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**DOMINION ENERGY KEWAUNEE, INC.**
**DOMINION NUCLEAR CONNECTICUT, INC.**
**VIRGINIA ELECTRIC AND POWER COMPANY**
**KEWAUNEE POWER STATION AND ISFSI**
**MILLSTONE POWER STATION UNITS 1, 2 & 3 AND ISFSI**
**NORTH ANNA POWER STATION UNITS 1 & 2 AND ISFSI**
**SURRY POWER STATION UNITS 1 & 2 AND ISFSI**
**RE-SUBMISSION OF QUALITY ASSURANCE TOPICAL REPORT**

On June 28, 2011, Dominion submitted Revision 11 of the fleet QA Topical Report DOM-QA-1 pursuant to 10 CFR 50.54(a)(3) and 50.71(e) (Reference 1). Subsequently, on July 25, 2011, Dominion and the NRC held a telephone conference to discuss two NRC requests for additional information pertaining to Reference 1. The first RAI was related to the wording of the cover letter which stated that, "Attachment 2 provides a discussion of changes made to DOM-QA-1 for reduction in commitment." This wording was confusing to the NRC staff because Attachment 2 contained no changes that were concluded to be a "reduction in commitment" to the quality assurance program. Therefore, to address this first question, Dominion is issuing a clarifying statement as follows: Attachment 2, "Discussion of Changes made to DOM-QA-1," contains no changes that resulted in a reduction in commitment to DOM-QA-1.

The second RAI was communicated as follows: "Please clarify how Dominion intends to implement the proposed alternative (NQA-1-1994, Supplement 7S-1) to be consistent with Section 17.5, Paragraph II.L.8, of the Standard Review Plan (SRP)." SRP Section 17.5 Paragraph II.L, is applicable to the control of measuring and test equipment. SRP Section 17.5, Paragraph II.L.8, states the following:

> *"For procurement of commercial-grade calibration services for safety-related applications, laboratory accreditation programs administered by the National Institute of Standards and Technology and by the American Association for Laboratory*

FSME20
Q004
NMSS26

*Accreditation, as recognized through the mutual recognition arrangement of the International Laboratory Accreditation Program (ILAC), are acceptable in lieu of a supplier audit, commercial-grade survey, or in-process surveillance provided that all of the following conditions are met: (Approved via SE (Accession No. ML052710224).)"*

One of the conditions of Paragraph II.L.8 is Condition h, which states the following:

*"h. The alternative method is limited to the domestic calibration service suppliers."*

The NRC staff indicated that this condition requires all commercial grade calibration suppliers to be domestic suppliers. The language in DOM-QA-1 only required that the calibration laboratory hold a domestic accreditation. The NRC staff was concerned that this language would not preclude a foreign supplier with domestic accreditation from performing calibration services. Therefore, a condition has been added to DOM-QA-1 to limit calibration service suppliers to domestic laboratories under this alternative.

Another condition of Paragraph II.L.8 is Condition i, which states the following:

*"i. The alternative method is applicable to sub-suppliers of calibration service suppliers, provided the above conditions are met."*

The NRC staff indicated that this condition requires all sub-suppliers of calibration services to meet the same requirements as the primary calibration service suppliers. There was no language in DOM-QA-1 regarding sub-suppliers. The NRC staff was concerned that there was no requirement that would preclude a calibration service sub-supplier from utilizing a foreign supplier with domestic accreditation to perform calibration services. Likewise, a condition has been added to DOM-QA-1 to require purchase documents to specify that all conditions applicable to the primary supplier are also applicable to sub-suppliers.

In order to avoid confusion and facilitate an efficient NRC review, Dominion is re-submitting DOM-QA-1 and the summary and discussion of changes in their entirety. Attached is the updated version of the Nuclear Facility Quality Assurance Program Description Topical Report DOM-QA-1, Revision 12 for Dominion Energy Kewaunee, Inc. (DEK), Dominion Nuclear Connecticut, Inc. (DNC) and Virginia Electric and Power Company (Dominion). Attachment 1 identifies changes made to DOM-QA-1 under the provisions of 10 CFR 50.54 since the last submittal in June 2010. Attachment 2 provides a discussion of changes made to DOM-QA-1. Attachment 3 provides a complete replacement version of DOM-QA-1 with changes indicated by a bold vertical line drawn in the margin adjacent to the portion actually changed. The corresponding change number is also provided next to the revision indicator line.

If there are any questions, please contact Mr. David Sommers at (804) 273-2823.

Very truly yours,

J. Alan Price
Vice President – Nuclear Engineering
Virginia Electric and Power Company
Dominion Nuclear Connecticut, Inc.
Dominion Energy Kewaunee, Inc.

COMMONWEALTH OF VIRGINIA )
)
COUNTY OF HENRICO )

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by J. Alan Price, who is Vice President – Nuclear Engineering, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 15th day of August, 2011.

Ginger L Rutherford
Notary Public

Ginger Lynn Rutherford
NOTARY PUBLIC
Commonwealth of Virginia
Reg. # 310847
My Commission Expires 4/30/2015

Attachments:

1. Summary of Changes Made to DOM-QA-1
2. Discussion of Changes Made to DOM-QA-1
3. DOM-QA-1, Revision 12

Commitments made in this letter: None

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# ATTACHMENT 1

## SUMMARY OF CHANGES MADE TO DOM-QA-1

## REVISIONS 10, 11, & 12

**Kewaunee Power Station and ISFSI**
**Millstone Power Station, Units 1, 2, and 3 and ISFSI**
**North Anna Power Station, Units 1 and 2 and ISFSI**
**Surry Power Station, Units 1 and 2 and ISFSI**

| DOM-QA-1 Section | Revision Number | Change Request Number | Summary Description of Change |
|---|---|---|---|
| 1.2.6 | 10 | 2010-002 | Revise the first sentence of the second paragraph to add the word "survey" and the phrase "and/or" to the sentence. The sentence now reads, "Nuclear Oversight is responsible for the evaluation of Suppliers' quality programs through a system of external audits, surveys, evaluations, and/or reviews of Supplier performance in accordance with quality assurance requirements. |
| 2.5.1.1 | 11 | 2011-001 | Revise item 1, radiation protection manager qualifications to match the regulatory guide description contained in ITS.<br><br>Revise item 2, operator license applicant education and experience requirements to match the description contained in ITS.<br><br>Delete item 3, Shift Technical Advisor degree requirements and specific training requirements in the design of the Kewaunee Plant and plant transient and accident analysis.<br><br>Add the following unit specific requirements that will be maintained:<br><br>The operations manager or assistant operations manager shall hold a Senior Operators license.<br><br>The individual providing advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift. |
| 7.3 | 10 | 2010-002 | The following sentence was added to the end of the paragraph: "The purchase of commercial grade calibration services from a calibration laboratory may be made in accordance with the alternative to NQA-1-1994, Supplement 7S-1 requirements described in Section 7.5 below." |
| 7.5 | 10 | 2010-002 | The first paragraph was modified to add an alternative method of meeting NQA-1-1994, Supplement 7S-1, that may be applied when purchasing commercial grade calibration services from a calibration laboratory. The alternative allows the qualification of commercial grade calibration service providers based on the laboratory being accredited by an NRC approved accreditation program in lieu of performing a commercial grade survey or in-process surveillance provided three conditions are met. The three conditions are described in detail. |

| | | | |
|---|---|---|---|
| 7.5 | 12 | 2011-002 | Two new conditions were added to the NQA-1-1994, Supplement 7S-1-Alternative. A condition was added to item (3) that the calibration laboratory is a domestic laboratory. Item (4) was added to clarify that purchase documents shall specify that sub-suppliers must meet all the same conditions as the primary calibration suppliers. |
| 12.1 | 10 | 2010-002 | The following sentence was added to the end of the paragraph: "The suppliers of commercial grade calibration services are controlled as described in Section 7.3". |
| App. C, Item 1 | 12 | 2011-002 | The alternatives for Kewaunee Power Station were revised as follows:<br><br>Revise item 1, radiation protection manager qualifications to match the regulatory guide description contained in ITS.<br><br>Revise item 2, operator license applicant education and experience requirements to match the description contained in ITS.<br><br>Delete item 3, Shift Technical Advisor degree requirements and specific training requirements in the design of the Kewaunee Plant and plant transient and accident analysis. |
| App. C, Item 6 | 10 | 2010-002 | Item 6, subparagraph 4. Supplement 7S-1 was revised to add an alternative that may be applied when purchasing commercial grade calibration services from a calibration laboratory. The alternative allows the qualification of commercial grade calibration service providers based on the laboratory being accredited by an NRC approved accreditation program in lieu of performing a commercial grade survey or in-process surveillance provided three conditions are met. The three conditions are described in detail. |
| App. C, Item 6 | 12 | 2011-002 | Two new conditions were added to the NQA-1-1994, Supplement 7S-1-Alternative. A condition was added to item (3) that the calibration laboratory is a domestic laboratory. Item (4) was added to clarify that purchase documents shall specify that sub-suppliers must meet all the same conditions as the primary calibration suppliers. |

# ATTACHMENT 2

## DISCUSSION OF CHANGES MADE TO DOM-QA-1 FOR REDUCTION IN COMMITMENT

## REVISIONS 10, 11, & 12

**Kewaunee Power Station and ISFSI**
**Millstone Power Station, Units 1, 2, and 3 and ISFSI**
**North Anna Power Station, Units 1 and 2 and ISFSI**
**Surry Power Station, Units 1 and 2 and ISFSI**

## DOM-QA-1, Revision 10, Change 2010-002

Change 2010-002 was made to allow the qualification of commercial grade calibration service providers based on the laboratory being accredited by an NRC approved accreditation program in lieu of performing commercial grade survey or in-process surveillance.

An alternative to NQA-1-1994, Supplement 7S-1 requirements may now be applied when purchasing commercial grade calibration services from a calibration laboratory. Procurement source evaluation and selection measures need not be performed provided each of the following conditions are met:

(1) The purchase documents impose any additional technical and administrative requirements, as necessary, to comply with the Dominion Quality Assurance Program and technical provisions.

(2) The purchase documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.

(3) A documented review of the supplier's accreditation will be performed and will include verification that the accreditation body has been approved by the NRC.

The alternative to NQA-1-1994, Supplement 7S-1, to provide acceptance of accreditation of commercial grade calibration services by a nationally recognized accrediting body approved by the NRC in lieu of a supplier audit, commercial grade survey, or in-process surveillance has been approved by the NRC via SERs. This alternative was initially approved via SER dated September 28, 2005 titled, "Palo Verde Nuclear Generating Station, Units 1, 2, and 3 – Approval of Change to Quality Assurance Program (Commercial Grade Calibration Services) (ADAMS Accession No. ML052710224). The NRC later updated the conditions required to be met to allow a licensee to not require procurement source evaluation and selection measures via SER dated November 3, 2009 titled, "Final Safety Evaluation for Technical Report NEI 06-14, "Quality Assurance Program Description, Revision 7 (ADAMS Accession No. ML092650695)."

The Palo Verde SER provides the NRCs initial basis for approval of this alternative. Section 2.0, Regulatory Evaluation, of the SER specifically evaluates the predominant criteria of Appendix B and the generic commercial grade dedication processes described in EPRI NP-6552. The basis of this information was evaluated for applicability to Dominion.

The bases of NRC approval of the Palo Verde SER were found to be met with the exception that Dominion is committed to different quality assurance standards than Palo

Verde. The Palo Verde SER, Sections 3.4.1 Regulatory Guide 1.33, Section 3.4.2 Regulatory Guide 1.123, and Section 3.4.3 Regulatory Guide 1.144 discusses clarifications and exceptions Palo Verde has taken to their QA Program Commitments. Dominion is not committed to these Regulatory Guides; however, Dominion is committed to NQA-1-1994 which contains similar guidance as these standards and had been approved by the NRC.

The NEI 06-014 SER was also reviewed and the bases of NRC approval were evaluated and found to be met, including a commitment to NQA-1-1994. The NEI 06-014 SER was chosen as the model for the DOM-QA-1 changes. The SER contains a list of conditions that must be met in order to not require procurement source evaluation and selection measures. This list of conditions was incorporated into the DOM-QA-1 change including additional accrediting bodies approved by the NRC.

This change is acceptable because a similar alternative is used in the industry and the NRC has approved the alternative through an SER. The basis of the alternative approved by the SER's is applicable to Dominion. This change meets the criteria of 10 CFR 50.54(a)(3)(ii) as a Quality Assurance Program change involving the use of a quality assurance alternative or exception approved by an NRC safety evaluation, provided that the bases of the NRC approval are applicable to the licensee's facility. This change is not a reduction in commitment.

## DOM-QA-1, Revision 11, Change 2011-001

This change was made as a result of Kewaunee's conversion from custom Technical Specifications to Improved Technical Specifications (ITS). The specific change was to make the DOM-QA-1 staff qualification requirements match the Kewaunee ITS Unit Staff Qualification requirements.

These changes mirror the Kewaunee Improved Technical Specification unit staff qualification requirements approved by the NRC Safety Evaluation letter for Kewaunee Amendment 207, dated February 02, 2011. These changes are acceptable because they continue to meet 10 CFR 50 Appendix B requirements, they do not reduce commitments, and the change meets the criteria of 10 CFR 50.54(a)(3)(ii) as a Quality Assurance Program change involving the use of a quality assurance alternative or exception approved by an NRC safety evaluation.

## DOM-QA-1, Revision 12, Change 2011-002

Changes were made to Section 7.5, Quality Standards Commitment and Appendix C Item 6. - ANSI/ASME NQA-1-1994; for the NQA-1-1994, Supplement 7S-1 – Alternate, in response to an NRC request for additional information pertaining to the annual Dominion Quality Assurance Program Description (QAPD) Submittal, dated June 28,

2011. The request for additional information concerned how Dominion would implement Section 17.5, Paragraph II.L.8, items (h) and (i) of the Standard Review Plan.

The following two new conditions were added under NQA-1-1994, Supplement 7S-1 – Alternative to clarify how Dominion would implement the Standard Review Plan requirements:

> The calibration laboratory is a domestic (United States) calibration service supplier.
>
> Purchase documents shall specify that the above conditions of this alternative method are also applicable to sub-suppliers of calibration services when the sub-suppliers are implementing this alternative.

This change meets the criteria of 10 CFR 50.54(a)(3) as a Quality Assurance Program change involving administrative improvements and clarifications. This change is not a reduction in commitment.

Changes were also made to Appendix C, Regulatory Guides and Quality Standards Commitments, for Item 1 - Regulatory Guide 1.8, so that the Kewaunee alternative matches Kewaunee Improved Tech Spec Unit Staff Qualification requirements. DOM-QA-1, Revision 11, incorporated Kewaunee Improved Tech Spec changes; however, this change to App. C was missed during that revision.

This change is acceptable because 10 CFR 50.54(a)(3)(ii) allows use of a quality assurance alternative or exception approved by the NRC, provided the bases of the NRC approval are applicable to the licensee's facility. These changes mirror the Kewaunee Improved Technical Specification (ITS) unit staff qualification requirements approved by the NRC Safety Evaluation letter for Kewaunee Amendment 207, dated February 02, 2011. The bases of this change are applicable, because the SER approving the ITS change is for Kewaunee. This change is not a reduction in commitment.

# ATTACHMENT 3

## DOM-QA-1, REVISION 12

**Kewaunee Power Station and ISFSI**
**Millstone Power Station, Units 1, 2, and 3 and ISFSI**
**North Anna Power Station, Units 1 and 2 and ISFSI**
**Surry Power Station, Units 1 and 2 and ISFSI**

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# Nuclear Facility Quality Assurance Program Description

## Topical Report DOM-QA-1

## Revision 12

# Introduction

This topical report provides the quality assurance program description (QAPD) for Dominion's nuclear power station units that are commercially operational or are in decommissioning, and independent spent fuel storage installations, hereinafter referred to as facility or nuclear facility. The quality assurance program applies to activities during design, construction, operation, and decommissioning of the nuclear facility. Activities affecting quality include siting, designing, procuring, fabricating, handling, shipping, receiving, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, modifying, and decommissioning. The quality assurance program provides adequate confidence to management and regulatory agencies that structures, systems, and components will perform satisfactorily in service and that programs for coping with emergencies perform as required. This report describes the policy, principles, and standards that establish the planned and systematic actions used to assure quality is achieved in all activities affecting the safety of the nuclear facility. These policies, principles, and standards are developed into administrative and implementing documents. The administrative and implementing documents govern the various aspects of day-to-day activities for the facility.

Dominion's Nuclear Facility QAPD is referred to by several generic titles within the administrative controls for the facilities. These include Chapter 17.2 of the UFSAR, the Operational Quality Assurance Program, the Quality Assurance Plan (or Program), the QA Topical Report, and other similar designations. These are used interchangeably to refer to this document that represents Dominion Management's philosophy and methodologies for complying with the 18 criteria of 10 CFR 50, Appendix B. Within this QAPD, the term "Company" is used to refer to those parts of the parent company (Dominion) which are under the purview of the Chief Nuclear Officer as described in Section 1 of this QAPD.

This QAPD is formatted to specifically follow the 18 criteria of 10 CFR 50, Appendix B, with Sections 1 through 18 describing Dominion's quality principles and methods for complying with those 18 criteria. As such, this QAPD is formatted similar to the NUREG-0800 Standard Review Plan, Sections 17.1 and 17.2, but modified consistent with the current NRC guidance on content of QAPDs and addressing the commitment to NQA-1 in place of the ANSI N45.2 series standards.

The quality assurance measures and administrative controls established by this QAPD are comparable to those implemented during the construction, operational, and decommissioning activities conducted prior to the effective date of this QAPD. Conformance of the existing structures, systems, and components (including new, spare, and replacement items in storage, in stock, or on order) to the previous QA program requirements shall be treated as conforming to the requirements of this QAPD. Where new or updated requirements are established by this QAPD, they are not retroactively applied, but will be applied to the activities conducted subsequent to the effective date of this QAPD.

# Policy

This policy provides the expectations to safely design, construct, operate, and decommission Dominion's nuclear facilities. Each employee and Supplier is responsible for the quality of their work. Maintaining quality of workmanship, whether physical or programmatic, ensures that our nuclear facilities are designed, constructed, operated, and decommissioned safely, efficiently, and economically and that regulatory commitments are met. Suppliers providing items and services affecting safety of the nuclear facilities are also expected to implement a quality assurance program or quality controls that meet regulatory requirements.

Quality programs focus employees' and Suppliers' attention on regulatory requirements and management expectations while requiring identification of concerns. These programs will be implemented for safety-related activities affecting structures, systems, and components. As identified within the QAPD and Company documents, applicable elements of the quality assurance program will be applied to selected activities that are not safety-related, but support safe facility operations. The Dominion Nuclear quality program will comply with the requirements of 10 CFR 50, Appendix B, the approved facility license, and applicable codes and standards as further described in this QAPD.

Signed *Signature on file*

David A. Christian

Senior Vice President Nuclear Operations & Chief Nuclear Officer

# Basis

This QAPD is based on 10 CFR 50, Appendix B, as amended. The requirements of 10 CFR 50, Appendices A (General Design Criterion I) and R, 50.54, 50.55a, 50.59, 50.82; 10 CFR 21; 10 CFR 71, Subpart H; and 10 CFR 72, Subpart G are also included in the development and application of this QA program.

Dominion is committed to carrying out the provisions of various NRC Regulatory Guides and industry quality standards of ASME, ANSI, and ANS that expound on the 18 criteria of 10 CFR 50, Appendix B. The specific commitments, clarifications, and alternatives are described in detail within the QAPD.

This QAPD is intended to be a comprehensive, up-to-date description of Dominion's quality assurance program for nuclear facilities. This topical report will be revised in accordance with 10 CFR 50.54(a).

**Applicable Facilities**

This QAPD is applicable to activities at or for the following Dominion power stations, and any associated or specific Independent Spent Fuel Storage Installation and/or radioactive waste storage/processing facilities at the power station site:

- Kewaunee Power Station (KPS)
- Millstone Power Station (MPS)
- North Anna Power Station (NAPS), excluding North Anna Unit 3 activities
- Surry Power Station (SPS)

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# Section 1 Organization

## 1.1 General Description

This section describes the key organizations performing activities for Dominion's nuclear facilities and their responsibilities governed by the Quality Assurance Program Description (QAPD) Topical Report. The reporting relationships are depicted in the organization charts of Appendix A.

The Company's organizational structure ensures compliance with regulatory requirements and industry standards for the implementation of this QAPD. The organizational structure is delineated through the organizational charts, the duties and responsibilities described below and in the policy statement, and written job or functional descriptions contained in implementing documents. These individuals and groups described herein are responsible for performing or verifying activities affecting quality. The Company may delegate all or part of the activities of planning, establishing, and implementing the quality assurance program to others, but retains the responsibility for the program's effectiveness. When activities are delegated to organizations outside the Company, procedures require the establishment of interface requirements including defining authorities and lines of communication as appropriate for the delegated functions. However, the Company retains and exercises responsibility for the scope and effective implementation of the quality assurance program.

The organization consists of three main parts: corporate management, support organizations, and facility operations. Corporate management is responsible for overall management of the Company's nuclear facilities through all the phases from initial siting to decommissioning. The support groups provide management, technical, and oversight support for activities such as design, construction, operation, modification, and decommissioning and report to corporate management. The support groups may be located at corporate offices or at a nuclear facility site. The facility operations groups are responsible for overall operational activities of assigned nuclear facilities in accordance with the facility license. The operations groups are typically assigned responsibility for one or more nuclear power station units and any Independent Spent Fuel Storage Installations and/or radioactive waste processing/storage facilities at a particular site.

The overall structure of the organization described herein is applied for all facilities, however, there may be slight variations in responsibilities between facilities, but the overall reporting relationships remain. Depending on the scope of the activities, one or more individuals may be assigned the described management responsibilities. As the amount of certain activities changes, such as construction or decommissioning, the organizational structure may change and will be reflected in a change to these descriptions.

## 1.2 Responsibility and Authority

### 1.2.1 Chief Nuclear Officer

The chief nuclear officer (CNO) has overall responsibility and authority for the implementation of all activities associated with the safe and reliable design, construction, operation, and decommissioning of Dominion's nuclear facilities. The CNO establishes the Company's quality assurance policy and provides guidance regarding its implementation. The CNO has the authority to resolve disputes related to implementation of this QAPD for which resolution is not achieved at lower levels within the organization. There are four functional organizations reporting to the CNO that affect the safety of the nuclear facilities governed in accordance with this quality program: operations, engineering, support services, and oversight.

### 1.2.2 Nuclear Operations

An executive management position is responsible for overall operating activities of the Company's nuclear facilities. This executive is responsible for implementing the quality assurance program during operating activities, including related decommissioning activities.

### 1.2.3 Facility Operations

An executive management position is responsible for operations of their assigned Company nuclear facilities. The necessary responsibility and authority for the management and direction of all activities related to the safe and efficient operation and decommissioning has been delegated by the senior executives. This responsibility includes ensuring quality through implementation of this QAPD in all the activities related to operation such as maintenance, testing, start-up and shutdown, refueling, fuel storage, and modification.

#### 1.2.3.1 Facility Operations and Maintenance

A senior management position is responsible for safe operations and maintenance of their assigned nuclear facilities including those activities necessary for safe storage and handling of spent nuclear fuel during decommissioning. The position responsibilities include: directing the operations, maintenance, planning, and site services groups; implementing facility modifications; and maintaining compliance with requirements of the operating license, Technical Specifications, and applicable federal, state, and local laws, regulations, and codes.

##### 1.2.3.1.1 Operations

Operations is responsible for operating the facility in accordance with the applicable license, including those in a decommissioning phase that still contain nuclear fuel. Overall facility operation is directed by a management position responsible for Operations activities.

Operations activities include monitoring and controlling day-to-day operation of the nuclear facility; responding to alarms; manipulating facility equipment; coordinating facility operations to manage work such as maintenance, testing, and modifications; and moving nuclear fuel. The Operations organization contains supervision and staff for shift operations, including shift managers, unit supervisors, licensed control room operators, and non-licensed operators. Operations is also responsible for the shift technical advisor function.

The staff for operating units, when approved by the NRC and documented in this QAPD, may be responsible for activities related to an adjacent decommissioned unit's spent fuel pool and auxiliary systems. Providing that the transfer of responsibility does not impact the capability to perform their operating duties, including day-to-day functions, and accident and transient mitigation. Minimum shift composition will be in accordance with the nuclear facility's Technical Specifications. Specifically, the following allowances are approved:

- Millstone Unit 2 Operations is responsible for operations regarding the Millstone Unit 1 Spent Fuel Pool Island and auxiliary systems.

1.2.3.1.2 **Maintenance**

Maintenance is responsible for directing and coordinating facility maintenance activities including on-line maintenance, installation, maintenance, alterations, adjustment and calibration, replacement and repair of plant electrical and mechanical equipment, and instruments and controls. The responsibilities include performance of surveillances required by Technical Specifications, establishing standards and frequency of calibration for instrumentation and control devices, and ensuring instrumentation and related testing equipment are properly used, inspected and maintained.

1.2.3.1.3 **Outage & Planning**

Outage & Planning is responsible for planning and scheduling online-maintenance and outage activities.

1.2.3.1.4 **Site Services**

Site Services is responsible for facility project support, including project construction and project controls.

### 1.2.3.2 Facility Safety & Licensing

A senior management position is responsible for ensuring that facility safety and licensing requirements are implemented. This position is responsible for directing and coordinating radiological protection and assessment of nuclear safety issues at the facility, including independent review functions through the facility safety review committee. The responsibilities also include managing licensing activities; interfacing with corporate management on operating experience and licensing issues, managing facility procedures, and administering the facility environmental compliance program in VA. This position is independent of cost and scheduling concerns associated with operations, maintenance, and modification activities. This position has the authority to suspend unsatisfactory work and control further processing or installation of non-conforming materials. The authority to stop work delegated to quality control inspection personnel is delineated in procedures.

#### 1.2.3.2.1 Organizational Effectiveness

Nuclear Organizational Effectiveness is responsible for the corrective action program and the operating experience program. This responsibility includes review of NRC and industry issuances, significant events, and other operating experience to meet independent nuclear safety review requirements.

#### 1.2.3.2.2 Radiological Protection & Chemistry

Radiological Protection & Chemistry carries out health physics and chemistry functions and maintains sufficient organizational freedom and independence from operating pressures as required by the facility Technical Specifications. A qualified supervisor or manager is assigned to fulfill the radiological protection manager position described in Section 2.5 of this QAPD. The radiological protection responsibilities include scheduling and conducting radiological surveys, contamination sample collection, determining contamination levels, assigning work restrictions through radiation work permits, administering the personnel monitoring program, and maintaining required records in accordance with federal and state codes. The chemistry responsibilities include maintaining primary and secondary plant chemistry in accordance with established program requirements.

#### 1.2.3.2.3 Procedures

The Procedures group is responsible for ensuring that procedures are prepared in accordance with applicable regulatory requirements, industry quality standards, and this QAPD.

#### 1.2.3.2.4 Quality Control Inspections (VA)

The Quality Control Inspection group plans and conducts inspections of maintenance and modification activities for operating facilities to ensure quality in accordance with the requirements of the QA program. The Quality Control Inspectors from the Maintenance and Site Services groups report through this functional organization while performing maintenance and modification inspections for the operating facilities in Virginia.

### 1.2.4 Engineering Services

An executive management position is responsible for the engineering functions supporting design and construction activities and long-term nuclear operations. These are accomplished through nuclear engineering, projects, nuclear analysis and fuel, and information technology. Responsibilities include system level implementation of the requirements established by this QAPD for the nuclear facilities and facility specific engineering and technical support required for day-to-day operations. Where implementation of any or all of these functions is delegated to organizations outside the Company, procedures require the establishment of interface documents including defining lines of communication and authorities as appropriate for the delegated functions. However, this executive management position retains responsibility for the scope and effective implementation of the quality assurance program for those functions.

#### 1.2.4.1 Nuclear Engineering

A senior management position is responsible for design engineering functions and supporting activities. Such as independent design checks and reviews, developing and maintaining engineering programs, including those for nondestructive examination (NDE), and the facility inservice inspection and test (ISI/IST) programs; configuration management including design and configuration control, and developing and revising facility drawings; and engineering technical support at the operating facilities. Nuclear Engineering is also responsible for performing technical reviews and performance monitoring of key structures, systems, and components to meet independent nuclear safety review requirements.

#### 1.2.4.1.1 Facility Engineering

Facility Engineering is responsible for managing engineering resources providing day-to-day technical support for facility operations. The functions include engineering and technical support at a system and component level to ensure optimum design basis performance, system reliability, and optimum component performance and reliability. Support is also provided in developing and implementing testing programs, tracking and scheduling test performance, and evaluating test results. The test programs include inservice inspections, Technical Specification surveillances, post-modification and post-maintenance testing, and nondestructive examinations.

#### 1.2.4.1.2 Design Engineering

Design Engineering is responsible for classifying SSCs, implementing the design control program, and ensuring the design basis for the facility is maintained.

### 1.2.4.2 Nuclear Analysis and Fuel (NAF)

A senior management position is responsible for activities related to safety and management of nuclear fuel. NAF is responsible for engineering activities, evaluation, and analysis of: core design, fuel and reactor performance, probabilistic risk assessment, spent fuel storage, and radiological effects. NAF provides reactor-engineering support for the operating power stations. NAF is responsible for nuclear fuel procurement, assurance of nuclear fuel quality through surveillances and inspections at Company and Supplier facilities, and special nuclear material accountability. This position has the authority to control further processing or installation of nonconforming materials. The authority delegated to inspection and surveillance personnel is delineated in procedures. NAF is also responsible for providing engineering oversight of dry cask spent fuel storage system fabrication, including approval of nonconformance disposition.

### 1.2.4.3 Nuclear Projects

A senior management position is responsible for the implementation of large projects for the nuclear facilities on behalf of the Company. Implementation includes development of the detailed scope, estimate, schedule, cost, design, procurement, construction, testing, and closeout of each project. Nuclear Projects focuses on defined projects separate from ongoing routine engineering projects.

#### 1.2.4.4 Information Technology

A senior management position is responsible for direction and support of information technology for the nuclear organizations and facilities. Responsibilities include: network infrastructure maintenance and upgrade, network and application security, network operations; automation strategy, application development and support, automation training; development and maintenance of the software control program; and oversight, maintenance, and repair of the Emergency Response Facility Computer System.

### 1.2.5 Support Services

An executive management position is responsible to provide licensing, fire protection, security, emergency preparedness, training, document control and records management, and procurement support services to the Nuclear Organization. Where implementation of any or all of these functions is delegated to organizations outside the Company, procedures require the establishment of interface documents including defining lines of communication and authorities as appropriate for the delegated functions. However, this executive management position retains responsibility for the scope and effective implementation of the quality assurance program for those functions.

#### 1.2.5.1 Licensing & Operations Support

A senior management position is responsible for providing regulatory compliance and licensing support through NRC communications, maintaining and acquiring licenses required for continued and extended operations and providing operations, chemistry and health physics support.

##### 1.2.5.1.1 Document Control and Records Management

Document control and records management groups are assigned responsibility to ensure controlled documents (such as manuals, instructions, procedures, and drawings) and facility records are maintained in accordance with applicable regulatory requirements, industry quality standards, and this QAPD.

#### 1.2.5.2 Protection Services & Emergency Preparedness

A senior management position is responsible for providing nuclear facility security, and overall management of Nuclear Emergency Preparedness activities.

##### 1.2.5.2.1 Protection Services

Protection Services is responsible for facility protective services, including physical security, nuclear facility access programs, and fitness for duty programs. Protection Services is also responsible for industrial

safety and loss prevention including oversight of fire protection measures.

1.2.5.2.2 **Emergency Preparedness**

Emergency Preparedness is responsible for development and maintenance of the Company radiological emergency plans and coordination with required off-site radiological emergency response groups for the nuclear facilities. This includes managing the overall scheduling and coordination of emergency plan testing, training and exercises with federal, state, and local agencies, and working with corporate and facility personnel to ensure emergency plans meet all the requirements and commitments.

1.2.5.3 **Training**

A senior management position is responsible for the training of personnel who operate or support the nuclear facilities. Training responsibilities include: determining the need for training based on information provided by the various groups, developing performance-based training programs, implementing training programs to support employee and facility needs, and evaluating training programs. Certain functional groups may be assigned responsibility for the development and conduct of their own training programs provided these groups are not required to have a systems approach to training under 10 CFR 50.120.

1.2.5.4 **Supply Chain Management**

A senior management position is responsible for material management, purchasing, procurement engineering, Supplier surveillance functions, and source and receipt inspection. This position has the authority to control further processing or installation of nonconforming materials. This authority is delegated to inspection and surveillance personnel as delineated in procedures.

1.2.6 **Nuclear Oversight**

A senior management position is responsible for the verification of effective Company and Supplier QA program development, documentation, and implementation. This position is independent of cost and scheduling concerns associated with construction, operations, maintenance, modification, and decommissioning activities for performing quality assurance program verification. Where implementation of any or all of these functions is delegated to Suppliers, procedures require the establishment of interface documents including defining lines of communication and authorities as appropriate for the delegated functions. However, this senior management position retains responsibility for the scope and effective implementation of the quality assurance program for those

functions. This management position has the necessary authority and responsibility for verifying quality achievement; identifying quality problems, recommending solutions and verifying implementation of the solutions; and escalating quality problems to higher management levels. This position has the authority to suspend unsatisfactory work and control further processing or installation of non-conforming materials. The authority to stop work delegated to Nuclear Oversight personnel is delineated in procedures.

Nuclear Oversight is responsible for the evaluation of Suppliers' quality programs through a system of external audits, surveys, evaluations, and/or reviews of Supplier performance in accordance with quality assurance requirements. A list of approved Suppliers is maintained. Rev. 10

Nuclear Oversight is responsible for assuring Company compliance with this QAPD through administration of a comprehensive and systematic internal audit program.

Nuclear Oversight is responsible for developing and maintaining an appropriate quality verification inspection program where not provided for in the facility construction or operating organization functions.

#### 1.2.6.1 Facility Nuclear Oversight

A management position is responsible for the effective performance of Nuclear Oversight activities. This position performs independent assessment of facility operations related to quality and safety with lines of communication to the executive management position responsible for facility operations.

##### 1.2.6.1.1 Quality Control Inspections (KPS and MPS)

The Quality Control Inspection group plans and conducts inspections of operating facility maintenance and modification activities to ensure quality in accordance with the requirements of the QA program. The Quality Control Inspectors report through this functional organization while performing maintenance and modification inspections for the operating facilities associated with KPS and MPS.

## 1.3 Succession of Responsibility for Overall Plant Operation

The succession of responsibility for overall plant instructions or special orders, in the event of absences, incapacitation of personnel, or other emergencies, is as follows, unless otherwise designated in writing:

- the executive management position responsible for facility operations
- the senior management position responsible for facility operations & maintenance
- the management position responsible for operations

## 1.4 Organization Charts

Organization charts depicting reporting relationships are contained in Appendix A to this QAPD.

## 1.5 Quality Standards Commitment

The Company is committed to establishing and maintaining an organization in accordance with the quality standards described in NQA-1-1994, Basic Requirement 1 and Supplement 1S-1.

# Section 2 Quality Assurance Program

## 2.1 General Description

Dominion has established a quality assurance program for the nuclear power stations and independent spent fuel storage installations that complies with 10 CFR 50, Appendix B, as amended. A description of this program is contained within Topical Report DOM-QA-1 entitled *Nuclear Facility Quality Assurance Program Description.* This quality assurance program is based on the requirements of the Regulatory Guides and Industry Standards (with approved alternatives) described in Appendix C to this QAPD. The total quality assurance program consists of 1) the Policy statement on quality assurance (included in DOM-QA-1), 2) this Quality Assurance Program Description (QAPD), plus the 3) administrative controls and interface documents, and 4) training and qualification programs developed in accordance with this QAPD.

The application of this program accomplishes two important objectives: 1) provide orderly, uniform administrative and managerial documents to assure safe and reliable operation of nuclear facilities, and 2) assure compliance with regulations promulgated by the U.S. Nuclear Regulatory Commission. Quality assurance activities include planned and periodic audits, reviews, inspections, and other forms of verification to ensure adequacy and completeness of work and the effectiveness of quality programs. Measures are implemented to ensure individuals performing quality assurance audit and inspection/test activities have the authority and organizational freedom (including independence from cost and schedules relative to safety considerations) to identify problems, to recommend solutions, and to verify implementation and effectiveness of corrective actions.

## 2.2 Applicability

This program applies to those activities that involve the safety-related functions of structures, systems, and components (SSCs) during design, construction, operation, and decommissioning of the Company's nuclear facilities, excluding the construction of new nuclear units. The applicable provisions of this QAPD are put into place as early as practicable for the above phases of the facilities. Activities important to safety incorporate applicable portions of this program into their governing documents. In addition to this QAPD, the following documents further describe application of portions of the QA program, where appropriate, for their associated nuclear facilities. The Safety Analysis Report (SAR), nuclear design control program, physical security plan, emergency plan, radiological protection plan including radioactive material transport and radioactive waste processing, fire protection plan, station blackout program, nuclear chemistry laboratory quality assurance program. Personnel participating in activities where this QA program is applicable are required to follow the established program requirements.

Suppliers may perform designated activities under their quality assurance program. The Supplier's quality assurance program will comply with the criteria expressed in 10 CFR 50, Appendix B, as amended, and with the appropriate Regulatory Guides and nuclear industry Standards listed in

Appendix C, as stipulated in contractual documents. The Company implements measures to review and accept the Supplier's quality assurance program.

## 2.3 Oversight of the Quality Program Implementation

In order to maintain an effective QA program, Nuclear Oversight performs periodic and systematic evaluations through internal and external audits of the program's implementation. The results of the evaluations and recommendations for improving the QA program are provided to the appropriate management responsible for implementation in the areas audited. Management provides oversight of quality program implementation and effectiveness by reviewing the results of audits in their area of responsibility and acting upon any deficiencies identified. In addition, management oversight of the quality program effectiveness is provided through the activities of review groups reporting to management. The composition and function of the review groups are described in Appendix B to this QAPD.

Quality Control inspection programs are established that provide for independent inspection of quality attributes. Craft personnel may perform these inspections, but the inspection program ensures individuals performing the inspections are not the same individuals or supervisors responsible for performing the activity being inspected. Individuals are assigned responsibility for the effective implementation of the quality inspection programs, to certify the qualification of inspection and test personnel, and to facilitate the raising of quality issues affecting nuclear safety to management. The authority to stop work delegated to personnel performing quality assurance roles is delineated in Company documents.

## 2.4 Identification of Structures, Systems, and Components (SSC)

Programs are established to identify those SSCs where the QA program applies. These programs are administratively controlled and are implemented by the groups responsible for design of the facility. The SAR for the facility provides an overview of the SSCs that are safety-related or important to safety and require application of quality assurance measures of this program.

## 2.5 Selection, Training, and Qualification of Personnel

The Company has established and implements programs and processes to ensure that personnel are knowledgeable in the applicable quality requirements before performing the activities to which this QAPD is applied. Management is responsible to ensure they have a trained and qualified staff. The Nuclear Training group assists in this by establishing and maintaining training programs that meet the systematic approach to training of 10 CFR 50.120 and are accredited by the National Nuclear Accrediting Board of the National Academy for Nuclear Training (NANT). Additional training is provided as needs are identified. The Company is committed to providing training (initial and continuing) that meets the standards, with alternatives, identified below for the applicable facility. These standards and alternatives are further addressed in Appendix C to this QAPD.

The retraining and replacement training programs for the NRC licensed facility staff meet or exceed the requirements of 10 CFR 55.59 and 55.31(a)(4) for the respective units and shall be maintained. In addition, for units being decommissioned, a NRC approved training and retraining program for CERTIFIED FUEL HANDLERS shall be maintained as required by the license.

### 2.5.1 Facility Operating Staff

The facility staff meets the qualifications described herein for the stated facilities.

#### 2.5.1.1 Kewaunee Power Station

Each member of the facility staff shall meet or exceed the minimum qualification of ANSI N18.1-1971 for comparable positions, except that:

1. The radiation protection manager shall meet or exceed the recommendation of Regulatory Guide 1.8, Revision 1-R, September 1975, or their equivalent as further clarified in Attachment 1 to the NRC Safety Evaluation Report enclosed with Amendment No. 46, dated July 12, 1982. Rev. 11 Rev. 11
2. The education and experience eligibility requirements for operator license applicants, changes thereto, shall be those previously reviewed and approved by the NRC, specifically those referenced in NRC Safety Evaluation letter for Amendment 170, dated October 2, 2003.

The following unit specific requirements will be maintained:

The operations manager or assistant operations manager shall hold a Senior Operators license. Rev. 11

The individual providing advisory technical support to the unit operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift.

#### 2.5.1.2 Millstone Power Station

Each member of the facility staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except that:

1. The radiation protection manager shall meet or exceed the qualifications of Regulatory Guide 1.8, Revision 1, May 1977.
2. As of November 1, 2001, applicants for reactor operator and senior reactor operator qualification shall meet or exceed the education and experience guidelines of Regulatory Guide 1.8, Revision 3, May 2000.

The following additional unit specific requirements will be maintained:

- Millstone Power Station Unit 1

  The Operations Manager or Assistant Operations Manager shall be a CERTIFIED FUEL HANDLER in accordance with the facility Technical Specifications.

- Millstone Power Station Unit 2

  a. If the operations manager does not hold a senior reactor operator license for Millstone Unit No. 2, then the operations manager shall have held a senior reactor operator license at a Pressurized Water Reactor and an individual serving in the capacity of the assistant operations manager shall hold a senior reactor operator license for Millstone Unit No. 2.

  b. The Shift Technical Advisor (STA) who shall meet the requirements of (1) or (2) below:

     (1) Dual-role individual: Must hold a senior reactor operator's license at Millstone Unit 2, meet the STA training criteria of NUREG-0737, Item I.A.I.1, and meet one of the following educational alternatives:

        (a) Bachelor's degree in engineering from an accredited institution;

        (b) Professional Engineer's license obtained by the successful completion of the PE examination;

        (c) Bachelor's degree in engineering technology from an accredited institution, including course work in the physical, mathematical, or engineering sciences;

        (d) Bachelor's degree in a physical science from an accredited institution, including course work in the physical, mathematical, or engineering sciences;

        (e) Successful completion of the Memphis State University (MSU) STA program. (Note: This alternative is only acceptable for individuals who have completed the program prior to December 31, 1986); or

        (f) Successful completion of the Thames Valley State Technical College associate's degree in Nuclear Engineering Technology program, provided that the individual was enrolled in the program by October 1, 1987.

     (2) Dedicated STA: Must meet the STA training criteria of NUREG-0737, Item I.A.1.1, and have received specific training in plant design, and response and analysis of the plant for transients and accidents.

- Millstone Power Station Unit 3

a. If the operations manager does not hold a senior reactor operator license for Millstone Unit No. 3, then the operations manager shall have held a senior reactor operator license at a pressurized water reactor, and the assistant operations manager shall hold a senior reactor operator license for Millstone Unit No. 3.

b. The Shift Technical Advisor shall have a bachelor's degree or equivalent in a scientific or engineering discipline and shall have received specific training in the response and analysis of the unit for transients and accidents, and in unit design and layout, including the capabilities of instrumentation and controls in the control room.

#### 2.5.1.3 North Anna and Surry Power Stations

These qualification requirements apply to the power stations and their associated Independent Spent Fuel Storage Installations. Each member of the facility staff shall meet or exceed the minimum qualifications of ANS-3.1 (12/79 Draft) for comparable positions except that the Radiological Protection Manager shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975. The following additional unit specific requirements will be maintained:

- North Anna Power Station

  The individual filling the role of operations manager and the individual filling the role of operations middle manager (supervisor shift operations) will meet the license requirements of North Anna Units 1 and 2 Technical Specification 5.2.2.e.

- Surry Power Station

  The individual filling the role of operations manager and the individual filling the role of operations middle manager (supervisor shift operations) will meet the license requirements of Surry Units 1 and 2 Technical Specification 6.1.2.2.d.

### 2.5.2 Support Organizations

Personnel performing support activities may either meet the qualification requirements of standards referenced above for the facility they are performing the function for, or the qualification requirements of ANSI/ANS-3.1-1993 as endorsed by NRC Regulatory Guide 1.8, Revision 3.

### 2.5.3 Quality Assurance Verification Personnel

Personnel performing the following quality verification activities meet the qualification requirements of ANSI/ANS-3.1-1993, and the applicable Regulatory Positions of NRC Regulatory Guide 1.8, Revision 3, for the activities they perform.

#### 2.5.3.1 Management Position Responsible for Nuclear Oversight

The person filling the Management Position Responsible for Nuclear Oversight will meet the requirements of Section 4.3.7 and Regulatory Position 2.1.1.

#### 2.5.3.2 Supervisor/Coordinator Responsible for Quality Assurance or Quality Control

The person filling the supervisor or coordinator position responsible for quality assurance or quality verification (audits, inspections and tests, and surveillances of Company or Supplier activities, and NDE) will meet the requirements of Section 4.4.13. This position includes responsibility for verifying that personnel performing the quality assurance or quality verification activities are qualified for their assigned tasks. The quality assurance and quality verification programs identify the management position responsible for certifying that personnel meet the qualification requirements. For visual examinations to meet the ASME code, the training group may be delegated responsibility for the certification.

### 2.5.4 Quality Assurance Audits

Personnel performing audits are trained and qualified in accordance with a program that meets the applicable requirements of NQA-1-1994, Basic Requirement 2 and Supplement 2S-3.

### 2.5.5 Quality Control Verification

Personnel performing quality control verification through inspection and test, or surveillance activities (inspectors) are trained and qualified in accordance with a program that meets the applicable requirements of NQA-1-1994, Basic Requirement 2, Supplement 2S-1, and Appendix 2A-1. The following alternatives may be applied to the qualification requirements:

1. In lieu of being certified as Level I, II, or III in accordance with NQA-1-1994, personnel performing operations phase independent quality verification inspections, examinations, measurements, or tests of material, products, or activities will be required to possess qualifications equal to or better than those required for performing the task being verified; and the verification is within the skills of these personnel and/or is addressed by procedures. These individuals will not be responsible for the planning of quality verification inspections and tests (i.e., establishing hold points and acceptance criteria in procedures, and determining who will be responsible for performing the inspections), evaluating inspection training programs, nor certifying inspection personnel.

2. A qualified engineer may be used to plan inspections, evaluate the capabilities of an inspector, or evaluate the training program for inspectors. For the purposes of these functions, a qualified engineer is one who has a baccalaureate in engineering in a discipline related to the inspection activity (such as, electrical, mechanical, civil) and has a minimum of five years engineering work experience with at least two years of this experience related to nuclear facilities.

### 2.5.6 Non-Destructive Examination Technicians

Personnel performing NDE are trained and qualified in accordance with a program that meets the applicable requirements of NQA-1-1994, Basic Requirement 2 and Supplement 2S-2. Except that the reference to SNT-TC-1A, June 1980 is changed to the qualification standard as specified in the applicable facility's commitment to the ASME code or other applicable code governing the activity.

### 2.5.7 ASME Code Visual Examinations

Personnel performing visual examinations (VT) required by the ASME code are qualified and certified according to the Code requirements for the applicable facility.

## 2.6 Control of Activities

The Company has established administrative controls over activities for the nuclear facilities in accordance with the quality assurance program. These ensure that the applicable elements of 10 CFR 50, Appendix B are addressed during the performance of the activities. These programs include the appropriate use of qualified personnel, procedures, and methods when performing the activities. They also address special controls necessary such as environmental conditions, cleanliness, use of special or calibrated equipment, and specific operating modes or conditions. Where appropriate, the controls include specifying acceptance criteria that assure suitable performance of the SSCs. These controls are further addressed throughout this QAPD and within the standards committed to by this QAPD.

## 2.7 Quality Standards Commitment

The Company is committed to implementing a quality assurance program in accordance with the quality standards described in NQA-1-1994, Basic Requirement 2, its associated Supplements, and Appendix 2A-1 as described above, including alternatives. The Company also commits to implementing the other standards with alternatives described within Section 2 and those delineated in Appendix C to this QAPD.

# Section 3 Design Control

## 3.1 General Description

The Company has established and implements administrative controls to assure quality is achieved in establishing and changing the design for the nuclear facilities in accordance with industry standards and regulatory requirements. These provisions address control of design inputs, processes, outputs, changes, interfaces, records, and organizational interfaces. The administrative controls designate the design organization that has approval authority for the design, including design changes and modifications.

## 3.2 Design Control Program

The design control program ensures design inputs are correctly translated into specifications, drawings, procedures, and instructions in sufficient detail to permit verification. The design process controls the selection and independent verification of items and activities consistent with their importance to safety, to ensure that they are suitable for their intended application. The design process includes provisions for performing appropriate reviews by nuclear management, operating and corporate safety review committees, and for required regulatory evaluations. Errors and deficiencies in design, including the design process, which could adversely affect quality structures, systems, and components, are documented and corrective action is taken in accordance with Section 15 and Section 16 of this QAPD.

### 3.2.1 Design Change Control

Procedures and instructions govern identifying the need to change the design and a documented method to control these changes. Design and specification changes are subject to design control measures commensurate with those applied during the original design as amended by applicable design or licensing basis changes. The design change process includes notifications of changes to responsible plant personnel prior to implementation in accordance with applicable procedures.

### 3.2.2 Design Interface Control

Procedures and instructions establish interface controls between functional groups and with principal Suppliers. The interface controls include processes for the resolution of design questions related to the nuclear facilities.

### 3.2.3 Design Verification

The design control program establishes and implements design verification procedures and instructions to ensure that an appropriate verification method (including, but not limited to, design reviews, alternate calculations, and qualification testing) is used, the appropriate design parameters are chosen, the acceptance criteria are identified, the verification is satisfactorily accomplished, and the results are properly recorded. Measures are included that assure the independence of

individuals performing design verification. The Company is responsible for assuring that the design documents generated by Suppliers for the Company's nuclear facilities are technically correct, approved, and maintained.

### 3.2.4 Software Design and Control

The Company has established programs and procedures to ensure that computer software is appropriately procured or designed and verified suitable for the intended application. Measures are also taken to control the use of software.

## 3.3 Quality Standards Commitment

The Company commits to meeting the standards for design control of NQA-1-1994, Basic Requirement 3 and Supplement 3S-1, and the standards for computer software contained in Subpart 2.7.

# Section 4 Procurement Document Control

## 4.1 General Description

The Company has established and implements administrative controls and processes to assure that applicable regulatory, technical, and QA program requirements are included or referenced in procurement documents. These measures ensure procurement documents identify applicable regulatory, technical, administrative, and reporting requirements (such as specifications, codes, standards, tests, inspections, special processes, and 10 CFR Part 21); drawings; specifications; codes and industrial standards; test and inspection requirements; and special process instructions that must be complied with by Suppliers. Procedures further define when procurement documents require Suppliers and subtier Suppliers to provide acceptable quality assurance programs.

## 4.2 Preparation, Review, and Approval of Procurement Documents

Established procedures and instructions describe organizational responsibilities that include: procurement planning; the preparation, review, approval, and control of procurement documents; Supplier selection; bid evaluations and review and concurrence of Supplier QA programs prior to initiation of activities affected by the program. Procedures ensure procurement documents are reviewed to verify that quality requirements are: 1) correctly stated, inspectable, and controllable; 2) have adequate acceptance and rejection criteria; and 3) are prepared, reviewed, and approved in accordance with this QAPD. These procedures also identify those personnel authorized to perform the reviews and their qualification requirements including training in QA practices and concepts. The Company performs applicable internal and external audits, assessments, and inspections to ensure compliance with quality assurance program requirements for the control of procurement documents.

## 4.3 Quality Standards Commitment

The Company commits to meeting the quality assurance standards for procurement document control of NQA-1-1994, Basic Requirement 4 and Supplement 4S-1.

# Section 5 Instructions, Procedures, and Drawings

## 5.1 General Description

The Company has established and implements administrative controls to assure that activities affecting quality are prescribed by and performed in accordance with documented instructions, procedures, and drawings. Provisions include the preparation, review, approval, control and distribution of procedures, instructions and drawings for activities affecting quality structures, systems, and components of Company nuclear facilities. These documents are controlled in accordance with Section 6 of this QAPD.

Instructions, procedures, and drawings are prepared and approved prior to implementation. These documents are sufficiently detailed to allow a qualified individual to perform the required function without direct supervision, and assure consistent and acceptable results in accordance with regulatory guidance and industry quality standards. Management responsible for each functional group has responsibility for assuring that their activities affecting quality are 1) prescribed by documented instructions, procedures, and drawings and 2) accomplished through implementation of these documents.

## 5.2 Procedure Adherence

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

## 5.3 Procedure Content

This QAPD does not establish any specific format or style for procedures, this information will be contained in the administrative controls applicable to the facility. The format of procedures may vary based on the applicable facility or the tasks being performed. Where appropriate, checklists (check-off lists) are used with the procedures to ensure accurate completion. Procedures include the applicable elements described in NQA-1-1994, Part II, Introduction, Section 4.2, (a)-(p), and the following additional elements, where appropriate:

- **Title.** Each procedure contains a title descriptive of the work or system or unit to which it applies, a revision number or date, and an approval status.

- **Statement of Applicability/Purpose.** When the procedure's purpose is not clear from the title, a separate statement of applicability is provided.
- **Limitations and Actions.** Limitations on the parameters being controlled and appropriate corrective measures to return the parameter to the normal control band are specified. Limitations and setpoints may be identified in a separate section. Where appropriate, quantitative control guides are provided.

## 5.4 Types of Procedures and Instructions

The types of procedures and instructions to be developed and used will vary according to the phase that a facility is in as well as the type of facility and activities conducted. This subsection is intended to provide an overview of these types, but is not intended to specify any particular name or format for these documents and some types may be combined. Certain types of procedures and instructions are common to all facilities, but individual facility terminology may vary. The Company programs ensure that the applicable types of procedures described in Regulatory Guide 1.33, Rev. 2, Appendix A, are developed, maintained, and implemented for the nuclear facilities in the operational phase.

### 5.4.1 Administrative Controls

These include administrative procedures, directives, policies, standards, and similar documents that control the programmatic aspects of facility activities. These administrative documents ensure that the requirements of regulatory and license commitments are implemented. Several levels of administrative controls are applied ranging from those affecting the entire Company down to those prepared at the implementing group level. These documents establish responsibilities, interfaces, and standard methods (rules of practice) for implementing programs. In addition to the administrative controls described throughout this QAPD, instructions governing the following activities are provided:

- **Operating Orders/Procedures.** Instructions of general and continuing applicability to the conduct of business to the plant staff are provided. Examples where these are applied include, but are not limited to, job turnover and relief, designation of confines of control room, definition of duties of operators and others, transmittal of operating data to management, filing of charts, limitations on access to certain areas and equipment, shipping and receiving instructions. Provisions are made for periodic review and updating of these documents, where appropriate.
- **Special Orders.** Management instructions, which have short-term applicability and require dissemination, are issued to encompass special operations, housekeeping, data taking, publications and their distribution, plotting process parameters, personnel actions, or other similar matters. Provisions are made for periodic review, updating, and cancellation of these documents, where appropriate.

- **Plant Security and Visitor Control.** Procedures or instructions are developed to supplement features and physical barriers designed to control access to the plant and, as appropriate, to vital areas within the plant. Information concerning specific design features and administrative provisions of the plant security program is confidential and thus accorded limited distribution. The security and visitor control procedures consider, for example, physical provisions, such as: fences and lighting; lock controls for doors, gates and compartments containing sensitive equipment; and provisions for traffic and access control. Administrative provisions, such as: visitor sign-in and sign-out procedures; escorts and badges for visitors; emphasis on inspection, observation and challenging of strangers by operating crews; and a program of pre-employment screening for potential employees are also considered.
- **Temporary Procedures.** Temporary procedures may be used to direct operations during testing, refueling, maintenance, and modifications to provide guidance in unusual situations not within the scope of the normal procedures. These procedures ensure orderly and uniform operations for short periods when the plant, a system, or a component of a system is performing in a manner not covered by existing detailed procedures or has been modified or extended in such a manner that portions of existing procedures do not apply. Temporary Procedures include designation of the period of time during which they may be used and are subject to the procedure review process as applicable.

### 5.4.2 Engineering Procedures

These documents provide instructions for the preparation of engineering documents and implementation of engineering programs. This includes activities such as preliminary and final designs; calculations; fabrication, purchasing, construction, and installation specifications; drawings; analysis and topical reports; and testing plans or procedures. They include appropriate reference to industry codes and standards, design inputs, and technical requirements.

### 5.4.3 Installation Procedures

These documents provide instructions for the installation of components generally related to new construction and certain modification activities. They include appropriate reference to industry standards, installation specifications, design drawings, and Supplier and technical manuals for the performance of activities. These documents include provisions, such as hold or witness points, for conducting and recording results of required inspections or tests. These documents may include applicable inspection and test instructions subject to the requirements for test and inspection procedures below.

### 5.4.4 System Procedures

These documents contain instructions for energizing, filling, venting, draining, starting up, shutting down, changing modes of operation, and other instructions appropriate for operations of systems

related to the safety of the plant. Separate procedures may be developed for correcting off-normal conditions for those events where system complexity may lead to operator uncertainty.

### 5.4.5 Start-up Procedures

These documents contain instructions for starting the reactor from cold or hot conditions and establishing power operation. This includes documented determination that prerequisites have been met, including confirmation that necessary instruments are operable and properly set; valves are properly aligned, necessary system procedures, tests and calibrations have been completed; and required approvals have been obtained.

### 5.4.6 Shutdown Procedures

These documents contain guidance for operations during controlled shutdown and following reactor trips, including instructions for establishing or maintaining hot shutdown/standby or cold shutdown conditions, as applicable. The major steps involved in shutting down the plant are specified, including instructions for such actions as monitoring and controlling reactivity, load reduction and cooldown rates, sequence for activating or deactivating equipment, requirements for prompt analysis for causes of reactor trips or abnormal conditions requiring unplanned controlled shutdowns, and provisions for decay heat removal.

### 5.4.7 Power Operation and Load Changing Procedures

These documents contain instructions for steady-state power operation and load changing. These type documents include, as examples, provisions for use of control rods, chemical shim, coolant flow control, or any other system available for short- or long-term control of reactivity, making deliberate load changes, responding to unanticipated load changes, and adjusting operating parameters.

### 5.4.8 Process Monitoring Procedures

These documents contain instructions for monitoring performance of plant systems to assure that core thermal margins and coolant quality are maintained in acceptable status at all times, that integrity of fission product barriers is maintained, and that engineered safety features and emergency equipment are in a state of readiness to keep the plant in a safe condition if needed. Maximum and minimum limits for process parameters are appropriately identified. Operating procedures address the appropriate nature and frequency of this monitoring.

### 5.4.9 Fuel Handling Procedures

These documents contain instructions for core alterations, accountability of fuel and partial or complete refueling operations that include, for example, continuous monitoring of neutron flux throughout core loading, periodic data recording, audible annunciation of abnormal flux increases, and evaluation of core neutron multiplication to verify safety of loading increments. Procedures are

also provided for receipt and inspection of new fuel, and for fuel movements in the spent fuel storage areas. Fuel handling procedures include prerequisites to verify the status of systems required for fuel handling and movement; inspection of replacement fuel and control rods; designation of proper tools, proper conditions for spent fuel movement, proper conditions for fuel cask loading and movement; and status of interlocks, reactor trip circuits and mode switches. These procedures provide requirements for refueling, including proper sequence, orientation and seating of fuel and components, rules for minimum operable instrumentation, actions for response to fuel damage, verification of shutdown margin, communications between the control room and the fuel handling station, independent verification of fuel and component locations, criteria for stopping fuel movements, and documentation of final fuel and component serial numbers (or other unique identifiers) and locations.

### 5.4.10 Maintenance Procedures

These documents contain instructions in sufficient detail to permit maintenance work to be performed correctly and safely, and include provisions, such as hold or witness points, for conducting and recording results of required inspections or tests. These documents may include applicable inspection or test instructions subject to the requirements for test and inspection procedures below. Appropriate referencing to other procedures, standards, specifications, or Supplier manuals is provided. When not provided through other documents, instructions for equipment removal and return to service, and applicable radiation protection measures (such as protective clothing and radiation monitoring) will be included. Additional maintenance procedure requirements are addressed in NQA-1-1994, Subpart 2.18, Section 2.2, Procedures.

### 5.4.11 Radiation Control Procedures

These documents contain instructions for implementation of the radiation control program requirements necessary to meet regulatory commitments, including acquisition of data and use of equipment to perform necessary radiation surveys, measurements and evaluations for the assessment and control of radiation hazards. These procedures provide requirements for monitoring both external and internal exposures of employees, utilizing accepted techniques; routine radiation surveys of work areas; environmental monitoring in the vicinity of the plant; radiation monitoring of maintenance and special work activities, and for maintaining records demonstrating the adequacy of measures taken to control radiation exposures to employees and others.

### 5.4.12 Calibration and Test Procedures

These documents contain instructions for periodic calibration and testing of instrumentation and control systems and for periodic calibration of measuring and test equipment used in activities affecting the quality of these systems. These documents provide for meeting surveillance

requirements and for assuring measurement accuracy adequate to keep safety-related parameters within operational and safety limits.

### 5.4.13 Chemical and Radiochemical Control Procedures

These documents contain instructions for chemical and radiochemical control activities and include: the nature and frequency of sampling and analyses; instructions for maintaining coolant quality within prescribed limits; and limitations on concentrations of agents that could cause corrosive attack, foul heat transfer surfaces, or become sources of radiation hazards due to activation. These documents also provide for the control, treatment and management of radioactive wastes, and control of radioactive calibration sources.

### 5.4.14 Emergency Operating Procedures

These documents contain instructions for response to potential emergencies so that a trained operator will know in advance the expected course of events that will identify an emergency and the immediate actions that should be taken in response. Format and content of emergency procedures are based on regulatory and Owner's Group(s) guidance that identify potential emergency conditions and generally require such procedures to include a title, symptoms to aid in identification of the nature of the emergency, automatic actions to be expected from protective systems, immediate operator actions for operation of controls or confirmation of automatic actions, and subsequent operator actions to return the reactor to a normal condition or provide for a safe extended shutdown period under abnormal or emergency conditions.

### 5.4.15 Emergency Plan Implementing Procedures

These documents contain instructions for activating the Emergency Response Organization and facilities, protective action levels, organizing emergency response actions, establishing necessary communications with local, state and federal agencies, and for periodically testing the procedures, communications and alarm systems to assure they function properly. Format and content of such procedures are such that requirements of each facility's NRC approved Emergency Plan are met.

### 5.4.16 Test and Inspection Procedures

These documents provide the necessary measures to assure quality is achieved and maintained for the nuclear facilities. The instructions for tests and inspections may be included within other procedures, such as installation and maintenance procedures, but will contain the objectives, acceptance criteria, prerequisites for performing the test or inspection, limiting conditions, and appropriate instructions for performing the test or inspection, as applicable. These procedures also specify any special equipment or calibrations required to conduct the test or inspection and provide appropriate documentation and evaluation by responsible authority to assure test or inspection requirements have been satisfied. Where necessary, hold or witness points are identified within the procedures and require appropriate approval for the work to continue beyond the designated point.

These procedures provide for recording the date, identification of those performing the test or inspection, as-found condition, corrective actions performed (if any), and as-left condition, as appropriate for the subject test or inspection.

## 5.5 Quality Standards Commitment

The Company commits to meeting the standards for instructions, procedures, and drawings of NQA-1-1994, Basic Requirement 5. Additional requirements regarding the content of procedures for specific activities delineated in NQA-1-1994, Part II, will also be implemented as appropriate to the activity.

# Section 6 Document Control

## 6.1 General Description

The Company has established and implements administrative controls to assure the review, approval, and issuance of controlled documents and changes thereto. These controls assure technical adequacy and inclusion of appropriate quality requirements prior to implementation. Measures are provided to assure that documents, including revisions or changes, are reviewed for adequacy by independent knowledgeable personnel other than those who originated or prepared the document, approved for release by authorized personnel, and distributed in accordance with current approved methods. In order to ensure that the documents in current use provide the best possible instructions for performance of the work involved, reviews and/or feedback of information based on use is provided for within the implementing programs. During construction and modification activities, drawings and related documentation are updated in a timely manner to accurately reflect the actual facility design.

## 6.2 Applicability

The provisions for controlling documents include, but are not limited to, the following types of documents:

- Engineering calculations and analyses, design and as-built drawings, design and installation specifications, computer codes
- Purchase orders and related documents, Supplier provided documents
- Instructions, procedures, and drawings used for activities such as siting, designing, procuring, fabricating, handling, shipping, receiving, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, calibrating, repairing, refueling, responding to emergencies, modifying, and decommissioning (including those documents describing organizational interfaces)
- Topical reports, quality assurance and quality control manuals and procedures
- License documents, Technical Specifications, and Safety Analysis Reports
- Reports of nonconformance resolution and corrective actions

## 6.3 Document Review and Approval

Administrative procedures provide measures to control and coordinate the approval and issuance of documents, including changes thereto that prescribe all activities affecting quality. Procedures describe the review process and establish who is to perform document reviews and any applicable qualification requirements.

Each procedure (including those that are programmatic in nature) is reviewed and approved prior to initial use. The frequency of subsequent reviews varies depending on the frequency of use, type

and complexity of the activity involved. Applicable procedures are reviewed following an unusual incident, such as an accident, an unexpected transient, significant operator error, or equipment malfunction, and following any modification to a system.

Installation, maintenance, modification, and inspection procedures include inspection requirements, methods, and acceptance criteria according to the established QA inspection program. When a change is made to any of these inspections, it is reviewed by personnel knowledgeable in QA requirements.

Documents, including procedures, programs and changes thereto are approved by responsible management or the facility safety review committee, as applicable. Where common procedures or programs are used for multiple facilities, responsible management or the facility safety review committee for each applicable facility must review the procedures or programs.

## 6.4 Additional Operations and Decommissioning Phase Review Requirements

Procedures and programs, including subsequent changes, for operations and decommissioning phase activities are screened to determine if further regulatory evaluation is required to meet 10 CFR Parts 50.59 and 72.48. Procedures and programs that are determined to require further regulatory evaluation are reviewed by the facility safety review committee as described in Appendix B, of this QAPD. The facility safety review committee may require any procedure, program, or changes thereto to be brought before the committee for review.

Administrative controls ensure periodic reviews are performed for procedures that have specific regulatory review requirements. Additional administrative and programmatic controls ensure procedures are maintained current. These controls include pre-job preparation practices and the procedural adherence policy (as discussed in Section 5). In addition, plant procedures are audited or reviewed as part of routine Nuclear Oversight processes providing assurance that existing administrative controls for procedure verification, review, and revision are effective in maintaining the quality of plant procedures.

If a temporary procedure change is required, it will be reviewed and approved in accordance with 1) the applicable facility technical specification requirements, or 2) the provisions of this QAPD when not addressed in the technical specifications. Such changes are documented and, if appropriate, incorporated in the next revision of the affected procedure.

## 6.5 Distribution of Controlled Documents

Provisions ensure current documents are available prior to commencing work. Computerized processes may be used to make controlled documents available to users. Where computerized distribution is made, administrative controls ensure that the record file for the document contains the appropriate review and approval documentation.

Administrative controls are established to assure the timely removal and replacement of obsolete or superseded documents in work areas with applicable revisions. The Company maintains a record of all holders of controlled documents and drawings. An index or file of all controlled documents that lists the current revision or date is maintained so personnel can readily identify the current revision.

## 6.6 Quality Standards Commitment

The Company commits to meeting the quality assurance standards for document control of NQA-1-1994, Basic Requirement 6 and Supplement 6S-1.

# Section 7 Control of Purchased Material, Equipment, and Services

## 7.1 General Description

The Company has established and implements programs, procedures, and processes for the control of purchased items and services, selection of Suppliers, and assessing the acceptability of quality. The Company procedures define the organizational responsibilities for the control of purchased items and services including interfaces between design, procurement, and quality verification organizations.

## 7.2 Selection of Suppliers

Procedures describe the Supplier selection process, including measures to ensure continued acceptable quality from Suppliers. Prospective Suppliers are evaluated based on the items and services they provide and the degree of quality required. The evaluation process ensures only qualified Suppliers are selected. The Suppliers are periodically evaluated to ensure they continue to provide acceptable products and services. A controlled list of qualified Suppliers is maintained by Nuclear Oversight and made available to the organizations responsible for procuring items and services. Audits, surveillances, inspections, and NRC correspondence used in the evaluation of Suppliers are specifically identified in the evaluation documentation to allow retrieval of the information.

## 7.3 Conformance of Items and Services

Procurement documents identify to the Supplier applicable technical, regulatory, administrative, and reporting requirements. These requirements include specifications, codes, standards, tests, inspections, special processes, reporting in accordance with 10 CFR 21, documentation that identifies the purchased item and the specific procurement requirements met by the item, documentation identifying any procurement requirements that have not been met, and a description of those nonconformances from the procurement requirements dispositioned accept as-is or repair. The procurement documents identify the technical and quality requirements based on the intended service and the requirements of the current Company QAPD in effect at the time of procurement. These requirements also apply to the procurement of spare and replacement parts such that the specifying of technical requirements is equal to or better than the original requirements to preclude repetition of defects. For commercial grade (off-the-shelf) items, special quality verification requirements are established and described in Company documents to provide the necessary assurance an item will perform satisfactorily in service. The Company documents address determining the critical characteristics that ensure an item is suitable for its intended use, technical evaluation of the item, receipt requirements, and quality evaluation of the item. The purchase of commercial grade calibration services from a calibration laboratory may be made in accordance with the alternative to NQA-1-1994, Supplement 7S-1 requirements described in Section 7.5 below. Rev. 10

## 7.4 Quality Verification

Nuclear Oversight, Nuclear Analysis and Fuel, and Supply Chain Management use a systematic approach through audits, independent inspections, surveillances, or tests to verify Supplier quality. Personnel from these groups verify Suppliers' activities during fabrication, inspection, testing, and shipment of items. Suppliers' certificates of conformance are periodically evaluated to assure they are valid. Additional quality verifications are performed to assure conformance with purchase requirements during receipt inspection, or through pre-installation or post-installation tests. Prior to items being placed in service or used at Company nuclear facilities, responsible inspection personnel verify that required Supplier documentary evidence that the items conform to purchase requirements is available on site. These verification activities are planned, performed, and documented in accordance with written Company documents. The Company documents identify: 1) the characteristics or processes to be witnessed, inspected, verified, evaluated, and accepted; 2) the method of verification; 3) at what interval in the fabrication or manufacture to perform verification; 4) the extent of documentation required; and 5) those responsible for implementing these verification activities.

## 7.5 Quality Standards Commitment

The Company commits to meeting the quality assurance standards for control of purchased material, equipment, and services contained in NQA-1-1994, Basic Requirement 7, and Supplement 7S-1, with the following alternatives and exceptions:

NQA-1-1994, Supplement 7S-1 - Alternative

The following alternative may be applied when purchasing commercial grade calibration services from a calibration laboratory. Procurement source evaluation and selection measures need not be performed provided each of the following conditions are met:

(1) The purchase documents impose any additional technical and administrative requirements, as necessary, to comply with the Dominion Quality Assurance Program and technical provisions. At a minimum, the purchase document shall require that the calibration certificate/report include the laboratory equipment/standard used. Rev. 10

(2) The purchase documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.

(3) A documented review of the supplier's accreditation will be performed and will include a verification of each of the following:

- The calibration laboratory is a domestic (United States) calibration service supplier. Rev. 12
- The calibration laboratory holds a domestic (United States) accreditation by any of the following bodies, which are recognized by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA):
  - National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards & Technology;
  - American Association for Laboratory Accreditation (A2LA); Rev. 10
  - ACLASS Accreditation Services (ACLASS);
  - International Accreditation Service (IAS);
  - Laboratory Accreditation Bureau (L-A-B);
  - Other NRC-approved laboratory accrediting body.
- The accreditation is based on ANSI/ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories."
- The published scope of accreditation for the calibration laboratory covers the necessary measurement parameters, range, and uncertainties.

(4) Purchase documents shall specify that the above conditions of this alternative method are also applicable to sub-suppliers of calibration services when the sub-suppliers are implementing this alternative. Rev. 12

NQA-1-1994, Supplement 7S-1, Section 10, "Commercial Grade Items" - Exception Rev. 10

Controls for commercial grade items are established in Company documents using the guidance of EPRI NP-5652 as discussed in GL 89-02.

# Section 8 Identification and Control of Materials, Parts, and Components

## 8.1 General Description

The Company has established and implements administrative controls and processes for the identification and control of items such as materials (including consumables), parts, components, and partially fabricated subassemblies. Implementing procedures establish the responsibilities and requirements for the identification and control of items throughout fabrication, receipt, handling, storage, and installation to assure that incorrect or defective items are not used. Such requirements include instruction on the use of markings, tags, labels, or record keeping for identification so that the items are not adversely affected by the method of identification.

The methods used for identification of items assure traceability of the items to the appropriate documentation such as drawings, specifications, purchase orders, manufacturing and inspection documents, problem reports, and physical and chemical mill test reports. Procedures include responsibilities and methods for verification and documentation of the correct identification of items prior to release for fabrication, assembling, shipping, and installation.

## 8.2 Quality Standards Commitment

The Company commits to meeting the quality assurance standards for identification and control of items contained in NQA-1-1994, Basic Requirement 8 and Supplement 8S-1.

# Section 9 Control of Special Processes

## 9.1 General Description

The Company has established and implements programs, procedures, and processes to assure the acceptability of special processes through the use of procedures, technique sheets, travelers and inspection verification reports, and personnel qualified in accordance with the applicable codes, specifications, and standards for the specific work. Special processes are those where interim process controls (such as using qualified procedures and personnel, or interim inspections or tests) are necessary to ensure a final acceptable product and where reliance on a final inspection or test is insufficient to determine quality. Special processes include, but are not limited to, those involving: welding; heat treating; cadwelding; non-destructive examination and testing; painting and coatings; concrete and grout; soils and earthwork; and removal of undesirable substances during shop and site cleaning, degreasing, and flushing. In instances where Suppliers are assigned such work at Company facilities, the Supplier must submit their procedures and personnel qualifications to the Company for approval prior to the start of work.

## 9.2 Qualification of Special Processes Personnel, Procedures, and Equipment

Company documents assure that procedures, equipment, and personnel associated with special processes are qualified and are in conformance with applicable codes, standards, QA procedures, and specifications. In addition, Company documents establish the method for recording evidence of the acceptable accomplishment for special processes. The Company conducts inspections and/or audits of work involving special processes to assure that procedures and personnel are properly qualified and their workmanship is in compliance with applicable specifications, codes, standards, and QA procedures.

Qualification records of procedures, equipment, and personnel associated with special processes are established, filed, and kept current in accordance with the provisions of this QAPD.

## 9.3 Quality Standards Commitment

The Company commits to meeting the standards for control of special processes from NQA-1-1994, Basic Requirement 9 and Supplement 9S-1.

# Section 10 Inspection

## 10.1 General Description

The Company has established and implements administrative controls and processes to inspect activities for the nuclear facilities that affect quality to verify conformance with the approved documents for accomplishing the activities including specifications and quality standards. The programs govern establishment of inspection hold points beyond which work is not to continue until a satisfactory inspection is achieved. The inspections are performed by trained and qualified individuals, in accordance with controlled documents, and to established acceptance criteria. The inspection program maintains reporting independence of inspectors by ensuring individuals performing the inspections are not the same individuals or supervisors responsible for performing the activity being inspected. Where quality verification inspections at operating facilities are performed by the Maintenance group, to meet the independence requirements of NQA-1-1994, Supplement 10S-1, Section 3.1, the inspectors report to the Facility Safety and Licensing organization (VA) or the Nuclear Oversight group (KPS and MPS) while performing the inspection. Management review and audit of inspection results is established to ensure effectiveness of the inspection program.

## 10.2 Inspection Program

The inspection program establishes inspections (including surveillance of processes), as applicable: 1) at the source of supplied items or services, 2) in-process during fabrication at a Supplier's facility or at a Company facility, 3) for final acceptance of fabricated and/or installed items during construction, 4) upon receipt of items for a facility, as well as 5) during maintenance, modification, inservice, operating and decommissioning activities. The post-maintenance testing program ensures that a functional test can be performed as additional assurance demonstrating the quality of work where inspections for breach of a pressure boundary are performed by an individual within the same functional group (e.g., Maintenance).

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

Inspection program documents establish requirements for performing the planned inspections, and documenting required inspection information such as: reject, acceptance, and reinspection results; and the person(s) performing the inspection.

## 10.3 Inspector Qualification

The Company has established qualification programs for personnel performing quality verification inspections. The qualification program requirements are described in Section 2 of this QAPD. These qualification programs are applied to individuals performing quality verification inspections regardless of the functional group where they are assigned. Where inspections are to be performed by individuals within the same functional group, an independent audit of the qualification criteria for inspection personnel will be performed prior to implementing such an inspection program.

## 10.4 Quality Standards Commitment

The Company commits to meeting the programmatic standards for Inspection of NQA-1-1994, Basic Requirement 10, and Supplement 10S-1 with the alternative regarding independence of Maintenance group inspectors stated above. The inspection programs will also incorporate the appropriate inspection requirements described in Part II, "Quality Assurance Requirements for Nuclear Facility Applications," of NQA-1-1994. Regarding Subpart 2.4 (ANSI/IEEE Std. 336-1985) and Subpart 2.18 invoked by NQA-1-1994, Part II, any and all references to ANSI/ASME NQA-1, ANSI/ASME NQA-2, and ANSI/ANS-3.2 are changed to mean the appropriate requirements of NQA-1-1994 and this QAPD.

# Section 11 Test Control

## 11.1 General Description

The Company has established and implements programs, procedures, and processes to control tests that assure the nuclear facility structures, systems, and components (items) function satisfactorily in service. The test control programs identify 1) the items to be tested, 2) methods of testing, 3) documentation, and 4) evaluation of test results. The tests are systematic and include, as necessary, proof tests prior to installation, construction tests, preoperational tests, production tests, operational tests, surveillance and inservice tests, and tests following repairs, rework, replacement, preventive maintenance, or modification.

Tests during the preoperational period are conducted to demonstrate that performance of facility systems is in accordance with design intent and that the coordinated operation of the facility as a whole is satisfactory, to the extent feasible. Tests during the initial operational phase are conducted to demonstrate the performance of systems that could not be tested prior to operation and to confirm those physical parameters, hydraulic or mechanical characteristics that need to be known, but which could not be predicted with the required accuracy, and to confirm that behavior conforms to design criteria. The preoperational testing program will demonstrate, as nearly as can be practicably simulated, the overall integrated operation of the plant systems at rated conditions, including simultaneous operation of auxiliary systems. It may be necessary to defer portions of these tests until nuclear heat is available.

The initial start-up test program is planned and scheduled to permit safe fuel loading and start-up; to increase power in safe increments; and to perform major testing at specified power levels. If tests require the variation of operating parameters outside of their normal range, the limits within which such variation is permitted will be prescribed. The scope of the testing demonstrates, insofar as practicable, that the plant is capable of withstanding the design transients and accidents. For new facility construction, the suitability of facility operating procedures is checked to the maximum extent possible during the preoperational and initial start-up test programs.

The tests are performed and results documented in accordance with applicable technical and regulatory requirements including those described in the nuclear facility Technical Specifications and SAR. The test programs ensure appropriate retention of test data in accordance with the records requirements of this QAPD. The personnel performing or evaluating tests are qualified in accordance with the requirements established in Section 2 of this QAPD.

## 11.2 Test Procedures

Tests are conducted in accordance with approved written procedures or instructions that are based on the applicable design requirements for the structures, systems, and components being tested. Section 5 of this QAPD describes the requirements for test procedures. The procedures include prerequisites and instructions for performing the test that ensure the item is ready for testing,

appropriate test equipment with suitable accuracy is used, and any necessary controlled environmental conditions are established and maintained. The prerequisites are completed prior to commencement of the test or portion of the test where they are applicable. Test procedures also identify acceptance criteria, any required inspection hold or witness points, and provisions for documenting test performance data and review of test results by appropriate management. When acceptance criteria are not met, provisions are made for retest of corrected areas.

## 11.3 Evaluation of Test Results

The test control programs contain measures for a qualified individual or group to evaluate test results against predetermined acceptance criteria. The acceptance status of the test is documented. Any deficiencies identified by the tests are documented and dispositioned in accordance with procedures.

## 11.4 Scheduling

Scheduling or similar measures are used to ensure that appropriate tests are performed and evaluated on a timely basis so that the safety of the plant is never dependent on the performance of an untested system. Preoperational tests, including start-up tests following fuel loading, are generally performed sequentially to demonstrate functional adequacy and are scheduled to be performed at the time when plant conditions are appropriate for the test. Surveillance testing and inspections for operating facilities (and required operating items of facilities being decommissioned) are scheduled at prescribed intervals to ensure that items important to safety will continue to operate, keeping parameters within normal bounds, or will act to put the plant in a safe condition if they exceed normal bounds. These intervals are established in facility technical documents.

## 11.5 Quality Standards Commitment

The Company commits to meeting the programmatic standards for Test Control of NQA-1-1994, Basic Requirement 11, Supplement 11S-1, and Supplement 11S-2, along with the surveillance and testing requirements described in Part II, "Quality Assurance Requirements for Nuclear Facility Applications," of NQA-1-1994. Regarding Subpart 2.4 (ANSI/IEEE Std. 336-1985) invoked by NQA-1-1994, Part II, any and all references to ANSI/ASME NQA-1, ANSI/ASME NQA-2, and ANSI/ANS-3.2 are changed to mean the appropriate requirements of NQA-1-1994 and this QAPD.

# Section 12 Control of Measuring and Test Equipment

## 12.1 General Description

The Company has established and implements administrative controls and processes for the calibration, maintenance, and use of measuring and test equipment (including instruments, tools, gauges, fixtures, reference and transfer standards, and non-destructive test equipment). These controls are applicable to those items used in the measurement, inspection, maintenance, and monitoring of structures, systems, and components important to safety. The measuring and test equipment (M&TE) does not include: measuring equipment used for preliminary checks or utility troubleshooting where accuracy is not required, nor rulers, tape measures, levels, and other basic tools where normal commercial practices provide adequate accuracy. Controls for M&TE include selection of equipment; establishing and implementing calibration requirements; documentation and/or markings to trace equipment usage, calibration, and calibration status; handling and storage to maintain accuracy; and measures to address nonconforming or deviating conditions including evaluation, disposition, and retest where indicated. The suppliers of commercial grade calibration services are controlled as described in Section 7.3. Rev. 10

## 12.2 Installed Instrument and Control Devices

For the operations phase of the facilities, the Company has established and implements procedures for the calibration and adjustment of instrument and control devices installed in the facility. The calibration and adjustment of these devices is accomplished through the facility maintenance programs to ensure the facility is operated within design and technical requirements. Appropriate documentation will be maintained for these devices to indicate the control status, when the next calibration is due, and identify any limitations on use of the device.

## 12.3 Quality Standards Commitment

The Company commits to meeting the standards for Control of Measuring and Test Equipment of NQA-1-1994, Basic Requirement 12, Supplement 12S-1, and Subpart 2.16 with the following alternatives:

- All references to ANSI/ASME NQA-1, ANSI/ASME NQA-2, and ANSI/ANS-3.2 are changed to indicate the appropriate Sections of ANSI/ASME NQA-1-1994 and this QAPD.
- Instrumentation and control devices installed in operating facilities are not required to be labeled as described in Subpart 2.16, subsection 5.5 (ANSI/IEEE Std. 498-1985), provided the information is maintained in suitable documentation traceable to the device. This alternative also applies to the calibration labeling requirement of Subpart 2.4, subsection 7.2.1 (ANSI/IEEE Std. 336-1985).

# Section 13 Handling, Storage, and Shipping

## 13.1 General Description

The Company has established and implements programs, procedures, and processes to control handling, storage, shipping, cleaning, packaging, and preservation of items. The programs delineate controls to prevent damage, loss, and deterioration by environmental conditions (such as temperature or humidity) of material and equipment received for the nuclear facility. The programs also describe the measures taken, including control of shelf life, for the storage of chemicals, reagents, lubricants, and other consumable materials. Suitable procedures, instructions, and procurement documents are used to define the requirements, training, and responsibilities for implementing the programs. The established requirements are consistent with the regulatory positions of the NRC regulatory guides and their related standards listed in Appendix C, or specifications and/or Supplier technical manuals, including special tool utilization and use, operator experience and training, and appropriate marking and labeling.

## 13.2 Special Handling, Storage, Shipping, Cleaning and Preservation Requirements

Special or additional handling, storage, shipping, cleaning and preservation requirements are identified and implemented as specified in procurement documents and applicable procedures. Where special requirements are specified, the items and containers (where used) are suitably marked.

## 13.3 Quality Standards Commitment

The Company commits to meeting the standards for handling, storage, and shipping of NQA-1-1994, Basic Requirement 13, Supplement 13S-1, Subpart 2.2, and Subpart 2.15 with the following alternatives:

Regarding Subpart 2.2

- For items in storage, as determined by facility management the packaging requirements described under Section 3, "Packaging," may include alternate methods of affording the required protection such as maintaining a storage atmosphere free from harmful contaminants in concentrations that could produce damage to the stored items, or utilizing storage practices that obviate the need for capping all openings.
- For items in storage at Company facilities, the items and the outside of containers (when present) need to meet the appropriate criteria of subsection 3.9, "Marking," necessary to ensure the identity of the item, and proper instructions for preservation during storage and future handling are retained.

- Regarding maintenance of items in storage in accordance with subsection 6.4.2, "Care of Items": the requirement of item (f) will not apply to rotating electrical equipment less than 50 HP, the requirement of item (g) will not apply to rotating equipment weighing less than 50 pounds, the requirements of (e), (f), and (g) may be exempted for specific items on a case-by-case basis provided that a documented engineering evaluation determines that such care is not required.
- Subsection 6.6, "Storage Records," requires written records be prepared containing information on personnel access. As an alternative to this requirement, Company documents establish controls for storage areas that describe those authorized to access areas and the requirements for recording access of personnel. However, these records of access are not considered quality records and will be retained in accordance with the administrative controls for the facility.

Regarding Subpart 2.15

- The Company may choose to not use the specific classification of Categories A, B, and C, but ensures items to be handled are evaluated and the appropriate range of controls and requirements for the activity are applied consistent with this Subpart.

# Section 14 Inspection, Test, and Operating Status

## 14.1 General Description

The Company has established and implements administrative controls and processes to indicate and document the inspection, test, and operating status of structures, systems, and components to prevent their inadvertent use or the bypassing of inspections and tests. The requirements for identification of status also apply to nonconforming, inoperative, or malfunctioning structures, systems, and components. Company administrative procedures delineate the requirements, methods, and responsibilities for status identification through the use of stickers, tags and tagging systems, test and inspection records, checklists, or logs. The procedures identify 1) those who are authorized to apply and remove the various status tags, stickers, and other indicators and 2) the authority to operate the item and/or equipment. The operating status is also controlled through the normal nuclear facility operating procedures.

The administrative procedures also describe the measures taken to control altering the sequence of required tests, inspections, and other operations. The review and approval for these actions is subject to the same control as taken during the original review and approval of tests, inspections, and other operations.

## 14.2 Control of Systems and Equipment for Operating Facilities

Permission to release systems and equipment for maintenance or modification is controlled by designated operating personnel and documented. Measures, such as installation of tags or locks and releasing stored energy, are used to ensure personnel and equipment safety. When entry into a closed system is required, the Company has established control measures to prevent entry of extraneous material and to assure that foreign material is removed before the system is reclosed.

Administrative procedures require the designated operating personnel to verify that the system or equipment can be released and determine the length of time it may be out of service. In making this determination, attention is given to the potentially degraded degree of protection where one subsystem of a redundant safety system is not available for service. Conditions to be considered in preparing equipment for maintenance include, for example: shutdown margin; method of emergency core cooling; establishment of a path for decay heat removal; temperature and pressure of the system; valves between work and hazardous material; venting, draining and flushing; entry into closed vessels; hazardous atmospheres; handling hazardous materials; and electrical hazards.

Where temporary modifications, such as temporary bypass lines, electrical jumpers, lifted electrical leads, and temporary trip point settings, are necessary, they are controlled in accordance with approved documents that include requirements for independent verification. A log, or similar documentation, is maintained of the current status of such temporary modifications.

When systems or equipment are ready to be returned to service, designated operating personnel control placing the items in service and document its functional acceptability. Attention is given to restoration of normal conditions, such as removal of jumpers or signals used in maintenance or testing, or actions such as returning valves, breakers or switches to proper start-up or operating positions from "test" or "manual" positions. Where necessary, the equipment placed into service receives additional surveillance during the run-in period.

Independent verifications, where appropriate, are used to ensure that the necessary measures have been implemented correctly. The minimum requirements and standards for using independent verification are established in Company documents.

## 14.3 Quality Standards Commitment

The Company is committed to implementing a status control program in accordance with the quality standards described in NQA-1-1994, Basic Requirement 14.

# Section 15 Nonconforming Materials, Parts, or Components

## 15.1 General Description

The Company has established and implements administrative controls and processes that assure control of nonconforming items (materials, parts, components), and services (including computer codes) to prevent their inadvertent use or installation in Company nuclear facilities. Documents describe the methods for identification, documentation, segregation, review, disposition, and notification to affected organizations of nonconforming items or services when the disposition is other than to scrap the items or services. Instructions require that the individual discovering a nonconformance identify, describe, and document the nonconformance. Procedures identify authorized individuals to review, disposition, and closeout nonconformances. Nonconformances are corrected or resolved prior to the initiation of the preoperational test of the item.

## 15.2 Nonconformance Responsibilities

Nonconformances are evaluated for impact on operability of quality structures, systems, and components in accordance with Company procedures to assure that the final condition does not adversely affect safety, operation, or maintenance of the item or service. Nonconforming item reports dispositioned as use-as-is or repair that involve deviation from design requirements are forwarded to the appropriate engineering organization for review and approval of the disposition. Company documents address the controls established to conditionally release nonconforming items for use on a risk basis prior to resolution and disposition of the nonconformance, including maintaining identification of the item and documenting the basis for such release. Conditional release of nonconforming items for installation requires appropriate senior management approval for the facility or construction project. Resolution of nonconformances for purchased services are also controlled by Company documents.

## 15.3 Nonconformance Documentation

Company procedures assure that documentation identifies the nonconforming item and describes the nonconformance, the disposition of the nonconformance, and applicable inspection requirements. The documentation requires approval of the disposition by an authorized individual. Reworked, repaired, and replacement items are inspected and tested in accordance with the original inspection and test requirements or approved alternatives.

Nuclear Oversight processes verify that nonconformance dispositions are adequate, analyze for quality trends, and report results to upper management in accordance with applicable Company procedures. Any significant trends are reported to upper management in accordance with Company documents, regulatory requirements, and industry standards.

## 15.4 Quality Standards Commitment

The Company commits to meeting the standards for control of nonconforming items of NQA-1-1994, Basic Requirement 15 and Supplement 15S-1.

# Section 16 Corrective Action

## 16.1 General Description

The Company has established and implements corrective action programs, procedures, and processes to assure that conditions adverse to quality at Company nuclear facilities are promptly identified and corrected. Company management at all levels fosters a no-fault attitude toward the identification of problems. Verification of the proper implementation of corrective action measures and close-out of corrective action documentation is assured through the monitoring effort of facility personnel and Nuclear Oversight processes.

## 16.2 Corrective Action Documentation

Company procedures assure that corrective action is documented and initiated following the determination of a condition adverse to quality (such as a nonconformance, failure, malfunction, deficiency, deviation, and defective material and equipment) in accordance with regulatory guidance and industry quality standards. When complex issues arise where it cannot be readily determined if a condition adverse to quality exists, Company documents establish the requirements for documentation and timely evaluation of the issue.

In the case of significant conditions adverse to quality, the cause of the condition is determined and corrective action taken to preclude repetition. For these significant conditions, the cause of the conditions, and the corrective action taken to preclude repetition are documented and reported to immediate management and upper levels of responsible management for review and assessment.

## 16.3 Follow-up

Company corrective action procedures describe the methods for follow-up action to verify proper implementation of corrective action and ensure that the corrective actions are closed out in a timely manner, and include follow-up through Nuclear Oversight processes. Independent review of corrective action is conducted in accordance with the requirements of Appendix B of this QAPD.

## 16.4 Quality Standards Commitment

The Company commits to meeting the standards for corrective action of NQA-1-1994, Basic Requirement 16.

# Section 17 Quality Assurance Records

## 17.1 General Description

The Company has established and implements administrative controls and processes to ensure sufficient records of items and activities for the nuclear facilities that reflect completed work are generated, identified, retained, maintained, and retrievable. Company programs and procedures identify specific records, their retention periods, and storage methods.

## 17.2 Records of Activities

Company documents ensure that records of activities for design, engineering, procurement, manufacturing, construction, inspection and test, installation, preoperation, startup, operations, maintenance, modification, decommissioning, and audits include the appropriate content requirements of NQA-1-1994, Parts I and II. The records and their retention times are based on Regulatory Position C.2, Table 1, of NRC Regulatory Guide 1.28, Revision 3. This table addresses design, construction and initial start-up records and will be applied to operating and decommissioning phase records that are similar in nature to the construction records. Additional operations phase records and their retention periods are identified in Appendix E to this QAPD. Where State, local or other agencies have more restrictive requirements, those requirements will be met.

## 17.3 Record Storage

Implementing procedures assure that identification and retrievability of records is facilitated through proper indices and an established basic filing system. Records are stored in a manner to preclude deterioration of the item. The Company's records storage facilities are constructed, located, and secured to provide access control and fire protection measures.

Records stored electronically will follow the guidance given in the Nuclear Information and Records Management Association (NIRMA) technical guidelines, TG-11-1998, Authentication of Records and Media; TG-15-1998, Management of Electronic Records; TG-16-1998, Software Configuration Management and Quality Assurance, and TG-21-1998, Electronic Records Protection and Restoration. Electronic media may include optical disk, magnetic tape, network drive array, etc. Information Technology will determine appropriate media based upon data format and level of access required. Records originally created in hard-copy form will be retained in hard copy until such time as electronic versions of these records are created, copied, and verified as legible on two (2) independent copies of an appropriate electronic storage media. File legibility verifications will be completed on all records stored on electronic storage media by either visually verifying the file legibility or by electronically verifying exact binary file transfer. Periodic documented media inspections to monitor image degradation will be conducted in accordance with approved procedures that incorporate NIRMA guidelines or the applicable media manufacturer's

recommendations. Records stored on electronic media will be refreshed or copied onto new media and subsequently verified if the projected lifetime of that media does not exceed the retention period of the records stored on that media.

Records originally created in electronic form may be retained in electronic form. Backup copies of electronic records will be maintained in multiple physically independent electronic locations until such time as images of these records are created, copied, and verified on two (2) copies of an appropriate electronic storage media. The two copies of electronic storage media will then be stored in separate physical locations. These NIRMA guidelines have been endorsed by RIS 2000-18, Guidance on Managing Quality Assurance Records in Electronic Media, dated October 23, 2000.

## 17.4 Quality Standards Commitment

The Company is committed to implementing a quality assurance records program in accordance with the quality standards described in NQA-1-1994, Basic Requirement 17 and Supplement 17S-1. The Company will meet the NRC Regulatory Position C.2 of Regulatory Guide 1.28, Revision 3, August 1985 except that the reference to ASME NQA-1 will be to the 1994 edition. The Company will also meet the NIRMA Guidelines endorsed by NRC RIS 2000-18, dated October 23, 2000.

# Section 18 Quality Assurance Audits

## 18.1 General Description

The Company has established and implements administrative controls and processes for audits to systematically verify compliance with and determine the effectiveness of all aspects of the QA program for Dominion nuclear facilities. Nuclear Oversight conducts, participates on, or has performed for them, audits to ensure comprehensive independent verification and evaluation of Suppliers, activities, and documents. The audits are performed in accordance with written procedures or checklists and are conducted by appropriately trained personnel having no direct responsibilities in the areas being audited.

An audit schedule is prepared to identify the planned and periodic audits to be performed, their frequencies, and dates for performance. Audits are scheduled based upon the status and safety importance of the activities being performed and are initiated early enough to assure effective QA during design, construction, operation, and decommissioning. When necessary, the scheduled audits are supplemented with audits of specific subjects to ensure adequate coverage or reaudit of deficient areas.

## 18.2 Audit Scope

The audits include an objective evaluation of quality-related practices, procedures, instructions, activities, and items; and review of documents and records. Audits are performed in all areas where the requirements of this QAPD are applicable including activities associated with indoctrination and training programs; interface control between the Company and principal Suppliers; corrective action, calibration, and nonconformance control systems; facility SAR commitments; and activities associated with computer codes. For facilities under construction, the audits will also include, as applicable, the determination of site features which affect plant safety (e.g., core sampling, site and foundation preparation, and methodology) and the preparation, review, approval, and control of early procurements.

## 18.3 Audit Responsibilities and Procedures

Audit data is analyzed by the audit team. The results of the analysis are reviewed by Nuclear Oversight management. Audit reports indicate any quality problems identified, the effectiveness of the QA program elements assessed, and identify the deficiencies that require follow-up of corrective actions. The reports are distributed to affected management for review. Management with responsibility for the area audited review, investigate, and correct (with a view toward preventing recurrence) conditions adverse to quality that involve QA program deficiencies. Follow-up of audit findings involving program deficiencies is performed by Nuclear Oversight as necessary to verify appropriate actions have been taken to resolve audit findings.

Items not effectively resolved by assigned management are submitted to the senior management position responsible for Nuclear Oversight for resolution with successively higher levels of Company or Supplier executive management, as applicable.

## 18.4 Supplier Quality Assurance

Company documents ensure that 1) triennial external audits, 2) annual Supplier QA program evaluations, 3) reviews of audits conducted by external organizations (e.g., other utilities and NUPIC), and 4) maintenance of the approved Suppliers list are performed to assure Suppliers' quality programs meet applicable requirements and that only qualified Suppliers are used.

## 18.5 Internal Audits

During the design, construction, and decommissioning phases of a facility, internal audits are performed of selected activities at appropriate times commensurate with scheduled activities to assure timely and effective implementation of QA requirements. During the operations phase and periods of prolonged lay-up for facilities awaiting final decommissioning, audits are performed at a frequency commensurate with the safety significance of the activities and in such a manner to assure audits of all applicable QA program elements are completed within a period of two years. These audits will include, as a minimum, activities in the following areas:

- The conformance of facility operation to provisions contained within the Technical Specifications and applicable license conditions including administrative controls.
- The performance, training, and qualifications of the facility staff.
- The performance of activities required by the QAPD to meet the criteria of 10 CFR 50, Appendix B.
- The Fire Protection Program and implementing procedures. A fire protection equipment and program implementation inspection and audit utilizing either a qualified offsite licensed fire protection engineer or an outside qualified fire protection consultant.
- Other activities and documents considered appropriate by the MSRC, the Executive Management Position Responsible for Nuclear Operations, or the CNO.

Audits may also be used to meet the periodic review requirements of the code for the Security, Emergency Preparedness, and Radiological Protection programs within the provisions of the applicable code.

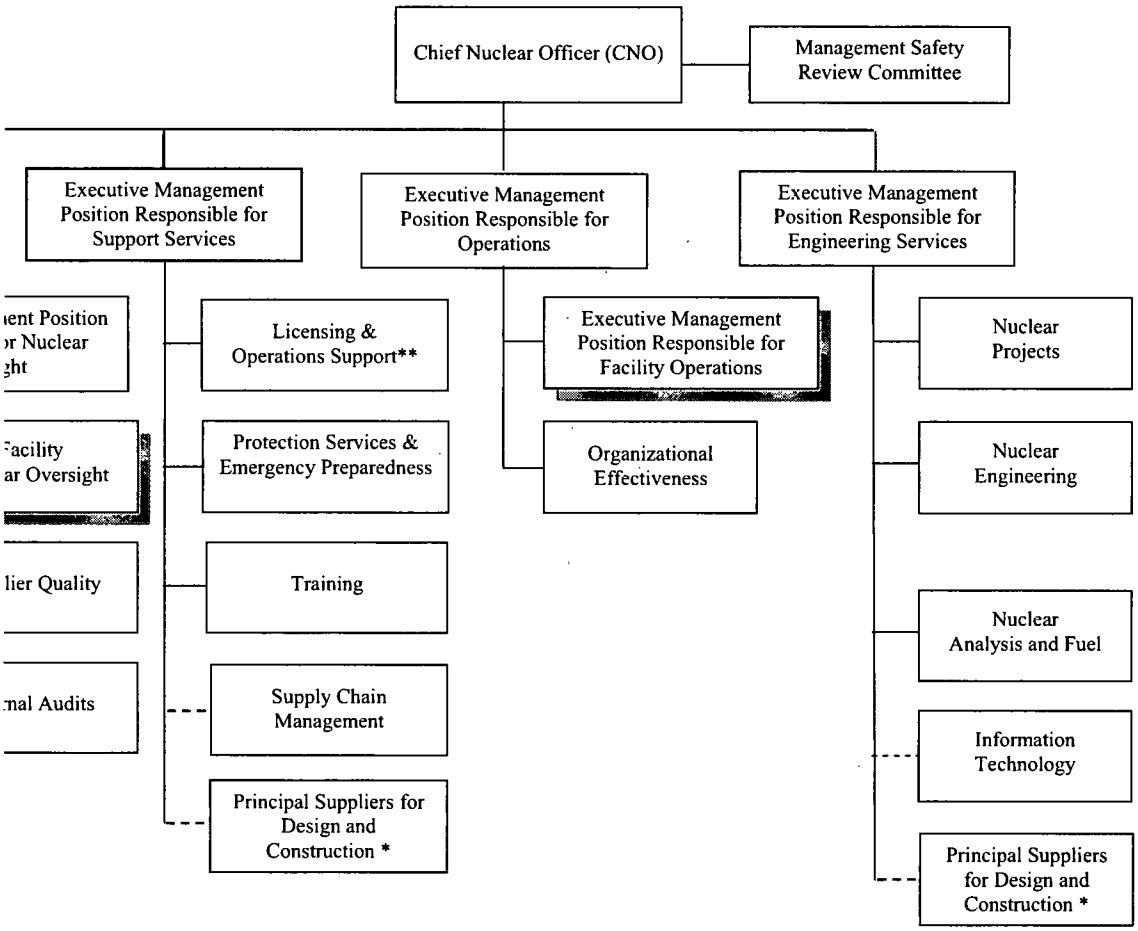
Internal audits include verification of compliance and effectiveness of the administrative controls established for implementing the requirements of this QAPD; regulations and license provisions; provisions for training, retraining, qualification, and performance of personnel performing activities covered by this QAPD; corrective actions taken following abnormal occurrences; and, observation of the performance of construction, fabrication, operating, refueling, maintenance, modification, and decommissioning activities.

## 18.6 Quality Standards Commitment

The Company is committed to implementing an audit program in accordance with the quality standards described in NQA-1-1994, Basic Requirement 18 and Supplement 18S-1.

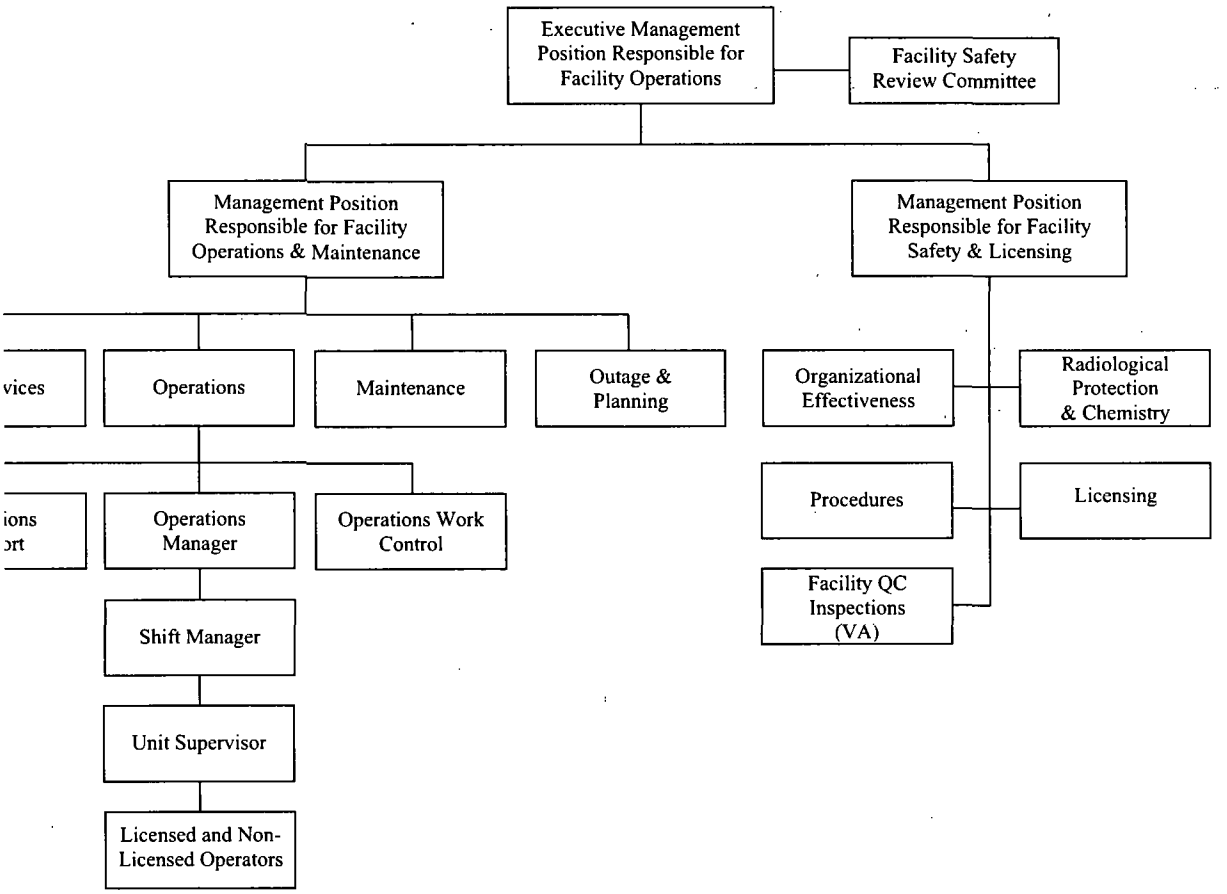
# Appendix A
# Organizational Relationships of Key Management and Functional Groups

**Appendix A**
**Organizational Relationships of Key Management**
**And Functional Groups**
**Corporate and Technical Support**



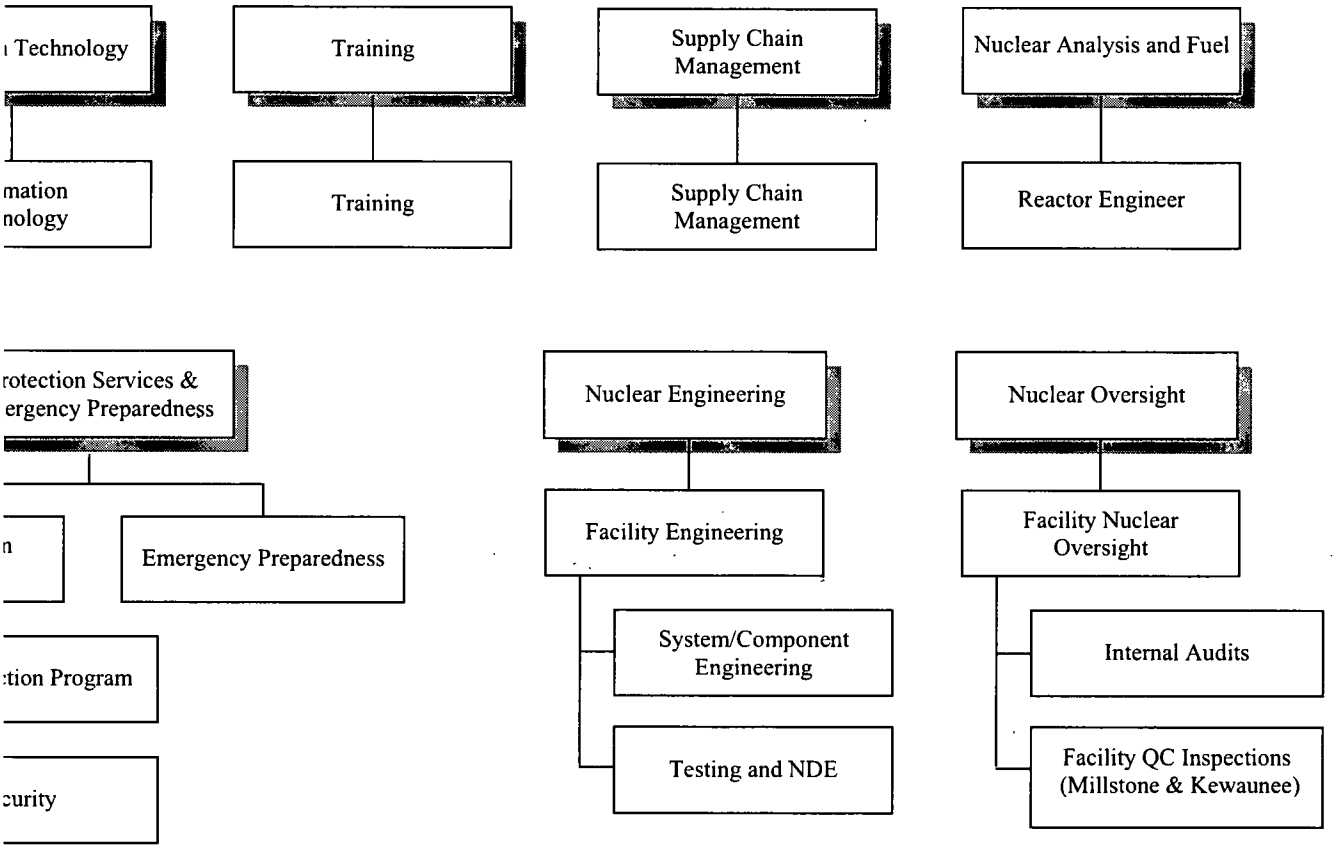

n principal Suppliers are used.
ıdes document control and records management functions.
ved boxes indicate functions for facility operations.
lines represent matrixed relationships.

**Appendix A**
**Organizational Relationships of Key Management**
**And Functional Groups**
**Facility Operating Organization**




ity organizations are responsible for power plants and associated independent spent fuel storage installations for the site.

**Appendix A**
**Organizational Relationships of Key Management**
**And Functional Groups**
**Facility Operating Staff Reporting To Support Organizations**




indicate Support organizations.

# Appendix B
# Management and Independent Review Activities

# Management and Independent Review Activities

## 1. General

The Company ensures that operational phase activities of the facilities are independently reviewed on a periodic basis. The purpose of these reviews is to: 1) verify that operational phase activities are performed in accordance with this QAPD and Company administrative controls, procedures, and license provisions; 2) review significant proposed plant changes, tests, and procedures; 3) verify that events that are reportable to the NRC are promptly investigated and corrected so as to reduce the probability of recurrence; and 4) detect trends that may not be apparent to a day-to-day observer.

These review functions are performed through a combination of safety review committees, integrated review activities, and internal audits. This Appendix describes the review program implemented by the committees and the integrated review activities. The internal audit program is addressed in Section 18 of this QAPD. The review programs of this appendix ensure that the personnel performing this review collectively have the experience and competence necessary to review problems in the following areas:

1. Nuclear power plant operations
2. Nuclear engineering
3. Chemistry and radiochemistry
4. Metallurgy
5. Nondestructive testing
6. Radiological safety
7. Mechanical engineering
8. Electrical engineering
9. Instrumentation and control
10. Administrative controls and quality assurance practices
11. Training
12. Emergency plans and related procedures and equipment

An individual may possess competence in more than one specialty area. The established administrative controls contain provisions to assure the appropriate expertise is applied to the independent reviews, including the use of consultants when necessary.

## 2. Qualifications

Personnel performing the independent review functions meet the qualification requirements of ANS-3.1-1993, subsection 4.7, as clarified in NRC Regulatory Guide 1.8, Revision 3, and this QAPD. Independent review personnel shall also complete the required qualification training for the function they are performing.

## 3. Management Safety Review Committee (MSRC)

The MSRC shall ensure that periodic independent reviews and audits of activities are conducted by qualified individuals free from the pressures of plant operations. For new nuclear power plant construction, the MSRC shall be functional at least one year prior to initial core loading. The MSRC serves in an advisory capacity to the CNO.

### 3.1 Review Responsibilities

The MSRC shall ensure periodic independent reviews and audits of activities as stated in the facility Technical Specifications and this QAPD are performed. Review of events shall include the results of any investigations made and the recommendations resulting from such investigations to prevent or reduce the probability of recurrence of the event. Additional review activities by the MSRC should be performed to verify adequate organizational response to adverse performance trends.

The MSRC should monitor the results of audits, evaluations, and assessment activities to ensure that items that could affect plant safety are reviewed. The MSRC may delegate review functions to subcommittees, that may include MSRC members, provided that the subcommittees report the results of their reviews to the MSRC.

### 3.2 Composition

The MSRC shall be composed of the Chairperson and a minimum of four members, of whom no more than a minority are members of the plant operating organization. The CNO shall appoint, in writing, a Chairperson. The Chairperson shall appoint, in writing, a minimum of four members to the MSRC and shall designate from this membership, in writing, a Vice Chairperson. Consultants should be utilized as determined by the MSRC Chairperson to provide expert advice to the MSRC.

### 3.3 Alternates

Alternates shall be designated in advance, but their use shall be restricted to legitimate absences of principals.

3.4 Meeting Frequency

The MSRC shall meet at least once per six months. During initial operation of a newly constructed power plant the meeting frequency shall be at least once per calendar quarter.

MSRC decisions should be made at formal meetings. However, in extenuating circumstances where it is impractical to convene a quorum for a formal meeting within a necessary time constraint, alternative means such as a conference call may be used. In such cases, action taken shall be reviewed by a quorum of the MSRC at its next regularly scheduled meeting.

3.5 Quorum

The quorum of the MSRC shall consist of a majority of regular members including the Chairperson or Vice Chairperson. No more than a minority of the quorum shall have line responsibility for operation of a Company nuclear facility.

3.6 Records

Minutes of all MSRC meetings shall be prepared and retained. All documents reviewed should be identified. Decisions and recommendations made by the MSRC shall be documented. Minutes of each MSRC meeting shall be disseminated promptly to appropriate members of management having responsibility in the area reviewed. Records of meeting minutes shall be retained in accordance with Section 17 of this QAPD.

## 4. Facility Safety Review Committee

The facility safety review committee serves in an advisory capacity to the executive management position responsible for facility operations on all matters related to nuclear safety for their assigned Company facilities.

4.1 Composition

The facility safety review committee shall be composed of a minimum of five members. The executive management position responsible for facility operations shall appoint, in writing, the members of facility safety review committee, including the facility safety review committee Chairperson and the Vice Chairperson drawn from the committee members.

4.2 Alternates

Alternate members shall be appointed in writing by the facility safety review committee Chairperson to serve on a temporary basis. Each alternate shall meet the minimum

qualifications described above for facility safety review committee members, and shall have the same area of expertise as the member being replaced.

4.3 Meeting Frequency

The facility safety review committee shall meet at least once per calendar month and as convened by the facility safety review committee Chairperson.

4.4 Quorum

A quorum of the facility safety review committee shall consist of the Chairperson or Vice Chairperson and two members or designated alternates. However, a maximum of one third of the voting membership may be designated alternates.

For any facility safety review committee decision affecting site-wide issues, the Chairperson shall ensure appropriate representation.

4.5 Responsibilities

The facility safety review committee shall be responsible for:

1. Review of 1) all procedures and programs required by facility Technical Specifications administrative controls and changes thereto that require a regulatory evaluation under the facility's 10 CFR 50.59 and 10 CFR 72.48 screening program, 2) changes to the quality program determined to be reductions in the commitment to quality under the provisions of 10 CFR 50.54(a), 3) any other proposed procedures, programs, or changes thereto affecting facility nuclear safety as determined by the executive management position responsible for facility operations.
2. Review of all proposed changes to nuclear facility Technical Specifications.
3. Review of all proposed tests and experiments that affect nuclear safety.
4. Review of all proposed changes or modifications to systems or equipment that affect nuclear safety.
5. Rendering determinations in writing or meeting minutes if any item considered under 1. through 4. above, as appropriate and as provided by 10 CFR 50.59, 10 CFR 50.92, or 10 CFR 72.48 requires a license amendment or requires a significant hazards consideration determination.
6. Performance of special reviews and investigations and reports as requested by the Chairperson of the facility safety review committee or the executive management position responsible for facility operations.

7. Investigations of all violations of Technical Specifications, including the preparation and forwarding of reports covering evaluation and recommendations to prevent recurrence, to the executive management position responsible for facility operations, the CNO, executive management position responsible for nuclear operations, and to the Chairperson of the MSRC.
8. Review of all nuclear facility reportable events.
9. Review of facility operations to detect potential safety hazards.
10. Review of Millstone Unit 3 Turbine Overspeed Protection Maintenance and Testing Program and revisions thereto, where applicable. (MPS committee only, based on regulatory commitment.)

4.6 Authority

The facility safety review committee shall:

1. Recommend to the executive management position responsible for facility operations written approval or disapproval in meeting minutes of items considered under Responsibilities 1. through 10. above. The executive management position responsible for facility operations will report any issues that require higher level of authority to the executive management position responsible for nuclear operations.
2. Provide written notification within 24 hours to the executive management position responsible for nuclear operations, and the Chairperson of the MSRC of disagreement between the facility safety review committee and the executive management position responsible for facility operations. The executive management position responsible for nuclear operations shall have responsibility for resolution of such disagreement.

4.7 Records

The facility safety review committee shall maintain written minutes of each meeting and copies shall be provided to the executive management position responsible for facility operations, the executive management position responsible for nuclear operations and the facility safety review committee. Records of the minutes shall be maintained in accordance with this QAPD, Section 17.

## 5. Independent Nuclear Safety Review

5.1 Independent nuclear safety review functions[1] are performed for Company nuclear facilities through integrated review activities that support safe operations. The functions of examining unit operating characteristics, NRC issuances, industry advisories, Licensee Event Reports, and other sources that may indicate areas for improving unit safety are accomplished by groups designated to perform the reviews. These groups shall maintain independence from the groups directly responsible for operating the power stations. Personnel selected to perform these functions shall have appropriate training and qualification for the tasks they will perform.

The following integrated activities are acceptable to meet the independent nuclear safety review requirements:

1. Corrective Action and Operating Experience Programs – Managed by Facility Safety and Licensing to ensure review of NRC and industry issuances, significant events and other operating experience.
2. Performance monitoring of key structures, systems, and components – Performed through engineering services groups using the programs that implement the Maintenance Rule of 10 CFR 50.65, as well as system and component health reports.
3. Technical reviews – Performed through engineering services groups using appropriate procedures to address technical operability functions, and changes that affect the station design basis.

Reports and recommendations developed through the above activities shall be made available to appropriate levels of management responsible for the facility's operation.

1. These groups perform the reviews to meet the guidelines of NUREG-0737, Section I.B.1.2 for the Independent Safety Engineering Group for MPS and NAPS.

# Appendix C
# Regulatory Guides and Quality Standards Commitments

# Regulatory Guides and Quality Standards Commitments

Through this QAPD, the Company commits to compliance with the regulatory guidance and industry standards governing quality assurance as described below along with any exceptions, alternatives, or clarifications described within this QAPD. Commitment to a particular Regulatory Guide or industry standard does not constitute commitment to Regulatory Guides or other standards that may be referenced therein; unless otherwise stated within this QAPD, those referenced documents are considered as guidance. When applicable, for Class 1, 2, and 3 items covered by Section III of the ASME Boiler and Pressure Vessel Code, the code Quality Assurance requirements are supplemented by the guidance of applicable regulatory guides and this QAPD.

## 1. Regulatory Guide 1.8, Revision 1-R (Reissued May 1977)

*Personnel Selection and Training*

This commitment applies to the Kewaunee Power Station and Millstone Power Station facilities only. This Regulatory Guide endorses ANSI N18.1-1971, *Selection and Training of Nuclear Power Plant Personnel.* Where these editions of the Regulatory Guide and ANSI standard are invoked by this QAPD and/or facility Technical Specifications, the Company will implement the requirements and guidance of the standard and Regulatory Guide subject to the following alternatives:

Applies to Kewaunee Power Station facilities only

1. The radiation protection manager shall meet or exceed the recommendation of Regulatory Guide 1.8, Revision 1-R, September 1975, or their equivalent as further clarified in Attachment 1 to the Safety Evaluation Report enclosed with Amendment No. 46, dated July 12, 1982. Rev. 12

2. The education and experience eligibility requirements for operator license applicants, changes thereto, shall be those previously reviewed and approved by the NRC, specifically those referenced in NRC Safety Evaluation letter for Amendment 170, dated October 2, 2003. Rev. 12

Applies to Millstone Power Station facilities only

1. ANSI N18.1-1971, Subsection 4.2.2, states in part "The Operations Manager shall hold a Senior Reactor Operator's license." The following alternative to this requirement may be used:

   The provisions of the Millstone Unit 2 and Unit 3 Technical Specifications Paragraph 6.3.2.

2. ANSI N18.1-1971, Subsection 4.3.1, states in part, "A Supervisor (requiring an AEC license) shall have a minimum of a high school diploma or equivalent, and four years of responsible power plant experience, of which a minimum of one year shall be nuclear power plant experience. A maximum of two years of the remaining three years of power plant experience may be fulfilled by academic or related technical training on a one-for-one basis." The following alternative to this requirement will be applied:

   Beginning November 1, 2001, applicants for senior reactor qualification shall meet or exceed the education and experience guidelines given in Revision 3 to Regulatory Guide 1.8. Reference license amendments 258 (MP2) and 199 (MP3).

3. ANSI N18.1-1971, Subsection 4.5.1, states in part, "An operator (to be licensed by the AEC) shall have a minimum of a high school diploma or equivalent, and two years of power plant experience, of which a minimum of one year shall be nuclear power plant experience." The following alternative to this requirement will be applied:

   Beginning November 1, 2001, applicants for reactor qualification shall meet or exceed the education and experience guidelines given in Revision 3 to Regulatory Guide 1.8 (May 2000). Reference license amendments 258 (MP2) and 199 (MP3).

## 2. Regulatory Guide 1.8, Second Proposed Revision 2, (September 1980)

*Personnel Qualification and Training*

This commitment applies to the North Anna and Surry facilities only. This Regulatory Guide endorses ANSI/ANS-3.1 (Draft 12/79), *Qualification and Training of Personnel for Nuclear Power Plants*. Where these editions of the Regulatory Guide and ANSI standard are invoked by this QAPD and/or facility Technical Specifications, the Company will implement the requirements and guidance of the standard and Regulatory Guide subject to the following alternatives:

1. ANS-3.1 (Draft 12/79), Subsection 4.2.2 c. for the Operations Manager Training requires the individual filling this position to obtain and hold a senior operator license. The following alternative to this requirement will be applied:

   The individual filling the role of operations manager and the individual filling the role of operations middle manager (supervisor shift operations) will meet the license requirements of North Anna Units 1 and 2 Technical Specification 5.2.2.e or Surry Units 1 and 2 Technical Specification 6.1.2.2.d as applicable.

2. ANS-3.1 (Draft 12/79), Section 4.1 addresses those circumstances where individuals do not possess the formal educational requirements specified in the standard by indicating that other factors should be evaluated to ensure qualified individuals fill the organizational functions. As part of that evaluation, either of the following additional experience requirements may be considered equivalent to a Bachelor's Degree:

   (1) Six years of applied engineering experience at a nuclear facility in the area for which qualification is sought. In addition, experience and training requirements for the function shall be met as delineated.

   (2) Six years of operational or technical experience/training related to engineering in nuclear power. In addition, experience and training requirements for the function shall be met as delineated.

3. ANSI/ANS-3.1 (Draft 12/79), Subsection 4.4.5, *Quality Assurance*, identifies the requirements for professional or technical group leaders in the Quality Assurance function. The individuals filling this function within the Company's Nuclear Oversight organization will comply with the following alternative:

   ANSI/ANS-3.1-1993, Subsections 4.3.7, *Quality Assurance*, and 4.4.13, *Quality Assurance or Quality Control*, subject to the description of the commitment to NRC Regulatory Guide 1.8, Revision 3 below.

4. ANSI/ANS-3.1 (Draft 12/79), Subsection 4.3.2.b, describes the experience requirements for supervisors not requiring NRC license. The following alternate experience requirements may be applied to personnel filling the supervisory function:

   At the time of appointment to the position; the supervisor shall have 4 years experience in the craft or discipline he supervises or an equivalent number of years nuclear plant experience in a supervisory position with a Senior Reactor Operator's license.

5. ANSI/ANS-3.1 (Draft 12/79), Subsection 5.3.3 describes the training requirements for the Shift Technical Advisor with Bachelor Degree without an NRC Senior Operator License. In lieu of the requirement of item 3) to that subsection, the following alternative may be applied:

   The Shift Technical Advisors will observe control manipulations on the simulator as appropriate.

6. ANSI/ANS-3.1 (Draft 12/79), Section 5.5 describes the retraining program requirements. The following alternative requirements will be applied for the following functional positions:

   Requalification training requirements for Nuclear Shift Supervisor, Nuclear Assistant Shift Supervisor, Control Room Operator - Nuclear, and Shift Technical Advisor are addressed in the Technical Specifications of the individual nuclear facility.

## 3. Regulatory Guide 1.8, Revision 3, May 2000

*Qualification and Training of Personnel for Nuclear Power Plants*

This commitment applies to quality verification functions and support functions responsible for multiple facilities. This Regulatory Guide endorses ANSI/ANS-3.1-1993, *Selection, Qualification, and Training of Personnel for Nuclear Power Plants.* Where these editions of the Regulatory Guide and ANSI standard are invoked by this QAPD and/or facility Technical Specifications, the Company will implement the requirements and guidance of the standard and Regulatory Guide subject to the following alternatives:

1. Regulatory Guide 1.8, Rev. 3, C. Regulatory Position, Paragraphs 2.1.1 and 2.1.3 address approval by the plant manager of the equivalents for education and experience for personnel filling Quality Assurance functional positions. The following alternative requirement for approval of the equivalents will be used by replacing the second sentence in each of the above paragraphs with the following sentence:

   These other factors are to be evaluated on a case-by-case basis and approved and documented by the plant manager or the responsible executive.

2. Regulatory Guide 1.8, Rev. 3, C. Regulatory Position, Paragraphs 2.1.2, 2.3, 2.11, and 2.12 address endorsement of ANSI/ASME NQA-1-1983 related to qualification of Quality Control and Quality Assurance Personnel. The following alternative standard will be used for the qualification of these personnel:

   References to ANSI/ASME NQA-1-1983 and associated Supplements and Appendices are replaced with references to ANSI/ASME NQA-1-1994 and its associated Supplements and Appendices.

## 4. 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*

The commitment to this Guide (including revision/date) is site specific as described in the approved SAR or License for each Company nuclear facility. Where items do not conform to the requirements of the Guide they are addressed in the applicable facility's SAR. The quality

group classification systems used for the facilities conforms with the requirements of this Regulatory Guide with the following alternative:

The Company does not use the specific A, B, C, and D quality groups set forth in this guide. However, the Company met the requirements of this guide in developing the list of SSCs and the corresponding association to quality standards. The specific items the QA program applies to are described in detail in the lists maintained by the Nuclear Engineering group.

## 5. Regulatory Guide 1.28, Revision 3, August 1985

*Quality Assurance Program Requirements (Design and Construction)*

This Regulatory Guide addresses requirements for assuring quality during the design and construction phases of nuclear power plants. The Company will implement the requirements and guidance of the standard and Regulatory Guide during the design and construction phases of the facilities subject to the following alternatives:

1. Part C, Regulatory Position of this Regulatory Guide endorses the basic and supplementary requirements of ANSI/ASME NQA-1-1983 and the ANSI/ASME NQA-1a-1983 Addenda for the establishment and execution of quality assurance programs during the design and construction phases of nuclear power plants.

   In place of the specific edition and addenda of NQA-1 addressed in the Regulatory Guide, the Company commits to implement the requirements of the 1994 Edition. The Company's commitment to these requirements and any alternatives to the requirements are addressed below.

2. Regulatory Position 3.2 establishes external auditing requirements that are acceptable to the NRC during the design and construction phases.

   The guidance provided regarding external audits will also be implemented during the operational phase.

## 6. ANSI/ASME NQA-1-1994

*Quality Assurance Requirements for Nuclear Facility Applications*

The Company's quality assurance program will implement the basic and supplementary requirements of Part I and the requirements of Part II to the 1994 edition of NQA-1 subject to the alternatives addressed below:

1. The Introduction to Part I of NQA-1, Section 4, and certain Subparts to Part II of NQA-1, define terms to be used with the quality assurance requirements.

   Additional definitions applicable to implementation of the Company's Quality Assurance Program are contained in Appendix D to this QAPD.

2. Supplement 2S-1, *Supplementary Requirements for the Qualification of Inspection and Test Personnel* will include use of the guidance provided in Appendix 2A-1 the same as if it were a part of the Supplement. The following two alternatives may be applied to the implementation of the requirements of this Supplement and Appendix:

   (1) In lieu of being certified as Level I, II, or III in accordance with NQA-1-1994, personnel performing operations phase independent quality verification inspections, examinations, measurements, or tests of material, products, or activities will be required to possess qualifications equal to or better than those required for performing the task being verified; and the verification is within the skills of these personnel and/or is addressed by procedures. These individuals will not be responsible for the planning of quality verification inspections and tests (i.e., establishing hold points and acceptance criteria in procedures, and determining who will be responsible for performing the inspections), evaluating inspection training programs, nor certifying inspection personnel.

   (2) A qualified engineer may be used to plan inspections, evaluate the capabilities of an inspector, or evaluate the training program for inspectors. For the purposes of these functions, a qualified engineer is one who has a baccalaureate in engineering in a discipline related to the inspection activity (such as, electrical, mechanical, civil) and has a minimum of five years engineering work experience with at least two years of this experience related to nuclear facilities.

3. Supplement 2S-2, *Supplementary Requirements for the Qualification of Nondestructive Examination Personnel*, Subsection 2.1 requires application of Recommended Practice SNT-TC-1A, June 1980 Edition to NDE personnel.

   The Company will implement the qualification program required by this supplement in accordance with the applicable standard for the facility's commitment to the ASME code or other applicable code governing the activity.

4. Supplement 7S-1, *Supplementary Requirements for Control of Purchased Items and Services*, requirements will be incorporated into the Company program subject to the following alternative and exception:

NQA-1-1994, Supplement 7S-1 - Alternative

The following alternative may be applied when purchasing commercial grade calibration services from a calibration laboratory. Procurement source evaluation and selection measures need not be performed provided each of the following conditions are met:

(1) The purchase documents impose any additional technical and administrative requirements, as necessary, to comply with the Dominion Quality Assurance Program and technical provisions. At a minimum, the purchase document shall require that the calibration certificate/report include the laboratory equipment/standard used. Rev. 10

(2) The purchase documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.

(3) A documented review of the supplier's accreditation will be performed and will include a verification of each of the following:

- The calibration laboratory is a domestic (United States) calibration service supplier. Rev. 12

- The calibration laboratory holds a domestic (United States) accreditation by any of the following bodies, which are recognized by the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA):
  - National Voluntary Laboratory Accreditation Program (NVLAP), administered by the National Institute of Standards & Technology;
  - American Association for Laboratory Accreditation (A2LA);
  - ACLASS Accreditation Services (ACLASS); Rev. 10
  - International Accreditation Service (IAS);
  - Laboratory Accreditation Bureau (L-A-B);
  - Other NRC-approved laboratory accrediting body.
- The accreditation is based on ANSI/ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories."

- The published scope of accreditation for the calibration laboratory covers the necessary measurement parameters, range, and uncertainties. Rev. 10

(4) Purchase documents shall specify that the above conditions of this alternative method are also applicable to sub-suppliers of calibration services when the sub-suppliers are implementing this alternative. Rev. 12

NQA-1-1994, Supplement 7S-1, Section 10, "Commercial Grade Items" - Exception Rev. 10

The Company will use the guidance contained in EPRI NP-5652 instead of these requirements.

5. Supplement 10S-1, Supplementary Requirements for Inspection, Subsection 3.1 addresses reporting independence and requires that inspection personnel shall not report directly to the immediate supervisors who are responsible for performing the work being inspected.

   Where quality verification inspections at operating facilities are performed by the Maintenance group, to meet the independence requirements of NQA-1, Supplement 10S-1, Section 3.1, the inspectors report to the Facility Safety and Licensing organization (VA) or the Nuclear Oversight Group (KPS and MPS) while performing the inspection.

6. Subpart 2.2, *Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants*, requirements will be incorporated into the Company program subject to the following alternatives:

   (1) For items in storage, as determined by facility management the packaging requirements described under Section 3, "Packaging," may include alternate methods of affording the required protection such as maintaining a storage atmosphere free from harmful contaminants in concentrations that could produce damage to the stored items, or utilizing storage practices that obviate the need for capping all openings.

   (2) For items in storage at Company facilities, the items and the outside of containers (when present) need to meet the appropriate criteria of Subsection 3.9, "Marking," necessary to ensure the identity of the item, and proper instructions for preservation during storage and future handling are retained.

   (3) Regarding maintenance of items in storage in accordance with Subsection 6.4.2, "Care of Items," the requirement of item (f) will not apply to rotating electrical equipment less than 50 HP, the requirement of item (g) will not apply to rotating equipment weighing

less than 50 pounds, the requirements of (e), (f), and (g) may be exempted for specific items on a case-by-case basis provided that a documented engineering evaluation determines that such care is not required.

(4) Subsection 6.6, "Storage Records," requires written records be prepared containing information on personnel access. As an alternative to this requirement, Company documents establish controls for storage areas that describe those authorized to access areas and the requirements for recording access of personnel. However, these records of access are not considered quality records and will be retained in accordance with the administrative controls for the facility.

7. Subpart 2.3, *Quality Assurance Requirements for Housekeeping for Nuclear Power Plants*, will be implemented with the following alternative that will be applied during the operational phase:

   The Company may choose to not utilize the five-level zone designations, but will utilize work practices, as described in administrative controls, that provide an equivalent level of cleanliness control required by the subpart. This will include as a minimum documented cleanliness inspections which will be performed prior to system closure. As necessary, (e.g., the size of the opening would permit entry of the tools being used) control of personnel, tools, equipment, and supplies will be established when major portions of the reactor system are opened for inspection, maintenance, or repair.

8. Subpart 2.4, *Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities* (ANSI/IEEE Std. 336-1985), will be implemented with the following alternatives:

   (1) All references to ANSI/ASME NQA-1, ANSI/ASME NQA-2, and ANSI/ANS-3.2 are changed to refer to the appropriate sections of ANSI/ASME NQA-1–1994 and this QAPD.

   (2) With regard to Subsection 3.3, "Procedures and Instructions," as an alternative to the requirement to utilize a checklist and mark as required or not appropriate the listed items during preparation of procedures or instructions, the Company utilizes administrative controls to ensure the appropriateness and correctness of procedures and instructions including reviews against standards that may not require a checklist to be marked.

   (3) Instrumentation and control devices installed in operating facilities are not required to be labeled as described in Subsection 7.2.1, provided the information is maintained in suitable documentation traceable to the device.

9. Subpart 2.5, *Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete, Structural Steel, Soils, and Foundations for Nuclear Power Plants*, will be implemented with the following alternative:

   (1) Where important to safety structures other than concrete reactor vessels and containments are constructed or modified, other appropriate industry codes and standards may be invoked in place of ACI 359 as specified by the responsible design organization so long as they meet any current license commitments.

   (2) With regard to Subsection 7.7, "Curing," ASTM C 1315 is added to the first paragraph as another applicable standard for test methods for curing compounds.

10. Subpart 2.15, *Quality Assurance Requirements for Hoisting, Rigging, and Transporting of Items for Nuclear Power Plants*, will be implemented with the following alternative:

    The Company may choose to not use the specific classification of Categories A, B, and C, but ensures items to be handled are evaluated and the appropriate range of controls and requirements for the activity are applied consistent with this Subpart.

11. Subpart 2.16, *Requirements for the Calibration and Control of Measuring and Test Equipment Used in Nuclear Facilities* (ANSI/IEEE Std. 498-1985) will be implemented with the following alternatives:

    (1) All references to ANSI/ASME NQA-1, ANSI/ASME NQA-2, and ANSI/ANS-3.2 are changed to refer to the appropriate sections of ANSI/ASME NQA-1-1994 and this QAPD.

    (2) Instrumentation and control devices installed in operating facilities are not required to be labeled as described in Subpart 2.16, Subsection 5.5, provided the information is maintained in suitable documentation traceable to the device.

12. Subpart 2.18, *Quality Assurance Requirements for Maintenance of Nuclear Facilities*, will be implemented with the following alternative:

    (1) Where this subpart references the requirements of ANS-3.2, it shall be interpreted to mean the applicable standards and requirements established within this QAPD.

    (2) Regarding subsection 2.5, "Work Authorization," paragraph (d), the requirement that the description of work reference the applicable maintenance procedures will be treated as guidance. Personnel responsible for performance of the work are required to ensure that they are using the appropriate maintenance procedure.

## 7. Regulatory Guide 1.29, Revision 3, September 1978

*Seismic Design Classification*

The commitment to this guide is site specific as described in the approved SAR or License for each Company nuclear facility. The specific design criteria and seismic designations are reflected in each plant's SAR, and in other docketed analysis.

## 8. Regulatory Guide 1.33, Revision 2, February 1978

*Quality Assurance Program Requirements (Operation)*

This Regulatory Guide endorses ANSI N18.7-1976/ANS-3.2 as providing overall acceptable quality assurance program requirements for the operations phase of nuclear power facilities. The Company commits to implementing administrative controls and quality assurance measures during the operations phase for its facilities that are equivalent in nature to those contained in the endorsed standard subject to the following alternatives:

(1) The operational phase quality assurance program requirements will be established through the Company's commitment to ANSI/ASME NQA-1-1994 as described within this QAPD. This edition of NQA-1 contains overall quality assurance requirements equivalent to those of ANSI N18.7-1976, and the Company has included within this QAPD the required administrative controls from ANSI N18.7-1976. Therefore, the Company does not commit to compliance with the requirements of ANSI N18.7-1976/ANS-3.2.

(2) As recommended by Regulatory Position C.1, the Company uses Appendix A of Regulatory Guide 1.33 as guidance in establishing the types of procedures required for plant operation and support.

(3) The Company's commitment to the applicable Regulatory Guides and associated standards listed in Regulatory Position C.2 is addressed within this QAPD. A number of these Regulatory Positions and Standards have been incorporated into NQA-1.

(4) The Company complies with Regulatory Position C.3, as described in Appendix B of this QAPD. Appendix B of this QAPD describes the Company's independent review programs.

(5) The Company complies with Regulatory Position C.4 as described within Section 18 of this QAPD, subject to the following alternatives that are comparable to those approved under the previous operational quality assurance programs:

a. The results of actions taken to correct deficiencies affecting nuclear safety that occur in the facility SSCs or methods of operation are evaluated as a part of each audit performed as related to that audited area. An audit of the effectiveness of the corrective action program is performed at a frequency not to exceed two years.

b. Audits of conformance of facility operation to provisions of the Technical Specifications and applicable license conditions are performed at a frequency not to exceed two years.

c. Audits of the performance, training, and qualifications of the facility staff are performed at a frequency not to exceed two years.

(6) In lieu of compliance with Regulatory Position C.5, the Company has established appropriate equivalent requirements within this QAPD.

## 9. Regulatory Guide 1.36, Revision 0, February 1973

*Nonmetallic Thermal Insulation for Austenitic Stainless Steel*

None of the current Company nuclear facilities were committed to this Regulatory Guide during original construction. The Company does not commit to this Regulatory Guide for its existing plants. This Regulatory Guide may be used for plant modifications on a case-by-case basis.

## 10. Regulatory Guide 1.54, Revision 0, June 1973

*Quality Assurance for Protective Coatings Applied to Nuclear Power Plants*

This Regulatory Guide endorses ANSI N101.4-1972. The commitment to this Regulatory Guide during construction and earlier operations was site specific as listed in the approved SAR or License for each Company nuclear facility. The Company commits to the QA requirements of this Regulatory Guide and Standard for design and construction activities. Applicability and implementation of this guide, including quality inspection requirements, for modifications will be determined as needed, by a qualified engineer.

## 11. Regulatory Guide 1.97

*Instrumentation for Light-Water-Cooled Nuclear Power Plants To Assess Plant and Environs Conditions During and Following an Accident*

The Company commitment to this Regulatory Guide is site specific as indicated in the SAR for the applicable facility and the facility's response to the NRC regarding this guidance.

## 12. Regulatory Guide 1.143, Revision 2, November 2001

*Design Guidance for Radioactive Waste Management Systems, Structures and Components Installed in Light-water-cooled Nuclear Power Plants*

The commitment to this Regulatory Guide (including specific revision) during construction and earlier operations was site specific as listed in the approved SAR or License for each Company nuclear facility. The Company commits to this Regulatory Guide for the construction of any new nuclear power plants. The applicable requirements of this Regulatory Guide will be used for plant modifications on a case-by-case basis.

## 13. Regulatory Guide 1.152, Revision 1, January 1996

*Criteria for Digital Computers in Safety Systems of Nuclear Power Plants*

This Regulatory Guide endorses IEEE/ANS-7-4.3.2–1993. The Company commits to using the guidance of this Standard within the provisions of the Regulatory Guide with the following alternative:

> Where this Standard makes reference to ASME NQA-1 and ASME NQA-2, the reference will be interpreted to mean the applicable requirements of NQA-1-1994 and this QAPD.

## 14. Regulatory Guide 4.15, Revision 1, February 1979

*Quality Assurance for Radiological Monitoring Programs (Normal Operations)*

The Company programs for radiological environmental monitoring comply with the requirements of this Regulatory Guide.

## 15. Regulatory Guide 7.10, Revision 1, June 1986

*Establishing Quality Assurance Programs for Packaging Used in the Transport of Radioactive Material*

The Company programs for issuing radioactive material for transport complies with the QA requirements for procurement, use, and maintenance of packaging used in the transport of radioactive material as describe in this Regulatory Guide.

## 16. Generic Letter 89-02/EPRI-NP-5652

*Actions to Improve the Detection of Counterfeit and Fraudulently Marketed Products*

The Company commits to use of the endorsed industry guidance regarding the selection and qualification of commercial grade Suppliers and for the dedication of commercial grade items used in applications that are important to safety.

## 17. Branch Technical Position APCSB/CMEB 9.5-1

*Guidelines for Fire Protection for Nuclear Power Plants*

The Company commits to implementing the guidance of this Technical Position, however, application of the requirements is site specific as described in the applicable facility SAR and license documents. The Company QA program complies with the QA requirements described in APCSB 9.5-1, Position C or CMEB 9.5-1, Position C.4.

## 18. Generic Letter 85-06

*Quality Assurance Guidance for ATWS Equipment That Is Not Safety-Related*

The Company commitment to the guidance of this Generic Letter is site specific as indicated in the SAR for the applicable facility and the facility's response to the Generic Letter.

## 19. RIS 2000-18

*Guidance on Managing Quality Assurance Records in Electronic Media*

This Regulatory Issue Summary endorses the following set of four guidelines prepared by the Nuclear Information and Records Management Association (NIRMA):

NIRMA TG-11-1998, Authentication of Records and Media
NIRMA TG-15-1998, Management of Electronic Records
NIRMA TG-16-1998. Software Configuration Management and Quality Assurance
NIRMA TG-21-1998, Electronic Records Protection and Restoration

The Company commits to using the guidance of these four guidelines for storing QA records in electronic media.

# Appendix D
# Terms and Definitions

# Terms and Definitions

In addition to those terms defined in NQA-1-1994, the following definitions of terms are to be used in the context of this QAPD and activities governed by this QAPD.

**Administrative Controls** — Rules, orders, instructions, procedures, policies, practices and designations of authority and responsibility.

**Augmented Quality** — The application of selected quality assurance measures to structures, systems, components, or programs that are important to safe operation of the nuclear facilities but not classified as nuclear safety-related. Also known as non-safety-related with special quality/regulatory requirements (NSQ).

**Experiment** — Performance of those plant operations carried out under controlled conditions in order to establish characteristics or values not previously known.

**Deleterious Corrosion** — corrosion that cannot be subsequently removed and that adversely affects form, fit, or function.

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

**KPS** — Kewaunee Power Station

**Lifetime (Records)** — Lifetime in defining the retention period for records is until 1) termination of the applicable Facility Operating License, 2) termination of employment (training and qualification records), 3) transfer of ownership (i.e., fuel), 4) end of service life of the facility, system, or component, as applicable.

**MPS** — Millstone Power Station

**NAPS** — North Anna Power Station

**Nuclear Power Plant** — Any plant using a nuclear reactor to produce electric power, process steam or space heating.

**Operating Activities** — Work functions associated with normal operation and maintenance of the plant, and technical services routinely assigned to the facility operating organization.

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

**Organization, Facility Operating** — Personnel concerned with operation, maintenance and certain technical services such as reactor engineering and performance of tests/inspections. This organization is also referred to in various standards as the onsite organization and comprises the facility staff.

**Organization, Support** — Personnel providing support functions to the operating organization regardless of their physical location. This organization is also referred to in various standards as the offsite organization.

**Program Deficiency** — Failure to develop, document or implement effectively any applicable element of the QA Program.

**Quality Verification** — The act of reviewing, inspecting, testing, checking, auditing, or otherwise determining and documenting whether items, processes, services, or documents conform to specified requirements integral to the QA Program.

**Safety Analysis Report (SAR)** — This term is used generically to refer to the SAR required by NRC regulations that is applicable for the particular nuclear facility for which the activity is being performed. This usage includes, but is not limited to preliminary, final, updated final, and decommissioning safety analysis reports.

**Supervision** — Direction of personnel activities or monitoring of plant functions by an individual responsible and accountable for the activities he directs or monitors.

**SPS** — Surry Power Station

**Surveillance Testing** — Periodic testing to verify that safety-related structures, systems and components continue to function or are in a state of readiness to perform their functions.

**System** — An integral part of a nuclear power plant comprising components which may be operated or used as a separate entity to perform a specific function.

**Time Intervals** — With the exception of time intervals from applicable Codes or the facility Technical Specifications, the following definitions shall be applied for other activities and may be extended by up to 25%:

Weekly: at least once per 7 days

Monthly: at least once per 31 days

Quarterly or every 3 months: at least once per 92 days

Semiannually or every 6 months: at least once per 184 days

Every 9 months: at least once per 276 days

Yearly or annually: at least once per 366 days

Biennial (2 years): at least once per 732 days

Triennial (3 years): at least once per 1098 days

**VA** — Virginia Power Stations, i.e., NAPS and SPS

# Appendix E
# Additional QA Records Requirements For Operating Facilities

## Additional QA Records Requirements For Operating Facilities

The following Table lists the type of records and the required retention times and provides additional requirements to those described in the Quality Standards Commitment discussed in Section 17 of this QAPD.

| Description of Records | Retention Periods |
|---|---|
| Records and drawing changes reflecting plant design modifications made to systems and equipment described in the SAR | Lifetime |
| Records of new, irradiated, and spent fuel inventory, transfers of fuel, and assemblies history | Lifetime plus 5 years |
| Records of plant radiation and contamination surveys | Lifetime |
| Records of off-site environmental monitoring surveys | Lifetime |
| Records of radiation exposure of all individuals who enter radiation control areas | Lifetime |
| Records of radioactive levels of liquid and gaseous waste released to the environs | Lifetime |
| Records of reviews performed for changes made to the offsite dose calculation manual and the process control program | Lifetime |
| Records of meetings of the facility safety review committee and the Management Safety Review Committee | Lifetime |
| Records of transient or operational cycles for those facility components designated to operate safely for a limited number of transients or operational cycles | Lifetime |
| Records of the service lives of all hydraulic and mechanical snubbers on safety-related systems, including the date at which the service life commences and associated installation and maintenance records (VA) | Lifetime |
| Records of Environmental Qualification in accordance with 10 CFR 50.49 | Lifetime |
| Records of secondary water sampling and water quality | Lifetime |
| Records of normal plant operation, including power levels and periods of operation at each power level | 5 years |
| Records of principal maintenance activities, including inspection, repair, substitution or replacement of principal items of equipment important to nuclear safety | Lifetime |
| Records of reportable events | 5 years |
| Records of special reactor tests or experiments | 5 years |

| Description of Records | Retention Periods |
|---|---|
| Records of changes made in procedures pursuant to 10 CFR 50.59 or 72.48 | 5 years |
| Records of radioactive material shipments | 3 years |
| Records of sealed source leak test results and physical inventories of sealed source material | 5 years |
| Records of current individual plant staff members qualifications, experience, training and retraining | Lifetime or as noted below |
| • Radiological protection training records (e.g., general training provided to personnel with access to the facilities, Advanced Radiation Worker, Radiation Protection Technician, etc.) | Lifetime |
| • Initial training and qualification records | Lifetime |
| • Requalification records (except licensed individuals) | 3 training cycles |
| • Requalification records for licensed individuals | 6 years after license renewal |
| • Training materials – Revision 0 records | Lifetime |
| •• Licensed Operators training materials – superseded revisions | 6 years |
| •• Non-licensed Facility staff training materials – superseded revisions | 3 training cycles |
| •• Radiation Protection training materials – superseded revisions | Lifetime |
| • Retraining, specialized training, continuing training records (except licensed individuals and Radiological Protection technicians | 3 training cycles |
| • Contractor training (except general training for facility access, Advanced Radiation Worker, Radiation Protection Technician training and retraining, etc.) | 3 training cycles |
| NANT Accreditation records – Initial accreditation<br>– Superseded material | Lifetime<br>4 Years |
| • Simulator facility records (e.g., certification and basis documents, NRC Form-474, performance test, fidelity reports, maintenance and modifications, and basis documents, etc.) | |
| – Initial accreditation records | Lifetime |
| – Superseded material | 4 years after submittal of NRC Form-474 |