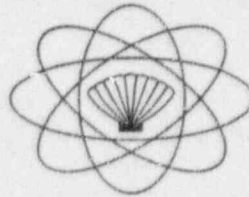


BALTIMORE GAS AND ELECTRIC COMPANY



Quality Assurance Policy

for the

Calvert Cliffs Nuclear Power Plant

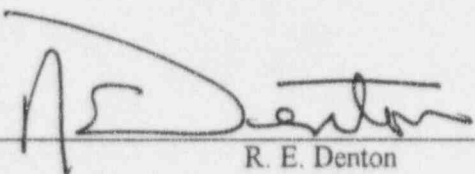
Approved  Date 7/11/95 (1)  
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**1B.1 ORGANIZATION AND RESPONSIBILITIES**

All levels of organization have definite and unique responsibilities in assuring safe, economical, and reliable operation of Calvert Cliffs Nuclear Power Plant (CCNPP). Top level management is responsible for ensuring that policies are established, resources are authorized, management philosophy and commitments are communicated to lower levels of the organization, independent verification of management controls are performed, results are reviewed, and appropriate actions taken when necessary.

Middle level management is responsible for translating management policies, philosophy, commitments, and goals; applicable federal, state, and local rules and regulations; Operating Licenses, Technical Specifications (TS), and the Updated Final Safety Analysis Report (UFSAR) into control programs for activities such as design, procurement, construction, testing, operation, refueling, maintenance, repair, modification, training, plant security, fire protection, records, independent verification, and corrective action. Middle level management is also responsible for defining, measuring, and modifying the overall effectiveness of control programs; taking appropriate action on the results; and keeping top management informed of the status, adequacy, and effectiveness of control programs, and matters which could have an impact on nuclear safety.

First line craft and non-craft supervisors are individually responsible for ensuring that appropriate procedures are understood and used to implement each activity described in the control programs; identifying problems, seeking solutions, verifying implementation of solutions; investigating root causes of problems and taking preventive actions; ensuring that conditions adverse to plant and personnel safety are promptly identified, reported, and corrected; detecting trends which may not be apparent to a day-to-day observer, recommending generic solutions for adverse trends to management, and taking appropriate actions, to achieve desired results; ensuring that employees assigned to do a job are properly qualified through appropriate training and experience; have properly qualified procedures, tools, equipment, and parts to do the job, and, ensuring that independent inspections of work are conducted in accordance with preestablished requirements. First line non-craft supervisors are responsible to ensure that procedures are written, reviewed, and approved; first line craft supervisors may not have this responsibility. Non-supervisory personnel acting as job directors are responsible for ensuring that properly qualified procedures are understood and used; and ensuring that tools, equipment, and parts are on hand to do the job.

Adherence to procedures is vital to the safe and reliable operation of the Calvert Cliffs Nuclear Power Plant. Personnel are responsible for adhering to established procedures, interpreting them conservatively in case of doubt, and recommending changes when necessary. Procedures with the potential to affect nuclear or personnel safety shall be strictly adhered to. When an activity controlled by such procedures cannot be accomplished as described or accomplishment of such activity would result in an undesirable situation, the work shall be stopped and the plant placed in a safe condition. Work shall not resume until the procedure is changed to reflect correct work practices. (1)

Procedures may be deviated from during emergencies to prevent or minimize injury to personnel or damage to plant equipment. Any such deviations should be thoroughly documented. (1)

Corporate Organization and Specific Responsibilities

The Corporate Organization Chart of the Baltimore Gas and Electric Company (BGE) is shown in Figure 1B-1. Persons responsible for the principal elements of the Company's Quality Assurance (QA) Program are as follows: (1)

Chairman of the Board

President and Chief Operating Officer

Senior Vice President-Generation

Vice President-Nuclear Energy Division (NED)

Plant General Manager-Calvert Cliffs Nuclear Power Plant Department (CCNPPD)

Manager-Nuclear Engineering Department (NED)

Manager-Nuclear Quality Assurance Department (NQAD)

Manager-Nuclear Support Services Department (NSSD)

Manager-Nuclear Outage & Project Management Department (NOPMD)

In addition to these individuals, the Vice Presidents of Corporate Affairs (CA), Fossil Energy Division (FED), Electric Interconnection and Transmission Division (EITD), General Services Division (GSD), and the Management Services Division (MSD), as well as the Managers of the System Operation and Maintenance Department (SOMD), Purchasing & Materials Management Department (PMMD), Information Systems Department (ISD), Facilities and Fleet Services Department (FFSD), Fossil Engineering & Maintenance Department (FEMD), Fossil Support Services Department (FSSD), and the Safety and Medical Services Department (SMSD) are assigned support responsibilities. (1) The above Managers constitute the Nuclear Program Managers who are assigned responsibilities within the QA Program. Other departments performing any maintenance/modification activities at CCNPP are responsible for performing these activities in accordance with applicable QA Program requirements. This can be accomplished by either developing their own QA Program procedures or by working to the QA Program through appropriate Nuclear Energy Division personnel using CCNPP procedures. (15)

Also, two advisory groups perform quality-related functions for plant operations. These are the Plant Operations and Safety Review Committee (POSRC) and the Off-Site Safety Review Committee (OSSRC) whose makeup and responsibilities are described in the TSs for CCNPP.

Chairman of the Board, President and Chief Operating Officer, and Senior Vice President-Generation

BGE's QA Program for nuclear power plants is established under the authority of the Chairman of the Board, President and Chief Operating Officer, and Senior Vice President-Generation, who are responsible for establishing the overall QA Policy. They assign project responsibilities to the organizations shown in heavy-lined boxes in Figure 1B-1. (1)

The Chairman of the Board assigns authority through the President and Chief Operating Officer and Senior Vice President-Generation to the Vice President-Nuclear Energy Division. Primary responsibilities for developing, implementing, and maintaining the QA Program are assigned to Department Managers by the Vice President-Nuclear Energy Division. Managers delegate their authority as required to implement their responsibilities. (1)

Quality assurance matters that cannot be resolved by the Managers or Vice Presidents are brought to the attention of the Senior Vice President-Generation, President and Chief Operating Officer, or the Chairman of the Board for resolution.

#### Vice President-Nuclear Energy Division

The Vice President-Nuclear Energy Division, is responsible to the Senior Vice President-Generation for ensuring that the QA Program is developed and implemented. The authority to develop QA Program Documents is assigned to designated Nuclear Program Managers. The Vice President-Nuclear Energy Division, is also responsible for ensuring that the requirements of the QA Program that relate to the design, operation, and maintenance of the plant are implemented. This responsibility is carried out through Nuclear Program Managers.

#### Manager-Nuclear Quality Assurance Department

The Manager-NQAD, is responsible for assuring an appropriate QA Program is established and effectively executed for CCNPP. He is responsible for auditing, quality verification, vendor evaluation, and independent safety evaluation functions for CCNPP. These responsibilities include:

1. Developing, and revising the QA Policy.
2. Ensuring that QA Compliance reviews are completed for program acceptability of Directives and their revisions before they are approved. (9)
3. Taking necessary corrective action, which can include the stoppage of work when manufacturing, maintenance, or modification activities fail to comply with approved specifications, plans, or procedures. Such corrective action is arranged through appropriate channels and is delegated when necessary. When a unit is operating, the Manager-NQAD, may recommend to the Plant General Manager that the plant be shut down. The Plant General Manager has the final responsibility for the overall evaluation of all aspects and implications of shutting down an operating unit.

NQAD personnel who report to the Manager-NQAD, are independent of departments, sections, and employees responsible for performing specific activities, and have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions through designated channels; and to verify implementation of solutions. Non-NQAD personnel who are authorized to perform activities under NQAD programs are matrixed to NQAD for the performance of such activities, and possess similar organizational freedom and independence from the activities.

BGE has established that the Manager-NQAD, should have at least six years of responsible experience in engineering, design, manufacturing, construction, quality assurance, or power plant operation, as well as a knowledge of regulations and standards related to nuclear power plants.

The organization of NQAD is shown in Chapter 12 of the UFSAR. The Manager-NQAD, delegates the following responsibilities for accomplishing the following activities:

- Planning and scheduling evaluations of vendor quality assurance programs.
- Reviewing proposed changes to QA Program documents for compliance with regulations and licensing documents.
- Planning, scheduling, and performing internal audits/surveillances and evaluations of on-site and off-site functions performed under the nuclear QA Program.
- Supporting maintenance and operations activities by performing inspections and surveillances, or by providing oversight of other department personnel as they perform inspections and surveillances. (11)
- Directing investigations of significant events to determine root cause, recommending corrective action, and generating appropriate reports to document the investigation results; directing a program for identifying trends within the corrective action systems.
- Directing reviews of the operating experience of other plants of similar design to determine the applicability of significant events with respect to CCNPP. (14)

#### Plant General Manager-Calvert Cliffs Nuclear Power Plant Department

The Plant General Manager is responsible for operations, chemistry, radiation safety, maintenance, industrial safety and fire protection, and systems and performance engineering activities at CCNPP. He must ensure that these activities are conducted in accordance with the plant operating license and TSS, the UFSAR, the QA Program, and procedures. The Plant General Manager fulfills the position and requirements of the Plant Manager, as defined in ANSI N18.1 (1971). He, or one of his designated principal alternates, shall have acquired the experience and training normally required for examination for a senior reactor operator's license.

The organization of CCNPPD is shown in Chapter 12 of the UFSAR. The Plant General Manager, delegates responsibilities for accomplishing required activities as follows:

1. The Superintendent-Nuclear Operations (S-NO) is responsible to the Plant General Manager, for the operation of the plant, including the general supervision of all shift operating personnel and prioritization of maintenance activities to support operations. This responsibility covers the safety of plant personnel and equipment, all fuel-handling and refueling activities, and adherence to applicable license and regulatory requirements. The Superintendent-Nuclear Operations fulfills the position and requirements of the Operations Manager as defined in ANSI N18.1 (1971) with the exception taken in Table 1B.1.

The Superintendent-Nuclear Operations delegates primary management responsibility to the Shift Supervisor on duty, via the General Supervisor-Nuclear Plant Operations (GS-NPO) to ensure the safe operation of the plant under all conditions. The Shift Supervisor maintains the broadest possible perspective on operational conditions that affect the safety of the plant. As the senior member of plant management on each shift, he exercises the command authority of his position to take whatever steps he deems necessary during emergency situations to place and maintain in a safe configuration any unit that may be affected.

2. The Superintendent-Nuclear Maintenance (S-NM) is responsible to the Plant General Manager for managing and directing activities of the Nuclear Maintenance Section to provide high quality maintenance programs, plans and schedules, and qualified personnel to perform



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maintenance functions necessary to assure the safe, reliable, and economic operation of the plant to generate power within applicable laws, standards, codes, and regulatory requirements.

- a. The General Supervisor-Electrical and Controls (GS-E&C), is responsible to the Superintendent-Nuclear Maintenance, for the conduct of electrical and instrument maintenance, repair, and modifications needed to keep the plant and its facilities, systems, and equipment in safe and efficient working condition. He is responsible for planning and supervising or controlling the electrical and instrument maintenance activities conducted by plant maintenance personnel, and for ensuring that work is performed in accordance with applicable Codes and Standards and that required maintenance records are developed and kept. He is responsible for controlling tools and equipment used for electrical and instrument maintenance, repair and modifications activities.
  - b. The General Supervisor-Mechanical Maintenance (GS-MM), is responsible to the Superintendent-Nuclear Maintenance, for the conduct of mechanical maintenance, repair, and modifications needed to keep the plant and its facilities, systems, and equipment in safe and efficient working condition. He is responsible for planning and supervising or controlling the mechanical maintenance activities conducted by plant maintenance personnel, and for ensuring that work is performed in accordance with applicable Codes and Standards and that required maintenance records are developed and kept. He is responsible for controlling tools and equipment used for mechanical maintenance, repair, and modifications activities.
3. The Superintendent-Technical Support (S-TS) is responsible to the Plant General Manager for managing and directing the activities of the Technical Support Section to provide systems and performance engineering, surveillance testing administration, chemistry and radiation safety support, inservice inspection, nondestructive examination, materials testing and evaluation, and industrial safety and fire protection support to assure the safe, reliable, economic operation of CCNPP. The S-TS is also responsible for overall direction and coordination of activities to ensure compliance with the Radiological Effluent Technical Specifications. This responsibility is carried out through the General Supervisor-Chemistry with support from the Director-Environmental Programs and the Manager-FSSD.
- a. The General Supervisor-Chemistry (GS-C) is responsible to the Superintendent-Technical Support for the chemistry and radiochemistry of the primary and secondary systems and for maintaining radioactive effluents within specified limits. Additionally, the GS-C provides program management oversight of the Radiological Environmental Monitoring Program to ensure compliance with the Radiological Effluent Technical Specifications.
  - b. The General Supervisor-Radiation Safety (GS-RS) under the nuclear QA Program, is responsible to the Superintendent-Technical Support for
    - Ensuring the radiation protection of personnel at CCNPP.
    - Complying with radioactive material transport regulations.

- c. The Supervisor-Safety and Fire Protection is responsible to the Superintendent-Technical Support for development, implementation and coordination of the industrial safety program; implementing the fire prevention and fire fighting programs for the CCNPP; and planning, scheduling and monitoring activities directly related to safety, fire protection, and prevention.
- d. The General Supervisor-Plant Engineering (GS-PE), is responsible to the Superintendent-Technical Support for providing field engineering and technical evaluation of plant systems and to evaluate and coordinate resolution of system and component problems with operations, maintenance, and engineering personnel for the Calvert Cliffs Nuclear Power Plant. Additionally, the GS-PE is responsible to the S-TS for providing plant reliability/availability testing and evaluation, plant performance improvement, and administration of the Surveillance Test Program.
- e. The Principal Engineer-Materials Engineering and Inspection is responsible to the Superintendent-Technical Support for providing inservice inspection, nondestructive examination, and materials testing and evaluation services for the Calvert Cliffs Nuclear Power Plant.

#### Manager-Nuclear Engineering Department

The Manager-NED, is responsible for directing the efforts of personnel and providing resources necessary to support design, modification and engineering activities covered by the QA Program for CCNPP. These activities include nuclear, mechanical, civil, reliability, instrument and controls, and electrical engineering; nuclear fuel management; configuration management; life cycle management; plant design support; fire protection program development; engineering planning; licensing, and design and drawing.

The organization of NED is shown in Chapter 12 of the UFSAR. The Manager-NED delegates responsibilities for accomplishing the following activities:

- Providing conceptual and detailed engineering, design and drawing, fire protection program development, data base configuration control, and documentation and maintenance of plant design bases for the power and control systems for the Calvert Cliffs Nuclear Power Plant.
- Directing and performing safety evaluations, preparation and review of nuclear safety accident and transient analysis, fuel management, nuclear engineering related to core physics, reactor engineering, external fuel cycle management, reliability engineering and development and integration of programs necessary to operate up to and beyond the current licensed lifetime for the Calvert Cliffs Nuclear Power Plant.
- Providing plant design support, and engineering planning and scheduling for the power and control systems for the Calvert Cliffs Nuclear Power Plant.
- Providing licensing services; coordination and operation of various industry information exchange systems; evaluation of plant events and conditions adverse to quality for reportability to the NRC and other agencies, assisting in the investigation and evaluation of events, and preparation of the reports; coordination of tracking and resolution of company commitments to the NRC; research and preparation of responses to NRC letters, bulletins, circulars and information notices; UFSAR research and revision control; maintenance and revision of the current licensing basis for nuclear power plants; coordination of all compliance-related communications with external agencies including assistance in ensuring their consistency with existing licensing basis commitments; and coordination of regulatory inspections and visits and company presentations to the NRC.

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Manager-Nuclear Outage and Project Management Department

The Manager-NOPMD is responsible for directing the efforts of personnel and providing resources necessary to support site integrated scheduling, outage management and project management for assigned projects. The organization of NOPMD is shown in Chapter 12 of the UFSAR. The Manager-NOPMD delegates responsibilities for accomplishing the following activities:

- Developing, implementing and maintaining a site integrated schedule which schedules all significant plant related activities at CCNPP.
- Managing the planning, scheduling and performing of all outages at CCNPP.
- Providing overall project management for engineering, procurement, construction and testing of nuclear power plant modification for CCNPP.

Manager-Nuclear Support Services Department

The Manager-NSSD is responsible for emergency planning, training, nuclear security, onsite procurement coordination, procurement engineering, receipt inspection and storage/issue of items, procedures upgrade, state regulatory matters, strategic planning, and staff services functions for CCNPP.

The organization of NSSD is shown in Chapter 12 of the UFSAR. The Manager-NSSD delegates responsibilities for accomplishing the following activities:

- Providing support to Managers in the Nuclear Energy Division to ensure their personnel are properly trained and qualified to perform their assigned duties, including those duties which implement the nuclear QA Program. Training required by special work forces and contractors would be performed by the appropriate BGE Department, and/or Host Company (vendor).
- Distributing, and coordinating the preparation of revisions to the QA Program documents; collecting, storing, maintaining, and retrieving QA records for nuclear power plants; maintaining, controlling, and distributing drawings and technical manuals related to equipment, materials, and services for nuclear power plants; coordinating investigations concerning state regulatory matters; coordinating the efforts of Nuclear Energy Division personnel involved in the procurement of structures, systems, components, parts, and services related to the design, construction, fueling, maintenance, and modifications of CCNPP.
- Establishing procedures to assure that SR and DNSR procurement documents identify technical and quality requirements; procurement (SR and DNSR) documents receive independent review and approval for the proper inclusion of technical and quality requirements; ensuring spare and replacement parts are suitable for their intended application(s); specification of critical characteristics and acceptance criteria for dedication of commercial grade items; specification of special storage requirements for age sensitive items.

- Performing receipt inspection functions including special receipt inspections and coordinating testing performed to accept commercial grade items, designated NSR items or upgrade NSR items for use in SR applications. (5)
- Ensuring that the operational, maintenance, licensing, and training activities associated with plant security are effectively implemented, and that nuclear security provisions provide protection for personnel, equipment, and facilities at CCNPP against potential security threats.
- Directing the efforts of personnel responsible for the storage and issuance of items for CCNPP.
- Development of the annual Strategic plan for the Nuclear Energy Division including the Nuclear Program Plan.
- Directing the efforts of BGE personnel involved in emergency planning activities.

Individuals supporting the CCNPP QA Program are designated as follows:

#### Vice President-Fossil Energy Division

The Vice President-FED, is responsible to the Senior Vice President-Generation for ensuring that the activities of FED personnel involved in CCNPP maintenance and modifications, and radiological environmental monitoring, meet the requirements of the QA Program. This responsibility is carried out through the Manager-FEMD, and the Manager-FSSD.

##### Manager-Fossil Engineering & Maintenance Department

The Manager-FEMD, is responsible for directing the efforts of FEMD personnel involved in maintenance and modification activities at CCNPP.

##### Manager-Fossil Support Services Department

The Manager-FSSD, is responsible for directing the efforts of FSSD personnel involved in maintaining and operating Radiological Environmental Monitoring equipment and performing sample collection and analysis.

#### Vice President-Electric Interconnection and Transmission Division

The Vice President-EITD, is responsible for ensuring that the requirements of the QA Program that relate to the calibration of test equipment and the testing of protective relaying, and metering controls for SR electrical power equipment are implemented. This responsibility is carried out through the Manager-SOMD.

##### Manager-System Operation and Maintenance Department

The Manager-SOMD, is responsible for directing the efforts of personnel involved in the testing of electrical power equipment, the calibration of test equipment and the testing of protective relaying and metering controls for the electrical power equipment of CCNPP.

Vice President-General Services Division

The Vice President-GSD is responsible for ensuring implementation of the QA Program requirements that relate to: the procurement of SR or designated NSR structures, systems, components, and services; the construction, maintenance, and operation of facilities; and support services for computer software and hardware.

These responsibilities are carried out through the Manager-PMMD, Manager-ISD, and Manager-FFSD.

Manager-Purchasing and Materials Management Department

The Manager-PMMD, is responsible for directing the efforts of personnel involved in the purchasing of items and services for CCNPP and for the issuance of Contracts for Fitness for Duty Activities.

Manager-Information Systems Department

The Manager-ISD, is responsible for directing the efforts of ISD personnel involved in acquiring and supporting computer software and hardware.

Manager-Facilities and Fleet Services Department

The Manager-FFSD, is responsible for directing the efforts of FFSD personnel involved in the planning, design, construction, maintenance, and operation of facilities and related systems directly supporting or impacting power plant operations.

Vice President-Management Services Division

The Vice President-MSD, is responsible for ensuring that the activities of MSD personnel involved with medical examinations for CCNPP operators, Nuclear Security Officers, and respirator users, meet the requirements of the regulations. The responsibility is carried out through the Manager-SMSD.

Manager-Safety and Medical Services Department

The Manager-SMSD, is responsible for directing the efforts of SMSD personnel involved with medical examinations for CCNPP operators (10CFR55), Nuclear Security Officers (10CFR73), respirator users (10CFR20), and with the Fitness for Duty rule (10CFR26).

Vice President-Corporate Affairs

The Vice President-CA is responsible for ensuring that QA Program requirements related to the Radiological Effluent Technical Specifications are implemented. This responsibility is carried out through the Director-Environmental Programs.

1B.2 QUALITY ASSURANCE PROGRAMGeneral Controls

The QA Program consists of the QA Policy, certain Nuclear Program Directives and their administrative procedures. Revisions to the QA Policy are controlled by QA Program documents which are written to ensure compliance with 10 CFR 50.54(a)(3). QA Policy changes are submitted according to 10 CFR 50.71.

The QA Policy identifies NRC regulatory requirements, industry standards, and specific codes applicable to the eighteen criteria contained in 10 CFR 50, Appendix B. The QA Policy also indicates action that will be taken by BGE in response to these documents and to commitments made in the UFSAR and TSs for CCNPP.

Nuclear Program Directives address actions identified in the QA Policy. Directives identify regulatory commitments, management requirements, and assign responsibilities for business activities (i.e., design, maintenance, operations, etc.) within the BGE Nuclear Program.

BGE's QA Program for CCNPP is applied to structures, systems, components, and activities that have been designated SR because they prevent accidents or mitigate the consequences of postulated accidents that could cause undue risk to the health or safety of the public. The QA Program is also applicable to designated NSR structures, systems, components, activities, and services as required by regulations. Designated NSR program requirements are based on a graded approach to Quality Assurance required to meet applicable regulatory designated requirements and guidance. The level of QA Program controls placed on designated NSR items are defined in QA Program documents and/or implementing procedures. The controls from other sections of this QA Policy are selected as necessary to meet the particular regulations being implemented.

Controls have been established for specifying on a Quality List (Q-List) all SR structures, systems, components, and activities that are subject to the requirements of the QA Program.

The Statement of Authority, in the Nuclear Program Policies Manual, signed by the Chairman of the Board, establishes the overall QA Policy of BGE. This Statement sets the goal of safe and reliable operation of CCNPP; commits the Company to a QA Program designed to ensure the plant's compliance with regulatory requirements, BGE commitments, and established practices for reliable plant operation; and requires every person involved in QA Program activities to comply with the provisions of the Program.

The QA Policy is approved by the Vice President-NED and implemented by Nuclear Program Managers. (1)

The QA Program has established controls for BGE and its contractors as required to ensure that the criteria of 10 CFR 50, Appendix B, will be met throughout the operations phase of the plant; i.e., during activities of testing, operation, maintenance, repair, modification, and refueling.

The QA Program has also established controls to ensure that the construction, operational, and decommissioning phases for the Independent Spent Fuel Storage Installation (ISFSI) are conducted in compliance with 10 CFR 72. Activities associated with the operational and decommissioning phase shall be controlled under the CCNPP 10 CFR 50 Appendix B QA Program; existing policies, programs, directives, and procedures stated as applicable for CCNPP are also applicable for the ISFSI. (16)

Nuclear Program Managers ensure QA Program documents are revised as regulations, standards, results, or experience dictate. (1) The Manager-NQAD evaluates the degree of compliance with the requirements of QA Program documents and procedures. Audits are conducted regularly to ensure compliance with established requirements, and the results of these audits are reported to responsible management personnel.

The Vice President-NED, ensures that activities of the NQAD are audited regularly by personnel independent of the Department. These auditors assess the effectiveness of the Department's implementation of appropriate portions of BGE's QA Program. The Vice President-Nuclear Energy Division, evaluates the report of the independent audit to determine if changes are required to the QA Program. He is responsible for negotiating such changes with the appropriate level of management and for sending to the Chairman of the Board a copy of the audit report and an account of the corrective action taken.

If a difference of opinion arises between NQAD personnel and those of other Sections or Departments, the dispute is resolved as follows: The Supervisor/General Supervisor of the QA Unit/Section involved first tries to resolve the matter with the organization responsible for conducting the activity. If a resolution cannot be obtained, the matter is referred up through the following management personnel until it is resolved: (3)

1. The Manager-NQAD, and the Manager responsible for performing the activity.

**NOTE:**

If the dispute is with another Unit/Section in NQAD, the issue will be settled by the Vice President-Nuclear Energy Division. (3)

2. The Vice President-Nuclear Energy Division. (1)
3. The Senior Vice President-Generation, President and Chief Operating Officer, or the Chairman of the Board.

To ensure that important activities are performed correctly, BGE conducts formal training programs for Company personnel with significant responsibilities. These programs include both initial and continuing training and are conducted in accordance with written procedures or instructions. Department Managers are responsible for ensuring that the training needs of personnel in their Departments are identified, formal training programs to satisfy those needs are developed, and the training programs are implemented in accordance with the requirements of the QA Program documents.

The QA Program was developed to meet the requirements of the Regulations, Regulatory Guides, and Industry Standards of the Nuclear Regulatory Commission (NRC) listed below. Exceptions taken to guidance contained in these documents and equivalent BGE alternatives are stated in Table 1B-1.

REGULATIONS

10 CFR 50.55a - Codes and Standards.

10 CFR 50.59 - Changes, Tests, and Experiments.

10 CFR 55 - Operators' Licenses.

10 CFR 50, Appendix B - Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants.

10 CFR 72, Subpart G - Quality Assurance (ISFSI)

REGULATORY GUIDES

1.8 - Personnel Selection and Training (September 1975)\*\*. This endorses ANSI N18.1 (03/08/71)\*\*\*.

1.16 - Reporting of Operating Information (as specified in Calvert Cliffs Technical Specifications).

1.30 - QA Requirements for Installation, Inspection, and Testing of Instrumentation and Electric Equipment (08/11/72)\*. This endorses ANSI N45.2.4 (03/01/72).

- 1.33 - QA Program Requirements (Operation, Rev. 2, 02/78)\*\*. This endorses ANSI N18.7-1976/ANS 3.2 (02/19/76)\*\*\*.
- 1.37 - QA Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants (03/16/73)\*\*. This endorses ANSI N45.2.1 (02/26/73)\*\*\*.
- 1.38 - QA Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants (Rev. 2, 05/77)\*\*. This endorses ANSI N45.2.2 (12/20/72)\*\*\*.
- 1.39 - Housekeeping Requirements for Water-Cooled Nuclear Power Plants (03/16/73)\*. This endorses ANSI N45.2.3 (03/15/73)\*\*\*.
- 1.54 - QA Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants (06/73)\*\*. This endorses ANSI N101.4 (11/28/72)\*\*\*.
- 1.58 - Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel (09/80)\*\*. This endorses ANSI N45.2.6 (1978)\*\*\*.
- 1.64 - QA Requirements for the Design of Nuclear Power Plants (10/73)\*. This endorses ANSI N45.2.11, Draft 3, Rev. 1 (07/73).
- 1.68 - Preoperational and Initial Startup Test Programs for Water-Cooled Power Reactors (11/73)\*\*.
- 1.144 - Auditing of Quality Assurance Programs for Nuclear Power Plants, Rev. 1 (09/80)\*\*. This endorses ANSI N45.2.12 (1977).
- 1.146 - Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants (Aug. 1980)\*. This endorses ANSI N45.2.23 (1978)\*\*\*.

#### INDUSTRY STANDARDS

- ANSI N45.2.5 - Supplementary QA Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants; Draft 3, Rev. 1 (11/73).
- ANSI N45.2.8 - Supplementary QA Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants; Draft 3, Rev. 2 (09/73).



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ANSI N45.2.9 - Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants; Draft (10/76)\*\*\*.

ANSI N45.2.13 - QA Requirements for Control of Procurement of Equipment, Materials, and Services for Nuclear Power Plants; Draft 2, Rev. 2, (10/73)\*\*\*.

#### NOTATIONS FOR REGULATORY GUIDES AND INDUSTRY STANDARDS

- \* NRC endorses an Industry Standard or draft without reservation.
- \*\* NRC takes exception to or provides additional guidance in a regulatory position statement.
- \*\*\* BGE takes exception to guidance offered and states alternatives.

### Procedural Controls

The QA Policy and revisions thereto are reviewed by Nuclear Program Managers. QA Policy revisions are reviewed by NQAD personnel to determine if they constitute a reduction in commitments previously made to the NRC. If so, the revisions are sent to NRC for approval prior to implementation. The Manager-NQAD reviews revisions to the QA Policy and recommends approval to the Vice President-Nuclear Energy Division. The Vice President-NED approves the QA Policy and revisions thereto. QA Program documents control the distribution and revision of the QA Policy.

Nuclear Program Directives are prepared under the direction of the Department Manager assigned by the Vice President-NED as the Program Sponsor. Each directive and revisions thereto are reviewed by affected Department Managers. The Manager-NQAD ensures directive revisions are reviewed by the Quality Assurance organization and approval recommended to the Program Sponsor. The Program Sponsor approves the directive and revisions thereto. The Manager-NSSD ensures issuance of all directives and revisions thereto.

QA Program documents ensure that:

1. The need for special controls, processes, test equipment, tools, and skills is specified when necessary to ensure that required quality is attained in performance of the activity.
2. Quality is verified by inspections and tests.
3. Personnel who perform activities affecting quality achieve and maintain suitable proficiency through appropriate training and experience.

### Review of Operations

Procedures require that CCNPP shall be operated and maintained in accordance with the plant TSs and operating license. The following organizations review plant operations to ensure that these procedures are followed:

1. The Manager-NQAD provides independent verification that the requirements contained in the Plant's operating license, UFSAR, TSs, and plant procedures are met. This is accomplished through quality assurance audits.
2. The OSSRC provides independent verification by review that CCNPP is operated in accordance with established requirements. The OSSRC, which functions under a written Charter approved by the Vice President-Nuclear Energy Division, is composed of on-site and off-site personnel knowledgeable of in-plant operations, nuclear engineering, chemistry and radiochemistry, metallurgy, radiological safety, instrumentation and control systems, mechanical and electrical systems, quality assurance, and environmental factors. The proceedings of all meetings are documented and sent to the Vice President-Nuclear Energy Division, Committee members, and others designated by the Committee Chairman.
3. The on-site POSRC reviews matters pertaining to nuclear plant safety. This Committee screens subjects of potential concern to the OSSRC and performs preliminary investigations under the direction of the Plant General Manager. POSRC membership and functions are governed by Technical Specifications and written procedures. The results of all meetings are documented and sent to the members of the OSSRC, and others designated by the Committee Chairman.

The maintenance and repair of systems, structures, and components subject to the QA Program are performed by personnel under the direction of the General Supervisors of Electrical and Controls, Radiation Safety, and Mechanical Maintenance, according to written procedures and instructions as prepared by the maintenance force and approved as stated in QA Program documents. These Procedures:

1. Ensure that quality-related activities, such as inspections and tests, are performed with appropriate equipment and under suitable environmental conditions.
2. Indicate inspections and checks that must be made and records and data that must be kept.
3. Show where independent verifications of inspections or checks should be performed by specified personnel other than those performing the work.

When necessary, non-plant Company personnel or outside contractors are brought in to supplement the plant work force. In such instances, the approval of work procedures and the tagging of equipment are coordinated by a member of the BGE organization responsible for the performance of the work.

Controls are established in QA Program documents to ensure that materials and parts used in the repair, maintenance, and modification of SR and designated NSR portions of the plant are appropriate for the service intended. Written procedures are prepared for the storage and identification of materials and parts to ensure that they do not deteriorate in storage and can be correctly identified before installation or use.

Equipment manufacturers and contractors used for the repair, maintenance, and modification of SR and designated NSR structures, systems, and components are required to have quality assurance programs consistent with the importance of the end-product to safety.

### 1B.3 DESIGN CONTROL

#### Control

Plant changes which affect the design, function, or method of performing the function of a structure, system, or component described in the UFSAR and are controlled by QA Program documents which are written to ensure compliance with Regulatory Guide 1.64 and 10 CFR 50.59.

Controls for changes, tests, and experiments conducted at CCNPP vary according to the following:

1. As the item or activity affected is or is not described in the UFSAR.
2. As the item or activity affected has been classified SR or NSR.
3. As the item or activity affects or does not affect nuclear safety.
4. As the proposed change, test, or experiment does or does not constitute an Unreviewed Safety Question or require a change to the TSs.

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To ensure compliance with 10 CFR 50.59, the process for controlling changes, tests, or experiments has been divided into classifications. Procedures required by QA Program documents describe and control the method for determining the appropriate process classification. The process classifications control the preparation and reporting of safety evaluations. Three methods of treatment are allowable:

1. Implementing the change, test, or experiment in accordance with Company practice for operating power plants, or in accordance with Procedures required by QA Program documents.
2. Implementing the change, test, or experiment in accordance with Procedures required by QA Program documents but controlling the change, test, or experiment with a process classification.
3. Controlling the change, test, or experiment with a process classification and not allowing the implementing activity to begin until the review requirements of 10 CFR 50.59 and 10 CFR 50, Appendix B, have been met.

Changes, tests, or experiments which require approval by the NRC are approved by the POSRC and by the OSSRC.

Controls have been established to ensure that design changes to SR structures, systems, and components are reviewed either by the organization that made the original design or by a Responsible Design Organization (RDO) that meets requirements specified in ANSI N45.2.11, Section 8.0.

#### Responsible Design Organizations

RDOs, either on contract or within BGE, ensure that:

1. Applicable regulatory requirements and design bases requirements are correctly translated into specifications, drawings, written procedures, and instructions.
2. Appropriate standards for quality are specified in design documents, and deviations and changes from such standards are controlled.
3. Suitable design controls are used in applying principles of reactor physics; making seismic, stress, thermal, hydraulic, radiation, and accident analyses; ensuring compatibility of materials; and providing accessibility for in-service inspection.
4. Designs are reviewed to ensure that design characteristics can be controlled, inspected, and tested, and that inspection and test criteria are identified.
5. Interfaces, both external and internal, are controlled for the activities of all participating organizations.
6. Methods for verifying or checking, such as design reviews, alternative calculations, and qualification testing are properly chosen and followed; the most adverse design conditions are specified for test programs used to verify the adequacy of designs.
7. Individuals or groups responsible for design verification are other than the original designer and the designer's immediate supervisor.

8. Design and specification changes are subject to design controls and approvals applicable to the original design.
9. Design documents and revisions thereto are distributed to responsible individuals and controlled to prevent inadvertent use of superseded material.
10. Design errors and deficiencies that adversely affect SR structures, systems, and components are documented, and appropriate corrective action is taken.
11. Design documents and reviews, records, and changes thereto are collected, stored, maintained, and controlled systematically.
12. Standard off-the-shelf commercial or previously approved materials, parts, and equipment essential to the SR functions of structures, systems, and components are reviewed for suitability of application before they are selected.
13. The persons or groups responsible for design reviews and other design verification activities and their authority and responsibilities are identified.
14. Design changes to NSR items initiated and approved at the plant are controlled to ensure compliance with 10 CFR 50.59.
15. Processes used to select suitable materials, parts, equipment, and processes for SR structures, systems, and components includes the application of pertinent industry standards and specifications, material and prototype hardware testing programs, and design reviews.
16. Computer programs used in design are subject to design controls and program verification.

#### 1B.4 PROCUREMENT DOCUMENT CONTROL (5)

Controls have been established to specify the requirements and sequence of actions for: requesting items or services; review of the requested item or service to establish the necessary technical and quality requirements; preparation, review and control of procurement documents; evaluation and selection of vendors and; control of deviations from the procurement document requirements.

The degree to which these controls are imposed on the purchase of items and services by BGE for CCNPP depends on:

1. The functional (safety) classification of each item or service as SR or NSR according to controls established by the RDO and
2. The Procurement Category of the item within it's functional classification as a basic component, commercial grade item, designated non-safety related item (DNSR) or NSR item:
  - a. Commercial Grade - An item satisfying all three of the following criteria:
    1. Not subject to design or specification requirements that are unique to nuclear facilities; and
    2. Used in applications other than nuclear facilities; and
    3. Is to be ordered from the manufacturer/vendor on the basis of specifications set forth in the vendor's published product description (for example, a catalog).

- b. Basic Component - An item either procured as a safety related item or as a commercial grade item which has been accepted and dedicated for safety related application. This term is synonymous with "Safety-Related Component".
  - c. Designated Non-Safety Related - A NSR item which BGE has made a regulatory or design basis commitment; or, for plant availability reasons, BGE has implemented special controls to assure reliability. These NSR items are included within the quality assurance process.
  - d. Non-Safety Related - An item that does not perform a safety related function.
3. The procurement method to be used for the item or service:

Purchase Orders placed by BGE personnel for items or services intended for safety related applications and DNSR items and services fall into two categories, Nuclear Grade Method procurement and Commercial Grade Method procurement.

- a. Nuclear Grade - Purchases that are designated to be placed with vendors that maintain a 10CFR50 Appendix B quality program and supply items that meet the definition of Basic Component. The requirements of 10CFR21 will be invoked on the vendor under this method.
- b. Commercial Grade - Purchases that are designated to be placed with commercial grade vendors that supply items or services that meet the definition of Commercial Grade. These items must be dedicated for SR use by BGE.

Items and/or services classified as DNSR will be purchased using the Commercial Grade Method with technical requirements established by an RDO.

Qualified NSSD/NED personnel trained in quality assurance program requirements with RDO authority review safety-related and designated non-safety related procurement documents for proper inclusion of technical and quality requirements. Personnel in NSSD/NED review safety-related and designated non-safety related procurement documents to ensure that the requirements stated therein are correct, inspectable, controllable, contain adequate acceptance and rejection criteria, and comply with the requirements of the procurement program. These reviews and approvals are documented prior to placement of the purchase order.

All changes made to procurement documents, including specifications and other technical attachments, are subject to the same levels of review, approval and control that were applied in preparing and processing the original documents.

Bids submitted to supply safety-related items or services receive the same review and approval cycle as used for safety-related procurement requirements.

#### Vendor Selection

Personnel in NQAD evaluate vendors who provide SR and designated NSR items and services to verify they can provide acceptable items and services.

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Controls for Nuclear Grade Purchases

Controls have been established to ensure that, before placement of a purchase order under the Nuclear Grade method of purchase, there is evidence of the following:

1. The vendor has been evaluated as stated in Section 1B.7 of this policy and found to have a satisfactory QA program.
2. The item to be purchased is manufactured under the requirements of the evaluated and approved program.

Controls for Commercial Grade Purchases

Controls have been established to ensure that items or services available to general industry will be sufficiently controlled to perform their SR and designated NSR function. NSSD/NED personnel will specify the acceptance methods to be used to verify the critical characteristics identified in the procurement document(s).

Procurement Document Requirements

Procedures require that procurement documents shall:

1. Reference part numbers or descriptions, and additional requirements to ensure that items ordered can be identified and verification can be made that each item received is the item ordered.
2. Contain/reference technical requirements for the basis of design, by including the applicable regulatory requirements, component and material identification, RDO approved drawing and specification, codes, industrial standards, test and inspection requirements, and special process instructions such as welding, heat treating, nondestructive testing, and cleaning.
3. Identify the requirements of 10 CFR 50, Appendix B, which must be complied with and described in the vendor's QA program, for Nuclear Grade Purchases.
4. Require that major contractors designated as BGE agents to purchase SR and designated NSR items or services must have procurement controls to ensure they purchase or acquire these items or services in compliance with the necessary sections of ANSI N45.2.13.
5. Identify required documentation (i.e., drawings, specifications, procedures, inspection and fabrication plans, inspection and test records, personnel and procedure qualifications, and material chemical and physical test results) to be prepared, maintained, and submitted to BGE or the purchaser for review and approval.
6. Identify records which must be retained, controlled, maintained, or delivered to BGE or the purchaser before use or installation of hardware.
7. Specify BGE or its agent's right of access to vendor facilities and records for source inspection, surveillance, verification and audits.
8. Identify requirements of the vendor's quality control process which must be implemented when providing a commercial grade item.
9. Reference or specify the critical characteristics that a commercial grade item must possess to ensure that the item received is the item specified.

10. Incorporate the requirements of 10 CFR 21 for Nuclear Grade procurements.
11. Include requirements for QA program elements to be passed on to sub-vendors.

#### 1B.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Controls delineate the sequence of actions to be performed in the preparation, review, approval, and control of instructions, procedures, and drawings.

Controls require that:

1. Methods for complying with each of the applicable criteria of 10 CFR 50, Appendix B, must be specified in instructions, procedures, and drawings.
2. Instructions, procedures, and drawings must specify appropriate quantitative (such as dimensions, tolerances, and operating limits) and qualitative (such as workmanship samples) acceptance criteria for verifying that important activities have been satisfactorily accomplished.

Controls ensure that:

1. The QA Policy is approved by the Vice President-Nuclear Energy Division. (1)
2. Nuclear Program Directives are prepared under the direction of the Department Manager assigned as the Program Sponsor. Affected Department Managers review directives and their revisions. The Manager-NQAD ensures directives are reviewed by the Quality Assurance organization and approval recommended to the Program Sponsor. The responsible Program Sponsor approves directives and their revisions. Directives are prepared, reviewed, approved, and periodically reviewed according to an appendix to the Nuclear Program Directives Manual.
3. Procedures are prepared, approved, and controlled according to the Control Procedures. Control Procedures establish review, approval, revision, change, and periodic review requirements for applicable procedures. If format and content requirements are not contained in Control Procedures, they shall specify the document to be used to determine format and content requirements. Control Procedures are reviewed by the Quality Assurance Organization to ensure compliance with regulatory requirements and industry standards. Other procedures are reviewed by Quality Assurance on a requested basis.
4. Basis items added during procedure revisions or changes will be recorded. (1)

#### 1B.6 DOCUMENT CONTROL

Requirements have been established to control the documentation of activities controlled by the QA Program. QA Program controlled documents include the UFSAR; Operating License, including the Technical Specifications; Emergency Response Plan; Security Plan; QA Policy; the ISFSI updated Safety Analysis Report (SAR) and Materials License, including Technical Specifications; procedures; specifications; and drawings.

Revisions to the QA Policy are controlled by QA Program documents which are written to ensure compliance with 10 CFR 50.54(a)(3).



Alterations to the UFSAR are controlled by QA Program documents which are written to ensure compliance with 10 CFR 50.71.

Alterations to the ISFSI updated SAR are controlled by QA Program documents which are written to ensure compliance with 10 CFR 72.70.

Alterations to the Operating License, including the Technical Specifications, are controlled by QA Program documents which are written to ensure compliance with 10 CFR 50.59(c), 10 CFR 50.90 and 10 CFR 50.92.

Alterations to the ISFSI Materials License, including the technical specifications, are controlled by QA Program documents which are written to ensure compliance with 10 CFR 72.48(c), 10 CFR 72.56, and 10 CFR 72.58.

Alterations to the Emergency Response Plan are controlled by QA Program documents which are written to ensure compliance with 10 CFR 50.54(q), and with 10 CFR 72.44(f) for the ISFSI.

Alterations to the Security Plan are controlled by QA Program documents which are written to ensure compliance with 10 CFR 50.54 (p), and with 10 CFR 72.44(e) for the ISFSI.

Directives are required to:

1. Establish controls to ensure that regulatory requirements and BGE commitments will be implemented.
2. Establish controls to ensure that management requirements will be implemented.
3. Assign responsibilities and interfaces within the program.
4. Be prepared and controlled in accordance with an appendix to the Nuclear Program Directives Manual that describes the format, contents, review and approval, revisions, and periodic review requirements.

Nuclear Program Directives are prepared and technically reviewed under the direction of the Department Manager assigned as the Program Sponsor. Each directive is reviewed by affected Department Managers. Each directive is given a compliance review by a member of the Quality Assurance organization. Nuclear Program Directives are approved by the sponsoring Manager after ensuring resolution and incorporation of QA compliance review comments. (9) The Manager-NSSD ensures issuance of each directive.

Administrative and Technical Procedures are prepared when needed to implement QA Program document requirements according to a Control Procedure. Individual organizations are responsible for preparing, revising, issuing, and controlling procedures. Each procedure is given a technical review under the direction of the sponsoring organization. The Quality Assurance organization performs compliance reviews on Control Procedures. Other procedures are reviewed by Quality Assurance on a requested basis.

Administrative procedures are required to:

1. Describe interdepartmental interfaces and establish controls for interdepartmental activities.
2. Specify how important activities, such as plant maintenance or in-service inspection, are to be performed, and give sufficient detail to control the performance of the activity or to ensure that requirements for lower-level procedures are clearly specified.

3. Be prepared and controlled in accordance with QA Program documents that describe the format, sequence of topics, contents, review and approval, issuance and distribution, and requirements for revision and record retention.

During the review of each administrative procedure, compliance with applicable regulatory requirements and industry standards is verified and documented.

Organizations that issue instructions, procedures, specifications, or drawings are required to establish controls that ensure the following:

1. Changes to a document are reviewed and approved by the organization that performed the original review and approval unless the control procedure designates another qualified responsible organization.
2. Approved changes are promptly incorporated into instructions, procedures, drawings, and other documents associated with the change.
3. Obsolete or superseded documents are controlled to reduce the possibility of inadvertent use. Superseded documents retained for reference are marked and stored in separate files. Other superseded documents are removed from the files.

When changes to drawings or specifications are required, change requests are prepared by the organization that desires the change. Requests are reviewed and approved by BGE RDOs.

#### 1B.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES (5)

NQAD, NSSD, NED, and PMMD personnel are responsible for the control of purchased items and services for SR and designated NSR applications at CCNPP.

The controls include:

Accepting items or services only from vendors who have been evaluated and selected in accordance with this policy.

Procurement documents for spare or replacement parts of structures, systems, and components as designated under the QA Program subject to controls at least equivalent to those applied to the original equipment, or an evaluation/justification shall be documented when less stringent controls are involved.

Vendor surveillance, verification and audit activities, and receipt verification are conducted to ensure the vendors comply with specified technical and quality requirements, and ensure items are identified, stored, handled and shipped in accordance with procurement document requirements.

#### Vendor Evaluation

The vendor evaluation is conducted to determine acceptability of a vendor to provide the requested item or service, to determine what vendor programs, procedures and documents need to be invoked by the procurement document, determining the vendor's performance history for supplying items to CCNPP and assessing the need to impose source surveillances and/or verifications during the manufacture of items or performance of services for BGE. Vendor evaluations depend on the procurement classification of the item(s) being supplied.

The National Institute of Standards and Technology (NIST), by virtue of its being the nationally recognized standard, is an acceptable provider of calibration masters, standards or services. Utilities holding an NRC Construction Permit or Operating License are acceptable suppliers of all items except for those items to be used in an ASME Boiler and Pressure Vessel Code Section III application. Neither of the above are required to be listed on the Approved Vendors List (AVL).

#### **Nuclear Grade**

NQAD performs evaluations and audits to verify that the vendor has developed and implemented an acceptable quality assurance program that complies with the requirements specified in the procurement specification or proposed procurement specification. These evaluations and audits are conducted and documented using written procedures or checklists that identify the QA requirements applicable to the items supplied.

#### **Commercial Grade**

Since BGE accepts the responsibility of verifying the conformance of commercial grade items and/or service, they may be procured from vendors with no formal quality assurance program. In this instance, BGE dedicates the commercial grade item and/or service for SR use.

A survey may be performed of commercial vendors to assess what, if any documented controls are implemented in the manufacture of items or performance of services for BGE.

Vendor controls evaluated to be satisfactory may be invoked as requirements within the purchase order and may be used as part of the basis for acceptance of the item.

The depth of vendor evaluation varies according to the complexity and function of the item involved and to the role of the vendor in acceptance of the item.

#### Vendor Approval

Upon completion of the evaluation, satisfactory vendors are added to BGE's AVL. The vendors on this list are evaluated on an annual basis and subject to re-audit or commercial grade survey on a triennial basis to verify continued compliance with BGE's requirements.

An auditing organization such as NUPIC, another utility, a contractor to BGE, etc., may be used to verify that the vendor has developed and implemented a QA program that complies with 10 CFR 50, Appendix B or a commercial grade program that complies with the requirements of BGE's procurement requirements or similar requirements.

When required by operational considerations, an order may be placed with a vendor prior to completion of the evaluation and approval process only after obtaining the Manager-NSSD's approval. BGE's acceptance of basic component items or services provided by an unapproved vendor is contingent on the subsequent NQAD evaluation and approval of the vendor as stated above.

#### Verification of Vendor Activities

Vendor surveillance, and source verification activities are conducted by qualified NQAD personnel in accordance with written procedures or checklists. These procedures or checklists, along with the procurement documents, specify the characteristics or processes to be witnessed, inspected or verified. Personnel performing these activities are qualified to establish whether or not a vendor is capable of providing products of acceptable quality.

The depth and frequency of vendor surveillances, verifications and audits is commensurate with the complexity and function of the item or service and the ability of the vendor to provide the necessary assurance of acceptability.

When a vendor's certificates of conformance are used as part of the acceptance of an item or service, the validity of these documents is periodically evaluated and documented by the above mentioned processes.

#### Receipt

NSSD is responsible for receiving and storing materials, parts, and components.

Additionally, NSSD is responsible for performing standard and special receipt inspections and coordinating testing necessary to accept SR items, designated NSR items and commercial grade items for SR use.

Standard receiving inspection of items is performed to assure the following:

1. The item is properly identified and that this identification corresponds with the documentation received.
2. Stated packaging, shipping and handling requirements have been maintained.
3. Items have not been damaged, workmanship is of adequate quality, and the items are adequately clean in accordance with procurement document requirements.
4. Documentation required by the Purchase Order has been received and is reviewed to assure that the item conforms to the purchase order requirements.

Special receiving inspection may be required if the item was not inspected at the source; when requested by the RDO or; as part of the acceptance basis for commercial grade items.

A written record of the results of the NSSD receipt inspection and the disposition of received items is maintained as part of permanent plant records.

All SR and designated NSR items accepted and released for issue to a controlled storage area or released for installation or further work bear an acceptance tag and have documentation to support their acceptability. If traceability is lost or the documentation review is unsatisfactory, an item becomes subject to the controls established for non-conforming items.

Non-conforming items are identified and handled in accordance with Section 1B.15 of this policy and, when practicable, are placed in a segregated area to prevent inadvertent installation or use until proper disposition is made.

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Documentation

BGE procurement documents require vendors to provide documentation identifying the purchased item and the specific procurement requirements that are met by the item.

Vendor inspection records or certificates of conformance attesting to acceptance must be in the possession of BGE before the item may be released for installation or use. However, an unacceptable item may be given a "Conditional Release" if there is reasonable assurance that it can be made acceptable after installation but before the system that contains it is considered operational. Items released under "Conditional Release" must be controlled under the Non Conformance Report (NCR) system.

Vendor requested deviations from procurement document requirements, including nonconformances dispositioned "use-as-is" or "repair" must be submitted to BGE for evaluation and approval of the deviation or a recommended disposition prior to shipment.

#### 1B.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS (5)

NSSD/NED personnel ensure that procurement documents require that SR and designated NSR items, including partially fabricated sub-assemblies, are identified and controlled to prevent the use of incorrect or defective material.

Requirements for identification by use of heat number, part number, or serial number, or by other means, are referenced or stated in procurement documents. These documents require the identification to be placed on the item or in records traceable to the item so that the function and quality of the item are not affected. This identification is required to be maintained throughout fabrication, storage, erection, installation, and use. NSSD personnel ensure traceability information is correctly transferred to subdivided materials stored in the Warehouse. User organizations ensure traceability information is correctly transferred to subdivided materials after issuance from the Warehouse. NQAD is responsible for performing periodic inspections or surveillances to verify program adherence.

Assigned NSSD personnel purchase identify, store, and issue items as specified by procurement controls and provide for maintaining the integrity of items and their traceability to associated documents during storage and issue.

BGE contractors and their sub-contractors (who are approved to work on-site under their own QA program) are responsible for establishing and implementing programs in accordance with specified requirements for identifying and controlling materials, parts, and components under their jurisdiction.

Identification of items important to the function of SR and designated NSR structures, systems, and components can be traced to appropriate documentation such as drawings, specifications, purchase orders, manufacturing and inspection documents, deviation reports, and physical and chemical mill-test reports.

Receipt

SR and designated NSR items received at CCNPP are receipt inspected to verify that all requirements of the procurement documents have been met. If a discrepancy is observed, such as damage or missing documentation, information to the effect is recorded on the receiving inspection report, and the discrepant item is identified as such and placed in a separate "hold" area when practicable. If the item is acceptable, it is identified to indicate acceptance and that it is approved for storage or installation and use. When groups of items in storage are subdivided, each subgroup is separately identified.

If an item is found to be or is made discrepant during processing, it is identified as such and placed in a separate area when practicable.

Acceptance documentation is required to be traceable to a purchase order, drawing, specification, requisition number, or assembly. As individual items are assembled, installed, and inspected, their acceptance-tag numbers are recorded in plant maintenance or operation records.

After completion of tests and inspections, records that document test results and traceability are kept as part of the plant records.

**1B.9 CONTROL OF SPECIAL PROCESSES**Controls

Controls have been established for writing, qualifying, approving, and issuing procedures to control such special processes as welding, heat treating, and nondestructive testing used during the operation of CCNPP. Special Process Procedures:

1. Are prepared in accordance with applicable codes, standards, specifications, criteria, and other special requirements.
2. Ensure that special processes are performed by qualified personnel according to qualified procedures that comply with applicable regulatory requirements.
3. Specify requirements for control, parameters to be considered, acceptable methods of documentation, and the codes, standards, specifications, or criteria which govern the qualification.
4. Define the necessary qualification of personnel, procedures, or equipment when special processes are not covered by existing codes or standards or when quality requirements for an item exceed the requirements of established codes or standards.

BGE contractors and their sub-contractors are responsible for controlling special processes used by them and for maintaining records to verify that special processes are performed in accordance with requirements established by the portions of their QA programs that apply to special processes.

Qualification of Methods

Procedures, equipment, and personnel connected with special processes are qualified in accordance with applicable codes, standards, specifications, or supplementary requirements as follows:

1. Welding activities conducted by BGE are performed according to welding procedure specifications qualified in accordance with applicable welding requirements of the ASME Code. Each welding procedure specification is written, qualified, and approved in accordance with a controlling documented procedure. Copies of welding procedure specifications are made available to welders and, when required, to Authorized Inspectors. Before contracting for welding, the General Supervisor-Mechanical Maintenance reviews and approves non-BGE welding procedure specifications and procedure qualification records in accordance with a written procedure.
2. Heat-treating requirements included in welding procedure specifications are established in conformance with heat-treating requirements of the applicable ASME Code.
3. Nondestructive Examinations are performed to written procedures proved by actual demonstration, when practicable, to the satisfaction of the Principal Engineer-Materials Engineering and Inspection and, when required, the Authorized Inspector.

These procedures are prepared according to appropriate sections of the ASME Code for particular examination methods. Procedures, personnel qualifications, and the records that verify the Performance of Nondestructive Examinations are kept as nuclear plant records. Nondestructive Examination Procedures describing methods not described in the ASME Code and/or SNT-TC-1A and its Supplements are at least equivalent to those recognized by the American Society of Mechanical Engineers and the American Society for Non-destructive Testing. Training programs acceptable to the Principal Engineer-Materials Engineering and Inspection are developed to complement these alternative methods and to establish the capability of personnel to perform the required examination according to BGE procedures and to the level of performance to which the individual will be certified.

Methods of Nondestructive Examination include, but are not restricted to, radiographic, ultrasonic, liquid-penetrant, magnetic-particle, eddy-current, visual, and leak-testing examinations. Procedures are prepared to cover these examinations in accordance with a QA Program document that details the specific examination, requirements for approval, and content of the procedure, such as certification level, accept/reject criteria, examination coverage and sequence, surface preparation, test equipment, records required, permissible marking, cleanup requirements, and reference to applicable sections of the ASME Code.

#### Qualification of Personnel

Special processes are performed by certified personnel using written process sheets, shop procedures, checklists, and travelers (or equivalent), with recorded evidence of verification as follows:

1. BGE welders, and welders under contract to BGE, are qualified and certified in accordance with the applicable requirements of the ASME Code. The General Supervisor-Mechanical Maintenance maintains records of the welding procedure specifications, including essential variables under which the welders are examined, and the results of the examinations. A welder is not permitted to weld SR and designated NSR items until an appropriate performance qualification record, a letter of certification, or, in an emergency, verbal clearance from the General Supervisor-Mechanical Maintenance, is on file at CCNPP. Each welder is required to be requalified as specified in the applicable code.
2. Non-BGE welders are not permitted to weld SR and designated NSR items until they are qualified and certified in accordance with the applicable requirements of the ASME Code.

3. Nondestructive Examination personnel employed by or responsible to BGE are certified according to applicable sections of the ASME Code and/or SNT-TC-1A and its Supplements. BGE employees are trained and certified in accordance with a written procedure. Non-BGE personnel are qualified to procedures approved by BGE, and their qualifications and certifications of personnel are verified according to written procedures.

Qualification records of procedures, equipment, and personnel associated with special processes conducted by BGE are filed and kept current by the General Supervisor-Mechanical Maintenance or Principal Engineer-Materials Engineering and Inspection.

The Manager-NQAD provides independent verification that special processes are performed by qualified personnel.

#### 1B.10 INSPECTION

Activities that affect the quality of SR and designated NSR items are inspected as specified in approved instructions, procedures, and plans which set forth requirements and acceptance criteria to ensure that work is done in conformance with particular requirements.

Controls exercised during inspections ensure that:

1. Personnel who perform quality verification inspections are independent of the personnel who performed the activity being inspected.
2. Inspection procedures or instructions, with necessary drawings and specifications for use, are available before inspection operations are performed.
3. In the case of special processes, inspectors are qualified, and their qualifications comply with applicable codes and standards.
4. Test and measuring equipment is calibrated within required limits.
5. Inspection procedures, as applicable, specify objective acceptance criteria, prerequisites for performing inspections, limiting conditions, requirements for special equipment and Quality Verification (QV) hold-points at which inspections are to be witnessed.
6. Appropriate inspection requirements are established for modification, repair, and replacement.
7. Personnel who perform quality verification inspections are qualified in accordance with appropriate codes, standards, and Company training programs, and their qualifications and certifications are kept current.
8. Procedures for maintenance and modification are reviewed by QV personnel, or others authorized by QV, to determine the need for independent inspection and the degree and method if such an inspection is required, and to ensure the identification of inspection personnel and the documentation of inspection results.
9. Procedures for Nondestructive Examination, including procedures for nuclear fuel inspection and visual examination on nuclear fuel, are reviewed by qualified personnel in NED. Review is to determine the adequacy of procedural controls and of inspection criteria, the need for independent inspection, and the degree and method, if such inspection is required; and to ensure the identification of qualified inspection personnel and the documentation of inspection results.
10. Inspection results are recorded, evaluated, and retained.



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Inspection procedures, instructions, and checklists used by inspection personnel provide the following:

1. Identification of characteristics to be inspected.
2. Acceptance and rejection criteria.
3. Description of the method of inspection.
4. Identification of required procedures, drawings and specifications.
5. Identification of inspector or data recorder.
6. Verification of completion and certification of inspection.
7. Record of results of inspection.
8. Provision for identifying mandatory inspection hold-points for witness for an authorized inspector or BGE inspection personnel.
9. Provision for indirect control by monitoring processing methods, equipment, and personnel if direct inspection is not possible.
10. Specification of necessary measuring and test equipment including requirements for accuracy.

The General Supervisor-Quality Verification (GS-QV) is responsible for the preparation and implementation of procedures for inspection and surveillance activities performed by or for QV. (11)

Other inspections are conducted randomly to verify that overall plant operations are being conducted according to approved procedures and to ensure that the use of jumpers is properly documented; that equipment is returned to operating status after test, modification, or repair; that instruments are properly calibrated; and that personnel who perform tests are properly trained and qualified.

In-service inspections are performed on pressure-containing components within the reactor coolant system boundary according to requirements of the TSS.

In-service inspections and examinations on components designated Class I or Class II by the ASME Code are witnessed or otherwise verified by an authorized Code Inspector who is responsible for ensuring that the work is performed by qualified personnel according to written qualified procedures. Records of in-service inspections, results, corrective action required and taken, inspection standards required for repair, and results of inspection of repairs are maintained and compared with the results of subsequent examination.

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### 1B.11 TEST CONTROL

To demonstrate the ability of SR and designated NSR structures, systems, and components to function as designed, they are subjected to a program of surveillance and operational testing. Procedures specify the systematic development, review, approval, and conduct of tests and review of test results. Conditions such as failures, malfunctions, deficiencies, deviations, and non-conformances discovered during testing are documented and evaluated.

Whenever testing is required to demonstrate that SR and designed NSR material, parts, components, or systems will perform satisfactorily in service, a test program is established and procedures are used that have been written and approved in accordance with basic requirements.

Nuclear Engineering Department, and CCNPPD conduct tests to verify that plant behavior conforms to design criteria, ensure that failure and substandard performance are identified and controlled, and demonstrate satisfactory performance after plant modification and maintenance activities.

Written test procedures are developed, reviewed, and approved before testing is performed. They specify instructions for testing, methods of test, test equipment, and instrumentation; and for the following as applicable:

1. Adequate and appropriate equipment.
2. Preparation, condition, and completeness of item to be tested.
3. Suitable and controlled environmental conditions.
4. Mandatory inspection hold-points for witness by BGE inspection or authorized inspector personnel.
5. Provision for data collection and storage.
6. Acceptance and rejection criteria.
7. Methods of documenting or recording test data and results.
8. Provision for ensuring that test prerequisites have been met.

Test results are documented and evaluated; they are accepted or rejected by a qualified, responsible individual or group.

Results of completed tests on SR and designated NSR structures, systems and components (per Q-List) that identify a malfunction or were out of specification are reviewed and evaluated by the POSRC and accepted and approved by the Plant General Manager. Test records are kept in sufficient detail to make possible an evaluation of test results and to show how individual tests demonstrate that SR and designated NSR structures, systems, and components and the plant as a unit can operate safely and as designed. SR and designated NSR test records are retained as plant history records.

Results of testing performed as part of receipt inspection are evaluated, accepted and approved by qualified NSSD personnel (5)

1B.12 CONTROL OF MEASURING AND TEST EQUIPMENT

Calibration controls have been established to prescribe the technique and frequency of calibration, maintenance, and control of measuring and test instruments, tools, gauges, fixtures, reference and transfer standards, and nondestructive test equipment used in measuring, inspecting, and monitoring SR and designated NSR components, systems, and structures during the operations phase of CCNPP.

Personnel of the following functional organizations control, calibrate, and adjust measuring and test equipment:

System Operation and Maintenance Department

- |                              |                                |
|------------------------------|--------------------------------|
| Calvert Cliffs Nuclear Power | - Radiation Safety             |
| Plant Department             | - Performance Engineering Unit |
|                              | - Mechanical Maintenance       |
|                              | - Electrical and Controls      |
|                              | - Nuclear Operations           |
|                              | - Chemistry                    |

Calibration controls require each group to identify measuring and test equipment and calibration test data related to it.

Written procedures are prepared and implemented to ensure that tools, gauges, instruments, and related test and measuring devices are of proper accuracy to verify conformance to established requirements.

Manufacturer's Procedures are used for calibration or a procedure is prepared for each category of measuring and test equipment as necessary. These Calibration Procedures contain the following information:

1. Identification of the item to be calibrated and its period of calibration.
2. Standards to be used, specific test-points, and checks, tests, and measurements to be made.
3. Acceptance criteria to be used and special precautions to be taken when necessary.

Measuring and test equipment that require calibration are assigned an identifying serial number. Instruments are calibrated at specified intervals according to the required accuracy, purpose, degree of usage, stability characteristics, and other conditions that affect the measurement.

When equipment is found out of calibration, an evaluation is made by the supervisor responsible for that equipment to determine any adverse effect on items previously accepted on the basis of using that equipment.

Test and measuring equipment that cannot be adjusted to required tolerances during calibration is identified and placed in a designated segregated area; if the equipment can be used in limited applications, the limitations are identified.

The status of each item controlled under the calibration system is recorded and maintained. Equipment is marked or records of calibrations are maintained to indicate calibration status. An interval of calibration is established for each item of measuring and test equipment and recorded on a master record of calibrations prepared as a calibration schedule.

Measuring and test equipment is controlled to prevent the use of uncalibrated or defective equipment, the spread of radioactive contamination, the introduction of impurities into high-purity systems, and damage to or loss of equipment. Identification tags are placed on measuring and test equipment to indicate such special conditions as radioactive cleanliness, special limitations, or failure to meet established calibration requirements.

Measuring and test equipment is calibrated and adjusted at specified intervals, or before use, against certified standards. Reference and transfer standards are traceable to nationally recognized standards; or, where national standards do not exist, provisions are established to document the basis for calibration.

#### 1B.13 HANDLING, STORAGE, AND SHIPPING

Appropriate and special requirements for handling, preservation, storage, cleaning, packaging, and shipping of SR and designated NSR items are specified in procurement documents.

Procedures have been established to ensure that the handling, preservation, storage, cleaning, packaging, and shipping of SR and designated NSR items are performed in accordance with specified requirements to reduce the likelihood of damage, loss, or deterioration by such environmental conditions as temperature or humidity.

Special handling, preservation, storage, cleaning, packaging, and shipping activities associated with SR and designated NSR items are performed by suitably trained personnel in accordance with specific written procedures.

Controls have been established for the safe storage of hazardous materials. Items with a limited shelf-life are controlled to ensure that they will not be used in SR and designated NSR applications after expiration of designated shelf-life periods.

#### 1B.14 INSPECTION, TEST, AND OPERATING STATUS

Controls have been established for the application and removal of status indicators such as tags, markings, labels, and stamps to ensure that the inspection, test, and operating status of SR and designated NSR structures, systems, and components is clearly indicated at all times.

Procedures/instructions are prepared to identify and control inspection, testing, and operating status by the use of logs, forms, and tags that identify the inspection, test, and operating status of structures, systems, and components; control the use of indicators, including the authority for their application and removal; control bypassing operations, such as jumping or temporary removal of electrical leads; and identify non-conforming, inoperative, or malfunctioning structures, systems, or components.

Senior shift personnel are responsible for aligning, isolating, and appropriately tagging installed equipment and systems so that activities affecting quality can be performed.

The Manager-NQAD is responsible for the performance of surveillances to verify that the inspection, testing, and operating status of structures, systems, and components are properly identified and controlled during operation, maintenance, and testing of the plant.

The bypassing of required inspections, tests, and other critical operations is controlled to ensure that bypassed inspections or tests are properly documented and that the effect of bypassing the inspection or test is evaluated by the organization responsible for specifying the inspection or test. Controls have been established to ensure that the status of non-conforming, inoperative, or malfunctioning SR and designated NSR structures, systems, or components is identified to prevent inadvertent use.

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**1B.15 NONCONFORMING MATERIALS, PARTS, OR COMPONENTS (6)**

Controls have been established for identifying, documenting, segregating, reviewing, dispositioning, and notifying affected organizations of Issues affecting materials, parts, or components (i.e., items).

Issues affecting nuclear plant items are referred to as nonconformances. Nonconformances are hardware deficiencies which render the quality of an item unacceptable or indeterminate.

Any individual identifying an actual or suspected nonconforming item is responsible for documenting and reporting such nonconforming item promptly to supervisory or Nuclear Quality Assurance Department personnel.

Nonconforming items are controlled by documentation, marking, logging, tagging, or physical segregation to prevent inadvertent installation or use.

Nonconformance control documents are submitted to responsible departments for resolution. Designated personnel have the responsibility and authority for approving the resolution of nonconformances. Nonconformance control documents are not closed until corrective actions have been completed.

Nonconforming items are dispositioned as rework, repair, reject, or accept-as-is. The disposition of a repair or accept-as-is nonconformance is treated as a design change and is evaluated and approved or rejected by the RDO.

Reworked, repaired, and replacement items are inspected and/or tested in accordance with the original inspection and/or test requirements or acceptable alternatives to ensure that critical characteristics possibly affected by the nonconformance remain acceptable.

Nonconforming items may be conditionally released for installation, test, energization, pressurization, or use if the conditional release will not adversely affect nor preclude identification and correction of the nonconformance. Nonconforming items required for Technical Specification operability may be released for use following verification that the nonconforming item meets all operability requirements specific to its function and is approved for use by authorized Operations personnel. Conditionally released items will be resolved in accordance with this Section. Conditional release evaluations are documented, reviewed, and approved prior to implementation.

**1B.16 CORRECTIVE ACTION (6)**

Controls have been established to ensure that Issues are identified, documented, reviewed, and corrected. These controls are applied to deficiencies associated with the programmatic content, process, and implementation of the Quality Assurance Program as well as nonconformances (ref Section 1B.15).

Corrective actions are implemented by responsible personnel and may include immediate actions, remedial actions and/or actions to prevent recurrence, based on the significance and extent of the Issue.

Issues identified as potentially impacting the safe production of nuclear power are evaluated for Technical Specification Operability, NRC Reportability, Nuclear Safety Significance, and if the activity should be stopped. The VP-NED, or designated alternate, is informed of Issues which require NRC notification.

Corrective action verification is performed for Significant Issues prior to the close-out of the corrective action document. Verification is performed and documented by individuals not directly involved with implementing the corrective action(s). Unacceptable corrective action(s) are reported to supervisory or management personnel directly responsible for resolving the Issue and to progressively higher levels of management until the Issue is resolved.

Significant Issues require a root cause analysis and the implementation of corrective actions to prevent recurrence and are reported to management for review and assessment.

Issues are periodically analyzed for the identification of adverse quality trends. The existence of an adverse quality trend is resolved in accordance with this section. A Trend Report is issued to management at intervals specified in approved procedures.

#### 1B.17 QUALITY ASSURANCE RECORDS

Controls have been established to ensure that quality assurance records are maintained to provide documentary evidence of the quality of SR and designated NSR items and activities. Applicable design specifications, procurement documents, test procedures, operational procedures, TSs, and other documents specify records that should be generated, supplied, or maintained by and for BGE.

Quality assurance records are classified as lifetime or non-permanent.

Lifetime records, maintained for particular items for the life of CCNPP, for particular items have significant value in relation to demonstrating capability for safe operation; maintaining, reworking, repairing, replacing, or modifying an item; determining the cause of an accident or malfunction of an item; and providing required baseline data for in-service inspection.

Non-permanent records, which show evidence that a SR and designated NSR activity was performed in accordance with applicable requirements, are retained for periods sufficient to ensure BCE's ability to reconstruct significant events and to satisfy applicable regulatory requirements. Retention periods are based on requirements specified in QA Program documents. Retention periods shall be documented.

Procurement documents specify vendor responsibilities for the generation, retention, and submission to BGE of quality assurance documentation related to the fabrication, inspection, and test of SR and designated NSR items and services.

Inspection and test records contain the following as appropriate:

1. Description of the type of observation.
2. Date and results of inspection or test.
3. Information related to noted discrepancies, including action taken to resolve them.
4. Identification of inspector or recorder of data.
5. Statement as to acceptability of results.

Controls have been provided to ensure that records are protected from possible destruction. Within established time-intervals, completed lifetime records are transmitted to the Records Management Unit for incorporation into the Long Term Records Storage and Retrieval System.

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**1B.18**    AUDITS

Internal audits are performed by BGE's Quality Audits Unit to ensure that activities and procedures established to implement the requirements of 10 CFR 50, Appendix B, comply with BGE's overall QA Program. These audits provide a comprehensive independent verification and evaluation of quality-related activities and procedures. Audits ensure the effective and proper implementation of BGE's QA Program. They are scheduled on the basis of the importance to safety of activities being performed.

Vendor audits are performed to evaluate QA programs, procedures, and activities. Audits of major vendors are made early enough to ensure compliance with all aspects of BGE's procurement documents. Additional audits are performed as required to ensure that all requirements of BGE's QA Program are properly implemented according to procurement documents.

Audits of designated activities as required by the TSs are performed under cognizance of the OSSRC.

Audits are performed in accordance with preestablished written procedures or checklists by qualified NQAD personnel who have no direct responsibility for the work being audited. Technical specialists from other BGE departments and outside consultants may assist as necessary in performing audits. Audits include objective evaluation of quality-related practices, procedures, instructions, activities, and items, as well as review of documents and records.

Reports of audits are analyzed and documented. Results that indicate the QA Program to be inadequate, ineffective, or improperly implemented, including the need for re-audit of deficient areas, are reported to the Manager and Supervisor of the audited activity. Controls have been established for verifying that corrective action is taken promptly to correct noted deficiencies.

To ensure that BGE's NQAD complies with the requirements of BGE's QA Program, an independent management audit of NQAD activities is performed annually by a Joint Utility Management Audit (JUMA) Team.

**TABLE 1B-1**  
**BALTIMORE GAS AND ELECTRIC COMPANY'S POSITION**  
**ON GUIDANCE CONTAINED IN ANSI STANDARDS**

Revision of Industry Standards Applicable to the  
Baltimore Gas and Electric Quality Assurance Program

Requirement

Some of the Industry Standards listed in Section 1B.2 identify other Standards that are required, and some Regulatory Guides define the revisions of those Standards that are acceptable to the NRC.

Response

BGE's QA Program was developed to respond to the specific revision of the documents listed in Section 1B.2 and is not necessarily responsive to other documents listed in the referenced Industry Standards.

ANS 3.2 - 1976

Item 1

Requirement

Section 5.2.15 requires that plant procedures shall be reviewed by an individual knowledgeable in the area affected by the procedure every two years to determine if changes are necessary or desirable.

Response

BGE applies this requirement of a two-year review to all plant procedures except test procedures performed less often than every two years or at unspecified frequencies. These are reviewed no more than 60 days before performance.

Reason

Engineering Test Procedures (ETPs) and others like them are written for a one-time-only performance and kept for reference for future similar tests. If they are used again, they are reviewed and modified to meet conditions existing at the time of performance.

Some Surveillance Test Procedures (STPs) are performed every three to five years. They too are reviewed before each performance to ensure that they are compatible with existing conditions and responsive to current needs.

Item 2 (10)

Requirement

Section 5.2.2 specifies that temporary procedure changes that clearly do not change the intent of the approved procedure shall as a minimum be approved by two members of the plant staff knowledgeable in the areas affected by the procedure; and at least one of these individuals shall be the supervisor in charge of the shift and hold a senior operators' license on the unit affected.



Response

BGE does not require the Shift Supervisor to be the Senior Reactor Operator (SRO) approving temporary changes to procedures; any active SRO (either on-shift or on-staff) may provide the SRO approval for procedure changes.

Reason

Many proposed temporary procedure changes do not require the Shift Supervisor's immediate attention or knowledge of the change since they do not affect plant safety. Other SROs are available and qualified to perform this task since the Shift Supervisor's detailed review of the proposed change is not necessary to ensure plant safety.

Requiring the Shift Supervisor to review all changes is burdensome and contrary to plant safety in light of the total number of procedures that exist and the time the Shift Supervisor must dedicate to ensuring the plant is safely operated and maintained. Additionally, our Technical Specification requires this approval be from someone holding an SRO license (not necessarily the Shift Supervisor).

ANSI N18.1 - 3/8/71Item 1Requirement

Paragraph 4.2.2 states that at the time of initial core loading or appointment to the active position, the Operations Manager shall hold a Senior Reactor Operator's (SRO) License.

Paragraph 3.2.1 states that positions at the functional level of Manager are those to which are assigned broad responsibilities for direction of major aspects of a nuclear power plant. This functional level generally includes the plant manager (plant superintendent, or other title), his line assistants, if any, and the principal members of the operating organization reporting directly to the plant manager and having overall responsibility for operation of the plant or for its maintenance or technical service activities.

Response

Baltimore Gas & Electric has two positions in its organization, Superintendent-Nuclear Operations and General Supervisor-Nuclear Plant Operations. Neither of these positions needs to individually meet all of the requirements of both paragraphs 3.2.1 and 4.2.2. The Superintendent-Nuclear Operations will satisfy paragraph 3.2.1 and most of 4.2.2 except that he will not maintain an SRO license. Instead, the Superintendent-Nuclear Operations will hold or have held an SRO license. The GS-NPO will hold and maintain an SRO license. The GS-NPO satisfies paragraph 4.2.2, but he does not satisfy 3.2.1 because he does not report directly to the plant manager.

Reason

The Superintendent-Nuclear Operations will hold or have held an SRO license, as opposed to having a license at the time of appointment to the position. He will have an excellent understanding of plant operations. The GS-NPO will not only hold an SRO license at the time of appointment to the position, but he will maintain the license. The GS-NPO directly supervises the operating shift organization, whereas the Superintendent-Nuclear Operations is also responsible for operations procedure development, modifications acceptance, and operations/maintenance coordinations. The Superintendent-Nuclear Operation's level of supervision does not require current in-depth and plant specific knowledge which results from maintaining an SRO license.

Item 2 (17)Requirement

Paragraph 3.2.2 states that supervisors are persons principally responsible for directing the actions of operators, technicians, or repairmen. Those positions usually designated as intermediate and first line supervisors are included in this category.

Paragraph 4.3.2 states that supervisors not requiring Atomic Energy Commission (AEC) licenses shall have a high school diploma or equivalent and a minimum of four years of experience in the craft or discipline he supervises.

Response

Baltimore Gas and Electric has three supervisory positions in its organization - Supervisors, and in some cases Assistant General Supervisors and General Supervisors - which are organizationally equivalent (when supervising technicians/repairmen) to the positions described in paragraph 3.2.2 of ANSI N18.1-3/8/71. All these individuals need not possess the four years of craft/discipline experience required by paragraph 4.3.2. Instead, at least the first line supervisor shall possess four years experience in the craft/discipline he supervises while other supervisors in the organization may be selected to fill supervisory positions based on possessing a minimum of an Associate's Degree, with four years of related technical experience, and demonstrated supervisory ability. (18) Additionally, all first line and intermediate supervisors shall have at least a high school diploma or equivalent.

Reason

To provide a balanced and broad base of supervisory ability within the site organizations made up of technicians/repairmen, it is desirable to include as supervisors both individuals with extensive craft/discipline experience accrued through field work and individuals with related education and experience who have demonstrated the ability to effectively supervise.

ANSI N45.2.1 - 1973Requirement

Subsection 3.2 outlines requirements for demineralized water.

Response

BGE specifications for demineralized water are different than the specifications outlined in the standard.

Reason

BGE specifications for demineralized water are consistent with guidelines provided by the Nuclear Steam Supply System supplier. BGE specifications are generally more restrictive than those specified by ANSI N45.2.1.

ANSI N45.2.2 - 1972Item 1Requirement

Subsection 2.4 could be interpreted to mean that on-site and off-site personnel who perform any inspection, examination, or testing activities related to the packing, shipping, receiving, storage, and handling of items for nuclear power plants shall be qualified in accordance with ANSI N45.2.6.

Response

BGE requires that only persons who are responsible for approving items for acceptance shall be qualified in accordance with Regulatory Guide 1.58 (which endorses ANSI N45.2.6) and that personnel who verify that storage areas meet requirements will be qualified to either Regulatory Guide 1.58 (which endorses ANSI N45.2.6) or ANSI N45.2.23.

Reason

Our receipt inspection procedures require persons who approve items for acceptance to be qualified in accordance with Regulatory Guide 1.58 (which endorses ANSI N45.2.6). QV technicians, inspectors or QA auditors verify that storage areas meet requirements. All other inspection, examination, and testing activities are subject to review by persons qualified to Regulatory Guide 1.58 (which endorses ANSI N45.2.6).

Item 2Requirement

The second sentence of Subsection 2.4 requires that:

Off-site inspection, examination, or testing shall be audited and monitored by personnel who are qualified in accordance with ANSI N45.2.6.

Response

BGE uses personnel qualified in accordance with ANSI N45.2.23 to perform auditing and monitoring functions.

Reason

The qualification requirements for auditors cannot always be met by persons qualified to Regulatory Guide 1.58 (which endorses ANSI N45.2.6).

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**Item 3****Requirement**

Subsection 2.7 requires that activities covered by the Standard shall be divided into four levels, though recognizing that within the scope of each level there may be a range of controls depending on the importance of the item to safety and reliability.

**Response**

1. The level of protective measures defined by Subsection 2.7 are applied to Basic Component purchases.
2. Personnel of BGE's Nuclear Engineering Department (NED) will determine the level of protective measures to be applied to Commercial Grade purchases.

**Reason**

BGE's position is as follows:

1. For Commercial Grade items, it is not always possible to assign a level of classification in accordance with ANSI N45.2.2, as many items are purchased after they have been packaged by the manufacturer and shipped to his local agent, the wholesaler.
2. Experience has shown that the level of protection assigned to Commercial Grade items by vendors is adequate.

**Item 4****Requirement**

Subsection 3.0 specifies detailed requirements for packing items for each level defined in Subsection 2.7.

**Response**

BGE has replaced Section 3.0 with the following:

1. Packaging for Shipment to BGE

Personnel of BGE's NED or NSSD shall ensure that procurement documents for Basic Component and Commercial Grade item purchases either indicate that the normal methods of packaging and shipment used by industry in general are acceptable for the items being procured or specify the level of protection assigned to the item and the requirement that the vendor conform to applicable requirements for items in that classification defined in Regulatory Guide 1.38, Rev. 2 - March 1977.

2. The normal methods of packaging used by the industry in general are acceptable for items being procured as Commercial Grade.

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### 3. Packaging for Storage by BGE

In general the packaging used by the vendor to ship items for all types of purchases to BGE need not be retained after the item is received by BGE, provided that the item is stored in an area that meets the requirements for a storage area for the level of protection assigned to the item. Special or unique items, however, may require special protective measures. For such unusual items, the Department that initiated the purchase, together with NED, or NSSD shall identify if any of the requirements of Section 6.4.2 of ANSI N45.2.2 - 1972 apply.

#### Reason

1. This substitution will ensure that the item will receive adequate protection during shipment and storage, thus eliminating unnecessary restrictions and enabling BGE to use commercial sources to the utmost.
2. Experience shows that industrial practices for packaging Commercial Grade items are adequate for most applications.

#### Item 5

#### Requirement

Section 4.0 defines shipping requirements related to the protection levels assigned to items.

#### Response

BGE has replaced Section 4.0 with the following:

#### 1. Shipping to Baltimore Gas and Electric

BGE will invoke the requirements for shipping specified in Section 4.0 of ANSI N45.2.2 - 1972 on Basic Component purchases only when NED or FSSD personnel have specified in procurement documents that the item shall be packaged in conformance with ANSI N45.2.2, Section 3.8.

BGE will not invoke the requirements of ANSI N45.2.2 -(1972, Section 4.0, on Commercial Grade item purchases.

#### 2. Shipping from Baltimore Gas and Electric

Items shipped from BGE need not conform to any of the requirements of ANSI N45.2.2, but the organization that packs and handles the item shall provide roughly the same level of protection that the item was given during shipment to BGE.

#### Reason

If engineering personnel have determined that the vendor's methods of packaging are acceptable, they have already determined that the supplier's methods of shipping are adequate. As items are shipped from BGE only for repair, the detailed requirements specified in Section 4.0 of ANSI N45.2.2 are not necessary.

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**Item 6****Requirement**

Subsection 6.4 gives detailed requirements for care of items in storage, according to the protection levels assigned to the items.

**Response**

BGE does not require items to be stored in the packing used for shipment if the storage level in the area provides the same protection as the level of packing assigned to the items. Caps, covers, etc., will be required only if specified by NED or NSSD personnel during the procurement process. If an item is taken from one storage area to another, however, the persons who move it are responsible for ensuring, as applicable, that additional packing is supplied to give adequate protection during transportation.

**Reason**

The degree of protection given an item during storage should be tailored to the importance of the item to safety and the probability of deterioration during storage; to base storage requirements purely on the categories in Subsection 2.7 of ANSI N45.2.2 - 1972 is impractical. BGE requires NED or NSSD personnel to specify requirements more closely related to the actual function of items and to storage conditions.

**Item 7****Requirement**

Subsection 7.3.3 requires compliance with a series of ANSI documents.

**Response**

BGE controls for the use of hoisting equipment are compatible with the Standards listed in Subsection 7.3.3 of ANSI N45.2.2, although at the discretion of the Plant General Manager, they need not be compatible with documents referred to in these documents.

**Reason**

Lower-level documents referred to in the documents listed in Subparagraph 7.3.3 will not necessarily affect the ability of BGE personnel to properly handle SR items and could lead to confusion.

ANSI N45.2.3 - 1973Item 1Requirement

Subsection 2.1 outlines housekeeping cleanliness requirements for five designated zones.

Response

BGE has established three classes for cleanliness requirements. There is no class equivalent to the ANSI Zone 1. Requirements of ANSI Zones 4 and 5 have been consolidated into BGE's class 3.

Reason

1. ANSI Zone 1 level of cleanliness applies to new construction activities.
2. Where required, smoking restrictions are posted for BGE's class 3 areas.

Item 2Requirement

Subsection 2.1 requires for Zones I, II, and III, that a written record of the entry and exit of all personnel and material shall be established and maintained.

Response

BGE has established the following methods for personnel and material accountability:

1. Written accountability.
2. Where possible tethering of tools and materials to permanent plant structures or persons.
3. Post-maintenance closeout inspections

Reason

BGE's three methods of accountability offer the same level of control as that required by the standard.

ANSI N45.2.4 - 1972Requirement

The last paragraph of Subsection 3.2.1 (Equipment Tests) states:

Items requiring calibration shall be tagged or labeled on completion indicating date of calibration and identity of person that performed the calibration.

Response

The new calibration program at Calvert Cliffs does not use calibration stickers that contain date of calibration and identity of person that performed the calibration. The new calibration stickers indicate that the instrument is periodically calibrated according to the calibration program. The sticker, a green "C," means the instrument is in the program.

Reason

In the past, the date of calibration noted on the instrument was important because the calibration history of preventive maintenance was not kept on computer. Computer tracking systems and trending programs did not exist. In the new system, the date of calibration being on the sticker is not necessary because the date of calibration and the identity of the person that performed the calibration is retrievable in the PM history in Nucleis according to equipment ID. Calibrations of instruments are scheduled and tracked by computer. We are going into a real predictive and preventive maintenance calibration program. Calibration frequencies will be shifted based on calibration history, PRAs, vendor's recommendations, and instrument use.

A database exists which controls what instruments are added to or deleted from the program. By maintaining the database, we ensure that no instruments are identified as calibrated that are not. In the new program instruments identified as calibrated are kept up to date and specific information is kept on computer with no need for that information to be on the sticker.

ANSI N45.2.6 - 1978Item 1Requirement

Subsection 1.2 states in part,

The requirements of this standard apply to personnel who perform inspection, examination, and tests during fabrication prior to and during receipt of items at the construction site, during construction, during preoperational and startup testing, and during operational phases of nuclear power plants.

Response-A

Personnel of BGE's Quality Assurance organizations who perform independent verification through inspections, examinations, or tests at the plant site during operational phases of the nuclear power plant are required to be qualified in accordance with Regulatory Guide 1.58 (which endorses ANSI N45.2.6) or to ANSI N18.1, 1971. All other BGE personnel who perform inspection, examination, and testing functions associated with normal operations of the plant are qualified either to Regulatory Guide 1.58 (which endorses ANSI N45.2.6) or to ANSI N18.1 - 1971.

Reason-A

1. The individuals who perform inspection, examination, and testing functions associated with normal operation of the plant, such as maintenance and certain technical reviews, are normally qualified to ANSI N18.1 - 1971.



2. Some testing activities conducted during normal operation of the plant, such as surveillance testing, do not require that test personnel meet the requirements specified in Paragraph 4.5.2 of ANSI N18.1 for technicians. Personnel qualified to Regulatory Guide 1.58 (which endorses ANSI N45.2.6) are adequately qualified to conduct such testing.

#### Response-B

BGE does not always require vendor personnel performing inspection or test activities to comply with the requirements of Regulatory Guide 1.58 (which endorses ANSI N45.2.6) but evaluates the need for invoking Regulatory Guide 1.58 (which endorses ANSI N45.2.6) on the vendor during the review of procurement documents. The requirements are not applied to procurement classified as Commercial Grade.

#### Reason-B

BGE's position is as follows:

1. For replacement items purchased as Commercial Grade Items, the purchaser may not impose nuclear unique requirements on the vendor. Additionally, items may be manufactured before placement of the purchase order and the vendor may not be required to maintain records of the performance of inspections or tests.
2. For Basic Component Purchases, the qualification requirements for inspection, examination, and test personnel are determined by:
  - a. Item status (new or replacement).
  - b. Complexity and importance of item.
  - c. Manufacturer's QA program approval level (Appendix B, ANSI N45.2, etc.).

#### Response-C

BGE does not require personnel who perform specific limited and repetitious inspection functions, such as inspection for removal or replacement of snubbers, to be trained as required by Regulatory Guide 1.58 (which endorses ANSI N45.2.6).

#### Reason-C

Inspections, examinations, or tests that are repetitious or of limited scope need not be performed by individuals qualified to the requirements of Regulatory Guide 1.58 (which endorses ANSI N45.2.6) provided that they receive instruction in the following:

1. Activities to be verified.
2. Acceptance criteria.
3. Method of documenting results.
4. Method of reporting deficiencies.

The person responsible for the inspection activity ensures that such instruction is given to inspectors before they perform specific inspection functions, and that both this training and the acceptability of the results of the inspection are documented.

Response-D

When it is necessary to monitor the activities of a vendor, BGE uses personnel qualified as auditors in accordance with ANSI N45.2.23 or inspectors in accordance with Regulatory Guide 1.58 (which endorses ANSI N45.2.6).

Reason-D

Both Regulatory Guide 1.58 (which endorses ANSI N45.2.6) and ANSI N45.2.23 establish training requirements suitable for monitoring vendor activities.

Item 2Requirement

Table 1 specifies that Level III personnel shall be capable of qualifying Level III personnel.

Response

When there is only one Level III position or when a new Level III position is created, BGE personnel with the title General Supervisor, or higher, qualify Level III personnel.

Reason

BGE personnel in these grades are capable of certifying Level III personnel without being trained as Level III inspectors.

**NOTE:**

Regulatory Guide 1.58 (which endorses ANSI N45.2.6-1978) states in part, under item 6 of Regulatory Position, that..."In addition to the recommendations listed under Section 3.5 (of ANSI N45.2.6-1978) for Level I, II, and III personnel, the candidate should be a high school graduate or have earned the General Education Development equivalent of a high school diploma..." Based on the NRC letter dated January 17, 1985 from Thomas T. Martin to A. E. Lundvall, Jr., the above educational requirements will be implemented for inspection, examination, and testing personnel hired or assigned after November 27, 1984, in addition to the present commitment to ANSI N45.2.6-1978 for the qualification of such personnel.

**ANSI N45.2.9 - 1976**Item 1Requirement

Section 4.0 titled "Receipt" gives instructions for receipt controls.

Response

BGE applies these requirements only to the receipt of records by the Plant History File.

Reason

Most records received by such organizations as Receiving Inspection, Engineering, etc., are not shipped in a manner that makes these requirements applicable. These requirements are applicable, however, when the records are finally turned over to the Plant History File.

Item 2Requirement

Subsection 5.6.1 reads as follows, "Design and construction of a single record storage facility shall meet the following criteria:" Items a) and b) of the subsection state that:

- "a) Reinforced concrete, concrete block, masonry, or equal construction."
- "b) A floor and roof with drainage control. If a floor drain is provided, a check valve (or equal) shall be included."

Response/ReasonItem a

The intent of this requirement is both structural integrity and fire resistance. This vault is entirely enveloped by a structurally sound, fire resistive building. Second, the vault rests on a reinforced slab on grade and its walls extend fully to the underside of the structural deck. Third, the walls of the vault are constructed of gypsum wallboard on metal studs per Underwriters Laboratory Test Number U412, assuring the equivalent of 2 hour fire resistive construction. This is equal construction to concrete block in terms of fire protection. The walls carry no structural load; hence, they provide equivalent structural integrity to that needed of concrete block.<sup>1</sup> (See footnote following page).

Response/ReasonItem b

Again, the vault is contained within an environmentally protected building. As such, it has no roof, or need for floor drain.<sup>1</sup> (See footnote).

Item 3Requirement

Subsection 5.6 allows only the dual facility defined in Subsection 5.6.2 as an alternative to the single facility defined in Subsection 5.6.1.

<sup>1</sup>These responses have been forwarded to the NRC by the BGE letter dated 02/11/83 from Robert G. Nichols, Sr. Facilities Project Administrator, Real Estate and Office Services Department, to Terry L. Harpster, Chief QA Branch, Division of QA, Safeguards and Inspection Programs, IE, USNRC. These responses have also been accepted by the NRC in their letter dated 04/22/83 from Walter P. Haass, Deputy Chief, QA Branch, Division of Quality Assurance, Safeguards, and Inspections Programs, Office of Inspection and Enforcement.

Response

BGE allows the following alternative storage requirements for organizations other than the Records Management Unit:

Organizations that originate records and do not transfer them to the Records Management Unit within 30 days of completion shall establish one of the following three controls as alternatives to the requirements specified for the Records Management Unit:

1. Duplicate Storage

Either A or B.

A. Within 30 days of completion of a record, a duplicate record file shall be established. This activity shall be controlled by procedures which provide for the following:

1. Assignment of responsibility for records.
2. Description of storage area.
3. Description of filing system.
4. An index of the filing system.
5. Rules governing access to and control of files.
6. Methods for maintaining control of and accountability for records removed from the file.
7. Method for filing supplemental information and disposing of superseded or obsolete records.
8. Method for preserving records to prevent deterioration.
9. Method for maintaining specially processed records that are sensitive to light, pressure, or temperature.
10. Transfer of duplicates to the Records Management Unit within two years of completion of records.

B. Make arrangements with at least one other department that receives a copy of each document to subject this other copy to the controls specified above.

2. Fire-resistant Building Storage

Records shall be stored in steel cabinets located in a fire-resistant building or a non-combustible building with a fire suppression system.

The procedural controls defined for duplicate storage shall be applied.

3. Non-fire-resistant Building Storage

Within non-fire-resistant facilities, records shall be stored in UL one-hour-minimum fire-rated storage cabinets and be subject to the procedural controls defined for duplicate storage.

BGE defines a Fire-resistant Building as follows:

A facility constructed to resist the initiation or spreading of fire; non-combustible and/or fire-suppressive materials used; building certified as fire-resistant by the Risk Management Unit of BGE's Corporate Finance Group.

Reason

Although these alternatives are compatible with standard methods of handling records, they do not materially decrease the level of protection afforded to the records.

ANSI N45.2.23 - 1978

Item 1

Requirement

2.3 Qualification of Lead Auditors

Section 2.3.1 requires prospective Lead Auditors to obtain a minimum of ten credits under the scoring system defined in paragraphs 2.3.1.1-2.3.1.4.

Response

BGE has revised the scoring system as follows:

Education and Experience

The prospective Lead Auditor shall have accumulated a minimum of ten credits under the following scoring system:

1.0 Education (4 credits maximum)

- 1.1 For the Associate degree for an accredited institution, score one credit, if the degree is in engineering, physical sciences, mathematics, or quality assurance, score two credits. Or, for the Bachelor degree from an accredited institution, score two credits; if the degree is in engineering, physical sciences, mathematics, or quality assurance, score three credits.
- 1.2 For the Master degree in engineering, physical sciences, business management, or quality assurance from an accredited institution, score one credit.
- 1.3 For the successful completion of part of the required curriculum for an Associate, Bachelor, or Master degree, score a corresponding percentage of the credits specified above for the degree.
- 1.4 For the successful completion of Navy Nuclear Training, its equivalent in another armed service, or the training required for becoming a licensed operator in a commercial nuclear power plant, score two credits.

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2.0 Experience (9 credits maximum)

2.1 Technical Experience (5 credits maximum)

For experience in engineering, manufacturing, construction, operation, or maintenance, score one credit for each full year.

2.2 Nuclear Experience

If two years of technical experience have been in the nuclear field, score one additional credit.

2.3 Quality Assurance Experience

If two or more years of the technical experience have been in quality assurance or quality control, score two additional credits. Persons whose work activities are controlled by the QA Program but who are not full-time members of the QA organization may be awarded half the credits that would be given to a person with specific quality assurance experience.

2.4 Audit Experience

If two or more years of the technical experience have been in auditing, score one additional credit.

2.5 Supplemental Experience

Persons who have a proportion of the experience specified in 2.1-2.4 may be awarded a corresponding percentage of the credits specified.

2.6 Time exclusively spent in training does not apply as credit toward experience requirements for lead auditors.

3.0 Training (2 credits maximum)

Persons who have successfully completed the training requirements of ANSI N45.2.23 may be given two credits.

4.0 Rights of Management (2 credits maximum)

The Manager-NQAD, may grant additional credits for other performance factors applicable to auditing as follows:

4.1 For certification of competence in engineering or science related to nuclear power plants, or in quality assurance specialties, issued and approved by a State Agency or National Professional or Technical Society, score two credits.

4.2 For nuclear experience in excess of 2 years, score one credit for each two years experience.

4.3 For practical experience that can be related to power plants, in excess of 5 years, score one credit for each two years of experience.

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Reason

BGE is in agreement with the basic purpose of ANSI N45.2.23--that is, to establish minimum educational or experience requirements for Lead Auditors. We think, however, that the system of credits outlined in ANSI N45.2.23 tends to reduce the size of the pool of potential replacement auditors without making redeeming improvement in the capabilities of persons selected.

We calculated the credit score of 11 of our present Lead Auditors at the time they were appointed Lead Auditors. Six had completed Navy Nuclear Training and spent several years in the Navy Nuclear Program. Four of these scored only 8 credits total, including 2 credits allowed by paragraph 2.3.1.4 of ANSI N45.2.23 for rights of management based on their having completed the BGE QA training programs for Lead Auditors.

One of our auditors, with neither nuclear nor power plant experience, had a credit score of 12 because he held a Bachelor's degree in engineering and was a professional engineer with over 5 years design experience.

Because all of these individuals have acted as Lead Auditors satisfactorily for several years, it appears that the credit system should be revised slightly to allow for the differences in education and experience of prospective Lead Auditor candidates.

We consider the flaw in the current system to be the emphasis on educational requirements that will allow a person with a Master's degree and no nuclear or power plant experience to become a Lead Auditor, but will exclude a person who has no degree, even though he may have 20 years' experience in operating or maintaining nuclear or power plant systems.

The practical balance between education and experience will vary with individuals and particular work assignments. Any attempt to establish rigid requirements is likely to allow some unsuitable candidates to meet the qualification requirements while excluding some acceptable candidates.

For these reasons, we think that the supervision of prospective Audit Team Leaders should be given more flexibility in determining whether, for a particular individual, educational or professional qualifications are more significant and valuable than past experience.

The present credit system, while recognizing the Associate degree, gives no credit for completion of the nuclear training programs. We think that someone who has taken Navy Nuclear Training or its equivalent in another armed service, or someone who has completed the training required to become a licensed operator in a commercial nuclear power plant, should receive the same credit as a person who has an Associate degree from an accredited institution in engineering, physical sciences, mathematics, or quality assurance.

The points now awarded for education are related to the effect that formal courses might have on the ability of individuals to comprehend the regulations or the technical aspects of activities being audited. The point system makes no allowance for the fact that such knowledge comes gradually and not upon receipt of a degree. Persons who have completed part of a degree course should receive a percentage of the credits allowed for that course.

The requirements for training specified in ANSI N45.2.23, paragraph 2.3.2, would seem to ensure that prospective Lead Auditors will meet the requirements of paragraph 2.3.1.4 dealing with the rights of management. We think, therefore, that all prospective Lead Auditors should qualify for these two credits.

Similarly, the present system recognizes the effect that working in a QA Program will have on the ability of a person to comprehend regulations and technical requirements. Persons who are not assigned as full-time members of the QA Organization, however, receive similar exposure if they perform activities controlled by a QA Program. We therefore allow such persons half the credits specified for quality assurance experience.

## Item 2

### Requirement

#### 3.3 Requalification

Lead Auditors who fail to maintain their proficiency for a period of two years or more shall be required to requalify. Requalification shall include retraining in accordance with the requirements of paragraph 2.3.3, reexamination in accordance with paragraph 2.3.5 and participation as an Auditor in at least one nuclear quality assurance audit.

### Response

BGE requalifies Lead Auditors on the basis of the satisfactory performance of one audit, as observed by a qualified Lead Auditor.

### Reason

The purpose of the training specified in paragraph 2.3.3 of the Standard is to ensure that candidates understand the fundamentals of auditing and the requirements for activities to be audited. The fact that persons have not maintained their proficiency does not mean that they need complete re-training; it means only that they have not been able to review and study the applicable Codes, Standards, Procedures, instructions, and other documents related to QA Programs and program auditing. BGE considers that the satisfactory performance of an audit under the observation and guidance of a qualified Lead Auditor should ensure that persons with lapsed certification will review and understand the pertinent documents.

## ANSI N101.4 - 1972

### Requirement

Section 1.2 specifies applicability requirements for the Standard.

### Response

BGE requires that only activities performed inside containment structures and related to protective coatings applied to ferritic steels, aluminum, stainless steel, zinc-coated (galvanized) steel, concrete, or masonry surfaces shall conform to applicable Sections of ANSI N101.4.

### Reason

Deterioration of protective coatings applied to surfaces outside containment structures would have no detrimental effects on the safe operation of the plant.



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ANSI N45.2.13 - 1973Requirement

ANSI N45.2.13 could be interpreted to mean that all requirements of this standard are applicable to all safety-related items or services.

Response

BGE has two approaches for safety-related and designated non-safety related procurement as described in Sections, 1B.4 and 1B.7. Controls established for Basic Component Purchases correspond to the requirements of ANSI N45.2.13. The extent to which the individual requirements of ANSI N45.2.13 are applied to Commercial Grade Purchases depends on the nature and scope of the work to be performed and the importance to nuclear safety and the items or services purchased. This approach is consistent with the introductory discussion in Section 1.3 of ANSI N45.2.13 - 1973.

ATTACHMENT A-1

**BASES FOR QA POLICY REVISIONS (1)**

<u>Entry No.</u>	<u>PRF-Q No.</u>	<u>Bases for Revision(s)</u>
1.	<u>771</u>	<u>Procedure Upgrade Action Plan (PUAP), per L. B. Russell letter 1-20-89.</u>
2.	<u>783</u>	<u>10 CFR Part 21 requirements.</u>
3.	<u>797</u>	<u>NRC Inspection #89-16/89-17 (Letter from R. E. Denton to R. P. Heibel dated July 13, 1989.)</u>
4.	<u>824</u>	<u>NRC letter from M. W. Hodges to G. C. Creel dated March 13, 1990. This letter approved a one-time exemption to the periodic review requirements for procedures scheduled to be upgraded by the Procedures Upgrade Project. This exemption was discontinued and removed by PRF-Q 954.</u>
5.	<u>844</u>	<u>Procurement Program Project upgrade, Performance Improvement Plan (PIP) Action Plan #5.3.1 and QAU Audit Finding 87-13-01</u>
6.	<u>844</u>	<u>1B.15 and 1B.16 revised to clearly establish program applicability and controls, consistent terminology, organizational responsibilities and focused approach towards developing and implementing an integrated Management System.</u>
7.	<u>891</u>	<u>PIP Action Plan 5.3.1 Follow-On Activity.</u>
8.	<u>894</u>	<u>1B.15 and 1B.16 revised to clarify requirements which will permit implementation of the Issues Management System - PIP item 4.10.0.</u>
9.	<u>854/907</u>	<u>G. C. Creel letter to the NRC dated 7/26/91 which discussed modifications to, and acceptance of, changes to the QA Policy involving QA compliance reviews of QAPs and Directives.</u>
10.	<u>815</u>	<u>G. C. Creel letter to the NRC dated 10/3/90 discussing temporary changes not affecting "Approved Procedure Intent" and the relieving of the Administrative Burden on Shift Supervisors.</u>

ATTACHMENT A-2

**BASES FOR QA POLICY REVISIONS (1)**

<u>Entry No.</u>	<u>PRF-Q No.</u>	<u>Bases for Revision(s)</u>
11.	<u>887</u>	<u>Audit Finding No. 9026-01 (Implementation of Surveillance Requirements).</u>
12.	<u>954</u>	<u>G. C. Creel letter to the NRC dated 7/3/91 discontinuing the one-time temporary change to the periodic review interval approved in Basis (4) above.</u>
13.	<u>957</u>	<u>PIP Action Plan follow-on activity (5.3.1).</u>
14.	<u>953</u>	<u>PIP Action Plan 4.1 and NUREG-0737 (TMI Action Plan Requirements) Item I.C.5, "Procedure for Feedback of Operating Experience to Plant Staff."</u>
15.	<u>990</u>	<u>QAU Surveillance 5-92-28 "Interface Between Facilities Management Department and Nuclear Energy Division on Projects at Calvert Cliffs," Recommendation 4.2.</u>
16.	<u>998</u>	<u>QA Audit Recommendation 92-04-R03 (ISFSI operational phase).</u>
17.	<u>93-06</u>	<u>NQAD Audit Finding 92-10-01, Facility Staff Training.</u>
18.	<u>93-06</u>	<u>Letter from M. C. Modes of the NRC to R. E. Denton dated June 21, 1994.</u>

# BALTIMORE GAS & ELECTRIC CORPORATE ORGANIZATION

Broken lines indicate supporting organizations for Nuclear Program activities as directed by the Vice President - NED (1)  
 Heavy lined boxes identify organizations participating in the Quality Assurance Program

