71-0912

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Philip Strawbridge
President & CEO

Our ref: QA19.0.03.2

April 13, 2005

Mr. William E. Brach
Director, Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
Mailstop O-13D13
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Ref. NRC Docket No. 71-0912
Submittal of BNG America (formerly BNFL Inc.) Quality Assurance Manual Per 10 CFR 71 Subpart H

Dear Mr. Brach:

The BNG America (formerly BNFL Inc.) Quality Assurance Manual (QAM) Revision 10 was approved by your office in March 2003. Enclosed with this letter is a copy of Revision 11 to the QAM for your review and approval, in accordance with 10 CFR 71.101(c). BNG America is aware that this revision may not be implemented until your approval is obtained. The extent of the revision is identified in the QAM, Record of Revision.

The Manual is intended for broad scope use in all of BNG America's work which is governed by the NRC, DOE or other Regulatory Bodies. The QAM meets the requirements of 10 CFR Part(s) 50 Appendix B, 71 Subpart H, 72 Subpart G, 830 Subpart A and NQA-1 (1994).

The QAM is supported by project, corporate, engineering, procurement and quality procedures which provide detailed requirements for implementing our corporate quality assurance program. The application of our program uses the "graded" approach, depending on the complexity, criticality, and safety requirements of each project or structure, system or component.

NMSS01

Should you have any questions or comments, please contact Mr. Carl Smith at 303-874-3942.

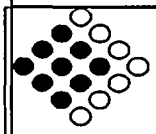
Sincerely,

Philip Strawbridge
President and CEO

cc: Mr. Theodore R. Quay

Attachment: BNG America Corporate Quality Assurance Manual, Revision 11

User responsible to ensure correct revision is used.



CORPORATE QUALITY ASSURANCE MANUAL

Approved By: */s/ Carl Smith* Date: 4/3/05
Carl Smith,
Corporate ES&H/QA Manager
BNG America

Approved By: */s/ Philip Strawbridge* Date: 4/5/05
Philip Strawbridge,
President and Chief Executive Officer
BNG America

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RECORD OF REVISION

Revision 11	March 7, 2005	General: Revised header to comply with QAP-06.1 requirements and added BNG America Logo. All: Deleted references to "Regulatory Guides", as these are not requirements. Preface, 2nd par.: Deleted extra "50" Preface and Section 2.3: Clarified the intent, as it pertains to Part 50 and 71 (safety significant and important to safety, respectively). Section 2.11: Reworded to delete guidance and clarify intent. Table 2-1: Clarified that documents identified in this Table are for reference only. Section 11.10: Reworded to align with NQA-1-1994 Section 18.1: deleted "Supplier audits shall be performed triennially, as appropriate". Section 18.7: Reworded to clarify.

Revision 10	March 31, 2003	Updated referenced QA standards, added NQA-1, clarified applicability to subsidiaries. Updated organization changes. Clarified QA Program annual review requirement. Updated Table 2.1. Updated Sections 3.0, 4.0, 6.0, 7.0, 8.0, 10.0, 14.0, 17.0, 18.0.
Revision 9	March 19, 2001	Incorporated NRC RAI comment resolution.
Revision 8	January 17, 2001	Deleted proprietary information in the footer of the manual. Changed page numbers 3 and 4 from landscape to portrait. No content changes.
Revision 7	December 22, 2000	Complete new issue – all pages

PREFACE

This Manual has been developed for and applies to BNG America and any wholly owned subsidiary engaged in nuclear work subject to overview by the Nuclear Regulatory Commission or the U.S. Department of Energy, unless covered by another BNG America regulatory agency approved Quality Assurance Program. This manual is responsive to the BNG America Policy on Quality (Section 10.5). BNG America shall safely and cost effectively meet the agreed requirements of all customers, regulators and other stakeholders. The basic responsibility for the achievement of quality shall belong with the individual or with teams assigned to the task. The President of BNG America may direct its use to control other work on a case-by-case basis.

The Quality Assurance Manual (QAM) sections contained herein describe BNG America's basic policy for controlling the quality of products and services being provided by BNG America. The QAM meets the requirements of Title 10 of the Code of Federal Regulations, Part(s), 50 Appendix B, 71 Subpart H, 72 Subpart G, 10 CFR 830 Subpart A and ASME NQA-1 (1994) as well as other comparable industry standards. BNG America has opted to employ the requirements of 10 CFR 50 Appendix B, as applicable, to meet 10 CFR 830 Subpart A requirements. Additionally, this manual fulfills the requirements of 10 CFR Part 21 and 10 CFR 820 (PAAA). Additional requirements necessary to meet 10 CFR 830 Subpart A are addressed either in this manual or in the implementing procedures, as appropriate.

The QAM is supported by project, corporate, engineering, procurement and quality procedures, which provide detailed requirements for implementing this corporate quality assurance program. The application of this program uses the "graded" approach, which is based on the importance to safety and safety significance of activities, or structures, systems, or components (SSCs). The "graded" approach is applied in accordance with BNG America approved Engineering and Quality Assurance procedures.

Notification of revision to the QAM and all subsequent revisions shall be transmitted by an e-mail approved by the Corporate Manager, ES&H/QA. The requirements stated in this QAM are required to be met by federally regulated projects. Projects and subsidiaries with a regulatory agency, including agreement States, approved Quality Assurance Program are not required to adopt all provisions of the Corporate Procedures if applicable Project / Subsidiary Management and QA Management determine that the approved existing Quality Plans and procedures are acceptable.

SECTION 1
ORGANIZATION

Organizational Structure

1.1 The top level BNG America organizational structure is shown in Figure 1-1 and the QA organizational structure is shown in Figure 1-2. Management responsibilities are identified by the management level (manager, lead, etc.) and department (QA, Projects, Engineering, etc.).

1.2 The President is responsible for management of BNG America, for setting overall company policy and identification of long-term company goals and resources. The President retains ultimate authority and responsibility for review of the status and adequacy of the Quality Assurance Manual and must assure this review occurs annually.

1.3 The assurance of quality at BNG America is an interdisciplinary function that involves all organizations. Furthermore, quality assurance encompasses many diversified functions and activities and extends to various job levels within these organizations including all executives and all employees whose activities affect quality. The implementation of quality assurance throughout the various functions of design, procurement, construction, operation, decommissioning and services at BNG America must, therefore, be considered the direct responsibility of the organization performing the work and cannot be considered the sole domain of any single quality assurance group.

1.4 Persons or organizations performing quality assurance functions, such as developing or measuring the adequacy or effectiveness of the QA Program, shall have the authority and organizational freedom necessary to effectively discharge these responsibilities. Such persons or organizations shall be independent of direct pressures of cost, schedule or production, and their authority and organizational freedom shall be sufficient to: (1) identify quality problems; (2) initiate, recommend or provide solutions; (3) verify implementation of solutions; and (4) withhold and segregate nonconforming material or other action, including stopping work to maintain program integrity. Furthermore, they shall have direct access to responsible management at a level where appropriate action can be mandated.

1.5 Persons or organizations performing other quality assurance functions such as checking, verifying or reviewing the work of others shall have authority and organizational freedom to the degree sufficient to properly discharge their assigned quality assurance functions. However, when authority and organizational freedom are restricted for any person performing any quality assurance function, an established line of communication to

responsible management must exist sufficient to prevent suppression of those quality assurance functions and/or to resolve any disputes.

1.6 Final responsibility for the effectiveness and adequacy of this Quality Assurance Program resides with BNG America. However, BNG America may delegate the establishment and execution of the program, or any part thereof, to other qualified organizations.

1.7 The President of BNG America has overall responsibility for assuring the development and maintenance of an effective quality assurance program for BNG America. The President to the Corporate Manager, ES&H/QA, has delegated responsibility for the establishment and administration of the BNG America Quality Assurance Program. The Quality Assurance organization functions as a staff position reporting to the President of BNG America and is independent of all other organizations within BNG America. The Quality Assurance organization assumes line responsibility for assuring compliance with BNG America's Quality Assurance Policy.

1.8 The Corporate Manager, ES&H/QA has designated the QA Program responsibilities for commercial and government activities to the Corporate QA Manager. The Corporate Manager, ES&H/QA retains the responsibility for accomplishment of the function in accordance with the provisions of this Manual.

1.9 Any dispute over Quality Assurance with the management of other functions (engineering, projects, fabrication, purchasing, etc.), that cannot be resolved with the respective department manager shall be referred to the President for resolution.

Project Organization

1.10 For each project that BNG America undertakes, typically a Project Manager is assigned who is responsible for the technical, quality and commercial aspects of that project. The Project Manager shall assign a project staff that is matrixed from the respective organizations. Projects may have an Engineering Manager or Project Engineer identified. The Project Manager provides direction on project priorities and activities and is responsible for interface control. The Corporate QA Manager assigns QA personnel to the Projects to perform the necessary quality assurance functions and oversight. QA personnel report to the Corporate QA Manager for QA program guidance and direction.

Figure 1-1

BNG America **CORPORATE ORGANIZATION**

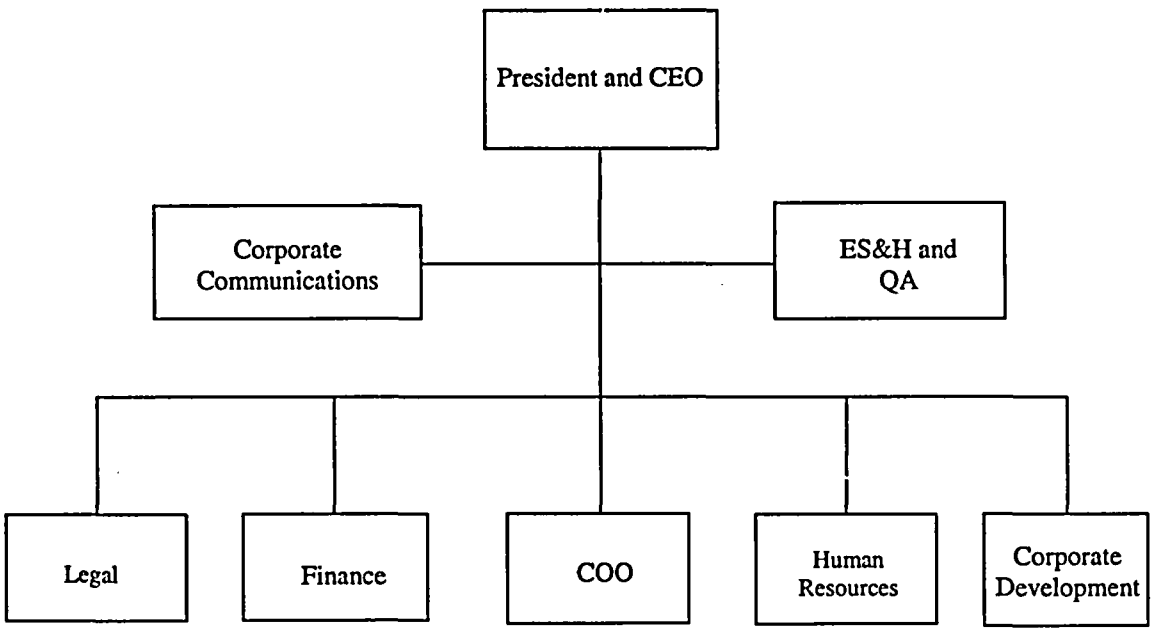
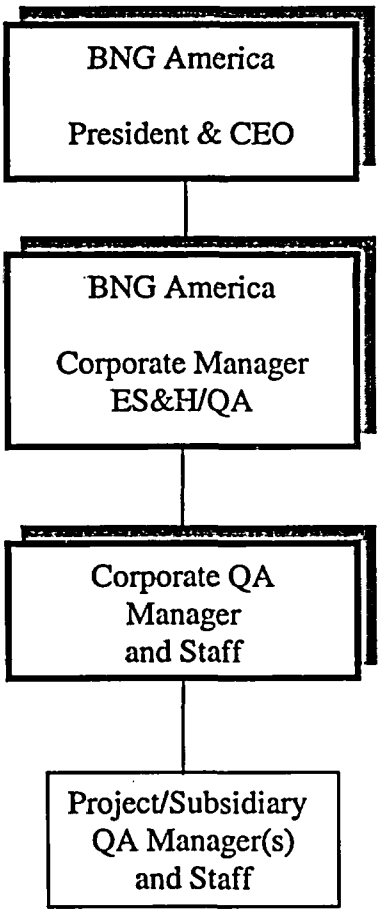


Figure 1-2

BNG America **CORPORATE QA ORGANIZATION**



SECTION 2
QUALITY ASSURANCE PROGRAM

2.1 This Quality Assurance Program shall apply to all activities that are nuclear safety-related, important-to-safety and require compliance with the appropriate documents listed below.

10 CFR 50, Appendix B
10 CFR 71, Subpart H
10 CFR 72, Subpart G
10 CFR 830, Subpart A
10 CFR Part 21
10 CFR 820
ASME NQA-1 (1994)

2.2 Conditions that may be reportable either as deficiencies affecting the ability of nuclear safety-related SSCs to perform their intended safety function or constitute substantial nuclear safety hazards shall be reported in accordance with the appropriate regulatory requirement. For example, 10 CFR 21 (commercial) or 10 CFR 820 (Price Anderson Amendment Act [PAAA] government) and Quality Assurance Procedures shall be used, as appropriate.

2.3 It is the policy of **BNG America** to ensure that all activities affecting quality shall be accomplished under suitably controlled conditions, including the use of appropriate equipment, maintenance of proper environmental conditions, assignment of qualified personnel, and only after all prerequisites have been satisfied. All items and services shall meet all applicable regulatory and customer requirements. For those activities, items, and services not having specific regulatory requirements, such as many of the activities associated with reactor decommissioning, the requirements of this QA Manual shall be applied using the "graded" approach, which is based on the importance to safety and safety significance of activities, or structures, systems, or components (SSCs). The "graded" approach is applied in accordance with BNG America approved Engineering and Quality Assurance procedures. When required, project-specific QA Plans shall provide additional definition for the graded approach. As a minimum, the graded approach process analysis ensures the following: verification/validation of safety importance, documentation of this analysis, and actions necessary for compliance with the applicable regulatory requirements commensurate with the importance of the equipment, processes, and facilities. This ensures the following:

a. Prevention or mitigation of a release of radiological and hazardous material that could exceed exposure standards.
b. Prevention of a nuclear criticality.
c. Meeting exposure standards for normal operation.

2.4 The QA Manual is maintained primarily in an electronic format within BNG America. The preparation, review, approval and distribution of the QA Manual is delineated within a Quality Assurance Procedure (QAP).

Program and Manual Review, Approval and Effectiveness Reviews

2.5 The BNG America Quality Assurance Program is fully described in this document which is the BNG America Quality Assurance Manual. The Manual shall be reviewed annually or more frequently as directed by the President. The intent of this review is to keep the Manual current with the documents specified in paragraph 2.1. Revisions to the Manual required for compliance to the referenced documents shall be authorized by the President. Additionally, changes to this QAM require a review in the same manner as the original document.

2.6 An annual assessment of the BNG America QA Program shall be conducted to review the status, adequacy and effectiveness of the QA Program. Improvements identified during these assessments shall be reflected in the BNG America QA Manual and implementing Procedures as needed.

Indoctrination and Training

2.7 Each BNG America Manager shall assure that all personnel performing activities affecting quality are indoctrinated, trained, qualified and certified according to their level of responsibility and assigned functions. Indoctrination and training shall consist of informal, on-the-job activities under the guidance of trained personnel, self study and/or formal meetings, classes, lectures, and seminars. Formal training and self-study shall be documented in accordance with training procedures. The record shall include names of personnel trained and a description of the material covered. The record shall be forwarded to the appropriate designated QA record storage location. Refresher training is required for personnel performing activities affecting quality when significant position responsibility changes or major program revisions have occurred.

Qualification and Certification of Personnel

2.8 When BNG America performs inspections, examinations or tests that require a formal BNG America program for training, qualification and certification, they are performed in accordance with the requirements of Sections 9, 10 and Section 11 of this QA Manual and the corresponding implementing procedures. Appropriately trained, qualified and certified personnel shall perform these inspections, examinations or test activities . Personnel performing these activities are appropriately certified prior to the commencement of the quality affecting activity. BNG America performs annual reviews and certification renewals for qualifications of audit and inspection personnel to assure continued acceptable performance.

2.9 Lead Auditors who are qualified in accordance with ANSI/ASME NQA-1 (1994) shall conduct BNG America audits. Auditor and Lead Auditor qualification records shall be maintained as quality records in BNG America Document Control.

Quality Assurance Program Implementation

2.10 Quality Assurance Procedures (QAPs) as well as other corporate level procedures (e.g. ENG's, PRO's, etc) are developed and issued to implement the requirements defined by this Quality Assurance Manual (Reference Table 2-1). In addition, groups or projects may develop sub-tier procedures and instructions as necessary but, in no case shall these procedures or instructions contradict or circumvent the requirements contained in this Manual.

2.11 Project Quality Plans that define corporate, departmental and project-specific procedures shall be developed, as required by the customer's contract requirements, or as deemed appropriate for the project scope. When developed, Project Quality Plans and project-specific procedures shall be subject to, and include, the applicable controls and requirements of this QA Manual.

Important to safety and safety significant or quality-affecting work that is governed by the regulatory structure of the project shall not be performed until the QA Manager has reviewed Project Quality Plans for compliance with the customer's requirements, and signified concurrence .

When Project Quality Plans and Procedures are not required, the applicable requirements of the BNG America QA program shall be flowed-down to the project in the form of project implementing documents.

2.12 Table 2-1 identifies the relationships among the 18 criteria of 10 CFR 50 Appendix B, ASME NQA-1, 10 CFR 71 Subpart H, 10 CFR 72 Subpart G, the ten elements of 10 CFR 830 Subpart A and this BNG America Quality Assurance Manual and implementing Quality Assurance Procedures. (This list is provided for illustrative purposes only and may not be the complete list of procedures developed for work. Procedure numbering is not strictly sequential because some numbers are reserved for future work).

RELATIONSHIP OF REGULATORY QA REQUIREMENTS TO BNG America QA PROGRAM
TABLE 2-1

(Note: BNG America does not require revision to the QAM for the sole purpose of identifying changes that have been made to the documents referenced in this table.

Criteria of: 10 CFR 50 Appendix B and ASME NQA-1	Criteria of: 10 CFR 71, Subpart H & 10 CFR 72, Subpart G	Criteria of: 10 CFR 830 Subpart A	Applicable QA Manual Section QA Procedures
I. Organization	71.103 & 72.142 QA Organization	1. Program	**QAM Section 1 and Organization Charts** QAP-001.1 BNG America Quality Assurance Organization
II. Quality Assurance Program	71.105 & 72.144 Quality Assurance Program	1. Program 2. Personnel Training & Qualification	**QAM Section 2** QAP-2.2 Certification of Inspection, Test and Audit Personnel QAP-002.5 Indoctrination and Training of Personnel QAP-002.7 Stop Work Orders OOP-005 Corporate Training

RELATIONSHIP OF REGULATORY QA REQUIREMENTS
TO BNG America QA PROGRAM
TABLE 2-1

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Criteria of: 10 CFR 50 Appendix B and ASME NQA-1	Criteria of: 10 CFR 71, Subpart H & 10 CFR 72, Subpart G	Criteria of: 10 CFR 830 Subpart A	Applicable QA Manual Section QA Procedures
III. Design Control	71.107 & 72.146 Package Design Control	6. Design	**QAM Section 3** ENG-003.1 Design Control ENG-003.2 Design Input ENG-03.3 Calculations ENG-003.4 Drawings ENG-003.5 Design Verification ENG-003.6 Interface Control ENG-004.2 Technical Reports ENG-004.3 Specifications ENG-04.4 Determination of Quality Requirements ENG-006.1 Authorization Basis ENG-006.3 Configuration Management ENG-006.4 Receipt of Engineering Deliverables ENG-008.1 Computer Software Development, Installation and Revisions ENG-008.2 Computer Software Control and Usage Tracking ENG-008.3 Identification and Control of Computer Errors ENG-009.1 Data Quality Objectives OPN-003 Safety Review and Evaluation (NRC Applicable Only)

RELATIONSHIP OF REGULATORY QA REQUIREMENTS TO BNG America QA PROGRAM
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Criteria of: 10 CFR 50 Appendix B and ASME NQA-1	Criteria of: 10 CFR 71, Subpart H & 10 CFR 72, Subpart G	Criteria of: 10 CFR 830 Subpart A	Applicable QA Manual Section QA Procedures
IV. Procurement Document Control	71.109 & 72.148 Procurement Document Control	7. Procurement	**QAM Section 4** **CON-010 Contract Control and Order Entry Process** PRO-002 Purchase Requisition Preparation & Control PRO-003 Solicitations & Contract Type PRO-005 Purchase Order Preparation & Control PRO-007 Receipt of Purchased Materials & Services PRO-008 Evaluation of Subcontractor Proposals PRO-009 Supplier & Product Qualification & Performance Evaluations PMG-003 Project Management Plan Preparation
V. Instructions, Procedures and Drawings	71.111 & 72.150 Instructions, Procedures and Drawings	5. Work Processes	**QAM Section 5** QAP-005.2 Process Control
VI. Document Control	71.113 & 72.152 Document Control	4. Document and Records	**QAM Section 6** ENG-005.1 Control of Engineering Documents QAP-06.1 Document Control
VII. Control of Purchased Equipment, Materials, and Services	72.154 & 71.115 Control of Purchased Materials, Equipment and Services	7. Procurement	**QAM Section 7** ENG-006.4 Receipt of Engineering Deliverables QAP-007.1 Control of Purchased Items & Services QAP-07.2 Acceptance of Items and Services QAP-07.4 Supplier Evaluation QAP-007.5 Commercial Grade Dedication

RELATIONSHIP OF REGULATORY QA REQUIREMENTS
TO BNG America QA PROGRAM
TABLE 2-1

(Note: BNG America does not require revision to the QAM for the sole purpose of identifying changes that have been made to the documents referenced in this table.

Criteria of: 10 CFR 50 Appendix B and ASME NQA-1	Criteria of: 10 CFR 71, Subpart H & 10 CFR 72, Subpart G	Criteria of: 10 CFR 830 Subpart A	Applicable QA Manual Section QA Procedures
VIII. Identification and Control of Materials, Parts and Components	71.117 & 72.156 Identification and Control of Materials, Parts and Components	5. Work Processes	**QAM Section 8** QAP-008.1 Identification and Control of Materials, Parts and Components
IX. Control of Special Processes	71.119 & 72.158 Control of Special Processes	5. Work Processes 8. Inspection and Acceptance Testing	**QAM Section 9** QAP-009.1 Control of Special Processes
X. Inspection	71.121 Internal Inspection & 72.160 Licensee Inspection	8. Inspection and Acceptance Testing	**QAM Section 10** QAP-010.1 Inspection QAP-10.2 Quality Assurance Surveillance (Internal and Supplier)
XI. Test Control	71.123 & 72.162 Test Control	8. Inspection and Acceptance Testing	**QAM Section 11** QAP-011.1 Test Control
XII. Control of Measuring and Testing Equipment	71.125 & 72.164 Control of Measuring and Testing Equipment	5. Work Processes 8. Inspection and Acceptance Testing	**QAM Section 12** QAP-012.1 Control of Measuring and Test Equipment
XIII. Handling, Storage and Shipping	71.127 & 72.166 Handling, Storage and Shipping Control	5. Work Processes	**QAM Section 13** QAP-013.1 Handling, Storage and Shipping
XIV. Inspection, Test and Operating Status	71.128 & 72.168 Inspection, Test and Operating Status	5. Work Processes 8. Inspection and Acceptance Testing	**QAM Section 14** QAP-014.1 Inspection, Test and Operating Status

RELATIONSHIP OF REGULATORY QA REQUIREMENTS TO BNG America QA PROGRAM
TABLE 2-1
(Note: BNG America does not require revision to the QAM for the sole purpose of identifying changes that have been made to the documents referenced in this table.

Criteria of: 10 CFR 50 Appendix B and ASME NQA-1	Criteria of: 10 CFR 71, Subpart H & 10 CFR 72, Subpart G	Criteria of: 10 CFR 830 Subpart A	Applicable QA Manual Section QA Procedures
XV. Nonconforming Material, Parts or Components	71.131 & 72.170 Nonconforming Material, Parts or Components	3. Quality Improvement	**QAM Section 15** QAP-015.1 Nonconforming Material, Parts or Components QAP-015.2 Reporting of Defects and Noncompliances (10CFR21) QAP-015.3 Price-Anderson Amendments Act Reporting (10CFR830)
XVI. Corrective Action	71.133 & 72.172 Corrective Action	3. Quality Improvement	**QAM Section 16** QAP-016.1 Corrective Action QAP-016.2 Cause Analysis ESH-013.1 Lessons Learned ESH-003.1 ES&H/QA Incident Reporting
XVII. Quality Assurance Records	71.135 & 72.174 Quality Assurance Records	6. Documents and Records	**QAM Section 17** ENG-010.2 Project Record Inventory and Disposition QAP-17.1 Quality Assurance Records
XVIII. Audits	71.137 & 72.176 Audits	8. Management Assessments 9. Independent Assessments 10. QA Program Assessment	**QAM Section 18** QAP-018.1 Audits QAP-018.2 Management Assessments QAP-018.3 QA Program Assessment

SECTION 3
DESIGN CONTROL

3.1 This section establishes the minimum requirements to provide control of design activities including planning, control and verification from initial concepts through completion of design, manufacturing, inspection and planning for BNG America and customer-based projects. BNG America designs, investigations, analyses and reports are based on specific project requirements.

3.2 The Engineering Manager or assigned Project Engineer is responsible for assuring the technical adequacy and correctness of the design and that the final design meets BNG America, customer, and regulatory requirements. Procedures have been developed to assist in assuring and documenting the quality of the design output. These procedures cover the following:

- Design input
- Design process
- Preparation of calculations
- Review and checking of calculations and reports
- Computer program control and usage
- Drawing and specification preparation and review
- Design analyses
- Design verification
- Interface control
- Change control
- Configuration management
- Procured design services

3.3 BNG America Engineering Department Procedures provide controls to assure that:

- The design activity is planned, controlled and documented.
- Applicable regulatory requirements and the design bases for SSCs are correctly translated into specifications, drawings, procedures and instructions.
- Design requirements are specified and controlled.
- Design inputs have been correctly chosen, identified and controlled.
- The design documents contain requirements for inspections and tests that assure control, inspection and testing of design characteristics.
- Deviations from quality requirements are controlled.

- The selection of materials, parts, equipment and processes essential to the safety functions of SSCs is reviewed for suitability of application.
- The design verification method selection is based on regulatory and contractual requirements, level of complexity of the design and "state-of-the-art" considerations, i.e., materials, fabrication processes, etc., and operating conditions.
- Procedures are established among participating design organizations to control review, approval, release, distribution and revision of documents involving design interfaces.
- Design verification is performed by properly trained, qualified and certified personnel independent of the design activity, but with a skill level at least equal to that of the original design personnel. These verifications may include design reviews, alternate or simplified calculations, or qualification tests. Qualification tests are conducted in accordance with approved test programs and procedures.
- Where a test program is used to verify the adequacy of a specific design feature in lieu of other verifying or checking process, the test program includes qualification testing of a prototype unit under the most adverse condition.
- Documented interface control is established to assure that the review, approval, release, distribution and revision of design documents involving internal and external parties are controlled.
- Design changes including field changes, are reviewed and approved by the same organization(s) and at the same level as the original issue, unless another responsible organization is designated. This organization shall have demonstrated competence in the specific design area of interest and have an adequate understanding of the requirements and intent of the original design.
- Design errors and deficiencies are documented and appropriate corrective action is taken.
- Design activities conducted utilizing computer software is appropriately tracked, reviewed, approved, controlled and verified.

3.4 Design and engineering services may be subcontracted but responsibility for the acceptability of the final product remains with BNG America. The review and acceptance of the subcontracted product/service is verified in accordance with engineering and project specific procedures (Reference Table 2-1) as appropriate.

SECTION 4
PROCUREMENT DOCUMENT CONTROL

4.1 BNG America requires that suppliers of materials, components, systems or services, receive controlled and approved procurement documents. The documents shall contain or reference all applicable regulatory requirements, appropriate design/engineering drawings and specifications, and other requirements necessary to produce a product or service that meets the quality requirements of BNG America and its customers. These typically include: technical, administrative and reporting requirements as well as inspection, test and special process instructions. When required, procurement documents shall contain provisions that require suppliers and their sub-tier suppliers to execute quality assurance programs in a manner, and to the extent, specified by BNG America. Furthermore, procurement documents shall provide for the right of access that allows for BNG America to audit its contractors as well as their sub-tier suppliers, on their implementation of these programs, processes and controls.

4.2 Changes to procurement documents shall be prepared, reviewed, approved and authorized for use in the same manner as established for the original issue of the document unless another responsible organization is designated.

4.3 The BNG America Order Entry process requires all Client procurement documents be reviewed and evaluated to ascertain appropriate technical, quality and commercial requirements. The proceduralized process describes the risk analysis conducted of a Client's request for bid and defines the process for translating the Client's technical, quality and commercial requirements from a Client's Purchase Order into a BNG America controlled document.

4.4 Quality Assurance requirements, when applicable, shall be included with request for quotes. Quality Assurance requirements are always provided with purchase orders and/or applicable specifications.

4.5 BNG America may procure any design, manufacturing, inspection, testing, auditing or job site construction activity described in this Manual. Procurement documents for these services shall include requirements that assure the requirements of this Manual, as applicable to BNG America, will be met by the subcontractor or supplier. BNG America retains final responsibility to assure the service is acceptable for the BNG America project.

4.6 Contract documents such as purchase orders, drawings and specifications shall be reviewed/approved to assure the inclusion of all applicable requirements. The review/approval also includes verification of the suitability of standard items for the use required by the applicable drawings and design specifications and the inclusion of valid industry standards, references, or related data, when applicable. Personnel qualification requirements shall be appropriately defined in the BNG America procurement documents.

4.7 The Project Manager assures that requirements for acceptance of hardware and documentation, such as the affiliate's or a supplier's submittal and retention of required documentation, appropriate to the contract, shall be included in procurement documentation.

4.8 BNG America maintains the right of access to all supplier and subtier supplier facilities and documentation for source inspection and/or audit activities. A statement to this effect is included in all BNG America procurement documentation.

4.9 BNG America QA personnel review procurement documents for safety-related and important-to-safety items and services for inclusion of the appropriate quality requirements. The procurement documents shall be reviewed in accordance with written procedures and require the approval of the Corporate BNG America QA Manager or designee.

4.10 Purchase Orders or releases accepted by BNG America for services or items shall be reviewed to assure that the resultant project quality plan defines the requisite quality and technical requirements. Key divisions of responsibilities and interfaces shall also be well defined within the project quality plan. Any exceptions or planned deviations to customer requirements shall be identified to the customer before work commences.

4.11 Appropriate BNG America procurement documentation requires the supplier/vendor to submit non-conformances that have been dispositioned Use-As-Is or Repair to BNG America for review and approval.

SECTION 5
INSTRUCTIONS, PROCEDURES AND DRAWINGS

5.1 Procedures and instructions shall be developed by personnel assigned by the responsible BNG America Manager. Procedures shall be developed for activities requiring design and/or fabrication, performance verification, witnessing, measurements, testing and all other activities affecting quality. All instructions, procedures, and drawings shall be developed, reviewed, approved, utilized and controlled in accordance with approved procedures.

5.2 All fabrication documents (i.e., drawings, specifications, special process control sheets, test and calibration procedures, etc.) shall be reviewed and approved by qualified personnel.

5.3 When inspection procedures are required, they shall include appropriate acceptance criteria such as dimensions, tolerances, operating limits, workmanship standards, and other qualitative and quantitative measures.

5.4 Changes to instructions, procedures and drawings shall be prepared, reviewed, approved and authorized for use in the same manner as established for the original issue of the document.

5.5 Measures shall be established to assure that current, approved procedures shall be available and in use where the activity is performed.

SECTION 6
DOCUMENT CONTROL

6.1 The methodology for the review, approval, release and revision of quality related documents establishes review and approval cycles and sequences, as well as requiring that revisions and changes to approved documents shall be subjected to the same approval cycle as the original. Provisions shall be made for identifying individuals/organizations responsible for review and approval of controlled documents in the Quality Assurance Procedure applicable to controlled documents. Document control responsibilities and distribution requirements shall also be addressed in a Quality Assurance Procedure.

6.2 The Project Manager shall assure that Project document listings are maintained specifying the title, number and current revision for all drawings, procedures, specifications, instructions and purchase orders.

6.3 Controlled documents include, but are not limited to:

- Specifications
- Instructions
- Calculations
- Analyses
- Drawings
- Special Process Procedures (Welding, Forming, Heat Treating, NDE, Etc.)
- Inspection Procedures
- QA Manuals and Procedures
- Source Surveillance and Inspection Reports
- Test Procedures and Reports
- Operational Test and Inspection Reports
- Sub vendor Procedures, Specifications and Drawings
- Customer Specifications, Procedures and Drawings
- Purchase Orders

6.4 When documents being revised are cited in other documents as references, supplements or include the attribute being changed, an impact assessment shall be conducted by the approver and depending upon the results, either:

- a process to control the revision of that document shall be provided, or
- the document shall be revised prior to release of the approved change.

6.5 Documentation listings shall be maintained identifying the title, document number and current revision for all controlled documents.

SECTION 7
CONTROL OF PURCHASED MATERIALS, PARTS AND COMPONENTS

7.1 Purchased materials, parts, components and services procured by BNG America shall be controlled to ensure that such items or services meet established requirements and perform as specified. Such controls shall provide for the evaluation and selection of prospective suppliers on the basis of specified criteria and the evaluation of supplier performance to ensure that approved suppliers continue to provide acceptable items and services. The responsible project manager or designee shall complete the necessary procurement control processes to ensure items and services are controlled as required.

7.2 All procurements shall be placed with BNG America approved suppliers based on their past history, pre-award and post-award audits and surveys based on the applicability of the graded quality approach employed. Regulatory Agencies/Nationally Recognized Standards Laboratories and suppliers approved in writing by BNG America clients may not require such an evaluation, (provided the BNG America Client has a regulatory agency approved QA program and the procurement scope is similar). BNG America implements procedures to the Quality Assurance Program to establish measures assuring that purchased items and services are clearly and adequately specified in procurement documents and that suppliers are capable of producing items and furnishing services, whether purchased directly or through sub-suppliers, which conform to procurement document requirements. These procedures include provisions for supplier evaluation, review of procurement requirements, and surveillance of the supplier, when BNG America is responsible for the procurement. Results of evaluations performed on suppliers prior to contract award are documented, and available for audit. Evaluation of procurement sources shall be performed by BNG America Engineering and Quality Assurance personnel, as appropriate. Recommendation of procurement sources is based on these evaluations. The evaluations review capabilities and facilities for technical, manufacturing, erecting, installing, and quality performance, and include any or all of the following as appropriate:

- historical performance data, particularly in product quality and on-time performance;
- review and comment on supplier quality assurance program and procedures;
- source audits to verify supplier implementation of his quality assurance program, as required;

- source qualification programs.

The quality assurance programs of potential suppliers are evaluated to determine compliance with the applicable criteria of 10 CFR Part 50, Appendix B ASME NQA-1, 10 CFR 71 subpart H, 10 CFR 72 subpart G, 10 CFR 830 Subpart A and applicable Regulatory Guides. The evaluation is accomplished prior to an award by BNG America as applicable, and thereby precedes initiation of quality-related activities. Proposals from bidders are reviewed by BNG America in accordance with approved quality assurance procedures by the appropriate departments and Quality Assurance. The evaluation of proposals includes review for bidder capability to meet Quality Assurance Program requirements in procurement documents.

7.3 As directed by the Corporate QA Manager or designee, a combination of source and/or receiving inspections and performance based audits, shall be performed by appropriately qualified and certified Quality Assurance and Technical personnel as appropriate to assure the following:

- The material, component, or equipment is properly identified, complies with the specified codes, standards and specifications, and corresponds with the identification on receiving documentation.

- That any vendor/supplier nonconformances are properly documented, dispositioned and approved, and that BNG America is afforded the opportunity to review and approve the nonconformance disposition.

- Prior to their use or installation, materials, components, equipment and acceptance records shall be reviewed, inspected and accepted in accordance with appropriate procedural and contractual requirements. This documentary evidence shall be available at the facility and shall be sufficient to identify the specific requirements, such as codes, standards or specifications met by the purchased material and equipment.

- Inspection records and/or certificates of conformance shall be available that attest to the acceptance of materials and components prior to their installation or use.

- Items accepted and released shall be identified as to their inspection status prior to forwarding to a controlled storage area or release for further work.

7.4 As directed by the Corporate QA Manager or designee, evaluations shall be conducted by qualified and certified personnel to assure supplier acceptability and performance. These evaluations shall be based on the following criteria:

- the capability of the supplier to comply with the requirements appropriate to the contract as determined by BNG America Quality Assurance,
- a review of previous records and performance of the supplier for previous BNG America procurements, as deemed necessary by the Corporate QA Manager or designee,
- a survey or audit, led by BNG America QA of the supplier's facilities and Quality Program to determine their capability to supply a product that meets the design, manufacturing, and quality requirements.

7.5 Results of the supplier evaluations and audits shall be appropriately recorded and included as part of the vendor's history file that is retained as a quality assurance record by the Quality Assurance department.

7.6 At a minimum, performance based audits are conducted at the vendor/suppliers location on a triennial basis. In addition, vendors are evaluated on an annual basis to ensure continued acceptable performance. This annual review shall be documented in accordance with approved Quality Assurance Procedures (QAP). Audits or surveillances are conducted at a supplier's facilities during the performance of activities, to assure continued adherence to the imposed quality, design and contract performance criteria as appropriate. As determined by the Corporate QA Manager or designee, the scope and frequency of audits and surveillances are consistent with the importance, complexity and quantity of the product or service.

7.7 The QA Program provides controls to assure that purchased materials, components, equipment, and services adhere to design specifications, regulatory, procedural and contractual requirements.

7.8 Evaluation and selection of suppliers, objective evidence of supplier quality, assignment of quality requirements to procurement documents, and related design documents, and source, in-process and receiving inspections shall be administered and controlled in accordance with this section of the Quality Assurance Manual and approved procedures.

SECTION 8
IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

8.1 A process for identifying and controlling materials, parts, components and completed/in-process assemblies is administered in accordance with approved quality assurance, corporate and departmental procedures. These procedures address quality status tags, marking, and/or stamping to assure material identification, traceability, or part identification, to related documentation.

8.2 Material identification procedures included in Quality Assurance inspection instructions and fabrication drawings require that identification of material, components, and/or hardware be maintained on the item or in traceable records to prevent use of incorrect or defective material.

8.3 Specifications, procurement documentation, fabrication and inspection records, discrepancy reports and material test data shall be also audited to assure continued adherence to design, regulatory, BNG America procurement documents and contractual requirements.

8.4 Identification requirements, such as method and size of marking, stamps, or tags, may be specified on applicable drawings or in applicable procurement/equipment specifications. Such identification shall not interfere with fit, form and/or function.

8.5 The Project Manager (or designee) shall assure that materials and equipment are controlled, protected, stored, handled, operated and packaged so that identification, traceability and condition shall be maintained. These measures shall assure that identification of the item is maintained by heat number, part number, serial number or other means, either on the item or on records traceable to the item, as required throughout fabrication, erection, installation, and use of the item. Additionally, as appropriate, sufficient measures are taken in accordance with quality assurance procedures to ensure that items/materials with a limited shelf life are identified, providing assurance that the items are not used or installed after their expiration date has been exceeded. Some or all of the material control functions described herein may be delegated to approved suppliers. The Corporate QA Manager or designee shall verify that these processes are completed in accordance with approved procedures.

SECTION 9
CONTROL OF SPECIAL PROCESSES

9.1 Special processes such as welding, brazing, heat treating, coating, non-destructive examination, etc., shall be controlled by Projects in accordance with applicable regulatory requirements and other applicable codes, standards, specifications or requirements. Special processes developed by suppliers and/or BNG America shall be documented, reviewed and approved by the responsible technical personnel within BNG America, and/or supplier organizations. In addition, special process equipment shall be identified, inspected and performance-tested prior to use.

9.2 All procedures for special processes shall be developed, approved and implemented in accordance with applicable codes, standards, specifications and contract requirements, and shall include acceptance criteria for the process. The personnel performing such processes shall be appropriately trained, qualified and certified prior to the performance of the activities affecting quality. Conditions necessary for the accomplishment of the process, such as equipment qualification, controlled parameters, special environment, calibration requirements, etc. shall be included in the procedures.

9.3 When special processes are not covered by existing codes and standards, the necessary requirements for qualification of personnel, procedures, or equipment, shall be specified or referenced in the procedures.

9.4 Qualification records for personnel, procedures and equipment shall be retained as Quality Assurance records.

SECTION 10
INSPECTION

10.1 Receiving, source, in-process, final, in-service, and shipping inspection activities shall be performed in accordance with applicable regulatory requirements, codes, standards, specifications, or requirements, and approved procedures. The inspection activity shall be planned and performed to verify conformance to drawings, procedures and/or specifications for each work operation where necessary to assure quality.

10.2 Inspection for acceptance shall be performed by individuals other than those who performed, or directly supervised the activity being inspected.

10.3 BNG America inspection personnel with responsibility for final acceptance inspections shall report to the Corporate QA Manager or designee and shall be appropriately certified prior to conducting the inspection.

10.4 The qualifications of inspection personnel shall be based on their completed training, experience and demonstrated capability to perform the required inspection functions in accordance with applicable codes, standards, and approved procedures. Qualification reviews shall be performed periodically to maintain personnel proficiency and assure current qualification.

10.5 Indirect control by monitoring processing methods, equipment, or personnel, shall be used when inspection is impossible or disadvantageous. Both inspection and process monitoring shall be used when control is inadequate without both.

10.6 Inspection procedures and instructions shall require the specification of hold points, witness points, inspection equipment requirements, accept-reject criteria, personnel requirements, characteristics to inspect, variable attributes, recording instructions, reference documentation and other requirements, as appropriate.

10.7 The inspection procedures and instructions shall require that inspection results include supporting information such as variables, attributes, data, NDE records, welding information, certified materials test report (and/or certification), special process data, discrepancy reports, related dispositions and resultant re-inspection data.

10.8 Activities affecting quality shall be reviewed, using surveillance or audits to verify conformance with the documented instructions, procedures and drawings for accomplishing the activity.

10.9 In-service inspection methods shall include evaluations of performance capability of essential emergency and safety systems and equipment, verification of calibration and integrity of instruments and instrument systems, and verification of maintenance as appropriate.

10.10 Equipment used for inspection shall be properly calibrated, stored and maintained.

10.11 Inspection records shall be retained as Quality Assurance Records and shall provide the following data when applicable:

(a) Item inspected
(b) Inspection type, i.e., in-process, final, in-service, source, receiving and shipping.
(c) The date, and results of the inspection.
(d) Information related to noted discrepancies and the resolution of the discrepancies.
(e) Inspector or data recorder identification.

SECTION 11
TEST CONTROL

11.1 A test control program shall be established to verify conformance of an item or computer program to specified requirements, and to assure SSCs and software will perform satisfactorily in service. The test program shall incorporate the requirements and acceptance limits contained in applicable design documents, and shall be implemented in accordance with approved test procedures or appropriate sections of related codes, standards, supplier manuals, instructions, or travelers with acceptance criteria.

11.2 The test program shall include as appropriate, proof tests prior to installation, and pre-operational and operational tests. Tests required for the collection of data, such as for siting and design input, shall be planned, executed, documented and evaluated.

11.3 Test objectives, prerequisites, accept/reject criteria, personnel training requirements, data recording criteria, adequacy of instrumentation, calibration, environmental conditions, documentation and evaluation requirements, shall be defined in the test procedures.

11.4 The Engineering Manager or designee shall assure that the service conditions described in applicable design, regulatory and contractual documents are verified by testing activities.

11.5 Test programs shall be developed and documented to permit confirmation of acceptable performance of the computer program in the operating system.

11.6 Verification tests shall demonstrate the capability of the computer program to produce valid results for test problems encompassing the range of permitted usage defined by the program documentation.

11.7 For computer programs used for operational control, testing shall demonstrate required performance over the range of operation of the controlled function or process.

11.8 Test results shall be documented, evaluated and accepted by the senior technical representative or designee to assure that test requirements have been satisfied.

11.9 Equipment used for testing shall be properly calibrated, stored and maintained.

11.10 Test records shall be retained as Quality Assurance Records and shall identify the following, when applicable:

(a) Item tested,
(b) Date of test,
(c) Tester or data recorder
(d) Type of observation
(e) Results and acceptability
(f) Actions taken in connection with deviations noted, and
(g) Person evaluating test results.

11.11 The qualifications of test personnel shall be based on their past documented training, demonstrated capability to perform the required test functions in accordance with applicable codes, standards, and/or approved procedures. Qualification reviews shall be performed periodically to maintain personnel proficiency and assure current qualification.

SECTION 12
CONTROL OF MEASURING AND TESTING EQUIPMENT

12.1 Equipment used for process monitoring or data collection, tools, gages, instruments and other measuring devices (M&TE) used in activities affecting quality shall be properly controlled, calibrated, and adjusted at specified times to maintain accuracy within specified limits.

12.2 Prior to use, personnel shall verify M&TE is of the proper range, type and accuracy for the intended application.

12.3 The Project shall establish calibration requirements for M&TE. The calibration process shall assure that all measuring and test equipment used in the acceptance of material, equipment, and assemblies are calibrated and properly adjusted at specified intervals to maintain accuracy within pre-determined limits.

12.4 Measuring and test equipment shall be calibrated against certified equipment having known valid relationships to nationally recognized standards, such as the National Institute of Standards and Technology (NIST). If no nationally recognized standard exists, the basis for calibration shall be documented.

12.5 Calibrated equipment shall be identified and traceable to the calibration test data. Identification shall include the equipment serial number, next calibration due date and the inspector's or calibrator's signature or initials attesting to the accuracy, range and validity of the calibration.

12.6 Records of M&TE usage shall be maintained to assure traceability of M&TE if subsequently found out of tolerance. When measuring and test equipment is found to be out of calibration, an evaluation shall be made and documented of the validity of previous inspection and test results, and of the acceptability of the items previously inspected or tested. Out of calibration devices shall be tagged or segregated, and not used until they have been acceptably re-calibrated. Measuring and test equipment shall be properly handled and stored to maintain accuracy.

12.7 Calibration records for measuring and test equipment shall be retained as Quality Assurance records.

SECTION 13
HANDLING, STORAGE AND SHIPPING

13.1 Requirements for material and equipment handling, storage, shipping, cleaning, and preservation to prevent damage, loss, or minimize deterioration, shall be documented in procedures, instructions, or other pertinent documents specified for use in the conduct of the activity by the responsible organization.

13.2 For particular items, special equipment, such as containers, shock absorbers, and accelerometers, and special protective environments, such as inert gas atmosphere, and temperature and humidity controls, shall be specified and provided.

13.3 Specific handling, storage, packaging, shipping, and preservation procedures shall be used for critical, sensitive, perishable, or high value articles.

13.4 Instructions for marking and labeling for packaging, shipment, handling and storage of items shall be established to identify, maintain, and preserve the item, including indication of the presence of special environments or the need for special controls.

SECTION 14
INSPECTION, TEST AND OPERATING STATUS

14.1 The use of status tags, quality inspection stamps, and other means, either on the items or documents traceable to the items, to indicate inspection and test status at or for BNG America activities shall be described in procedures or fabrication travelers.

14.2 These documents shall provide that indications of status are clear, inspection and/or test steps are not bypassed, components operation status is identified to prevent inadvertent operation, and shall define the authority for application, removal or modification of status indicators. The Project shall assure that personnel are aware of and understand the meaning and uses of status indicators on hardware, material, and test setups and that the status indicators are being used in an acceptable manner.

14.3 For structures, systems or components (SSC) in other than normal operating mode, measures shall also be established for indicating the operating status of SSCs such as by tagging valves and switches, to prevent inadvertent operation.

SECTION 15
NONCONFORMING MATERIAL, PARTS OR COMPONENTS

15.1 Material, components, equipment, and services that do not conform to requirements shall be controlled to prevent their inadvertent installation or use. This control shall be through identification, documentation, segregation, disposition of nonconformances by authorized individuals, re-inspection activities, and notification to affected organizations. These shall be performed and controlled in accordance with written procedures.

15.2 Nonconforming items shall be identified by tagging and/or segregating. When practical, both mechanisms shall be used to ensure nonconforming items are not inadvertently used.

15.3 Nonconformance Reports (NCRs) shall be utilized and logged to identify discrepant items, describe the discrepancy and provide disposition and re-inspection requirements. Authorized cognizant personnel providing the disposition shall have an adequate understanding of the requirements, and shall have access to pertinent background information. Their signatures on the NCR shall signify approval of the disposition.

15.4 NCRs shall be reviewed by the senior technical representative or designee, and the Corporate QA Manager or designee. "Use-as-is" or "repair" dispositions shall include technical justifications and assure continued compliance with design, regulatory and contractual requirements. The as-built records shall reflect the accepted deviations.

15.5 Supplier NCRs dispositioned "use-as-is" or "repair" shall be reviewed and approved by the BNG America Engineering Manager or designee, and the Quality Assurance Manager or designee.

15.6 NCRs shall also be reviewed to assure that defects or deficiencies in items or in services supplied, that affect the ability of a "basic component" as defined in 10 CFR 50 Appendix A from fulfilling its intended safety function or which could create a substantial safety hazard, are evaluated by management for reportability in accordance with 10 CFR Part 21 (NRC regulated projects).

15.7 NCRs shall be reviewed for reportability in accordance with 10 CFR 820 (PAAA for Department of Energy regulated projects).

15.8 In conjunction with "repair" or "rework" dispositions, Quality Assurance personnel shall assure that supplemental inspections are performed to verify compliance with the NCR

disposition. This shall assure that the item is re-tested and/or reinspected to a degree at least equal to the original acceptance level.

15.9 NCRs and supporting documentation shall be retained as Quality Assurance Records.

SECTION 16
CORRECTIVE ACTION

16.1 Conditions adverse to quality shall be promptly identified, corrected, and reported to BNG America management. Corrective actions appropriate to the condition shall be determined, performed and documented. Reports documenting conditions adverse to quality shall be forwarded to the Corporate Quality Assurance Manager or designee for logging, review and analysis. For significant conditions adverse to quality, the cause of the condition and the corrective action necessary to prevent recurrence shall be identified, implemented and followed-up to verify corrective action effectiveness. Significant conditions adverse to quality shall be reported to the BNG America President.

16.2 Conditions adverse to quality reports shall be reviewed for reportability to the applicable regulatory agency.

16.3 Analyses of deficiencies shall be conducted to establish quality trends and help identify areas in need of corrective action or improvement. The analyses, quality trends and related reports shall be prepared and presented to the BNG America President for review and action at that level, if necessary. These reports and analyses shall be reviewed by the Corporate QA Manager or designee to identify items, services, and processes needing improvement.

16.4 Conditions adverse to quality reports and supporting documentation shall be maintained as Quality Assurance records.

SECTION 17
QUALITY ASSURANCE RECORDS

17.1 A Quality Assurance Records system is established and detailed in Quality Assurance Procedures to assure that documented evidence pertaining to quality related activities is specified, prepared, reviewed, validated, maintained and retrievable for use by company, customer, and/or regulatory agency personnel, as appropriate. QA records shall include, but not limited to, design related records (calculations, drawings, research, development test reports and, design reviews), operating logs, inspection and test records, instructions and procedures, audit reports, personnel qualification(s), quality related procurement data, supplier evaluation reports, material's analyses (certified material test reports or certificates of compliance, as applicable), fabrication/manufacturing records, modification records, repair records, and maintenance records. Requirements and responsibilities for record transmittal, distribution, retention, maintenance, and disposition are established in approved procedures.

17.2 Procedures define storage, preservation and safekeeping requirements to meet applicable standards, codes and regulatory requirements. Quality Records retention periods are established and documented in accordance with an approved Quality Assurance procedure (Reference Table 2-1). In no case shall a quality record be destroyed before the applicable regulatory standard allows.

17.3 BNG America shall maintain an index of Quality Assurance Records that provides record identification and location information.

17.4 Quality Assurance records shall be retained and protected against damage, loss, or deterioration in accordance with governing implementing procedures and applicable regulatory standards (e.g. 10 CFR 50 Appendix B, ASME NQA-1, & 10 CFR Part 71.91, 71.135, 10 CFR 830 Subpart A etc) as appropriate, and/or contractual requirements. At the conclusion of a project, the customer's direction for project related records' disposition shall be sought prior to records' destruction.

17.5 Records shall be reviewed for completeness, identification, and legibility prior to being entered into the quality records system. Some, or all, quality records may exist in electronic media but shall be subject to appropriate measures to assure protection against deterioration or loss as afforded to hard-copy records. Protection for QA records shall be provided by using either one of the following storage methods:

(a) two sets of identical records maintained at physically separate, remote and equivalent storage locations, with access control and security that minimizes the risk of damage from fire, flooding and abnormal deterioration; or

(b) official copies of all QA records maintained in approved fireproof cabinet (2 hour fire rated class B file containers meeting the requirements of NFPA 232-1975) or vault, at a single location.

17.6 Temporary storage of records shall be in 1 hr. fire rated containers. The maximum allowable time limit for temporary storage shall be specified in approved procedures.

17.7 A Records Custodian is assigned in the Corporate Office to assure those records required to demonstrate implementation and compliance with this program are appropriately generated, adequately maintained and stored consistent with this Corporate QA program. Similarly, Projects shall designate a Records Custodian for project records.

SECTION 18
AUDITS

18.1 Internal and external audits (Independent Assessments) of corporate activities and projects, or suppliers shall be planned, scheduled, and performed by personnel qualified in accordance with the requirements of this Manual. Audits shall be performed in accordance with written procedures and checklists, by personnel who do not have direct responsibility for the activities being audited. Internal audits shall be performed annually or more often, if deemed necessary by the Responsible QA Manager. They may be project-specific or cover multiple projects. Audits shall provide comprehensive, independent verification and evaluation of the implementation of the entire Quality Assurance Program to verify compliance, determine effectiveness, and promote improvement in accordance with applicable regulations, codes or standards.

18.2 At the initiation of each audit, the Corporate QA Manager or designee shall evaluate the Lead Auditor's planning to confirm that the audit shall effectively address all the appropriate Program elements.

18.3 Audit results and corrective action activities shall be documented in an audit report by the Lead Auditor and approved by the Corporate QA Manager or designee. Internal audit reports shall be transmitted to the responsible management personnel of the audited organization, Manager of ES&H/QA, Corporate QA Manager, audit team and other senior management as appropriate. Responsible management personnel shall be required to respond to audit findings with the necessary action to correct the noted deficiencies and the actions necessary to prevent recurrence.

18.4 Written audit checklists shall be utilized for all internal and supplier audits conducted by Quality Assurance personnel.

18.5 Audit results shall be reviewed with the affected audited organization and appropriate corrective actions shall be agreed upon.

18.6 Follow-up actions shall be taken for areas found deficient during these audits to verify corrective action is accomplished as scheduled. When significant conditions adverse to quality are identified, follow-up actions shall be implemented to verify corrective action effectiveness.

18.7 Lead auditor and Auditor qualifications, audit plans, audit notifications, audit reports, quality-affecting correspondence, and related corrective action reports (i.e., audit documents) shall be maintained as Quality Assurance records.

18.8 BNG America Managers shall assess their management processes to determine effectiveness in achieving objectives, and to promote improvement. Management Assessments shall be scheduled and performed at frequencies specified in the approved Project Quality Assurance Plans or approved implementing procedures. Management Assessments should be performed by all corporate line managers on an annual basis.