1A / ASNT CP-189 and may designate qualified deputies for certification of personnel and procedures, and final Company authority of the interpretation of any NDE indication that has been recorded by a Level II Examiner or by a NDE contractor's Level III examiner.

Training and certification of personnel associated with nondestructive examination are carried out in accordance with the requirements of ASME NQA-1 and ASME Section XI. A Level III certified person administers all ASME Code examination activities.

2.5 Special Process Records

Special process records provide evidence that special processes were performed in accordance with approved procedures by qualified personnel. These records are retained by; the Company, the contractor, or subcontractor, as required by procurement documents. Records are maintained for currently qualified personnel, processes, and equipment for each special process.

1 SCOPE

The Company plans and executes an inspection program to verify that activities affecting the quality of safety-related structures, systems, and components conform to documented requirements. For modification and non-routine maintenance activities, inspections are conducted in a manner similar (i.e., frequency, type and personnel performing such inspections) to those associated with construction phase activities. The independent inspections described in this Chapter are not intended to dilute or replace the clear responsibility of the first line supervisors for the quality of work performed under their supervision or personnel performing the activity.

2 REQUIREMENTS

2.1 General

The Company establishes controls for coordination and execution of inspection plans. Company quality verification organizations or other qualified organizations are responsible for implementation of established inspection plans. If an inspection plan includes inspections by personnel other than those in a quality verification organization, the inspection requirements, personnel qualification criteria, and inspector independence will be accepted by the responsible quality organization prior to implementation.

2.2 Inspection Plans

The Company prepares documented inspection plans. These inspection plans are applied when the activity is started. The inspection plans may be separate documents or an integral part of approved instructions, procedures or drawings. Related codes, standards, specifications and design documents are used to develop the inspection plans. Procedures used for documenting inspection plans are selectively reviewed, as appropriate by quality verification personnel, to assure that necessary verification points and inspection criteria are included. The plans identify:

- Acceptance criteria.
- Activities to be inspected.
- Inspection characteristics.
- Inspection techniques/equipment (including accuracy requirements).

- Provisions for inspection and test status.
- Provisions for the recording of inspection results.
- Qualification requirements.
- Responsible organizations.

2.3 Inspection Personnel and Qualification

A qualification program is established and documented to conform to applicable codes, standards, or licensing requirements. Qualifications and certifications are kept current.

Qualified personnel perform inspections. Inspectors with valid certifications perform inspections for acceptance. Inspectors are independent of those who perform or directly supervise the activity being inspected. On-the-Job training inspections shall be performed under the direct supervision of qualified personnel.

Second line supervisory personnel may conduct inspection of operating activities or other qualified personnel not assigned first line supervisory responsibility for the conduct of the work. Operating activities are defined as work functions associated with normal operations of the plant, routine maintenance, and certain technical services routinely assigned to the onsite operating organization.

Supervisor hold points may be procedurally established to inspect the quality of certain stages of work; however, these hold points shall not be used in the place of required independent inspection hold points performed by qualified inspection personnel.

2.4 Inspection Process

Inspections are performed using approved instructions, procedures, process sheets, travelers, or checklists and applicable drawings.

- Inspections are performed for each work or operating activity where necessary to verify quality. Where inspection sampling is used to verify the acceptability of a group of items, the sampling procedure shall be based on recognized standard practices.

- Process monitoring may be used when inspection of processed material or products is impossible or impractical. When necessary, to ensure quality throughout the duration of the process, both inspection and process monitoring will be systematically used to verify conformance to requirements.

- When required independent inspections must be performed before work can continue, hold points are established in appropriate documents. Consent to waive independent inspection hold points is recorded prior to continuation of work. These waivers must have appropriate justification documented and be approved by a designated management representative. When inspection is desired, but not mandatory before work can continue, witness points are established. Completion of hold and witness points is documented.
- When acceptance criteria are not met, corrected areas are re-inspected. Such inspections are documented in the Corrective Action Program as well as the associated work package.
- Changes to, or rework of, an item after inspection requires re-inspection of the affected areas.
- A final evaluation is performed. Inspection results are reviewed to confirm that required inspections and quality records have been completed, identified non-conformances have been resolved and the item conforms to specified requirements. Engineering, Maintenance, Operations or Quality Verification approves final acceptance of the item.
- Inspection records are of sufficient detail to confirm completion and, as a minimum, identify:
  - Authorized individual approving results.
  - Date of inspection.
  - Inspector/Data recorder.
  - Item inspected.
  - M&TE used.
  - Reference to action taken in connection with identified non-conformances.
  - Results or acceptability.
  - Type of observation.
- When the inspection activity is performed using a separate procedure, the procedure and its revision are recorded.

2.5 In-Service Inspections

A program for the required ISI/IST inspection of completed systems, structures and components shall be planned and executed by or for the organization responsible for the operation of the plant to assure that plant components perform satisfactorily under all operating conditions.

Inspection methods shall be established and executed to applicable codes, standards and regulations, including baseline examinations and subsequent periodic examinations, which continue through the life of the plant in accordance with applicable technical specifications.

2.6 Independent Verification

Qualified personnel using approved procedures conduct independent verifications. Characteristics to be verified and methods to be employed shall be specified. Verification results and unacceptable conditions identified shall be documented. Persons other than those who performed or directly supervised the work being verified shall perform verifications. Personnel must have qualifications of greater than or equal to the activity being verified.

1 SCOPE

A documented test program shall be established in accordance with applicable technical specifications, license conditions, and design documents to assure that all testing required demonstrating that the structures, systems, or components within the scope of this QAP will perform satisfactorily in service.

2 REQUIREMENTS

2.1 General

2.1.1 Testing Program

The Company establishes and controls a test program to assure that design and performance criteria have been satisfied and assures that testing does not adversely affect the safe operation of the plant. The test program includes, as appropriate, procedures to ensure those structures, systems, subsystems, and components will perform in service. Appropriately trained and qualified personnel conduct testing. The extent of testing shall be based on the complexity of the modification, replacement, or repair.

The test program covers all required tests including:

- Demonstration of satisfactory performance following plant maintenance and modifications or procedural changes.
- Operational tests.
- Production tests.
- Prototype qualification tests.
- Tests during design.
- Tests during fabrication.
- Tests required by plant maintenance or modifications.

2.1.2 Test Procedures

The program uses written test procedures, which include the requirements and acceptance limits from applicable design documents. The Company reviews and approves test procedures and changes to test procedures, including changes that alter test sequence, in a similar manner to the original.

The organization responsible for the design of the item to be tested establishes the test requirements and acceptance criteria. Test requirements and acceptance criteria are based upon specified requirements contained in applicable design or other pertinent documents. Test requirements include specific characteristics to be tested.

The Company specifies specific test methods when they must be employed, uses written procedures or checklists, and documents the status of equipment both before and after testing.

The Company may use appropriate sections of related documents, such as ASTM methods, supplier manuals, equipment maintenance instructions, or approved drawings or travelers with acceptance criteria in lieu of specially prepared written test procedures. Such documents must include adequate instructions to assure the required quality of work. Test and inspection procedures contain:

- A description of objectives.
- Acceptance criteria or limits contained in applicable design or other source documents, such as vendor's literature, engineering drawings or plant specifications that will be used to evaluate results.
- Any special equipment or calibrations required to conduct the test or inspection.
- Instructions or checklists used to verify or document that affected plant systems are arranged in their correct lineup and for restoring the system to the condition consistent with the normal operating status.
- Limiting conditions.
- Prerequisites for, or checks to be made prior to performing the tests or inspections including any special conditions to be used to simulate normal or abnormal operating conditions.
  - Data documentation is in compliance with test procedures.
  - Equipment to be tested is properly released for testing.
  - Inspections and tests are done under suitable environmental conditions.
  - Proper calibrated inspection and test instruments are used.
  - Retention control of test data documentation is adequate.
- Responsibilities.
- Test or inspection requirements contained in applicable design documents.

Where tests and inspections are to be witnessed, the procedure identifies hold points or witness points in the testing sequence to permit witnessing. The procedure requires appropriate approval for the test to continue beyond the designated hold point.

1. Prerequisites

Prerequisites include the following, as applicable:

- Appropriate test equipment.
- Calibrated instrumentation in accordance with Chapter 12, Control of Measuring and Test Equipment.
- Condition of test equipment and the item to be tested.
- Provisions for data acquisition.
- Suitable environmental conditions.
- Trained personnel.

Procedures ensure that prerequisite steps for equipment testing have been or will be performed. Such steps include:

- Completion of necessary construction maintenance and modification activities.
- Formal release for testing.
- Measures to preserve equipment status.
- Prior testing.
- Safety precautions.

A detailed prescribed physical inspection of equipment components and facilities is performed to ensure readiness for operation. Typical inspection items include:

- Calibration of instruments.
- Cleanliness.
- Lubrication.
- Presence of safety devices.
- Setting of limit switches.

2. Schedule

Schedules are provided to assure that all necessary tests are performed and properly evaluated on a timely basis. Testing is scheduled so that the safety of the plant is never dependent on the performance of an untested system.

3. Test Results and Records

Appropriate Company personnel evaluate test results to assure conformance with design and performance requirements. Inspection and test results are documented in a test report or data sheet. Each report identifies the following:

- Acceptability of the test.
- Actions taken to correct the deviations noted.
- Any deviation of test results from acceptance criteria (nonconformance).
- As-found condition.
- As-left condition.
- Completion date and other significant dates and times.
- Data sheets completed during the tests.
- Documents that provide acceptance criteria.
- Identification of the conditions encountered which were not anticipated.
- Identity of inspector or tester.
- Item to which it applies.
- Location where testing was performed or where test samples were taken.
- Measuring and test equipment used.
- Person evaluating test results.
- Procedures or instructions followed in performing the task.
- Test procedures.
- Test results.

2.2 Instrumentation and Control

The Company tests instrumentation and control channels to assure that they are properly calibrated. In addition, specific tests are performed at critical levels such as "set points" in a manner simulating the approach toward the set point. These calibrations are made with the devices in their normal positions if the calibration is dependent upon location or attitude.

Testing determines that a proper response is obtained over the operating range of the device. It gives particular attention to verifying independence and dependence, as appropriate, of the elements of the systems. Calibration documentation includes indicating the date and identity of the person that performed the calibration.

The Company prepares and documents installation, inspection and test procedures and work instructions for instrumentation and electrical equipment. These documents are kept current and revised as necessary to assure that installation, inspections and tests are performed in accordance with latest information. They include as appropriate:

- Approvals.
- Data report forms.
- Frequency of inspection or test.
- Identification of test equipment and date for required re-calibration where required for interpretation of test results.
- Inspection and test acceptance limits.
- Inspection and test equipment required.
- Inspection and test objectives.
- Installation specifications.
- Precautions to avoid component or system damage during testing or inspection.
- Prerequisites.
- Sequence of tests (if applicable).
- Sequential actions to be performed.

2.3 Electrical Tests

Electrical tests include as appropriate:

- Continuity tests, short circuit tests, polarity and rotational tests.
- Control system tests including indicating meters, recorders, transducers, targets and lamps, annunicators and alarms, controls and interlocks.
- Insulation resistance measurements as specified.
- Over potential (HIPOT) tests as specified. Over potential tests conform to the applicable codes and standards. The manufacturer's recommendations are considered.
- Voltage breakdown tests on liquid insulation.

2.4 Mechanical Tests

The Company performs mechanical tests to ascertain that electric and/or instrumentation components or systems can withstand system pressure ratings. As a minimum, the Company applies such tests to pressure sensing and transmitting devices operating in steam, hydraulic, and vacuum systems and their hydraulic or pneumatic interconnecting piping or tubing and associated instruments.

Pressurized equipment that is part of electrical apparatus such as heat exchangers, circulating systems, actuating systems, and electric and instrumentation containment penetrations are likewise tested if site assembled or fabricated. Tests are conducted after the assembly is complete even though the components may have been tested previously. These tests are performed in accordance with the applicable codes and standards.

2.5 Physical and Chemical Tests

Physical and chemical tests, in accordance with the applicable codes, include, as appropriate:

- Chemical analysis of fluids for oxygen or moisture content and purity.
- Radiation sensitivity testing to confirm that radiation sensor and controlling devices is properly functioning.

2.6 Surveillance Tests

The Company's test program covers surveillance testing during the operational phase to provide assurances that failures or substandard performance do not remain undetected and that the required reliability of safety related systems is maintained.

2.7 Maintenance or Major Procedure Change

The Company performs tests following plant modification or significant changes in operating procedures to confirm that the modification or changes produce expected results. These tests also demonstrate that the change does not produce an unsafe operating condition.

2.8 Software Tests

The Company ensures computer programs for safety-related applications are appropriately tested. Software applications are tested in a manner to ensure that the new functionality is operating properly and can be introduced to the production environment with minimal disruption. When appropriate, periodic in-use manual or automatic self-check routines are prescribed and performed for those applications where computer failures or drift can affect required performance.

1 SCOPE

Measures and responsibilities are established to assure tools, gauges, instruments, and other Measuring and Testing Equipment (M&TE) used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within specified limits. Measures shall also be established for the control of permanently installed instrument and control devices.

2 REQUIREMENTS

2.1 General

The Company is responsible for the governance of M&TE. This includes the establishment of calibration practices, intervals, accuracy requirements, certification/de-certification, and equivalency decisions, as well as the resolution of technical issues regarding M&TE calibration.

The engineering organizations are responsible for decisions regarding the acceptability of changes to M&TE specifications where accuracies are less conservative than those currently established. The engineering organization performs M&TE equivalency calculations for these items to assure associated specifications are consistent with plant design, test procedures, and accuracy requirements (excluded are analytical chemistry and radiochemistry instruments).

The stations are responsible for the control and maintenance of calibrated M&TE for the station. The stations are also responsible for the control of station analytical chemistry instrumentation, radiochemistry instrumentation, and standard solutions.

2.2 Control

A control program specifies how M&TE are stored, handled, and used. As a minimum the following items are addressed:

- Administrative controls (including equipment marking and traceability to calibration records).
- Certification requirements.
- Calibration interval and method.
- Damaged or suspect M&TE.
- Environmental restrictions.

- Items not requiring certification.
- M&TE selection.
- Out of tolerance resolution.
- Personnel qualifications.
- Repairs and maintenance.
- Status and usage history.

2.3 Labeling

Equipment shall be suitably marked to indicate calibration status. Where neither labeling nor coding is practical, procedures shall provide for monitoring of records to ensure control.

2.4 Accuracy

Calibration of M&TE should be against reference standards that have an accuracy of at least four times the required accuracy of M&TE. Calibration of reference standards will be against hierarchical standards more accurate than the reference standards calibrated. When this is not possible, standards must have an accuracy that assures the M&TE is within the required tolerance, and that the basis for acceptance is documented and authorized by responsible management.

2.5 Traceability and Interval

M&TE is calibrated against and traceable to certified standards having valid relationships to nationally recognized standards. Where national standards do not exist, provisions are established to document the basis for calibration. Calibration intervals are established for all M&TE and the Company program specifies how this interval is established.

2.6 Certified M&TE

Certified M&TE is required where measurements with specific accuracy/tolerance requirements are delineated:

- Calibration of other M&TE.
- Environmental monitoring.
- Safety-related and applicable ASME applications.
- Technical Specification related applications (including balance of plant systems).
- Verification of design parameters.

Certified M&TE is not required when measurements do not require specific accuracy or when commercial devices (such as rulers, tape measures, levels) provide adequate accuracy. Calibration is not required for electronic stopwatches.

2.7 Corrective Actions

When M&TE is found to be out-of-tolerance, an evaluation is made of its previous uses to determine corrective action. Suspect equipment is identified and segregated to prevent inadvertent use. Devices that are consistently found out of calibration are repaired or replaced.

2.8 Vendor Control

Vendors supplying calibration services are on the Company's approved suppliers list.

When the Company uses a vendor to calibrate M&TE, the procurement documents shall impose a requirement for the accredited laboratory to provide as-found calibration data when any item being calibrated is found to be out-of-tolerance. Corrective actions are then taken by the Company based on this information.

2.9 Commercial Devices

Control measures are not required for rulers, tape measures, levels, and other such commercial devices, if such equipment provides adequate accuracy.

2.10 Calibration Records

M&TE calibration records contain, as a minimum:

- As found/as left condition.
- Calibration data.
- Calibration procedure used.
- Calibration results.
- Equipment location.
- Established accuracy.
- Individual performing calibration.
- Last calibration date.
- Next calibration date.
- Out of tolerance notification.
- Repairs (if any).
- Serial number.
- Standards used.

1 SCOPE

The Company establishes measures to control and specify special protective conditions in accordance with an item's design and procurement requirements, as necessary, to prevent damage or deterioration of materials, components, and systems during handling, packaging, preservation, storage, and shipping.

2 REQUIREMENTS

2.1 General

The Company uses written procedures or instructions for cleaning, packaging, shipping, storage, preservation, and to specify detailed requirements for access to storage areas, housekeeping, and removal of items from storage.

Procedures include provisions for inspection, examination, testing and documentation. These procedures specify special protective conditions necessary to prevent damage, deterioration or loss before and after receipt of materials, equipment, special nuclear material, and radioactive wastes.

Procurement documents or the vendor's quality program specifies the establishment of controls, to assure through the use of shipping procedures to provide protection during loading and transit and inspections that items are delivered in acceptable condition.

2.2 Special Equipment and Environments

When required, the Company:

- Provides special equipment and special protective environments.
- Specifies special equipment (such as containers, shock absorbers and accelerometers).
- Specifies special protective environments (such as inert gas atmosphere, specific moisture content levels and temperature levels).
- Verifies the maintenance of special equipment and special protective environments.

2.3 Classification of Items

Levels and methods of storage are classified to minimize the possibility of damage, deterioration, or contamination of items. This is based on the important physical characteristics and the importance to safety and reliability of the item. This classification considers the manufacturer's requirements.

The Company packages, ships, receives, stores, and handles items according to established manufacturers requirements or the Company's prescribed level. When a package or assembly contains items of different levels, the Company classifies it to the highest level designated for any of the items contained.

2.4 Special Handling Tools and Equipment

The Company inspects and tests special handling tools and equipment using procedures at specified time intervals to verify adequate maintenance. The Company provides special handling procedures and instructions for items that are susceptible to handling damage. These procedures delineate acceptable techniques, necessary qualifications and precautions for maintenance and use. Operators of special handling and lifting equipment have experience or are trained in their usage.

2.5 Marking and Labeling

The Company establishes instructions for marking and labeling to identify, maintain, and preserve an item, including indication of the presence of special environments or the need for special controls.

Consumable materials such as chemicals, reagents, and lubricants maintained in storerooms and warehouses are controlled procedurally by an inventory control system, which includes provisions for identifying storage requirements and shelf lives by commodity, when applicable. Disposal of commodities whose shelf life has expired is addressed and controlled by procedures.

2.6 Storage

Periodic monitoring is performed to assure that storage areas are being maintained in accordance with applicable requirements. Access to storage areas shall be controlled and limited. Cleanliness and good housekeeping practices shall be enforced at all times in the storage areas. Fire protection measures commensurate with the type of storage area shall be provided and maintained.

1 SCOPE

Measures shall be established and documented to identify inspection, test, and operating status of structures, systems, and components in the scope of this QAP. Such measures shall provide means for assuring that required inspections and tests are performed and that the acceptability of items with regard to inspections and tests performed is known throughout procurement, installation, and operation in order to preclude inadvertent bypassing or altering the sequence of such inspections and tests.

2 REQUIREMENTS

2.1 General

The Company uses markings, tags, stamps, routing cards, labels, forms, inspection records, or other means to identify the operating status of plant equipment. This identification helps avoid inadvertent bypassing of the inspections and tests required prior to its use. In cases where documentary evidence is not available to confirm that an item has passed required inspections and tests, that item shall be considered nonconforming.

An operability determination for the nonconforming item with timeliness commensurate with the potential safety significance of the issue is performed. The operability determination is focused on whether the non-conforming item is capable of performing or supporting its specified functions of prevention or mitigation as described in the current licensing basis and will result in the determination of continued plant operation. If operability is assured based on this prompt determination, plant operation can continue while an appropriate corrective action program is implemented to restore qualification of the non-conforming item.

Control procedures describe the use of such tags, stamps, routing cards, labels, forms, inspection records, and other methods. The authority for application and removal of tags, markings, labels and stamps is specified. Tagging, labeling, color-coding, physical separation, or using an inventory system identifies acceptable or unacceptable items for installation. The Company:

- Clearly identifies and documents all temporary connections, such as jumpers and bypass lines, and temporary set points of control equipment to allow restoration before placing the item in service.

- Conditionally releases items for installation pending subsequent correction of any non-conformances.
- Controls the use of nonconforming items pending an evaluation and approved disposition by authorized personnel.
- Indicates the date an item was placed in the acceptable or unacceptable installation status.
- Maintains records, marks equipment to indicate calibration status, and identifies test equipment found out of calibration.

2.1.1 Procedures

The Company uses procedures for control of equipment to maintain personnel and reactor safety and to avoid unauthorized operation of equipment. These procedures require control measures such as locking or tagging to secure and identify equipment in a controlled status. The procedures require independent verifications, where appropriate, to ensure that necessary measures, such as equipment tagging, have been done correctly.

2.2 Operating Status

2.2.1 Release for Maintenance

Operating personnel, including a senior reactor operator, as applicable, may grant permission to release plant systems or equipment for maintenance or surveillance testing. Prior to granting permission, such operating personnel:

- Determine how long it may be out of service.
- Determine what functional testing or redundant systems are required prior to and during the out-of-service period.
- Verify that the equipment or system can be released.

The Company documents such permission. The Company uses independent verification to the extent necessary to ensure that the proper system was removed from service. The Company considers the degraded protection available when one subsystem of a redundant safety system has been removed for maintenance or surveillance testing.

2.2.2 Preparation for Work

After permission has been granted to take the equipment out of service, measures provide for protection of equipment and workers. The Company clearly identifies the status of equipment and systems at any location where the equipment can be operated. The Company enforces strict control measures for such equipment. The operating staff can easily identify equipment, which is in other than normal conditions.

In addition to the requirements of the technical specifications, conditions to be considered in preparing equipment for maintenance or surveillance testing include, for example:

- Electrical hazards.
- Entry into closed vessels.
- Establishment of a path for decay heat removal.
- Handling hazardous materials.
- Hazardous atmospheres and ALARA considerations.
- Method of emergency core cooling.
- Shutdown margin.
- Temperature and pressure of the system.
- Valves between work and hazardous materials.
- Venting, draining, and flushing.

When entering a closed system, the Company prevents the entry of extraneous material and removes foreign material before re-closing the system. Appropriate personnel inform control room supervision of changes in equipment status, including temporary modifications, and the effects of such changes.

2.2.3 Temporary Modifications

The Company controls temporary modifications, such as temporary bypass lines, electrical jumpers, lifted electrical leads, and temporary trip point settings with approved procedures. These procedures include requirements for the period of time when the temporary modification is in effect. They also include a requirement for:

- An independent or concurrent verification by a second person of the proper installation or removal of the temporary modification, or
- A functional test which conclusively proves the proper installation or removal of the temporary modification.

The Company maintains a log or other documented evidence for the current status of such temporary modifications. The Company reviews temporary modifications periodically to assess their continued need and propriety.

2.2.4 Inspections and Tests

The status of inspection and test activities shall be identified either on the components or in documents traceable to the components where it is necessary to assure that required inspections and post maintenance tests have been satisfactorily performed to assure that equipment which has not passed the required inspections and tests is not inadvertently installed, used, or operated.

2.2.5 Return to Service

When equipment is ready to be returned to service, operating personnel place the equipment in operation and verify and document its functional acceptability. The Company assures return to normal conditions using approved procedures, including:

- Assuring that all alarms, which are indicative of inoperative status, are cleared.
- Removal of electrical jumpers.
- Removal of signals used during testing.
- Returning valves, breakers, or switches to proper start-up or operating positions.

A second qualified person verifies proper alignment of equipment unless:

- All equipment, valves and switches involved in the activity can be proven to be in their correct alignment by functional testing without adversely affecting the safety of the plant, or
- Such verification would result in significant radiation exposure.

The person who performs verifications (independent or concurrent) is qualified to perform such tasks. When placed into service, equipment receives additional surveillance during the run-in period. The on-duty supervisor responsible for the unit formally accepts equipment, which is returned to service.

1 SCOPE

Controls shall provide for identification, evaluation, segregation when practical, disposition of nonconforming items, and for notification to affected organizations. Items that do not conform to specified requirements shall be controlled to prevent inadvertent installation or use.

2 REQUIREMENTS

2.1 General

Nonconforming items are processed in accordance with the corrective action program and/or documented procedures. The Company uses written procedures to identify and control items, services or activities that do not conform to requirements. These procedures address the:

- Disposition of nonconforming items.
- Documentation of identified nonconformances.
- Identification of nonconforming items.
- Notification of affected organizations.
- Operability determination of the SSC with the identified nonconforming condition
- Segregation of nonconforming items.

Implementation of these procedures prevents the inadvertent use, operation, or unauthorized installation of nonconforming items.

2.1.1 Supplier Nonconforming Items

The Company and its suppliers establish and document measures for the identification, control and disposition of items and services that do not meet procurement document requirements. These measures provide for:

- A review of nonconforming items.
- Company disposition of supplier recommendations.
- Maintenance of records for supplier nonconformances.
- Supplier notification to the Company of a nonconformance. These notifications include a supplier recommended disposition (e.g. "use-as-is" or "repair") and technical justification. The supplier submits nonconformances to the Company for approval if:
  - The item does not conform to the original procurement requirement even though the item can be restored to a condition such that the capability of the item to function is unimpaired, or

- The supplier cannot correct the nonconformance by continuation of the original manufacturing process or by rework, or
- The supplier has violated a requirement in supplier documents, which have been approved by the Company, or
- The supplier has violated a technical or material requirement.

– Verification of disposition for nonconformances.

2.2 Identification

The Company identifies nonconforming items by marking, tagging, or other methods, which do not adversely affect the end use of the item. The identification is legible and easily recognizable.

2.3 Segregation

When practical, the Company segregates nonconforming items by placing them in a clearly identified and designated hold area until properly dispositioned. When segregation is impractical or impossible due to physical conditions such as size, weight or access limitations, other precautions are employed to preclude inadvertent use of a nonconforming item.

2.4 Disposition

2.4.1 Control

Nonconforming characteristics shall be reviewed and recommended dispositions of nonconforming items shall be proposed and approved in accordance with documented procedures. Further processing, delivery, installation, or use of a nonconforming item shall be controlled pending an evaluation, and an approved disposition by authorized personnel.

2.4.2 Evaluation

The Company has responsibility for resolution of nonconformances in accordance with written procedures. Where ASME Code requirements are involved, the Authorized Inspection Agency reviews and accepts or rejects the disposition and justification. Engineering provides technical justification and independent review of nonconformances dispositioned as repair or use-as-is.

For items under a contractor's direct control, the Company may delegate to the contractor the authority to perform a technical evaluation of nonconformances, if the contractor has an acceptable procedure for handling nonconforming items. Where the Company delegates such authority, the contractor is responsible for establishing that:

- All actions fall within the requirements set by the Company.
- An accepted nonconformance meets the design intent.
- ASME Code items meet the requirements of the ASME Code.
- Personnel performing the evaluation meet the requirements of section 2.4.3 below.

When a technical evaluation has not been delegated to a supplier, the Company makes a technical evaluation of all pertinent data relating to the nonconformity, including the cause, where known, and the corrective action either taken or planned to prevent recurrence per the corrective action program. The Company retains the responsibility for the satisfactory resolution of supplier nonconformances.

2.4.3 Personnel

Personnel having expertise in the pertinent discipline determine whether a nonconforming item may be accepted "as-is," may be repaired to an acceptable condition, or must be rejected. These personnel have adequate competence and knowledge necessary to make this evaluation and have access to pertinent background information.

2.4.4 Documentation

The Company identifies nonconforming items and documents their disposition (e.g., use-as-is, reject, repair, or rework). Each disposition is technically justified and traceable to each item. Appropriate documentation is retained.

Nonconformances to design requirements that are dispositioned as "use-as-is" or "repair" are subject to design control measures commensurate with those applied to the original design. The Company technically justifies dispositions designated "use-as-is" and "repair" to assure that the final condition of any nonconforming item meets applicable code requirements and will not adversely affect the safety, operability, or maintainability of the item, or of the component or system in which it is installed. The "as-built" records, if such records are required, reflect the accepted deviation.

If the nonconformance can be corrected after installation, the item may be released for installation on a conditional release basis. The Company documents the authority and technical justification for the conditional release of the item and makes it part of the documentation.

2.4.5 Repaired, Reworked, or Scrapped Items

The Company re-examines repaired or reworked items using procedures and the original acceptance criteria unless the nonconforming item's disposition has established alternate acceptance criteria. Items that have been corrected are re-inspected or re-tested as required by the approved disposition.

The area of inspection may be confined to the area of the nonconformance. When it has been determined that the corrected item is satisfactory, the status of the item is changed to "acceptable" and an appropriate entry is made in the documentation after acceptance is determined.

The Company scraps, discards or transfers to training usage a nonconforming item that cannot be corrected or accepted "as-is." Nonconforming items that are being used for training must be controlled (e.g., administratively controlled, permanently identified, marked, or Material ID Tag or Q level indicators obliterated, etc.) to prevent inadvertent or inappropriate use of the item.

1 SCOPE

This Chapter describes the Company program to identify and correct conditions adverse to quality.

2 REQUIREMENTS

2.1 General

The Company implements a Corrective Action Program to promptly identify and correct items or occurrences that are adverse to quality or might adversely affect the safe operation of a nuclear generating station. These items or occurrences are screened for reportability, operability, Part 21, and industry operating experience. The Company makes a thorough investigation of occurrences and identifies corrective action to prevent recurrence of an event, as appropriate. Events may include reactor trips, failed equipment, personnel errors, and procedural infractions. Measures are taken to assure that the cause of any significant condition adverse to quality is determined and to implement corrective action to prevent recurrence.

2.2 Conditions Adverse to Quality

Measures are established to assure that conditions adverse to quality are identified, classified as to significance, evaluated to determine cause and corrective actions, reviewed to determine the existence of trends, and effectively corrected. Examples of conditions adverse to quality are provided in procedures. Examples include failures, malfunctions, adverse trends, deficiencies (including programmatic), deviations, defective material, design errors, equipment, and nonconformance to specified requirements.

An independent review body reviews violations, deviations and reportable events that require a report to the NRC in accordance with regulatory requirements and company procedures. This includes the review of results of any investigations made and the recommendations resulting from such investigations. These include items such as:

- Events, as defined in applicable site technical specifications.
- Significant operating abnormalities or deviations from normal or expected performance of plant safety-related structures, systems, or components.
- Violations of applicable codes, regulations, orders, technical specifications, license requirements or internal procedures or instructions having safety significance.

2.2.1 Significant Conditions Adverse to Quality

In cases of significant conditions adverse to quality the root cause of the condition is determined and documented, resolution determined and documented, and corrective action taken and documented to preclude recurrence. The impact of such conditions on completed and related items and activities is evaluated. Follow-up reviews are then performed to verify that the corrective actions taken were effective.

1. Procurement

The Company uses procedures that include methods for the identification of conditions adverse to quality and for timely corrective action. The Company requires individual vendors and their contractors to include corrective action measures in their quality assurance programs. In cases of significant conditions adverse to quality that arise during the procurement process, the Company uses procedures to describe the method used to:

- Identify and document deviations and non-conformances.
- Review and evaluate the conditions to determine the cause, extent and measures needed to correct and prevent recurrence.
- Report the conditions and corrective action to the appropriate levels of management.
- Implement and maintain required corrective action.

2. Plant Hardware Malfunctions

The causes of malfunctions are determined, evaluated, and recorded, as appropriate. Experience with the malfunctioning equipment and similar components are reviewed and evaluated to determine if a replacement component of the same type can be expected to perform the function reliably. If evidence indicates that common components in safety-related systems have performed unsatisfactorily, corrective measures are planned prior to replacement or repair of all such components. Appropriate procedures are revised in a timely manner to prevent recurrence of equipment malfunction or abnormal operation.

3. Incorrect Design

When a significant design change is necessary because of an incorrect design, the Company reviews and modifies the design process and verification procedures, as appropriate. In cases of significant or recurring deficiencies (or errors), the Company follows written procedures to correct the deficiency (or error), determine the cause and make changes in the design process and the QAP to prevent similar types of deficiencies (or errors) from recurring.

2.3 Verification and Follow-up

The Company screens identified issues to verify suitable categorization and moves those that are not found to be conditions adverse to quality out of the corrective action program. Resources are then applied to resolve issues based on significance.

The Company verifies completion of corrective actions for maintenance, repair, refueling, operation activities, completion of corrective action taken for assessment deficiencies (including programmatic), and performs assessments of site corrective action. The Company tracks and verifies completion of corrective action taken for independent audit and assessment findings and approves the completion of corrective actions.

Trending and audit/assessment results are evaluated to assure that corrective measures are implemented effectively and that actions to prevent recurrence are effective as appropriate. The Company also requires contractors and vendors to follow-up on corrective action commitments within their quality programs.

The Company regularly reviews and analyzes records to:

- Assure that the causes of a nonconformance and the corrective action have been clearly described.
- Assure that authorized Company personnel have evaluated the overall effect resulting from the use of nonconforming items.
- Determine whether corrective measures will preclude recurrence.

2.4 Evaluation and Qualification

Personnel performing the evaluation function are responsible for considering the cause and the feasibility of corrective action to assure that the necessary quality of an item is not deteriorated. Where it is determined that the cause cannot be corrected immediately, the due date of corrective action will be determined during the review and evaluation. Evaluation may indicate the need for investigations to assure that corrective measures are considered complete and may also indicate that the nature of the deficient condition is minor and does not require corrective action.

Qualified personnel are responsible for determining the root cause(s) of an event and developing recommendations to preclude recurrence. These personnel report the results of their determination to appropriate station personnel and Company management.

2.5 Documentation and Reporting

The Company documents the identification of significant conditions adverse to quality, the cause of the condition, the corrective action taken, and reports these items to the appropriate levels of management and an on-site review committee. Independent reviews of the corrective actions for significant conditions adverse to quality are performed by the on-site review committee and the Nuclear Oversight organization. If the identified issue is not an indication of a significant failure in any portion of the QAP, the Company does not require reporting to management.

Reports are made immediately if prompt corrective action is required. Formal reports are filed with the appropriate regulatory agency, when required. Reports of investigations include a detailed description of the occurrence, the findings of the investigation, and the recommended corrective measures. The Company notifies the rest of the nuclear industry of significant events with generic implications and its circumstances to help preclude a similar event occurring at another plant.

The Company keeps records to identify incidents (e.g., major damage, personal injury, or major schedule delays), nonconforming items, unfavorable conditions, programmatic deficiencies identified in audit and assessment reports, significant equipment failures, and malfunctions that occur during station operation.

The Company tracks the completion of corrective actions for conditions adverse to quality and maintains records of their resolution. Parts or all of this system may be electronically monitored and electronic records may be used as the sole record of such a system.

1 SCOPE

The Company establishes and implements a program, which defines requirements and responsibilities for identification, generation, collection, compilation, storage, maintenance, retention, and retrieval of records necessary to provide evidence of quality in design, fabrication, installation, inspection, testing, and operating activities.

2 REQUIREMENTS

2.1 Program

The records program provides for:

- Administration.
- Receipt and transmittal.
- Retention and disposition.
- Safekeeping and classification.
- Storage and preservation (includes temporary and permanent records)

2.2 Administration

Authority and responsibility for record control activities are delineated in procedures. Records are administered through a system, which includes an index of record type, retention period, and storage location. Distribution of records shall be controlled in accordance with written procedures. Measures are established for replacement, restoration, or substitution of lost or damaged records.

Records are legible, accurate, complete, identifiable, and retrievable. Records are considered valid and complete when dated and stamped, initialed, signed, or otherwise authenticated. Corrections, revisions, or supplements to completed records are reviewed and approved by an authorized individual in the originating organization. Such changes are dated and stamped, initialed, signed, or otherwise authenticated including the use of electronic approval and authorization.

Records may be stored in electronic media provided that the process for managing and storing data is documented in procedures that comply with applicable regulations. Media used for the retention of records include (but are not limited to): microform, compact disk-recordable (CD-R), and magnetic media including videotape, computer tape, optical disks, and hard disk storage.

Electronic records retention must be an integral component of a corporate records management program, approved by the management position responsible for Company records.

The format used must be capable of producing legible, accurate, and complete documents during the required retention period. Electronic approval and authorization procedures are established to assure that only those persons authorized grant the required approvals.

2.3 Receipt and Transmittal

A system for receipt control of records is established. Receipt control is required for records transferred between Company locations, vendors and the Company, and from Company department files to final storage locations. Systems are established to transfer records between Company locations and between vendors and the Company. Records transferred from Company department files to a final storage location are also under such systems. The system of receipt control of records for permanent or temporary storage includes inventory of transmitted records, receipt acknowledgment, and control of records during receipt.

2.4 Storage and Preservation

Record storage facilities are established and maintained in a manner that minimizes the risk of damage or destruction. Interim storage provisions shall be established to properly maintain and protect records until they are permanently transferred to record storage facilities for retention. Records may be kept by suppliers and maintained on an available basis for a specified period of time. Storage and Preservation systems provide for:

- Assignment of responsibilities.
- Attachment in binders, folders, or envelopes for storage in steel file cabinets or on shelving in containers.
- Control and accountability of records removed.

- Damage from natural disasters such as winds, floods, and fires.
- Following manufacturer recommendations for special recording media.
- Protection from environmental conditions such as high and low temperatures and humidity.
- Protection from infestation of insects, mold, or rodents etc.
- Special processed records such as radiographs, photographs, negatives, microfilm, and magnetic media to prevent damage from excessive light, stacking, electromagnetic fields, temperature and humidity.

2.4.1 Temporary Storage

Measures are established for temporary storage of records when required by an organization's procedures for activities such as for processing, review, or use. These measures require that these records are stored in a 1-hour fire rated container and that a maximum allowable storage time limit is specified.

2.5 Safekeeping and Classification

Measures are established to prevent access to records by unauthorized personnel. These measures guard against theft and vandalism. Records are classified and retained in accordance with applicable regulations.

2.6 Retention and Disposition

Record retention periods are established to meet regulatory, UFSAR, and License requirements. The most stringent retention period is implemented when multiple requirements exist.

2.7 Plant Operating Records

Required plant operating records are grouped into two retention periods; 5-year and lifetime. These type of records are those that are specified by applicable regulations, standards, codes, and licensing basis documents. Methods of control, identification, permanent storage, and retrieval of these records are specified in administrative procedures.

1 SCOPE

A documented, comprehensive system consisting of regulatory audits and performance assessments of the Company and its vendors are conducted to verify QAP compliance, adequacy, and effectiveness. Audits and assessments are conducted in accordance with written procedures or checklists. Audits are performed to the requirements of ASME NQA-1 to evaluate the audited organization and to assure completion of required corrective actions, commitments or improvements, and determine effectiveness in meeting program objectives.

2 REQUIREMENTS

2.1 Audits and Assessments – General

2.1.1 Scheduling

The internal audit program is conducted on a performance driven frequency that is commensurate with the condition of the area being audited. Internal audits are usually conducted over a 24-month time period, however, frequencies can vary by regulation and when there are indications that negative performance is occurring in an area to be audited. Regulatory variances are identified in the Appendix B "Audit Frequency" portion of this document. Thus, the audit frequencies utilized are determined based on regulatory considerations, the risk and consequences of the area being assessed, and the observed performance of the area. Except for the Security and Emergency Preparedness Audits (items l., and m., of Appendix B), audits may be extended beyond their original scheduled due date based on the following criteria:

1. A maximum extension not to exceed 25 percent of the audit interval is allowed (unless a specific regulation prohibits it). For example, audits on a 24-month frequency should not exceed a maximum time between audits of 30-months; audits on an annual (12-month) frequency should not extend beyond 15-months.
2. When an audit interval extension greater than one month is used, the next audit for that particular area is scheduled from the original anniversary month rather than from the month the extended audit was performed. Likewise, if an audit is performed earlier than scheduled, this early completion date becomes the new start date for the 12 or 24 month audit interval.

Item 1 (above) applies to supplier audits and evaluations as well, except that a total combined interval for any three consecutive inspection or audit intervals should not exceed 3.25 times the specified interval.

For scheduling purposes and with appropriate adjustments for approved extensions, audits shall be tracked on a calendar month basis such that an audit must start no later than the end of the same calendar month the audit was last started. An audit is considered to have been started when the first day of auditing field time begins.

Planned assessments of station activities supplement the scheduled audits and are conducted to monitor overall station performance. Scheduling of internal assessment activities is flexible since assessments are primarily on-going to monitor day-to-day evolutions or to review emergent events or conditions (e.g., reactor transients, significant quality program failures, etc.). The management position responsible for NOS, or designated staff member(s), approves the conduct of these activities.

Audit and assessment schedules are reviewed semi-annually and revised accordingly to assure that coverage is appropriately maintained.

2.1.2 Preparation

A documented plan or an agenda identifies an audit or assessment scope, requirements, audit or assessment personnel, activities to be evaluated, organizations to be notified, applicable documents, and schedule. An approved checklist or procedure for each scheduled audit or assessment identifies the quality and technical elements of the area or items to be evaluated.

Audit plans, agendas, checklists, and procedures as applicable are prepared in advance under the direction of a certified Lead Auditor (LA). Independent assessments will be led by individuals who meet the requirements of ANSI/ANS-3.1-1981 paragraph 4.4.5.

2.1.3 Personnel

Experienced and qualified personnel perform assessments and audits and are familiar with written procedures, standards, and processes applicable to the area being evaluated. Assessment and audit personnel shall have sufficient authority and organizational freedom to make the assessment and audit process meaningful and effective and shall not have direct responsibilities in the areas to be assessed or audited. They shall have access to the plant records necessary to fulfill their function.

The LA shall organize and direct audits and ensure the teams collectively have the required experience or training for the activities to be evaluated. Assessment Team Leads will organize and facilitate internal station evaluations and assessments. Technical Specialists

shall supplement the teams when required to provide additional experience and competence.

Audit and assessment personnel (including members of the on-site review committee) shall have sufficient authority and organizational freedom to implement their assigned responsibilities, including immediate unfettered access to obtain records, meet with personnel, and travel to jobsite locations as needed to gather objective evidence regarding the performance of important to safety activities. This access must be accomplished, however, in compliance with applicable access control measures for security, radiological protection, and personal safety.

2.1.4 Performance

Performance assessments and audits are conducted to assess specific activities, processes, and records on the basis of their impact and importance relative to safety, reliability, and functionality with respect to risks and consequences. Assessments are flexible and can be focused on areas most in need of improvement. Audits are structured to verify compliance with the quality assurance program conditions necessary to meet regulatory requirements.

Planned audits include independent review of the effectiveness of programs, processes, and those administrative controls necessary to ensure nuclear, radiological, and environmental safety and security is being maintained.

Planned assessments include license required independent reviews of plant specific activities, as well as more comprehensive evaluations of station performance to identify gaps in meeting industry standards. One of the assessments shall be an annual review of the content and implementation of the security program required to meet the requirements of 10 CFR 37, Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material.

Audits are initiated early to assure effective quality assurance during design, procurement, manufacturing, construction, installation, inspection, testing, and operations. Additional unscheduled audits and assessments may also be performed at various stages of activities, based on the nature and safety significance of the work being done, to verify continued adherence to and effectiveness of the quality systems. Objective evidence shall be examined to the extent necessary to determine that a quality program is being effectively implemented. Any deficiencies identified during internal audits and assessments shall be captured in the Company's corrective action program.

The Company establishes programs for reviews and assessments to:

- Verify that activities covered by this QATR are performed in conformance with the requirements established,
- Review significant proposed plant changes or tests,
- Verify that reportable events are promptly investigated and corrected, and
- Detect trends which may not be apparent to the day-to-day observer.

These programs are, themselves, reviewed for effectiveness as part of the overall assessment process as described herein.

The Company uses self-assessment (performed by or for the group responsible for the activity being assessed) and independent assessment (such as that performed by the Nuclear Oversight organization) to monitor overall performance, identify anomalous performance and precursors of potential problems, and verify satisfactory resolution of problems. Persons responsible for carrying out these assessments are cognizant of day-to-day activities such that they can act in a management advisory function with respect to the scope of the assessment. Both self-assessments and independent assessments are accomplished using instructions or procedures that provide detail commensurate with the assessed activity's complexity and importance to safety.

The Company's nuclear stations maintain an on-site review committee (referred to as the Plant Operations Review Committee or PORC) to review overall plant performance, and advise site management on matters related to nuclear safety. This committee functions in accordance with the standards specified in Appendix C.

The Company periodically performs independent reviews of matters involving the safe operation of its nuclear power plants, with a minimum of one such review being conducted for each generating station each year. The review addresses matters that plant and corporate management determine warrant special attention, such as plant programs, performance trends, employee concerns, or other matters related to safe plant operations. The review is performed by a team consisting of personnel with experience and competence in the activities being reviewed, but independent (from cost and schedule considerations) from the organizations responsible for those activities. The review is supplemented by outside consultants or organizations as necessary to ensure the team has the requisite expertise and competence. The team's results are documented and reported to responsible management.

2.1.5 Reporting and Follow-up

An audit report includes the description of the audit scope, identification of the team and personnel contacted during audit activities, a summary of results (including a statement on effectiveness of the QAP elements), and a description of each finding. The LA shall sign the audit report for which he or she is responsible.

Formal assessment reports are written in an understandable format identifying sources for the conclusions drawn, including the personnel interviewed and the documentary material reviewed. The recommendations and proposed actions as well as the content of the final report is approved by NOS supervision responsible for the team.

Audit and assessment results are promptly distributed to the management position responsible for NOS and to the appropriate managerial level of the organization having responsibility for the area or activity audited/assessed. Findings or deficiencies requiring prompt corrective action are reported immediately to the management of the assessed organization.

Findings, deficiencies, performance gaps, and recommendations of each audit and assessment shall be reported to appropriate site management and the management position responsible for NOS. All findings of noncompliance with NRC requirements, and any significant nuclear safety or quality issues requiring escalated action, will be directed through the management position responsible for NOS to the P&CNO in accordance with procedural requirements.

Responsible management shall take the necessary actions to correct findings identified in the assessment/audit. They will identify the corrective action to be taken, actions that will prevent recurrence, and a schedule for implementing these actions. Responses to audit and assessment findings are reviewed for adequacy.

Follow-up verification of the completion of scheduled corrective action commitments are performed by NOS to assure findings or adverse conditions are corrected in accordance with procedural requirements. Follow-up action of previous deficient areas or adverse conditions (including re-audit) is taken to verify that corrective action has been completed, is effective, implementation continues, and is properly documented, when indicated.

2.1.6 Records

Audit and assessment results are documented and reports are generated and retained. Associated documentation is on file at the appropriate location. Personnel qualification records for assessment and audit team members are established, maintained, and reviewed.

2.2 Vendor Audits

Audits or surveys of vendors and their sub-tier suppliers are performed to a pre-established schedule. Audits are performed on a triennial basis. Documented supplier performance monitoring is performed in accordance with approved procedures as an acceptable alternate to the performance of the annual evaluation of suppliers. The management position responsible for the audit program (or designee), shall review and approve the audit / survey schedule and checklists, and sign reports. Schedules are reviewed semi-annually and revised accordingly to assure that suppliers are assessed, audited, or surveyed as required.

Audit program requirements are imposed on suppliers by appropriate contract or procurement documents. The Company's active participation in nuclear industry audits provides an alternative means to fulfilling its responsibility for examining supplier activities. With regard to fitness for duty services that are provided by off-site contractors as well as for Health and Human Services certified laboratories, they are audited on a nominal 12 month frequency.

2.3 Independent Management Assessment

A periodic audit (not to exceed 24 months) of the status and adequacy of the QAP is performed by an independent organization to assure that the Company's quality assurance management and nuclear oversight process is being accomplished in a manner that meets 10 CFR 50 Appendix B and other applicable requirements. The management position responsible for NOS submits the results of this assessment to the P&CNO.

1 SCOPE

It is the Company's policy to assure a high degree of availability and reliability for its nuclear plants while ensuring the health and safety of the public and its workers. Therefore, the QAP is applied in a graded manner to certain areas and activities that are not clearly defined as safety related. The Company calls this application Augmented Quality. Augmented Quality includes systems and components that are subject to the requirements of ASME Code Sections: I "Power Boilers," IV "Hot Water Heaters," and VIII "Non-fired Pressure Vessels." This appendix applies to all sites unless otherwise noted below or in other appendices included in the QAP.

2 REQUIREMENTS

The Company applies the following augmented quality requirements to certain systems, structures, components (SSC), and activities that are not safety related to a degree consistent with their importance to safety. Unless otherwise noted:

- Deficiencies are addressed in accordance with the corrective action program.
- Program records of audits and reviews are maintained as required.
- Routine audits are performed of the program's content and implementation.

Augmented quality applicability extends to non-safety-related items or services for which the Company has made regulatory or design basis commitments requiring QAP involvement. These include but are not limited to fire protection and event mitigation equipment, accident monitoring instrumentation, certain components that contain significant amounts of radioactivity (e.g., greater than 10 CFR 50.67 limits), to items that maintain structural integrity to preclude inadvertent damage to safety-related equipment, to important-to-safety SSCs such as the Dry Cask Storage Systems and the Independent Spent Fuel Storage Installation, and to certain services such as Security background checks. Augmented quality may also be used for plant availability reasons where special controls are required to be implemented to assure reliability.

2.1 Health Physics and ALARA (As Low As Reasonably Achievable)

The Company develops, documents, and implements a radiation protection program sufficient to ensure compliance with the provisions of 10 CFR 20. The Company uses, to the extent practical, procedures

and engineering controls based on sound radiation protection principles to achieve occupational doses and doses to the public that are as low as reasonably achievable.

Controls for radioactive waste management systems include those augmented quality measures that provide for the reasonable assurance needed to protect both the health and safety of the public and that of plant operating personnel.

2.2 Transport of Radioactive Waste

When the Company contracts with vendors to transport radioactive waste in NRC approved shipping packages, it meets the requirements of 10 CFR 71, Subpart H. The Company assures that this service is procured from an organization with a QAP and if applicable, includes a NRC licensed transport system. Loading, surveying, closure, placarding, and inspections are conducted in accordance with written procedures and instructions.

Transport casks and trailers are inspected before release in accordance with Department of Transportation (DOT) 49 CFR requirements.

Shipping manifests, including final radiation surveys, are completed and retained. Radioactive waste shipments not meeting the requirements for NRC approved packaging, shall meet the requirements of DOT 49 CFR.

2.3 Fire Protection

10 CFR 50 Appendix A, General Design Criteria (GDC) 3 requires that the Company's nuclear facilities have an established fire protection program that provides fire protection features such that the adverse effect of fires on structures, systems and components important to safety is minimized.

The QAP established for these fire protection SSCs ensures that design, procurement, instruction, procedures, drawings, inspection, installation, testing, maintenance, operations, nonconforming Items, corrective action, records, audits and administrative controls meet the applicable Quality Assurance guidelines as described in the applicable edition of Branch Technical Position (BTP) 9.5-1 for each company site.

Engineering determines what fire protection SSCs protect structures, systems, and components important to safety. Engineering also establishes the requirements for the design, procurement, fabrication, installation and/or modification of these fire protection SSCs. Routine testing of fire protection systems assures reliability. All other fire protection equipment and supplies will be of commercial quality, in accordance with National Fire Protection Association (NFPA) guidelines.

2.4 Repairs and Alterations

The requirements of ASME Code Sections II, V, and IX shall be imposed as applicable for the repair or alteration of job specific work scope. Repairs and alterations performed under the R Certificate Of Authorization shall meet the requirements of the New Jersey Administrative Code 12:90 and the National Board Inspection Code NB-23 except where appropriately noted in Company written procedures and instructions.

2.5 Station Blackout

Company generating stations rely on non-safety related equipment to achieve the redundancy required by 10 CFR 50.63. Quality Assurance requirements are implemented in accordance with Regulatory Guide 1.155, Station Blackout, Appendix "A" and "B." Replacement and consumable parts and supplies are classified "non-safety related" in accordance with original specifications and are procured as commercial items with provisions to ensure design-related guidelines used in complying with 10 CFR 50.63 are included. Routine testing of Station Blackout (SBO) SSCs assures the necessary redundancy is maintained. SBO SSC reliability is monitored in accordance with the Station's Maintenance Rule program.

2.6 Dry Cask Storage System

2.6.1 Hope Creek Generating Station (HCGS) and Salem Generating Station (SGS)

HCGS and SGS QAP requirements are performed in accordance with the applicable 10 CFR 72.212 report, which invokes the NRC approved 10 CFR 50 Appendix B quality assurance program as described in this QATR. The Independent Spent Fuel Storage Installation (ISFSI) SSCs that are deemed important-to-safety are categorized as A and B components in accordance with NUREG/CR-6407. Category C ISFSI components are treated with augmented quality tenets.

Quality assurance records are also maintained for the ISFSI by the Company and the certificate holder per 10 CFR 72.174 until the ISFSI license or Certificate of Compliance (CoC) is terminated.

2.7 Emergency Planning

Requirements with respect to equipment and records for Emergency Preparedness are described in an Emergency Plan that meets the requirements of 10 CFR 50.47. Augmented quality consideration should be given to those systems and equipment used for assessing and monitoring the consequences of a radiological emergency, including equipment important to emergency response as identified per

INPO 10-007, such as event classification instrumentation.

2.8 Security

Requirements with respect to equipment and records for Security are controlled for each station by an NRC approved Station Security Plan that is prepared and implemented in accordance with the requirements contained in 10 CFR 73.55. Augmented quality requirements should be applied to items and services associated with Security Background Checks, Fitness-For-Duty Testing, and Cyber Security Critical Digital Assets.

2.9 Support Services

When the Company procures support services from suppliers, it is in accordance with written procedures and instructions. Although it is not necessary that these suppliers have a QAP approved by the Company, i.e., need not be on the approved suppliers list, they must provide a QAP that has the appropriate controls to address the regulatory aspects of the product or service they are supplying.

For support services associated with radiological monitoring in the environment, suppliers should provide a copy of their QAP that includes the necessary program elements of Revision 1 or 2 of Regulatory Guide 4.15, and should routinely provide data summaries sufficiently detailed to permit evaluation of their program for services in areas such as:

- Meteorology
- Offsite Dose Calculation
- Radiological Environmental Monitoring

2.10 Structures and Components Subject to an Aging Management Program for License Renewal

For the period of extended operations associated with station license renewal:

1. The Company implements the requirements of QATR Chapters 1 through 18 for safety-related structures and components subject to an aging management program.
2. The Company implements the administrative controls, corrective actions, and confirmation processes described in QATR Chapters 6, Document Control, and 16, Corrective Action, for non-safety-related structures and components that are subject to an aging management program.

2.11 Fukushima Dai-ichi Event Based Quality Requirements

2.11.1 Regarding reliable Spent Fuel Pool instrumentation at both Salem and Hope Creek Generating Stations per NRC Order EA-12-051.

1. The Company maintains reliable indication of the water level in associated spent fuel storage pools at each of its nuclear facilities.
2. Components that make up the instrumentation will be assigned augmented quality constraints as appropriate. The requirements for the design, procurement, fabrication, installation and/or modification of these level instruments will be established. Routine testing of the Spent Fuel Pool instrumentation systems will assure reliability.
3. The extent to which augmented quality is applied should assure primary and backup Spent Fuel Pool instrument channel reliability will exist for extended periods of time at temperature, humidity, and radiation levels consistent with pool water at saturation conditions.

2.11.2 Regarding reliable Hardened Containment Venting System (HCVS) at the Hope Creek Generating Station per NRC Order EA-13-109.

1. The Company design for HCVS components including instrumentation should, as minimum, meet the quality design requirements of the plant, ensuring HCVS functionality.

   - The HCVS up to and including the second isolation valve is designed to the same quality requirements of the connected system up to the first isolation valve.
   - HCVS elements that are not covered by 5.3.1.1 should be reliable and rugged to ensure HCVS functionality following a seismic event.
   - Additionally, HCVS non-safety equipment installed to meet the requirements of Order EA-13-109 must be implemented so that they do not degrade the existing safety-related systems.

2. Severe Accident Water Addition (SAWA) components including instrumentation should, as minimum, meet the quality design requirements of the plant, ensuring HCVS functionality.

   - The connection point is designed to the same quality requirements of the connected system up to the first isolation valve.
   - The SAWA piping system beyond the first isolation valve should meet the quality requirements of Order EA-13-109.
   - Portable equipment supporting both a FLEX function and a SAWA function should meet the limiting quality requirements of Order EA-12-049 and EA-13-109.
   - Portable equipment supporting a SAWA function only should meet the quality requirements of Order EA-13-109.
   - Additionally, SAWA non-safety, permanently installed equipment and piping systems must be installed to meet the requirements of Order EA-13-109 and must be installed so that they do not degrade any existing safety-related systems.

3. Design quality requirements and supporting analysis documentation should be auditable, and controlled in accordance with the Company's records management and document control system.

4. HCVS equipment should be initially tested or have other reasonable means used to verify that its performance conforms to the design and operational requirements.

   - Validation of source manufacturer quality is not required.
   - The HCVS maintenance program should ensure that the HCVS equipment reliability is being achieved in a manner similar to that required for FLEX equipment. Standard industry templates (e.g., EPRI) and associated bases may be developed to define specific maintenance and testing.

Internal audits shall be conducted on a performance driven frequency, not to exceed 24 months or at the frequencies indicated below, in accordance with Chapter 18 of this QAP. Audits shall include the following safety-related areas as applicable:

AUDIT	FREQUENCY
a. The conformance of unit operation to provisions contained within the technical specifications and applicable license conditions.	24 Months
b. The adherence to procedures, training, and qualification of the station staff.	24 Months
c. The results of actions taken to correct deficiencies occurring in facility equipment, structures, systems, components, or method of operation that affect nuclear safety (Corrective Action Program).	24 Months
d. The performance of activities required by the Quality Assurance Program to meet the criteria of Appendix B of 10CFR50, including: - Operations* - Nuclear Fuels - Chemistry - Engineering - Procurement - Maintenance - QA Functions (Evaluated by NIEP audit.) *Includes on-site review committee activities.	24 Months
e. The fire protection programmatic controls including the implementing procedures (by qualified NOS personnel).	24 Months
f. The fire protection equipment and program implementation, including verification of compliance with the administrative controls and implementation of QA criteria as they apply to fire protection features and safe shut-down capability. An independent fire protection specialist meeting Society of Fire Protection Engineer member grade (or equivalent) qualifications shall serve on the audit team.	24 Months
g. The Radiological Environmental Monitoring Program (REMP) and its results.	24 Months

h. The Offsite Dose Calculation Manual (ODCM) and implementing procedures.	24 Months
i. The Process Control Program (PCP) and implementing procedures for the solidification of radioactive wastes.	24 Months
j. The performance of activities required by the Company QAP for effluent and non-radiological environmental monitoring.	24 Months
k. Randomly selected procedures** to ensure that the programmatic control processes used to assure that procedures are technically and administratively correct prior to use are resulting in timely and accurate procedure revisions. ** Includes a representative sample of "routine" plant procedures (as defined in section 13.5 of the Salem and Hope Creek UFSARs) that are used more frequently than every two years.	24 Months
l. The Security Plan and implementing procedures (10CFR73.55(m) and 10CFR50.54(p)(3)). (Audit frequency can be extended to 24 months if an independent assessment finds that there has been no change to personnel, procedures, equipment, or facilities that potentially could have adversely affected this program in the first 12 months of the 24 month period.)	12 Months
m. The Emergency Plan and implementing procedures (10CFR50.54(t)). (Audit frequency can be extended to 24 months if an independent assessment finds that there has been no change to personnel, procedures, equipment, or facilities that potentially could have adversely affected this program in the first 12 months of the 24 month period.)	12 Months
n. Independent review/assessment activities. (This audit can be performed by, and when it is scoped into, the NIEP audit.)	24 Months
o. The conformance of Independent Spent Fuel Storage Installation operation to provisions contained within the technical specifications and applicable license conditions and results of actions taken to correct deficiencies occurring in facility equipment, structures, systems, components, or methods of operation affecting nuclear safety. (Reference NUREG/CR-6407 and 10CFR72, Subpart G.)	24 Months

p. Access Authorization (AA) Program (10CFR73.56(n)). An independent individual who is knowledgeable of and practiced with meeting the performance objectives and requirements of the access authorization program or the program elements being audited shall serve on the audit team. (If the AA program is not under the direct daily supervision or observation of Company personnel, it must be audited on a nominal 12 month frequency.)	24 Months
q. Personnel Access Data System (PADS) (10CFR73.56(n)). (If the PADS program is not under the direct daily supervision or observation of Company personnel, it must be audited on a nominal 12 month frequency.)	24 Months
r. Station Black Out (Regulatory Guide 1.155, Appendix A).	24 Months
s. Radiation protection activities as defined in 10CFR20.	24 Months
t. Fitness For Duty (FFD) Program (10CFR26.41). (The appropriate frequency, scope, and depth of additional auditing within the 24 month period should, if required, be based on the frequency, nature, and severity of discovered problems, testing errors, personnel or procedural changes, and previous audit findings.)	24 Months
u. Cyber Security Program (10CFR73.54(g)). (Audit frequency can be set at 24 months as long as an audit can and will be initiated within 12 months following a change to personnel, procedures, equipment, or facilities that potentially could have adversely affected this program in the first 12 months of the 24 month period.)	24 Months
v. Nuclear Repair Program (10CFR50.55a). (Audit frequency based on requirements from the National Board Guide for "R" and "NR" Certificates of Authorization in conjunction with the National Board Inspection Code (NBIC), Part 3, Repairs and Alterations {NBIC NB-23} requirements.)	12 Months

1 SCOPE

The QAP takes into account the need for special controls, processes, test equipment, tools, and skills necessary to attain the required quality and the need for the verification of quality by inspection and test. The codes and standards listed below represent a listing of quality assurance codes and standards used to define the quality assurance program.

1.1 Codes and Standards

A general listing of quality assurance related codes and standards, such as: ASME B&PV, ANSI, AWS, and IEEE used throughout the Company at each nuclear station can be found in the applicable station-specific Updated Final Safety Analysis Report (UFSAR). The UFSAR should be referenced to identify station-specific commitments with respect to these codes and standards.

This QAP complies with the quality requirements of the following codes and standards unless otherwise noted in sub-section 1.3:

- ANSI/ANS-3.1-1981, "Selection, Qualification and Training of Personnel for Nuclear Power Plants." (Refer to Sections 1.3.1 and 1.3.2, item 1., of this Appendix for notes on use.)
- ANSI/ANS-N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel." (Refer to Sections 1.3.1 and 1.3.2, item 1., of this Appendix for notes on use.)
- ANSI N18.7-1976/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants." (Refer to Sub-sections 1.3.1, item 5., and 1.3.2, item 3., of this Appendix for notes on use.)
- ANSI/ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications."
  - Part I, "Basic Requirements and Supplementary Requirements for Nuclear Facilities"
  - Part II, "Quality Assurance Requirements For Nuclear Facility Applications", and
  - Part III, "Nonmandatory Appendices," limited to Appendix 2A-1, "Nonmandatory Guidance on the Qualifications of Inspection and Test Personnel," Appendix 2A-3, "Nonmandatory Guidance on the Education and Experience of Lead Auditors," Appendix 17A-1, "Nonmandatory Guidance on Quality Assurance Records," and Appendix 18A-1, "Nonmandatory Guidance on Audits." The Company complies with this nonmandatory guidance as long as it does not conflict with federal regulations or other required industry standards/guidance.

  Exception: The qualification of Non-Destructive Examination (NDE) personnel can be in accordance with ANSI/ASNT CP-189 rather than through SNT-TC-1A as specified in NQA-1-1994 Supplement 2S-2.

1.2 Regulatory Guides

The applicable station-specific UFSAR should be referenced to identify station-specific commitments with respect to the Regulatory Guides listed in this section. The QAP also complies with the regulatory positions of the following Regulatory Guides and additional programmatic quality requirements unless otherwise noted in sub-section 1.3:

- 1.8, "Personnel Qualification and Training"
- 1.26, "Quality Group Classification and Standards for Nuclear Power Plants"
- 1.29, "Seismic Design Classification"
- 1.31, "Control of Ferrite Content in Stainless Steel Weld Material"
- 1.33, "Quality Assurance Program Requirements"
- 1.52, "Design, Testing, and Maintenance Criteria for Atmosphere Cleanup System Air Filtration and Absorption Units of Light Water Cooled Nuclear Power Plants"
- 1.54, "Quality Assurance Requirements for Protective Coatings Applied to Water Cooled Nuclear Power Plants"
- 1.68, "Pre-Operational and Initial Start-Up Test Programs for Water Cooled Reactors"
- 1.137, "Fuel Oil Systems for Standby Diesel Generators"
- 1.142, "Safety Related Concrete Structures for Nuclear Power Plants"
- 1.143, "Design Guidance for Radioactive Waste Management SSCs Installed in Light Water-Cooled Nuclear Power Plants"
- 1.155, "Station Blackout"

1.3 Station-Specific Clarifications and Exceptions

In each of the standards that the Company complies with, other documents (e.g., other standards, codes, regulations, tables, or appendices) are referenced or described. These other documents may contain useful quality assurance guidance, however, if they are not explicitly committed to by the Company, they are not considered QAP "requirements". Also, these other documents may not be the current guidance being employed by the Company and therefore should not be employed. For example, the Company has determined to comply with ANSI N18.7-1976/ANS 3.2, however, this standard references other standards such as ANSI N45.2.11 in section 5.2.7.2 for design modifications, which is not the current guidance committed to by the Company. In this case, NQA-1-1994 should be substituted for ANSI N45.2.11.

1.3.1 Hope Creek Generating Station (HCGS)

1. UFSAR 1.8.1.8, Conformance to Regulatory Guide 1.8, Revision 2, April 1987: "Qualification and Training of Personnel for Nuclear Power Plants." HCGS complies with the Regulatory Guide 1.8 regulatory position for use of ANSI/ANS-3.1-1981 requirements for positions equivalent to shift supervisor, senior operator, licensed operator, and shift technical advisor, and for use of ANSI/ANS-N18.1-1971 for the training and qualification requirements for the remaining station positions identified in the standard, except as noted below.
   a. The management position responsible for operations shall either hold a Senior Reactor Operator License (SRO) or have held an SRO license for a similar unit (BWR) or have been certified at an appropriate simulator for equipment senior operator knowledge.
   b. Licensed operator qualifications and training shall be in accordance with 10CFR55.
   c. The management position responsible for radiation protection shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.
   d. The management positions at the corporate and site level responsible for Nuclear Oversight and the management positions responsible for engineering that report to a management position responsible for engineering and technical support, which corresponds to the Engineer in Charge, must meet or exceed the qualifications of ANSI/ANS 3.1-1981.
   e. Members of the on-site review committee shall meet or exceed the qualifications described in Section 4.7 of ANSI/ANS 3.1-1981.

2. UFSAR 1.8.1.26, Conformance to Regulatory Guide 1.26, Revision 3, February 1976: "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants." HCGS complies with Regulatory Guide 1.26, with the clarifications outlined below.

   a. The Company does recognize the need for the assurance of the specified operation of certain non-safety-related structures, systems and components, such as fire protection systems, radioactive waste treatment, handling and storage systems, and Seismic Category II/I items. Such assurance is documented through the specification of limited quality assurance programs (described in Table 3.2-1, footnotes 22, 50 and 52). In addition, items designated "R" in Table 3.2-1 will be included in the QA program during operations to the extent required by Regulatory Guide 1.143.

b. The exception to Position C.2.b is that since the reactor recirculation pumps do not perform any safety function and since failure of the reactor coolant pumps due to seal or cooling water failure does not have serious safety implications, the control rod drive (CRD) seal purge supply and Reactor Auxiliaries Cooling System (RACS) cooling water to the seal coolers are quality group D.

c. Additionally, Position C.2.b of Regulatory Guide 1.26 requires that cooling water systems important to the safety function of the standby diesel generators be Quality Group C. HCGS's diesel generator cooling water systems are classified as Quality Group C except for the engine mounted piping systems (such as the lube oil headers, water headers, cylinder heads, etc). The engine mounted piping systems are part of the diesel engine and its auxiliary support systems, which, as stated in Section B of the Regulatory Guide, are not covered by this guide. These systems are manufactured to the manufacturer's proprietary design requirements, which do not necessarily meet the requirements of ASME Section III or ANSI B.31. However, the components used are pressure tested and the manufacturing processes are monitored as a part of the suppliers approved QA program, which addresses the 18 criteria contained within 10 CFR 50, Appendix B.

Additional quality assurance requirements invoked include:

- Periodic documented sub supplier audits (including plant visits),
- Review and approval of sub supplier QA programs and manuals,
- Test and inspection audits,
- Calibration of test gauges before and after use, and
- Control of calibration records and acceptance devices.

d. With the imposition of the above design, manufacturing, and testing controls, the on-skid and off-skid piping and components have been made to be equivalent to Quality Group C. This meets the requirements in Section B of the guide to design, fabricate, erect and test the diesel engine and its auxiliary support systems to quality standards commensurate with the safety function to be performed.

e. NUREG-0737, Item II.k.3.25 extends the requirements of Position C.2.b by requiring demonstration that the consequences stemming from a loss of cooling water to the reactor recirculation pump seal coolers is acceptable following a loss of power for at least 2 hours. NEDO-24951 (Reference 5.4-4) confirms that the HCGS design meets the requirements of NUREG-0737, Item II.k.3.25.

3. UFSAR 1.8.1.29, Conformance to Regulatory Guide 1.29, Revision 3, September 1978: "Seismic Design Classification." HCGS complies with Regulatory Guide 1.29, subject to the exceptions and clarifications listed in the HCGS UFSAR.

4. UFSAR 1.8.1.31, "Conformance to Regulatory Guide 1.31, Revision 3, April 1978: Control Ferrite Content Stainless Steel Weld Metal." Although Revision 3 of Regulatory Guide 1.31 is not applicable to HCGS, per its implementation section, HCGS complies with it, subject to exceptions and clarifications listed in the HCGS UFSAR.

5. UFSAR 1.8.1.33, Conformance to Regulatory Guide 1.33, Revision 2, February 1978: "Quality Assurance Program Requirements (Operation)." NQA-1-1994 contains quality assurance requirements similar to those in the ANSI N45.2 series. The administrative control elements from ANSI N18.7 are included in this QATR.

   a. Regulatory Position C.1, the Company uses Appendix "A" of RG 1.33 as guidance in establishing the types of procedures required for plant operation and support.

   b. Regulatory Position C.2 is no longer considered valid, as the referenced standards and guidance have now been incorporated into ASME NQA-1-1994, or are specifically addressed in this QATR.

   c. Regulatory Position C.3 applies since the company uses independent review. However, the ANSI N18.7-1976/ANS-3.2 subjects for independent review; including the paragraph 4.3.4 independent review items, such as Technical Specification changes, license amendments, and Emergency Plan changes; the paragraph 4.5 independent review of audit reports; and the paragraph 5.2.11 independent review of SCAQs, shall be performed by the on-site review committee. Review of these subjects by the off-site review committee is not required. Additionally, the ANSI N18.7-1976/ANS-3.2 paragraph 4.3.2 guidance on independent review committee composition, meeting frequency, quorum, and records are not required to be met. This criteria will be procedurally established by the Company as

needed to support management expectations and quality requirements.

d. In lieu of compliance with Regulatory Position C.4, the Company establishes audit topics and frequencies as described in Appendix "B" of this QATR.

e. In lieu of compliance with Regulatory Position C.5, the Company has established appropriate equivalent requirements within this QATR.

f. Regarding section 5.1 of ANSI N18.7-1976, the text "a summary document shall be compiled by each owner organization to identify the sources, to index such source documents to the requirements of this Standard and to provide a consolidated base for description of the program", is being interpreted by the Company as an electronic database, i.e., the Document Control and Records Management System (DCRMS), that contains all the source documents required to implement the QAP and enables electronic sorts and text searches that serves to provide the consolidated base for description of the program.

g. Regarding section 5.2.15 of ANSI N18.7-1976, third paragraph, the text "unusual incident" is interpreted to mean "reportable incident."

6. UFSAR 1.8.1.52, Conformance to Regulatory Guide 1.52, Revision 2, March 1978, "Design, Testing, and Maintenance Criteria for Post-Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light Water Cooled Nuclear Power Plants." HCGS complies with Regulatory Guide 1.52, subject to exceptions and clarifications listed in the HCGS UFSAR.

7. UFSAR 1.8.1.137, Conformance to Regulatory Guide 1.137, Revision 1, October 1979, "Fuel-Oil Systems for Standby Diesel Generators." Although Regulatory Guide 1.137 is not applicable to HCGS, per its implementation section, HCGS complies with it, subject to exception of regulatory position C.1, which endorses ANSI N195-1976 Section 8.2.d and as modified by Technical Specification Amendment Nos. 74 and 100. Refer to the HCGS UFSAR.

8. UFSAR 1.8.1.142, Conformance to Regulatory Guide 1.142, Revision 1, October 1981, "Safety-Related Concrete Structures for Nuclear Power Plants (Other than Reactor Vessels and Containments)." Regulatory Guide 1.142 is not applicable to HCGS per its implementation section. SRP Section 3.8.4, Acceptance Criteria II.2, requires that Seismic Category I structures be designed in accordance with ACI 349-1976 as augmented by Regulatory Guide 1.142. HCGS Seismic Category I structures are designed based on ACI 318-1971.

a. A review of the design of the HCGS Seismic Category I structures indicates that there is no impact due to differences in the structural acceptance criteria between ACI 318-71 and ACI 349-76 as augmented by Regulatory Guide 1.142. See Design Criteria Comparison Table 1.8-4.

b. The load combinations used are in conformance with the following SRP sections except that the 0.9 load factor on dead load as required by ACI 349-76 was not used:

Structures	SRP Section
Primary Containment Internal Concrete Structures	3.8.3.II.3.b
Other Seismic Category Concrete Structures	3.8.4.II.3.b

c. Based on parametric analyses, an adequate design margin exists to compensate for the effects of the reduced dead load factor.

9. UFSAR 1.8.1.143, Conformance to Regulatory Guide 1.143, Revision 1, October 1979: "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light Water Cooled Nuclear Power Plants." Although

   Regulatory Guide 1.143 is not applicable to HCGS, per its implementation section, HCGS complies with it, subject to exceptions and clarifications listed in the HCGS UFSAR.

10. UFSAR 1.8.1.120, "Conformance to Regulatory Guide 1.120, Revision 1, November 1977: Fire Protection Guidelines for Nuclear Power Plants." HCGS complies with Regulatory Guide (RG) 1.120 with the exceptions discussed in the HCGS UFSAR. Since most of the guidelines in Regulatory Guide 1.120 have been incorporated in BTP CMEB 9.5.1, Revision 2, dated July 1981, the exceptions are only for those items that are not found in BTP CMEB 9.5.1, Revision 2. See Section 9.5.1 for an evaluation of SRP 9.5.1 and additional exceptions. Also, see Appendix 9A for an evaluation of the HCGS design against the requirements of 10CFR50, Appendix R.

11. Applicable Section XI ASME Code Years and Addenda for the Hope Creek In Service Testing (IST) and In Service Inspection (ISI) Programs:

    a. IST: OM Code – 2001 with 2003 OMb Addenda

    b. ISI: 2001 Edition with 2003 Addenda

1.3.2 Salem Generating Station (SGS)

1. Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," Revision 2, April 1987. Salem complies with the Regulatory Guide 1.8 regulatory position for use of ANSI/ANS-3.1-1981 requirements for positions equivalent to shift supervisor, senior operator, licensed operator, and shift technical advisor, and for use of ANSI/ANS-N18.1-1971 for the training and qualification requirements for the remaining station positions identified in the standard, except as noted below.
   a. The management position responsible for operations shall either hold an SRO license or have held an SRO license for a similar unit (PWR) or have been certified at an appropriate simulator for equipment senior operator knowledge.
   b. Licensed operator qualifications and training shall be in accordance with 10CFR55.
   c. The management position responsible for radiation protection shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.
   d. The management positions at the corporate and site level responsible for Nuclear Oversight and the Management positions responsible for engineering that report to a management position responsible for engineering and technical support, which corresponds to the Engineer in Charge, must meet or exceed the qualifications of ANSI/ANS 3.1-1981.
   e. Members of the on-site review committee shall meet or exceed the qualifications described in Section 4.7 of ANSI/ANS 3.1-1981.
2. Regulatory Guide 1.31, "Control Of Ferrite Content In Stainless Steel Weld Metal." Salem complies with Regulatory Guide 1.31 subject to the clarification and exceptions listed in the SGS UFSAR.

3. Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)." NQA-1-1994 contains quality assurance requirements similar to those in the ANSI N45.2 series. The administrative control elements from ANSI N18.7 are included in this QATR.
   a. Regulatory Position C.1, the Company uses Appendix "A" of RG 1.33 as guidance in establishing the types of procedures required for plant operation and support.
   b. Regulatory Position C.2 is no longer considered valid, as the referenced standards and guidance have now been incorporated into ASME NQA-1-1994, or are specifically addressed in this QATR.
   c. Regulatory Position C.3 applies since the company uses independent review. However, the ANSI N18.7-1976/ANS-3.2 subjects for independent review; including the paragraph 4.3.4 independent review items, such as Technical Specification changes, license amendments, and Emergency Plan changes; the paragraph 4.5 independent review of audit reports; and the paragraph 5.2.11 independent review of SCAQs, shall be performed by the on-site review committee. Review of these subjects by the off-site review committee is not required. Additionally, the ANSI N18.7-1976/ANS-3.2 paragraph 4.3.2 guidance on independent review committee composition, meeting frequency, quorum, and records are not required to be met. This criteria will be established by the Company as needed to support management expectations and quality requirements.
   d. In lieu of compliance with Regulatory Position C.4, the Company establishes audit topics and frequencies as described in Appendix "B" of this QATR.
   e. In lieu of compliance with Regulatory Position C.5, the Company has established appropriate equivalent requirements within this QATR.
   f. Regarding section 5.1 of ANSI N18.7-1976, the text "a summary document shall be compiled by each owner organization to identify the sources, to index such source documents to the requirements of this Standard and to provide a consolidated base for description of the program", is being interpreted by the Company as an electronic database, i.e., the Document Control and Records Management System (DCRMS), that contains all the source documents required to implement the QAP and enables electronic sorts and text searches that serves to provide the consolidated base for description of the program.
   g. Regarding section 5.2.15 of ANSI N18.7-1976, third paragraph, the text "unusual incident" is interpreted to mean "reportable incident."

4. Regulatory Guide 1.52, "Design, Testing And Maintenance Criteria For Atmosphere Cleanup System Air Filtration And Absorption Units Of Light-Water-Cooled Nuclear Power Plants, " The Salem Station atmosphere cleanup systems, which fall within the scope of the Regulatory Guide, are as follows:

Primary Systems:	1. Containment Fan Cooler Units
Secondary Systems:	1. Control Room Emergency Filtration Unit
	2. Auxiliary Building Exhaust Units
	3. Fuel Handling Building Exhaust Units

All of these systems conform to the intent of the regulatory guide in many respects. The areas where the systems are at variance with the intent of the regulatory positions are stated in the SGS UFSAR.

5. Regulatory Guide 1.137, "Fuel Oil Systems for Standby Diesel Generators," October 1979. Diesel fuel oil sampling is subject to verification during routine monitoring and audits of the fuel oil program and procedures conducted by NOS personnel and to exceptions and clarifications listed in the SGS UFSAR.

6. Regulatory Guide 1.143, "Design Guidance For Radioactive Waste Management Systems, Structures, And Components Installed In Light - Water - Cooled Nuclear Power Plants." Accordance with guidance provided in this Regulatory Guide, the Contaminated Floor and Equipment Drain Systems and small portions of the Liquid Waste Disposal System that are designated with Piping Schedule 53D (Piping Specification SPS53) have been reclassified to be Non-Nuclear (Quality Group D). The Salem Station design meets the intent of the Regulatory Guide. Augmented quality assurance requirements have been imposed to ensure that the quality level recommended in the Regulatory Guide is maintained.

7. Branch Technical Position APCSB 9.5-1, Appendix A, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976." The QA Program is applied to the Fire Protection Program to an extent consistent with the requirements of Section C of Appendix A to Branch Technical Position APCSB 9.5-1.

8. Applicable Section XI ASME Code Years and Addenda for the Salem In Service Testing (IST) and In Service Inspection (ISI) Programs:

a.	IST:	OM Code – 2001 with 2003 OMb Addenda
b.	ISI:	2004 Edition (Salem Unit 1 and Unit 2)
c.	Containment ISI:	2004 Edition (Both Unit 1 & Unit 2)

1 SCOPE

This Appendix consists of definitions for words or phrases found in the QAP and provide a common basis for understanding those words or phrases that may have a different meaning when used elsewhere. All words and phrases are subject to review and revision, as circumstances require.

2 GLOSSARY OF TERMS

2.1 Approval

Approval as used herein means by signature or initialing and date by an authorized individual.

2.2 ASME Boiler and Pressure Vessel Code, Sections I, IV, VIII, & XI

Refers to ASME Section I - Power Boilers, Section IV - Heating Boilers, Section VIII - Pressure Vessels, and Section XI - Rules for In-Service Inspection of Nuclear Power Plant Components.

2.3 ASME Boiler and Pressure Vessel Code, Section III, Division 1 and Division 2 for Concrete Containment

Refers to ASME Section III, Division 1 and Division 2 for Concrete Containment; ASME Section III; ASME Code; ASME; or Code.

2.4 Audit

A planned and documented activity performed to determine by investigation, examination, or evaluation of objective evidence the adequacy of and compliance with established procedures, instructions, drawings, and other applicable documents, and the effectiveness of implementation. An audit should not be confused with surveillance or inspection activities performed for the sole purpose of process control or product acceptance.

2.5 Audit Team Leader

An individual who meets the certification requirements of Lead Auditor per NQA-1 (or equivalent), and thus is qualified to plan, perform and direct an audit, report findings, and evaluate corrective actions. An Audit Team Leader (ATL) is appointed to lead all audit activities.

2.6 Auditor

An individual qualified and authorized to perform any portion of an audit through the examination of quality assurance practices and verification of whether requirements are being met, including Audit Team Leaders, technical specialists, and others such as auditors-in-training and management representatives who have no direct responsibility for the area they are to audit.

2.7 Augmented Quality

Quality considerations given to non-safety related items or services for which the station has made a regulatory or design basis commitment, or for plant availability reasons, special controls are required to be implemented to assure reliability.

2.8 Authorized Inspector

An Authorized Inspector (AI) as used herein is meant to mean Authorized Nuclear Inspector (ANI). An ANI is an employee of an Authorized Inspection Agency (AIA) who has qualifications for and has been properly accredited for Division 1 or Division 2.

2.9 Authorized Nuclear In-service Inspector

An Authorized Nuclear In-service Inspector (ANII) is an employee of an AIA who has qualifications for and has been properly accredited for ASME Section XI.

2.10 Balance of Plant

Generating station items and equipment not designed, furnished or installed as a part of the Nuclear Steam Supply System. Balance of Plant items include safety-related and ASME Code items, such as the containment as well as non safety-related and non-ASME Code items.

2.11 Basic Component

"Basic component", when applied to nuclear power reactors means a plant structure, system, component or part thereof necessary to assure (1) the integrity of the reactor coolant pressure boundary, (2) the capability to shut down the reactor and maintain it in a safe shutdown condition, or (3) the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10CFR50.67.

2.12 Bid Package

The total of drawings, specifications, codes, standards, quality and other requirements that describes the task on which a prospective contractor/supplier will bid.

2.13 Calibration

A method of assuring accuracy of gauges and instruments used for measuring and testing by comparing with recognized standards.

2.14 Certificate of Compliance/Conformance (CoC)

A document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services meet specified requirements, such as those in purchasing requisitions.

2.15 Certified Personnel

Personnel who have passed a formal training program and a formal proficiency test for special processes such as welding, plating and nondestructive testing.

2.16 Certified Standards

Standards of measurement whose accuracy can be traced to standards at the National Institute of Standards and Technology or established standards.

2.17 Certified Material Test Report

A document attesting that material is in accordance with specified requirements including the actual results of all required chemical analyses, tests and examinations.

2.18 Change Order

A formal award to a vendor or contractor covering revision(s) to the original Purchase Order or Change Order, involving but not limited to quantity, technical requirements, quality assurance requirements or scope of work.

2.19 Characteristic

Any property or attribute of an item, process or service that is distinct, describable and measurable, as conforming or nonconforming to specified quality requirements. Quality characteristics are generally identified in specifications and drawings, which describe the item, process or service.

2.20 Code

A recognized standard for using or processing materials, or for the skill involved in use or processing. See ASME Boiler and Pressure Vessel Code, Section III or Section XI, whichever is applicable.

2.21 Cognizant Engineer

The engineer assigned a specific task or area of responsibility in the design or testing of a component or system.

2.22 Commercial Grade Dedication

Commercial grade items that are intended for safety-related end use (performing a basic component function per 10CFR21) are required to be dedicated. Commercial grade dedication is a process that identifies the item's critical characteristics that must be verified to provide reasonable assurance the item will perform its intended safety function.

2.23 Commercial Grade Item

An item that was not subject to design or specification requirements unique to nuclear facilities, and can be used in applications other than nuclear facilities, and was ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (for example, a catalog).

2.24 Component

ASME Code items such as vessels, concrete containments, piping systems, pumps, valves, core support structures and storage tanks which will be combined with other components to form an assembly or installation of a nuclear power plant.

2.25 Component Identification Number

An identification number assigned (where appropriate) to an item for use throughout its lifetime.

2.26 Condition Adverse to Quality

An all-inclusive term used in reference to any of the following; failures, malfunctions, deficiencies, defective items, and non-conformances.

2.27 Construction

Activities at the building site necessary to erect, inspect and accept a power generating station and its associated installation. It can also mean the performance of major rework or modification activities during the Operations Phase such as steam generator replacement, reactor vessel head replacement, or replacement of a safety-related analog control system with a digital system. This definition applies unless otherwise indicated:

Construction (ASME Section III Div.1) comprises all activities relating to materials, design fabrication, examination, testing, inspection and certification required in the manufacture and installation of items.

Construction (ASME Section III Div. 2) includes all those operations required to build the component and its parts in accordance with the Design Drawings and Construction Specification, which have been prepared by the Designer (AE).

2.28 Contract (including purchase order)

A binding agreement between two or more persons or companies.

2.29 Contractor

Any organization under contract for furnishing items or services. It includes the terms vendor, supplier, subcontractor, fabricator and sub-tier levels of these where appropriate. A "Code" contractor is a contractor holding a valid ASME Section III Certificate of Authorization.

2.30 Corrective Action

Measures taken to rectify conditions adverse to quality, and, where necessary, to preclude repetition.

2.31 Critical Characteristics

Those important design, material, and performance characteristics of a commercial grade item that, once verified, will provide reasonable assurance that the item will perform its intended safety function.

2.32 Dedication

An acceptance process undertaken to provide reasonable assurance that a Commercial Grade Item used as a basic component will perform its intended safety function and, in this respect, is deemed equivalent to an item designed and manufactured under a 10 CFR 50 Appendix B Quality Assurance Program.

2.33 Department

When a responsibility is given to a department in this Manual it is meant that the department head has the responsibility.

2.34 Design Change

Any change in design that may affect functional requirements, operating conditions, safety-, regulatory-, reliability-, and ASME Code-related requirements, performance objectives, plant reliability or design life and would require that affected documentation be changed.

2.35 Design Controls

Methods for assuring that basic design requirements are formalized and translated into design documents with proper review to assure the scheduled release of a valid design.

2.36 Design Criteria

Statements of the form, function and interface requirements within well defined limitations.

2.37 Design Requirements

Documents that set the functional requirements, operating conditions, safety requirements, performance objectives, design margins and design life. Included are any special requirements for size, weight, ruggedness, materials, fabrications or constructions, testing, maintenance, operating environments, safety margins and derating factors.

2.38 Design Review

An analysis of design with respect to technical adequacy, interface control, inspectability, maintainability and conformance to applicable codes, standards, regulations and design criteria.

2.39 Design Specification

A document that sets the functional requirements; design requirements; environmental conditions, including radiation; ASME Code classification; definition of the boundaries; and material requirements. Sufficient detail shall be contained within the document to provide a complete basis for design.

For Section III ASME Code, Division 1: A document prepared by the owner or owner's designee, which provides a complete basis for construction in accordance with the ASME Code, Section III.

2.40 Destructive Test

A test to determine the properties of a material or the behavior of an item, which results in the destruction of the sample or item.

2.41 Deviation

A nonconformance. Departure of a characteristic from specified requirements.

2.42 Documentation

Any written or pictorial information describing, defining, specifying, reporting or certifying activities, requirements, procedures or results.

2.43 Dry Cask Storage System

A physical system, either a cask or canister in its shielding overpack, which holds the spent fuel from a nuclear reactor and is considered a component of the ISFSI. The system is licensed by the NRC and is operated and maintained in accordance with the NRC issued Certificate of Conformance and approved Final Safety Analysis Report (FSAR).

2.44 Examination

Specific actions by qualified personnel using qualified procedures to verify that items and fabrication processes are in conformance with specified requirements. This term, when used in conjunction with qualification of personnel to perform quality-related activities shall mean a written examination.

2.45 Fabricator

An organization involved in the manufacture of equipment. For ASME Section III Division 2, the fabricator is an NPT Certificate Holder.

2.46 Final Safety Analysis Report (FSAR)

A finalization of the preliminary safety analysis report prepared for the Nuclear Regulatory Commission prior to issuance of an operating license.

2.47 Flow Chart

A representation of the sequence of activities such as procurement, fabrication, processing, assembly, inspection and test, or the sequence of individual operations within one or more of those functions.

2.48 Hold Point

A designated stopping place during or following a specific activity at which inspection or examination is required (usually to verify an important quality function such as foreign material exclusion) before further work can be performed. Hold points can be performed by either job supervisors or independent inspectors as identified in associated procedures or work instructions.

2.49 Inspection Hold Point (IHP)

These are similar in nature to a hold point. IHPs should be performed by individuals who have remained independent of the activity being inspected. Typically independent quality verification inspectors perform IHPs as prescribed in associated procedures or work instructions.

2.50 Important To Safety

An activity important to safety is that which is:
- Quality related, or is
- A function involving administrative controls, such as policies, procedures, and organizational structure, established to assure nuclear safety, or is,
- Necessary to establish a work environment that provides the ability for personnel to complete safety-related tasks in a planned and systematic fashion, such as training, housekeeping, radwaste shipping, maintaining measuring and test equipment, etc.

Equipment important to safety is that which is:
- Safety-related, or is
- Non-safety-related, but whose failure could prevent satisfactory accomplishment of the safety functions specified for safety-related components, or is
- Used for post-accident monitoring of key variables and systems, or is
- Used for radwaste shipping or spent fuel storage.

2.51 Incident

Occurrence of major damage, serious personal injury or significant schedule delay.

2.52 Independent Review

Review completed by personnel not having direct responsibility for the work functions under review regardless of whether they operate as a part of an organizational unit or as individual staff members.

2.53 Independent Safety Review

An independent review performed with a deliberately critical examination of processes, events, or documents from the standpoint of nuclear safety.

2.54 Independent Spent Fuel Storage Installation

A facility designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel (10CFR72.3). Independent Spent Fuel Storage Installation (ISFSI) refers to the facility authorized for storage of spent fuel under 10CFR72 and includes the storage pad, the storage containers, and any support facilities. However, if the ISFSI is located on a reactor site it does not include any structures, facilities, or services that are part of the 10CFR50 license, unless they are identified as being shared jointly. An ISFSI may contain several different Dry Cask Storage System designs.

2.55 In-Service Inspection

A mandatory program of examinations, testing, inspections and control of repairs and replacements to ensure adequate safety in maintaining the nuclear power plant and to return the plant to service in a safe and expeditious manner.

2.56 Inspection

A phase of quality verification that, by means of examination, observation or measurement, determines the conformance of materials, supplies, components, parts, appurtenances, systems, processes or structures to predetermined quality requirements.

2.57 Interface

When two or more organizations have responsibilities for accomplishing an activity, the functional relationship that one organization has to the others in completing the activity is called "interface" relation. One example of interface is when on organization must perform a step, which is a prerequisite to another organization accomplishing its function. Interface can also mean that several organizations accomplishing similar activities are under the coordination control of one organization.

2.58 Interface control

Consideration that components and structures are geometrically and functionally compatible and those materials are compatible with both process and environment.

2.59 Item

Any level of unit assembly, including structure, system, subsystem, subassembly, component, part or material. When ASME Code items are referenced, this means products constructed under a certificate of authorization and material.

2.60 Jurisdictional Boundaries

The physical limits of an ASME Code item, which are identified to determine the applicability of ASME Code rules for that item.

2.61 Lifetime Record

A record that meets one or more of the following criteria:

- Those that would be of significant value in demonstrating capability for safe operation;
- Those that would be of significant value in maintaining, reworking, repairing, replacing, or modifying an item;
- Those that would be of significant value in understanding the cause of an accident or malfunction of an item;
- Those that provide required baseline data for in-service inspections.

2.62 Line Department

An organization connotation for a group of individuals who perform a "line function", meaning one that directly advances an organization in its core work. For nuclear generation, this always includes groups like Operations, Maintenance, and Chemistry. A "staff function" assists the overall organization with specialized advisory and support functions. For example, Human Resources, Finance, and Licensing are generally considered to be staff functions.

- A First Line Supervisor correlates to the management position that is directly in charge of the work force within a line department.
- A Second Line Supervisor correlates to the management position that is responsible to oversee the performance of a First Line Supervisor within the line department.

2.63 Maintenance/Modification Work Package

The complete set of documentation that enables the station to fabricate, examine, test and install ASME and safety related items. The work package consists of the work request, provisions for station traveler, document checklist and maintenance/modification procedures and supporting information such as, but not limited to, approved drawings, design specifications, and special process procedures.

2.64 Material

A substance or combination of substances forming components, parts, pieces, and equipment. (Intended to include such things as machinery, castings, liquids, formed steel shapes, aggregates, and cement.)

When ASME Code material is referenced, this refers to metallic materials manufactured to a SA, SB, or SFA Specification or any other material specification permitted by Section III of the ASME Code. For Division 2, this refers to metallic as well as to nonmetallic materials, conforming to the specifications permitted in Section III of the ASME Code.

2.65 Material Supplier

An organization which supplies material produced and certified by Material Manufacturers, but does not perform any operations that affect the material except when agreed upon by the Certificate Holder who uses the material in ASME Code construction or when so authorized by a Quality System Certificate (Materials). The Material Supplier may perform and certify the results of tests, examinations, repairs, or treatments required by the material specification that were not performed by the Material Manufacturer.

2.66 Measuring and Test Equipment (M&TE)

Equipment used to quantitatively generate or measure physical or electrical parameters with a known degree of accuracy for the purpose of calibration, inspection, test, or repair of plant mechanical, electrical, or instrument control equipment.

2.67 Modification

A change to an item made necessary by, or resulting in, a change in design requirements. A planned change in plant design or operation and accomplished in accordance with the requirements and limitation of applicable codes, standards, specifications, licenses and predetermined safety restrictions.

2.68 National Standards

Standards maintained at or issued by the National Institute of Standards and Technology (NIST) or other designated institutions, and the values for natural physical constants and conversion factors recommended by NIST.

2.69 NDE Administrator

Chief Level III (NDE) for the Company.

2.70 Non-compliance

A failure to comply with a regulatory requirement.

2.71 Nonconformance

A nonconformance is a deficiency in characteristic, documentation, or procedure that renders the quality of a structure, system, or component (SSC) or activity unacceptable or indeterminate. Some examples of nonconforming conditions include the following:

- As-built equipment, or as-modified equipment, does not meet UFSAR descriptions or design bases.
- Deviation from prescribed processing, inspection, or test procedures.
- Physical defects.
- Requirements cannot be substantiated with proper documentation.
- Test failures.
- There is failure to conform to one or more applicable codes or standards specified in the UFSAR or procurement documents.

2.72 Non-permanent Record

A record that is required to show evidence that an activity was performed in accordance with the applicable requirements, but does not meet the criteria for a lifetime record.

2.73 NQA-1-1994 (ANSI/ASME NQA-1-1994)

Quality Assurance Program Requirements for Nuclear Facilities. For ASME Section III activities, NQA-1 is as modified by the ASME Code.

2.74 Nuclear Safety

Assurance that the health and safety of individuals, society, and the environment are protected against radioactivity originating from the nuclear fuel or special nuclear material.

2.75 Nuclear Steam Supply System (NSSS)

That portion of the nuclear generating plant that provides steam from nuclear heat. It includes the reactor, its control systems, main coolant and steam generation systems, fuel handling equipment, emergency core cooling system and other safeguards, associated electrical equipment, instrumentation, spent fuel handling and radioactive waste disposal system.

2.76 Objective Evidence

Any documented statement of fact, other information or record, either quantitative or qualitative, pertaining to the quality of an item or activity, based on direct observations, measurements or tests that can be verified.

2.77 Independent Review

Independent review is the review and investigative function required by plant technical specifications and/or safety analysis reports. Independent review requirements at PSEG Nuclear are satisfied by a combination of the on-site review committee and Nuclear Oversight independent review activities.

2.78 (Not used)

2.79 Operable/Operability

A system, subsystem, train, component or device shall be operable or have operability when it is capable of performing its specified function(s) and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s). NOTE: Licensed operators determine safe operation of the plant.

2.80 Operational Tests

Tests that are performed during the operations of the plant to verify continued satisfactory performance of safety-related structures, systems and components.

2.81 Personnel Access Data System (PADS)

A computerized and restricted access data system used by the domestic commercial nuclear power industry to share information necessary to process the applications of workers for unescorted access to nuclear power plants. This system is intended to meet regulatory requirements mandating that certain information be available to any power reactor licensee by retaining certain access information in a central computer database.

2.82 Permanently Installed Instrument and Control Devices

The installed plant equipment including computer points used in determining acceptance criteria of Technical Specification surveillances.

2.83 Preliminary Safety Analysis Report (PSAR)

The initial detailed safety evaluation prepared for the U.S. Nuclear Regulatory Commission prior to issuance of the site construction permit. The PSAR delineates design, normal and emergency operation, potential accidents and predicted consequences of such accidents and the means proposed to prevent such accidents and/or reduce their consequences to acceptable levels.

2.84 Pre-Operational Testing

Preliminary testing prior to fuel loading and plant operation to assure that construction and installation are complete and to verify design and system functions.

2.85 Procedure

A controlled document that specifies or describes how an activity is to be performed. It may include methods to be employed, equipment or materials to be used, accept/reject criteria and sequence of operations.

2.86 Proprietary Designs

Designs engineered, produced and sold by manufacturers in accordance with their criteria and warranty.

2.87 Purchase Requisition

The basic document describing a material, component or service that is converted into a purchase order for procurements.

2.88 Quality Assurance

All those planned and systematic actions necessary to provide adequate confidence that an item or a facility will perform satisfactorily in service. For the ASME Code, Quality Assurance comprises all those planned and systematic actions necessary to provide adequate confidence that all items designed and constructed are in accordance with the applicable ASME Code.

2.89 Quality Assurance Program (QAP)

The Quality Assurance Program is the method for complying with the provisions of 10CFR50 Appendix B for nuclear power plant systems, structures, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The Quality Assurance Program is defined in the Quality Assurance Topical Report and implementing procedures.

2.90 Quality Assurance Topical Report (QATR)

A NRC approved regulatory document that describes quality assurance program elements for the operational phase of nuclear power plants. This term is synonymous with Quality Assurance Program Description (QAPD), Operation Quality Assurance Program (OQAP), and Quality Assurance Manual (QAM).

2.91 Quality Control

See Quality Verification.

2.92 Quality-Related

Activities which influence quality of safety-related items or work related to those systems, structures and components as identified in the station UFSAR, Section 3.2, including training, designing, purchasing, fabricating, handling, shipping, storing, cleaning, preserving, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, or modifying.

2.93 Quality Verification

Those quality assurance examinations and actions that provide a means to control and measure the characteristics of an item, process or facility to determine or establish conformance to acceptance standards and specified requirements.

2.94 Receipt Inspection

An inspection which verifies that items are in satisfactory condition, that they match the purchase order requirements and that required documentation accurately reflects the item(s) received. Visual and physical inspection will be performed as necessary to determine the acceptability of the item(s).

2.95 Record

A completed document that:

- Furnishes evidence of the quality of items or activities.
- Furnishes evidence of compliance with regulations or requirements.
- Is required by Technical Specifications.

Included are such related documents as drawings, specifications, procurement documents, procedures, operating logs, and reportable occurrences. Such documents may be originals or reproduced copies.

2.96 Registered Professional Engineer (RPE)

A person competent in the applicable field of design and qualified in accordance with the requirements of ASME Section III, Appendix XXIII.

2.97 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 requirements. For ASME Section III items, repair is the process of physically restoring a nonconformance to a condition such that an item complies with ASME Code requirements.

2.98 Request For Bid

Invitation made to suppliers or contractors to bid on a specific task for materials, goods and services.

2.99 Request For Purchase

A generating station's document originated by foremen, supervisors or department heads that designates the required items and services and delineates the design specifications, applicable codes and standards, as well as, any special requirements. This document is the basis of initiating a Purchase Requisition.

2.100 Rework

The process by which a nonconforming item is made to conform to a prior specified requirement by completion, re-machining, and re-assembling using previously approved procedural requirements. (For ASME Section III, rework is same as repair.)

2.101 Safety-Related

Structures, systems, components (SSC's), procedures and controls that are relied upon to remain functional during and following design basis events to ensure the integrity of the reactor coolant pressure boundary; the capability to shut down the reactor and maintain it in a safe shutdown condition; or the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures to members of the public.

2.102 Seismic Classification

Plant structures, systems and components important to safety which are designed to withstand the effects of a safe shutdown earthquake and remain functional if they are necessary to assure:

The integrity of the reactor coolant pressure boundary, or
The capability to shutdown the reactor and maintain it in a safe condition, or

The capability to prevent or mitigate the consequences of accidents, which could result in potential offsite exposures comparable to the guideline exposures of 10CFR100.

2.103 Significant Condition Adverse to Quality (SCAQ)

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

2.104 Source Inspection

Inspection carried out at a vendor's plant prior to shipment of purchased items.

2.105 Special Process

A process, the results of which are highly dependent on the control of the process or skill of the operator, or both, and in which the specified quality cannot be readily determined by inspection or test of the product.

2.106 Specification

A concise set of requirements to be satisfied by a product, material or process. The set of requirements may, also, indicate the procedure by which one may determine if the given requirements are satisfied.

2.107 Stand-alone Document

Is where information is assembled that is capable of fully describing an activity/issue/topic independent of other documentation. Supporting facts should be included or their location clearly referenced. Authentication of the document by affixing a seal, signature, initial or other acceptable method of proof of its validity, is required for it to be a completed quality record.

2.108 Start-Up Tests

Tests that are performed after initial fuel loading and proceed through several power level plateaus to 100% power.

2.109 Stock Material

Material which is or may be used for conversion to an ASME SA, SB, or SFA Specification or allowable ASTM Specification. As used in this Program, Stock Material is that material that has not been produced in accordance with an NCA 3800 QA Program.

2.110 Stop Work

Collective term used to describe the following three levels of stopping work activities:

- A hold imposed by a Department Head on a department or general work activity.
- A Stop Work Action initiated by NOS management.
- The stopping of a single or specific work activity by NOS personnel.

2.111 Surveillance

The act of monitoring or observing to verify whether an item or activity conforms to specified requirements. Such as an examination of supplier's manufacturing, inspection and test operations and of records of work in progress. This activity is documented.

2.112 Survey

A documented evaluation of an organization's ability to perform activities as verified by a determination of the adequacy of the organization's quality program and by a review of the implementation

of that program at the location of work.

2.113 Technical Review (non-conforming item)

A determination as to whether a nonconforming item will be accepted "as-is", reworked, repaired to acceptable condition or rejected.

2.114 Technical Specification

The design and performance criteria and operating limits and principles of an operating license to be observed during initial fuel loading, critical testing, start-up, power operations, refueling and maintenance operations.

2.115 Test

Determination of the physical and functional properties of an item by subjecting the item to a set of physical, chemical, environmental or operating conditions.

2.116 Test Plan

An outline, narrative description or flow diagram indicating the tests to be performed, the methods to be used and the points in the process where they are to be executed. It may be in the form of a test procedure.

2.117 Traceability

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

2.118 UFSAR

Abbreviation for the Updated Final Safety Analysis Report, which is the document submitted by the Company to the Nuclear Regulatory Commission in accordance with 10CFR50.71.

2.119 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 to safety and that the item under consideration will continue to meet all engineering functional requirements including performance, maintainability, fit and safety.

2.120 Variation

A nonconformance. Departure of a characteristic from specified requirements.

2.121 Verification

The act of reviewing, inspecting, testing, checking, auditing, or otherwise determining and documenting whether items, processes, services, or documents conform to specified requirements. Two commonly used types of verification are described as follows:

Concurrent Verification is also known as "apart-in-action" because the verification is being done concurrently as the action is implemented. Concurrent Verification is accomplished when two individuals verify the actions concurrently and apart from each other as they perform the task. Concurrent verification should be used for any action that if performed incorrectly, could result in an immediate threat to personnel safety, nuclear safety, reliable plant operation, or for an activity that can't be verified after it's completed.

Independent Verification is also known as "apart-in-time" because the verification occurs at some time after the action has been performed. An independent verification is performed at a later time by a second qualified individual who is not part of the initial job performance checking the actions previously performed by others. Independent verification may be used in cases were actions if done incorrectly, could significantly affect nuclear and personnel safety, regulatory or other issues important to safe and reliable plant operations, but would not result in immediate consequences.

2.122 Witness Points

In a sequential operation, a notification to the Company, or its authorized agent, that a phase of work is about to be reached, so that it may be witnessed at a specific time, or in process, to verify acceptable performance of the phase. Witness points may be established in the traveler, procedure or in the course of monitoring the work activity.

2.123 Work Instructions

Actions to be completed by personnel while they are performing specific tasks in areas such as material controls and identification and fabrication, installation, or maintenance of equipment.

1 SCOPE

10CFR50 Appendix B requires a quality assurance program be established in writing and executed for activities affecting the safety-related function of designated structures, systems and components to an extent consistent with their importance to safety.

2 REQUIREMENTS

2.1 Hope Creek Generating Station (HCGS)

Items on the HCGS Q-List, and the DCSS / ISFSI Category A, B, and C SSCs, are subject to the applicable controls of this QAP.

2.1.1 HCGS Q-List

a. Activities and Services:

1. Safety-related activities delineated in Regulatory Guide 1.33, Appendix A (see Regulatory Guide for further breakdown of activities). Procedures that govern important to safety activities have a "Q" suffix added to the end of the procedure number and/or have a "Q" quality code in the document control and records management system. Procedures associated with 2.1.3 and 2.1.4 activities should use an "F" or "R" quality code respectively.
2. Other safety-related activities, such as design control, procurement, and audits, which satisfy the requirements of the operational QAP as described in this manual.
3. Modifications to Site Grading.

b. Structures, Systems, and Components:

1. Seismic Category I and other structures, systems, and components as indicated to have QA requirements in Table 3.2-1 of the HCGS UFSAR.
2. Seismic II/I designation (meaning those portions of SSCs whose continued function is not required but whose failure could reduce the functioning of any Seismic Category I plant feature to an unacceptable safety level) is incorporated on the following design document types:

   Drawings
   - Area drawings
   - Concrete unit masonry details
   - Control room-ceiling layouts
   - Floor plans
   - Heating & ventilation duct layout
   - Miscellaneous steel drawings
   - Piping and Instrumentation Diagrams (P&ID's)
   - System isometrics

Indices
- Equipment index
- Pipe line index

Specifications:
- Acoustical unit ceilings
- Insulation for reactor pressure vessel (RPV) and drywell piping equipment

2.1.2 The Seismic II/I identification on drawings and indices is provided in the detail of the document, as necessary, to define "Q" items/boundaries. A "Q" suffix is added to the drawing number of those drawings that identify application of the Seismic II/I QA program.

The Seismic II/I identification on specifications consists of adding a "Q" suffix to the specification number.

Seismic II/I structures, systems, and components are further delineated in UFSAR Table 3.2-1.

2.1.3 "F" - Designated Systems

a. An "F" designation is incorporated on the following design document types:

1. Drawings
   - P&ID's for the Fire Protection System (FPS)
   - Concrete unit masonry details
   - Door hardware schedules
   - Fire wall location drawings
   - FPS isometrics
   - FPS safety-related area drawings
   - Lighting and telephone plans
   - Lighting notes, symbols, and details
   - Penetration seal details
   - Structural steel fireproofing drawings
2. Indices
   - Equipment index
   - Instrument index
   - Pipe line index
   - Valve index

b. FPS-QA identification system incorporation on drawings and indices is provided in the detail of the document, as necessary, to define "F" items/boundaries. An "F" suffix is added to the drawing number of those drawings that identify application of the FPS-QA program. Specifications are as follows:
   - Carbon dioxide systems
   - Deluge water spray and sprinkler system

- Fire and smoke detection system
- Fireproofing of structural steel
- Horizontal fire pumps
- Hose racks for wet standpipe system
- Installation of carbon dioxide system
- Portable extinguishers

c. FPS-QA identification system incorporation onto specifications consists of adding an "F" suffix to the specification number.

d. Fire Protection Systems, including emergency lighting and communications, are further delineated in UFSAR Table 3.2-1.

2.1.4 "R" - Designated Systems

a. The letter "R" shall be used to identify items of the Radioactive Waste Management System which protect the health and safety of the public, and plant operating personnel from uncontrolled discharge of solid, liquid, or gaseous radioactive waste to the environment.

b. The radwaste management systems classified as quality group R shall be designated by the use of R-flags on piping and instrumentation diagrams. Quality group R standards shall be those provided in Regulatory Guide 1.143. Radwaste Management Systems are further delineated in UFSAR Table 3.2-1.

2.1.5 Quality Classifications for SSCs of the Independent Spent Fuel Storage Installation

a. The following documents list the "important to safety" (i.e., Quality Category A, B or C) and "not important to safety" quality classifications of the Dry Cask Storage System (DCSS) and Independent Spent Fuel Storage Installation (ISFSI) structures, systems, and components (SSCs).

1. DCSS Final Safety Analysis Report (Certificate Holder's):
   - Table 2.2.6 of HI-STORM 100 FSAR (Docket 72-0048)
   - Table 8.1.6 of HI-STORM 100 FSAR (Docket 72-0048)
2. PSEG Nuclear, Independent Spent Fuel Storage Installation 10 CFR 72.212 Evaluation Report

2.2 Salem Generating Station (SGS)

Items on the SGS Q-List, and the DCSS / ISFSI Category A, B, and C SSCs, are subject to the applicable controls of this QAP.

2.2.1 SGS Q-List

a. The listing below identifies those activities and services to which the QAP applies during operations:

1. Safety-related activities delineated in Regulatory Guide 1.33, Appendix A (see Regulatory Guide for further breakdown of activities). Procedures that govern important to safety activities have a "Q" suffix added to the end of the procedure number and/or have a "Q" quality code in the document control and records management system.
2. Modifications to the shoreline dike identified in Section 3.4 of the SGS UFSAR.
3. Other safety-related activities, such as design control, procurement, and audits, which satisfy the requirements of the operational QAP as described in this manual.

b. Structures, Systems, and Components

1. Items and systems contained in commitment letters to the NRC are administered through station procedures and tracked using an electronic database.
2. The Class I structures, systems, and components identified in Section 3.2 of the SGS UFSAR.
3. The QAP controls apply to the Class II structures, systems, and components identified in Section 3.2.1 of the SGS UFSAR as described in engineering design bases documents and associated procedures.

2.2.2 Quality Classifications for SSCs of the Independent Spent Fuel Storage Installation

a. The following documents list the "important to safety" (i.e., Quality Category A, B or C) and "not important to safety" quality classifications of the Dry Cask Storage System (DCSS) and Independent Spent Fuel Storage Installation (ISFSI) structures, systems, and components (SSCs).

1. DCSS Final Safety Analysis Report (Certificate Holder's):
   - Table 2.2.6 of HI-STORM 100 FSAR (Docket 72-0048)
   - Table 8.1.6 of HI-STORM 100 FSAR (Docket 72-0048)
2. PSEG Nuclear, Independent Spent Fuel Storage Installation 10 CFR 72.212 Evaluation Report