THE BABCOCK & WILCOX COMPANY
NUCLEAR MATERIALS DIVISION

COMMERCIAL NUCLEAR FUEL PLANT

SHIPPING CONTAINER QUALITY ASSURANCE PROGRAM MANUAL

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APPROVALS:

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RECORD OF REVISIONS

DATE	REV.	CHANGE PAGE/PARAGRAPH	DESCRIPTION
12-11-78	0		
7-31-79	1	Page 3 of Chapter 1 Section 1.3.1	Qualifications for the Quality Control Manager
		Page 2 of Chapter 2 Section 2.2.2	Revised audit scope of QA program to include 10 CFR 71 App. E criteria.
		Page 1 of Chapter 3 Section 3.3.2	Criteria for test program on new container design
		Page 1 of Chapter 4 Section 4.1	Revised criteria for procurement documents to include 10 CFR 71 Appendix E requirements as described in supplier's QA program
		Page 1 of Chapter 6 Section 6.2.3	Additional requirements for operating procedures and instructions in relation to performing a work function
		Page 1 of Chapter 8 Section 8.1	Revised criteria for parts identification in relation to traceability to other documents
		Page 1 of Chapter 10 Section 10.1	Added statement on qualification of inspectors.
		Page 1 of Chapter 10 Section 10.2.1	Omitted "B&W" in..." under an approved B&W procedure."
		Page 2 of Chapter 10 Section 10.2.1.3	Criteria for inspections on modifications, repairs and replacements
		Page 2 of Chapter 11 New section 11.2.1.4	Criteria for testing on modifications, repairs, and replacements
		Page 2 of Chapter 13 Section 13.3.3	Omitted last sentence in Section 13.3.3 "The inspection shall be by persons other than those responsible for loading the container."
		Page 2 of Chapter 13 Section 13.3.4	New section stating requirement for shipping papers and monitoring of shipment and receipt in accord with 10 CFR Part 71
		Page 1 of Chapter 14 Section 14.2	Added statement concerning bypassing of required inspections
		Page 1 of Chapter 17 Entire Section 17.2	Description of QA records and statement of identifiability and retrievability.

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7-31-79	1	Page 1 of Chapter 17 Section 17.3.1	Additional requirements for inspection and test reports - originally was Section 17.2.1
		Page 2 of Chapter 17 Section 17.3.2	Section 17.3.2 originally was Section 17.2.2
		Page 2 of Chapter 17 Section 17.3.3	Revised criteria for record retention - was originally 17.2.3
		Page 2 of Chapter 17 Section 17.3.4	Section 17.3.2 was orginally 17.2.4
		Page 1 of Appendix A	Definition of audit revised - omitted word B&W-NPGD in the sentence "..... and B&W-NPGD procurement requirements"

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Specifically, the Manager of Quality Control is responsible for assuring the implementation of all quality related factors. He is responsible for preparing the Quality Control Program relating to the purchase specifications, vendor quality, assurance requirements, vendor system audits, and inspections. He is responsible for plant audits to assess the overall effectiveness of the quality program. He is responsible for the review and approval of all vendor quality assurance programs. He has the authority to withhold from further processing or use any components, which do not meet the applicable specifications. His qualifications include a degree from a recognized college and a minimum of 5 years managerial experience in quality control.

1.3.2 Supervisor, Data Evaluation

The Supervisor, Data Evaluation reports directly to the Manager, Quality Control and has the primary responsibility for establishing and maintaining a release system for materials and/or parts purchased by or manufactured within the CNFP. This includes review of data from the Inspection Unit on incoming materials and/or components prior to release for fabrication or use. Also included in this release system is a review of inspection reports, data, and allied records to validate certification that a component was fabricated in accordance with contractual drawings and specifications. Other responsibilities include review and evaluation of design specifications and drawings for Quality Control

As described in Section 1 of this manual, both of the above organizations report independently to the Plant Manager.

In addition to the above, shipping containers "in use" may, on occasion, be inspected by other plant components for routine in-use inspection (such as Manufacturing). In these cases, the inspection shall be conducted only in accord with written procedures or checklists approved by Safety, Licensing, and Safeguards or QC management and inspection data will be forwarded to Safety, Licensing, and Safeguards and Quality Control for review and retention.

2.2 Requirements

Implementation of the Quality Assurance program will incorporate the following areas:

2.2.1 Personnel training and familiarization with QA, QC, and regulatory requirements as defined by management as requisite for effective control and compliance.

2.2.2 Periodic assessment of the QA Program to assure adequate implementation and effectiveness and compliance with 10 CFR Part 71, App. E criteria. **

2.2.3 Designation, through procedures, or equally effective means, of responsibilities for operation of the QA program.

2.2.4 Requirements for the approval of procedures, manuals, design specifications, and other documents affecting safety or regulatory compliance.

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DESIGN CONTROL

3.1 Scope

This section describes the system by means of which effective control is exercised throughout the design of new or modified containers.

3.2 Responsibility

Responsibility for design control as related to interpretation of regulatory criteria and nuclear and radiological safety is the responsibility of the Manager, Safety, Licensing, and Safeguards. Project control, as related to the design program as a whole, is the responsibility of a design group designated by CNFP management. The Manager, Safety, Licensing, and Safeguards will coordinate nuclear, radiological, and licensing aspects closely with the design group. In case of disagreement in these areas, the position of the Manager, Safety, Licensing, and Safeguards will prevail. Following completion of the design, specifications and requirements for fabrication will be transmitted to the QC Manager for incorporation in the QA program as necessary. Those specifications relating to safety will be identified by the Manager, Safety, Licensing, and Safeguards or a qualified designee.

3.3 The design control program will include provision for the following:

3.3.1 Independent verification of nuclear or radiological safety calculations.

3.3.2 Design review by the CNFP Managers of Quality Control and Safety, Licensing, and Safeguards and written approval of drawings and specifications prior to release for fabrication. When a test program is used to verify the adequacy of an entirely new container design, a qualification test (i.e., drop) of a prototype unit under design conditions will be used.

PROCUREMENT DOCUMENT CONTROL

4.1 Scope

This section describes the method of control exercised at the CNFP to assure that all requirements relative to nuclear and radiological safety and container structural integrity are suitably included or referenced in documents used to procure materials, components, and services. Quality Control shall verify that the procurement documents for shipping containers which have been transmitted to the supplier are complete with respect to technical and quality requirements defined in the applicable specifications and drawings and the applicable 10 CFR Part 71, Appendix E requirements which must be complied with as described in the supplier's QA program. Any changes to procurement documents shall be handled in like manner. Procedures shall be established to assure that CNFP Quality Control and Safety, Licensing, and Safeguards approve procurement documents prior to issuance.

4.2 Requirements

4.2.1 For fabrication of shipping containers, a bill of materials shall be prepared by the responsible engineering group which consolidates such information as drawings and specifications, and special test requirements. The responsible engineering function may also prepare a purchased materials list (if required) for those items which are to be procured. Both documents, i.e., the bill of materials and the purchased materials list are reviewed for conformance with applicable

DOCUMENT CONTROL

6.1 Scope

The control of instructions, procedures, or drawings within the CNFP is the responsibility of the originating unit. This section describes the system whereby such documents, relating to QA, are maintained in a current status and are properly approved and distributed.

6.2 Requirements

6.2.1 Prior to issue, design specification, construction drawings, procurement documents, and design change requests will be approved by the Managers of Quality Control and Safety, Licensing, and Safeguards. Prior to approval, responsible managers will take any necessary steps to assure themselves that the document is correct and, if applicable, that proposed revisions do not alter safety criteria.

6.2.2 The shipping container QA Manual and revisions thereto will be approved by the Plant Manager, Quality Control Manager, and Manager, Safety, Licensing, and Safeguards.

6.2.3 Operating instructions and procedures will be approved by the Manager of the originating section and if other than Quality Control or Safety, Licensing, and Safeguards, by the Managers of those sections. Documents that are necessary in performing a particular work function will be available at the work station prior to commencing the activity.

IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

8.1 Scope

This section describes the techniques used by CNFP to identify and control radioactive material shipping containers and materials, parts, or components where fabrication is at the CNFP to provide traceability and to assure that only acceptable parts are utilized in the fabrication of radioactive material shipping containers where specification of those parts or materials is based on safety or licensing requirements. Identification of materials and parts important to the function of safety related system and components can be traced to the appropriate documentation such as, for example, drawings, specifications, purchase orders, manufacturing and inspection documents, deviation reports, and physical and chemical mill test reports. The location and method of identification as outlined in Chapter 8 will not affect the fit, functions or quality. *

8.2 Requirements

8.2.1 Incoming Material, Parts, and Components

8.2.1.1 The Material Control section of Manufacturing is responsible for the receipt of all incoming radioactive material shipping containers and material, parts, and components at the CNFP. The receipt shall be documented and a copy of the receiving notification shall be forwarded to Quality Control.

8.2.1.2 Upon receipt of this notification, the QC Data Evaluation Unit shall prepare and submit a request to the Inspection Unit delineating the type of inspection, i.e., dimensional, visual, chemical analysis, etc., and the Quality Control procedure to be applied in the inspection.

8.2.1.3 The results of this inspection shall be reviewed along with the vendor certification of physical, chemical, non-destructive testing, and dimensional inspection as

INSPECTION

10.1 Scope

The CNFP inspection program is conducted in accordance with standards and documented procedures which incorporate the quality requirements defined in applicable specifications and drawings. The procedures encompass the necessary inspections setting forth minimum requirements for acceptance. Appropriate inspectors are qualified in accordance with applicable codes, standards, and company training programs; and their qualifications and certifications are kept current. ***
It is the responsibility of the Quality Control Section to assure that these requirements are fulfilled.

10.2 Requirements

10.2.1 Source or Receiving Inspection

All purchased items which effect quality of the final product shall be either source or receipt inspected by Quality Control or the vendor under an approved procedure. Such inspection shall *** consist of the following:

10.2.1.1 Review of vendor certification and test reports to ascertain conformance to the CNFP requirements.

10.2.1.2 Sampling for receiving inspection operations, when needed, shall be in accordance with MIL-STD-105D or an alternate plan approved in a manner consistent with the product quality requirement. Samples shall be selected at random for lots, batches, or groups of components.

10.2.1.3 Any non-conforming components shall be processed per

Section 15 of this manual, "Non-Conforming Materials, Parts, or Components." Non-conforming components shall not be released for production until the defective condition is either corrected or the deviation is accepted in the manner outlined in Section 15. Modifications, repairs, and replacements are inspected in accordance with the original design and inspection requirements or acceptable alternatives.

10.2.1.4 Components shall also be inspected for cleanliness, proper identification, and other CNFP/Vendor requirements.

10.2.1.5 Following the receipt and satisfactory review of all necessary reports, and subsequent verification that the material or parts are acceptable, formal acceptance shall be made as defined in Section 8 of this manual.

10.2.1.6 The CNFP Quality Control and Safety, Licensing, and Safeguards Sections shall be responsible for decisions affecting B&W acceptability of product, except in such instances where Section 15 of this manual may be invoked.

10.2.1.7 All components scheduled for non-destructive testing shall be tested in accordance with the limits set forth in applicable specifications and drawings, or more extensive testing as determined by Quality Control.

10.3 Final Inspection

Final inspection shall be performed by the Inspection Unit on completed components prior to use in the following manner:

11.2.1.3 Tests will be performed under conditions suitable to give representative test results as stated in procedures and required by applicable regulations.

11.2.1.4 Modifications, repairs, and replacements are tested as required in accordance with the original design and testing requirements or acceptable alternatives.

11.3 Documentation

Essential testing will be performed by the design and/or fabrication vendor and will be documented and final evaluation shall be performed by Quality Control and Safety, Licensing, and Safeguards to assure test requirements have been satisfied.

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components shall be subject to periodic inspections in accordance with written procedures.

13.3.2 Major components shall be defined as individual shipping containers.

13.3.3 Prior to each use, shipping containers are inspected for compliance with applicable regulatory controls including certificates of compliance and the Code of Federal regulations. ***

13.3.4 All necessary shipping papers will be prepared and processed as required. Shipment and receipt of a package will be monitored in accord with 10 CFR Part 71. **

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INSPECTION, TEST, AND OPERATING STATUS

14.1 Scope

This section sets forth measures in effect at the CNFP to indicate the status of inspections and tests performed on shipping container.

14.2 Requirements

The status of inspection operations for components which are to be supplied to or used by the CNFP shall be documented. Bypassing of required inspections, tests, and other critical operations is procedurally controlled. *

14.2.1 New Container Inspection

14.2.1.1 Receiving inspection on incoming containers shall be performed in accord with approved Quality Control and Safety, Licensing, and Safeguards procedures. If the items are found to be acceptable, appropriate documentation shall be generated to indicate acceptability.

14.2.1.2 Any items determined to be non-conforming shall have a "Hold" tag attached to the item. If the assessment of the non-conforming condition established that rework is permitted, a "Rework Required" tag shall be attached to the item. Only the Inspection Unit shall remove any "Hold" or "Rework" tags from an item.

14.2.1.3 Any item deemed to be unacceptable and assessed to be not subject to rework or repair shall have a "Reject" tag attached to it and shall be segregated from conforming units to await final disposition.

QUALITY ASSURANCE RECORDS

17.1 Scope

This section sets forth measures in effect at the CNFP for the preparation and maintenance of Quality Assurance Records. It is the responsibility of the Quality Control and Safety, Licensing, and Safeguards sections to assure that adequate tests and inspection records are maintained to verify compliance with the provisions of this QA program.

17.2 General

17.2.1 Quality Assurance records in general include but are not necessarily limited to the following items: operating logs; results of reviews, inspections, tests, audits, and material analyses; qualification of personnel, procedures, and equipment; and other documentations such as drawings, specifications, procurement documents, calibration procedures and reports; nonconformance reports; and corrective action reports.

17.2.2 Quality Assurance records are identifiable and are retrievable from their respective storage locations within a reasonable time interval.

17.3 Requirements

17.3.1 Inspection and test reports, and other pertinent records shall be completed by personnel assigned the responsibility to perform such inspections and tests. These reports will indicate the type of inspection or test, verification that the required test or inspection was completed, the date, the results and acceptability of the results where applicable. *

17.3.2 Inspection forms, test reports, and records shall indicate any deviation from requirements per Section 15 of this manual.

17.3.3 The CNFP shall retain design related records for the life of the shipping package and all other records are maintained for a minimum of two years.

17.3.4 After this period, the necessity for longer storage of the records shall be reviewed. Final disposition of the records shall be contingent on concurrence that they are no longer required.

As used in this manual, the following terms shall mean:

ACCEPTANCE CRITERIA	The limit, or limits, associated with established values, used to determine whether or not an item is satisfactory.
APPROVAL	The act of endorsing or assigning positive authorization, or both.
AS-BUILT DATA	Documented data that describe the condition actually achieved in a product.
ASSEMBLY	A combination of subassemblies or components or both fitted together to form a unit.
AUDIT	An activity to determine through investigation, the adequacy of, and adherence to, established procedures, specifications, codes, and procurement document requirements, and the effectiveness of implementation.
CERTIFICATE OF CONFORMANCE	A written statement, signed by a qualified party, certifying that items or services comply with specific requirements.
CERTIFICATION	The action of determining, verifying, and attesting in writing to the qualifications of personnel or material.
CHARACTERISTIC	A physical, chemical, visual, functional, or other identifiable property of an item, process, or service.
CLEANLINESS	A state of being clean in accordance with predetermined standards, and usually implies freedom from dirt, dust, rust, oil, or other contaminating impurities.