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MASTER

QUALITY ASSURANCE PROGRAM

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in accord with

10 CFR Part 71 Appendix E

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FBF INC. - QA PROGRAM

INITIAL RECORD OF REVISIONS

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QA 4	7/1/78	All sections changed	to comply with 10 CFR Appendix E
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FBF INC. - QA PROGRAM

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INTRODUCTION

1. Purpose

7/1/78

FBF, Inc. is engaged in the design, manufacture, testing, evaluation, repair and refurbishing of various types of radioactive material shipping containers, and the manufacture of radiation detection equipment such as film badge holders for personnel dosimetry. FBF does not engage in the handling or shipment of radioactive materials as a user of the containers, such as required by Licensees for shipment of radioactive material packages. The radioactive material shipping containers that FBF manufactures represents an integral part of the total package for which the Licensee is responsible.

It is the goal and major objective of FBF Inc. to manufacture high quality shipping containers, in full compliance with 10 CFR Part 71 Appendix E, for sale to the Licensee or container users for use in making shipments of radioactive materials.

2. Scope

Pursuant to Section 71.51, of 10 CFR part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions," a manufacturer of containers must establish, maintain and execute a quality assurance program for the basic shipping container portion of shipping packages which transport certain quantities of radioactive material.

The FBF Inc. quality assurance program satisfies each of the applicable (to container manufacturers) criteria specified in Appendix E to 10 CFR Part 71, "Quality Assurance Criteria for Shipping Containers (packages are the responsibility of the Licensee) for Radioactive Material," and must also

satisfy any specific provisions which are applicable to the container manufacturer's activities or portion concerning shipping packages. The quality assurance program, then, is made up of general and specific provisions. The general provisions of the program are based on the Appendix E criteria. The requirements of Appendix E are applied in a graded approach, i.e., applied to an extent consistent with their importance to safety. The specific provisions of the quality assurance program, including specific tests, operations, and acceptance criteria for the particular container to be constructed or manufactured are specified in federal regulations and package approvals. Additional QA (of manufacturing containers) procedures are included in the appendices of the QA program. New sections or appendices will be added as required when FBF Inc. becomes engaged in phases of work or manufacture requiring additional procedures under the general 10 CFR Part 71 Appendix E criteria.

(1) Organization 7/1/78

The authority and duties of persons and organizations performing quality assurance functions are clearly established and delineated in writing. Such person(s) have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. In general, assurance of quality requires management measures which provide that the individual(s) assigned the responsibility for checking, auditing, inspecting, or otherwise verifying that an activity has been correctly performed is independent of the individual or group directly responsible for performing the specific activity. The President of FBF, Inc., regularly reviews the status and adequacy of the quality assurance program, and, of course, establishes FBF, Inc. QA policies, goals and objectives.

The FBF, Inc. criteria as part of the quality assurance program are:

a. The responsibility for the QA program is retained and exercised by FBF Inc. management and qualified QA/QC personnel.

b. The QA/QC functions, performed by the FBF QA orgainzation or delegated to other organizations, are identified and described, providing controls to assure appropriate elements of Appendix E will be implemented.

c. Clear and effective lines of communication between the QA organizations of FBF and it's principal suppliers are established to assure proper direction of the QA program and resolution of QA problems.

d. Organization charts identify the organizational elements which function under the control of the QA program (such as, Design Engineering, Procurement, Manufacturing, Inspecting (QC), Testing, and QA) and demonstrate adequate control over quality aspects within and between organizations.

e. The interface relationships and QA responsibilities of each organizational element identified in item d above are described and demonstrate assignment of responsibilities for requirements of Appendix E.

f. The President of FBF, Inc. is responsible for establishing the FBF QA policies, goals, and objectives and this management level maintains a continuing involvement in QA matters. Communication through any intermediate levels of management between this position and the manager of QA have been shown to be effective.

g. FBF designates a position, Manager of Quality Assurance, specifying duties and qualifications to be filled by a qualified individual, to retain overall authority and responsibility for the QA program.

h. The authority and independence of the individual responsible for managing the QA program are such that he can direct and control the

organization's QA/QC program, can effectively assure the conformance to quality requirements, and is independent of undue influences and responsibibities for schedules and costs. The organizational structure has this individual report to the company president.

i. The qualification requirements for the principal QA/QC management position(s) demonstrate competence commensurate with the responsibilities of these positions.

j. Verification of conformance to established requirements is accomplished by individual(s) who do not have direct responsibility for performing the work being verified.

k. Designated QA individual(s) have the responsibility and authority, delineated in writing, to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material.

(See Appendices: 1-1 Qualifications of FBF, Inc. QA Manager; 1-1A Quality Assurance Organization Chart; 1-1B QA Functional Chart; 1-1C QA Responsibilities and Interface Relationships.

(2) Quality Assurance Program 7/1/78

Quality assurance comprises all of those planned and systematic actions necessary to provide adequate confidence that a transportation package will perform satisfactorily in service. It is important that FBF have an adequate quality assurance program to ensure that a container for a package, (and its use,) have the reliability on which the safety and performance of the package were evaluated.

The FBF criteria as part of a quality assurance program are:

a. The President of FBF, Inc. (i.e., above or outside the QA organization) regularly assesses the scope, status, implementation, and effectiveness of the QA program to assure that the program is adequate and complies with 10 CFR

Part 71, Appendix E criteria.

b. Measures are provided by FBF to assure that trained qualified personnel within his organization are assigned to determine that functions delegated to his principal suppliers are being properly accomplished.

c. A brief summary of the Company's corporate QA policies, goals, and objectives is given and a meaningful channel for transmittal of these policies, goals, and objectives down through the levels of management is established. Each supervisor is required to read and follow the QA/QC manual.

d. QA/QC responsibilities are designated for the implementation of the major activities contained in the QA manuals.

e. Provisions are established to control the distribution of the QA manuals and revisions thereto. All supervisors are on the distribution of the QA/QC manuals and check-off sheets.

f. Provisions are established for communicating to all responsible individuals that quality policies, QA manuals, and procedures are mandatory requirements which must be implemented and enforced.

g. A listing of the QA procedures plus a matrix of these procedures cross referenced to each criterion of Appendix E to 10 CFR Part 71 demonstrates that Appendix E provisions are fully implemented by documented procedures.

h. The safety-related systems, structures and components controlled by the QA program are identified. See appropriate QC check-off sheet.

i. FBF reviews and documents agreement with the QA program provisions of it's principal suppliers to the extent that can be assured Appendix E will be implemented.

j. Provisions are established for the resolution of disputes involving quality, arising from a difference of opinion between QA/QC personnel and other department (engineering, procurement, manufacturing, etc.) personnel. All such disputes are resolved by decision of the President of FBF, Inc. following a thorough review and discussion of the differing views and opinions. R-

k. An indoctrination and training program is established such that:

(1) Personnel responsible for performing quality-related activities are instructed as to the purpose, scope, and implementation of the QA manuals, instructions, and procedures.

(2) Personnel performing quality-affecting activities are trained and qualified in the principles and techniques of the activity being performed.

(3) The scope, the objective, and the method of implementing the indoctrination and training program are documented.

(4) Proficiency of personnel performing quality-affecting activities is maintained by retraining, reexamining, and/or recertifying.

l. Quality-related activities are performed with specified equipment under suitable environmental conditions, and prerequisites have been satisfied prior to inspection and test.

(See Appendices: 2-1 Brief summary of FBF, Inc. QA policies, goals, and objectives; 2-1A Matrix of QA Procedures referenced to criterion of Appendix E to CFR Part 71; 2-1B Safety related systems, structures and components controlled by the QA program; 2-1C Resolution of disputes involving quality between QA/QC personnel and other departments).

(3) Design Control 7/1/78

FBF takes measures to assure that applicable regulatory requirements and the necessary design features are correctly translated into specification,

construction drawings, procedures and instructions. A review of the design is made by individuals(s) other that those involved in the original design, but who may be from the same organization.

The design review cover items such as; stress, thermal, radiation, shielding, and accident analyses as set forth in DOT or NRC specifications; compatibility of materials; inspection, maintenance, and repair; and delineation of acceptance criteria for inspections and tests. Reports of in-process and final design reviews are reviewed by management. Design changes, included production line or field changes, are reviewed by the person(s) from whom the design originated.

The FBF criteria as part of a quality assurance program are: R-1

a. Measures are established to carry out design activities in a planned, controlled, and orderly manner. However, for the most part and certain special exceptions, FBF simply follows the design already approved by DOT and/or NRC.

b. Measures are established to correctly translate the applicable regulatory requirements and design bases into specifications, drawings, written procedures, and instructions.

c. Quality standards are specified in the design documents, and deviations and changes from these quality standards are controlled.

d. Suitable design controls are applied to such activities as stress, thermal, hydraulic, radiation, and accident analyses; compatibility of materials; and accessibility for inservice inspection, maintenance, and repair.

e. Designs are reviewed by FBF, Inc. President to assure that (1) R-1
design characteristics can be controlled, inspected, and tested and (2) inspection and test criteria are identified. Competent consultants are usually engaged by FBF, Inc. for design activities and the President of R-1
FBF, Inc. coordinates both the work and contract for design.

f. Internal and external design interface controls are established.

These controls include the review, approval, release, distribution, and revision of documents involving design interfaces with participating design organizations. The President of FBF, Inc. is responsible for reviewing, approving, and directing the issuance of documents and revisions thereto. R-1

g. Proper selection and accomplishment of design verification or checking processes such as by design reviews, alternate calculations, or qualification testing are performed. When a test program is used to verify the adequacy of a design, a qualification test of a prototype unit under design conditions is used.

h. Individual(s) responsible for design verification are other than the original designer and the designer's immediate supervisor.

i. Design and specification changes, including field changes, are subject to the same design controls and approvals that were applicable to the original design unless FBF designates another qualified responsible organization.

j. Errors and deficiencies in the design, including the design process, that could adversely affect safety-related systems, structures and components are documented; and corrective action is taken to preclude repetition.

k. Materials, parts, and equipment which are standard, commercial (off-the-shelf) or which have been previously approved for a different application are reviewed for suitability prior to selection.

l. The position(s) responsible for design reviews and other design verification activities and their authority and responsibility are identified and controlled by written procedures.

m. Measures are established for the selection of suitable materials, parts, equipment, and processes for safety-related systems and components which include the use of valid industry standards and specifications.

(See Appendix 3-1 Design Control) R-1

(4) Procurement Document Control 7/1/78

FBF takes measures to assure that all purchased material, equipment, parts and services meet the design specifications. Provisions include measures for source evaluation and selection, objective evidence of quality furnished by the supplier, inspection at the source, and examination of products upon delivery. The effectiveness of the supplier's quality assurance program is assessed at intervals consistent with the importance, complexity and quantity of the product or services. The latest drawings and specifications are included in any procurement procedures.

FBF criteria as part of a quality assurance program are:

a. Procedures are established that clearly delineate the sequence of actions to be accomplished in the preparation, review, approval, and control of procurement documents.

b. A review and concurrence of the adequacy of quality requirements stated in procurement documents is performed by qualified personnel. This review determines that quality requirements are correctly stated, inspectable, and controllable; there are adequate acceptance and rejection criteria; and the procurement document has been prepared, reviewed, and approved in accordance with QA program requirements.

c. The review and approval of procurement documents are documented prior to release and available for verification.

d. Procurement documents identify the applicable 10 CFR Part 71, Appendix E requirements which must be complied with and described in the supplier's QA program. This QA program or portions thereof shall be reviewed and concurred with by qualified personnel in QA prior to initiation of activities affected by the program.

e. Procurement documents contain or reference the design basis technical requirements including the applicable regulatory requirements, material and component identification requirements, drawings, specifications, codes and industrial standards, test and inspection requirements, and special process instructions.

f. Procurement documents identify the documentation (e.g., drawings, specifications, procedures, inspection and fabrication plans, inspection and test records, personnel and procedure qualifications, and chemical and physical test results of material) to be prepared, maintained, and submitted to the purchaser for review and approval.

g. Procurement documents identify those records to be retained, controlled, and maintained by the supplier, and those delivered to the purchaser prior to use or installation of the hardware.

h. Procurement documents contain the FBF Inc.'s right of access to supplier's facilities and records for source inspection and audit.

i. Changes and revisions to procurement documents are subject to at least the same review and approval as the original document.

j. Procurement documents for spare or replacement parts of safety-related systems and components are subject to controls at least equivalent to those used for the original equipment.

(See Appendix 4-1 Vendor Evaluation) R-1

(5) Instructions, Procedures, and Drawings 7/1/78

Activities affecting quality should have written instructions, procedures, and drawings, when necessary to control those aspects of quality.

The FBF criteria as part of a quality assurance program are:

a. Activities affecting quality are prescribed and accomplished in accordance with documented instructions, procedures, or drawings.

b. Provisions are established which clearly delineate the sequence of actions to be accomplished in the preparation, review, approval, and control of instructions, procedures, and drawings.

c. Methods for complying with each of the applicable 18 criteria of Appendix E to 10 CFR Part 71 are specified in instructions, procedures, and drawings.

d. Instructions, procedures, and drawings include quantitative (such as dimensions, tolerances, and operating limits) and qualitative (such as workmanship samples) acceptance criteria to verify that important activities have been satisfactorily accomplished.

e. The QA manager reviews and concurs with inspection plans; test, calibration, and special process procedures; drawings and specifications; and changes thereto or acceptable alternatives are described. The President of FBF, Inc. over-views the work of the QA manager to assure full compliance with Appendix E to 10 CFR Part 71. R-1 R-1

(See Appendix 5-1 Instructions, Procedures, and Drawings)

(6) Document Control 7/1/78

FBF takes measures to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality. Changes in any of these documents require authorized approval and records of these changes are maintained. A stepwise sequence for making changes is available which provides a recorded date for the change, a revised document with the change, and replacement of all prerevision documents.

The FBF criteria as part of a quality assurance program are:

a. The review, approval, and issue of documents (such as listed in item h below) and changes thereto, prior to release, are procedurally controlled to assure they are adequate and the quality requirements are stated.

b. Provisions are established which identify those individuals or groups responsible for reviewing, approving, and issuing documents and revisions thereto.

c. Changes to documents are reviewed and approved by the same personnel that performed the original review and approval.

d. Approved changes are included in instructions, procedures, drawings, and other documents prior to implementation of the change.

e. Obsolete or superseded documents are controlled to prevent inadvertent use.

f. Documents are available at the location where the activity will be performed prior to commencing the work.

g. A master list is established to identify the current revision number of instructions, procedures, specifications, drawings, and procurement documents. This list is updated and distributed to predetermined, responsible personnel to preclude use of superseded documents.

h. The documents that are controlled under this subsection are identified. They include:

(1) Design specifications.

(2) Design, manufacturing, construction, and installation drawings.

(3) Procurement documents.

(4) QA manuals.

(5) Operating, maintenance, and modification procedures.

(6) Manufacturing, inspection, and testing instructions.

(7) Test procedures.

(8) Design change requests.

(9) Nonconformance reports.

(See Appendix 6-1 Document Control) R-1

(7) Control of Purchased Materials, Parts and Components

Incoming inspections are performed on purchased materials, parts, and components to ensure that they conform to procurement documents, certifications, and specifications.

The FBF criteria as part of a quality assurance program are:

a. Qualified personnel evaluate the supplier's capability to provide acceptable quality services and products. The QA and engineering people participate in the evaluation of those suppliers providing critical components.

b. The evaluation of suppliers is based on one or more of the following:

(1) The supplier's capability to comply with the elements of Appendix E to CFR Part 71 that are applicable to the type of material, equipment, or service being procured.

(2) A review of previous records and performance of suppliers who have provided similar articles of the type being procured.

(3) A survey of the supplier's facilities and QA program to determine his capability to supply a product which meets the design, manufacturing, and quality requirements.

c. The results of supplier evaluations are documented and filed.

d. Surveillance, if required, of suppliers during fabrication inspection, testing, and shipment of materials, equipment, and components is planned and performed in accordance with written procedures to assure conformance to the purchase order requirements. These procedures provide for:

(1) Instructions that specify the characteristics or processes to be witnessed, inspected or verified, and accepted; the method of surveillance and the extent of documentation required; and those responsible for implementing these instructions.

(2) Audits and surveillance which assure that the supplier complies with the quality requirements. Surveillance is performed on those items where verification of procurement requirements cannot be determined upon receipt.

e. The supplier furnishes the following records as a minimum to FBF.

(1) Documentation that identifies the purchased material or equipment and the specific procurement requirements (e.g., codes, standards, and specifications) met by the items.

(2) Documentation that identifies any procurement requirements which have not been met together with a description of those nonconformances dispositioned "accept as is" or "repair."

The review and acceptance of these documents are described in the FBF QA program and as a minimum shall be undertaken by a responsible QA individual.

f. Supplier's certificates of conformance are periodically evaluated by audits, independent inspections, or tests to assure they are valid.

g. Receiving inspection of the supplier-furnished material, equipment, and services is performed to assure:

(1) The material, component, or equipment is properly identified and corresponds with the identification on receiving documentation.

(2) Material, components, equipments, and acceptance records are inspected and judged acceptable in accordance with predetermined inspection instructions, prior to installation or use.

(3) Inspection records or certificates of conformance attesting to the acceptance of material and components are available prior to installation or use.

(4) Items accepted and released are identified as to their inspection status prior to forwarding them to a controlled storage area or releasing them for further work.

h. The effectiveness of the control of quality by suppliers is assessed by the applicant at intervals consistent with the importance, complexity, and quantity of the item.

i. Spare or replacement parts of safety-related systems and components are subject to controls at least equivalent to those used for the original equipment.

(See Appendix 7-1 Supplier Quality Evaluation) R-1

(8) Identification and Control of Materials, Parts, and Components 7/1/78

FBF takes measures by tagging or stamping to assume proper identification and control of materials, parts, and components, including partially fabricated assemblies. These measures assure that identification is maintained, either on the package or on records traceable to the package, throughout fabrication, assembly, installation, repair, or modification. The measures are designed to prevent the use of incorrect or defective parts, and parts

which have not received the required inspections and tests. Raw material may require certification.

Overrun stock control may be required, and proper identification, storage, and re-inspection procedures should be used in these cases. Part numbers and lot numbers are used, if applicable.

The FBF criteria as part of a quality assurance program are:

a. Procedures are established to identify and control materials, parts, and components including partially fabricated subassemblies.

b. Identification requirements are determined during generation of specifications and design drawings.

c. The identification and control procedures assure that identification is maintained either on the item or on records traceable to the item to preclude use of incorrect or defective items.

d. Identification of materials and parts important to the function of safety-related systems and components can be traced to the appropriate documentation such as drawings, specifications, purchase orders, manufacturing and inspection documents, deviation reports, and physical and chemical mill test reports.

e. The location and the method of identification do not affect the fit, function, or quality of the item being identified.

f. Correct identification of material, parts, and components is verified and documented prior to release for fabrication, assembling and installation.

(See Appendix 8-1 Identification and Control of Materials, Parts and Components R-1

(9) Control of Special Processes 7/1/78

Measures should be established to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled in accordance with applicable codes, standards, specifications, criteria, and other special requirements, and are accomplished by qualified personnel using approved procedures. Special processes may be developed for specific packages by manufacturers and the control of and results from these processes should be documented.

The FBF criteria as part of a quality assurance program are:

a. Special processes such as welding, heat treating, nondestructive testing, and cleaning are procedurally controlled.

b. Procedures, equipment, and personnel connected with special processes are qualified in accordance with applicable codes, standards, and specifications.

c. Special processes are performed by qualified personnel and accomplished in accordance with written process sheets or equivalent with recorded evidence of verification.

d. Qualification records of procedures, equipment, and personnel associated with special processes are established, filed, and kept current.

(See Appendix 9-1 Welding Procedure; 9-1A Heat Treating; 9-1B Non-Destructive Testing: Magnetic Particle Test, Dye Penetrant Test, Halogen Gas Test) R-1

(10) Inspection 7/1/78

A program for receiving, in-process, and final inspection of activities affecting quality have been established to assure conformance with documented instructions, procedures, and drawings. Examinations, measurement, or tests of material or products processed is performed for each work

operation where necessary to assure quality. If inspection of processed material or products is impossible or disadvantageous, indirect control by monitoring processing methods, equipment, and personnel is provided. Both inspection and process monitoring is provided when control is inadequate without both. Mandatory inspection hold points, which require witnessing or inspecting by the designated representative and beyond which work should not proceed without the consent of that representative, must be established.

The primary purpose of receiving inspection is to determine compliance or non-compliance of all material, parts, and processes with all applicable drawings, specifications, purchase orders, and contractual requirements. Also, it is the responsibility of receiving inspection to maintain continuous control of accepted parts and materials until they are placed into stock or inventory for routine use, and of rejected parts and materials until they are disposed of in accordance with procedures. Rejection reports, discrepancy reports, follow-up on vendor corrective action, and/or vendor process capability trends may be required for particular packages.

In-process inspection should provide adequate control over manufacturing procedures, while final inspection should be designed to eliminate all non-acceptable packages or procedures.

The FBF criteria as part of a quality assurance program are:

a. An inspection program which verifies conformance of quality-affecting activities with requirements is established, documented, and accomplished in accordance with written and controlled procedures.

b. Inspection personnel are independent from the individuals performing the activity being inspected.

c. Inspection procedures, instructions, and check lists provide for the following:

(1) Identification of characteristics and activities to be inspected.

(2) Identification of the individual(s) responsible for performing the inspection operation.

(3) Acceptance and rejection criteria.

(4) A description of the method of inspection.

(5) Recording evidence of completing and verifying a manufacturing, inspection, or test operation.

(6) Recording inspector and the results of the inspection operation.

(7) Approval of data by manager of QA.

d. Inspection procedures or instructions are used with necessary drawings and specifications when performing inspection operations.

e. Inspectors are qualified in accordance with applicable codes, standards, and company training programs; and their qualifications and certifications are kept current.

f. Modifications, repairs, and replacements are inspected in accordance with the original design and inspection requirements or acceptable aiternatives.

g. Provisions are established that identify mandatory inspection hold points for witness by an inspector.

h. The individual(s) who perform receiving and process verification inspections are identified and shown to have sufficient independence and qualifications.

i. Provisions are established for indirect control by monitoring processing methods, equipment, and personnel if direct inspection is not possible.

(See Appendix 10-1 Quality Control Check-Off Sheet (Inspection). R-1

(11) Test Control 7/1/78

A test control program has been established to assure that all required testing, including proof testing, acceptance testing, and operational testing, is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The test procedures include provisions for assuring that all prerequisites for the given tests have been met, that adequate instrumentation is available and used, and that the test is performed under suitable environmental conditions. Test results are documented and evaluated to assure that test requirements have been satisfied. Test procedures are implemented and controlled by defining the exact procedure.

The FBF criteria as part of a quality assurance program are:

a. A test program to demonstrate that the item or component will perform satisfactorily in service is established, documented, and accomplished in accordance with written controlled procedures.

b. Modifications, repairs, and replacements are tested in accordance with specifications.

c. Written test procedures incorporate or reference:

(1) The requirements and acceptance limits contained in applicable specifications.

(2) Instructions for performing the test.

(3) Test prerequisites such as:

- Calibrated instrumentation.
- Adequate and appropriate equipment.
- Trained, qualified, and licensed or certified personnel.
- Completeness of item to be tested.
- Suitable and controlled environmental conditions.
- Provisions for data collection and storage.

(4) Mandatory inspection hold points for witness by responsible individual.

(5) Acceptance and rejection criteria.

(6) Methods of documenting or recording test data and results.

d. Test results are documented, evaluated, and their acceptability determined by a qualified, responsible individual, and by the manager of QA (See Appendix 11-1 QC - Check-Off Sheet (Testing). R-1 R-1

(12) Control of Measuring and Test Equipment 7/1/78

FBF has established measures to assure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are calibrated and properly adjusted at specified periods to maintain accuracy within necessary limits. Where possible, calibration are against verified measurement standards which have known valid relationships to national standards. Only calibration devices and tools that have been identified, and have current calibration should be used. Any of these items are properly stored when not in use.

The FBF criteria as part of a quality assurance program are:

a. Provisions, contained in procedures, describe the calibration technique and frequency, maintenance, and control of the measuring and test equipment (instruments, tools, gauges, fixtures, reference and transfer standards, and nondestructive test equipment) which is used in the measurement, inspection, and monitoring of safety-related components and systems.

b. Measuring and test equipment is identified and traceable to the calibration test data.

c. Measuring and test equipment is labeled or tagged to indicate date of the next calibration.

d. Measuring and test instruments are calibrated at specified intervals based on the required accuracy, purpose, degree of usage, stability characteristics, and other conditions affecting the measurement.

e. Measures are taken and documented to determine the validity of previous inspections performed when measuring and test equipment is found to be out of calibration.

f. Calibrating standards have an uncertainty (error) requirement of no more than 1/4th of the tolerance of the equipment being calibrated. A greater uncertainty may be acceptable when limited by the "state-of-the-art."

g. The complete status of all items under the calibration system is rec ed and maintained.

h. Reference and transfer standards are traceable to nationally recognized standards.

(See Appendix 12-1 Equipment Testing and Calibrating: Micrometers). R-1

(13) Handling, Storage, and Shipping 7/1/78

Work and inspection instructions for handling, storage, shipping and preservation of material and equipment to prevent damage or deterioration is provided. When necessary for any particular product(s), special protection environments; such as, inert gas atmospheres, specific moisture content levels, and temperature levels, are provided and their existence verified.

Shipments are not made unless all certifications, test reports, markings, and acceptances are available.

The FBF criteria as part of a quality assurance program which apply to handling, storage and shipping are:

a. Special handling, presentation, storage, cleaning, packaging, and shipping requirements are established and accomplished by qualified individual(s) in accordance with predetermined work and inspection instructions.

b. Procedures are prepared which control the cleaning, handling, storage, packaging, shipping, and preservation of materials, components, and systems in accordance with design and specification requirements to preclude damage, loss or deterioration by environmental conditions such as temperature or humidity.

The FBF criteria as part of a quality assurance program which apply only to manufacture of containers for use in shipping of approved packages are:

a. All conditions (operations, tests, inspections, specifications, etc.) of the NRC [FBF, Inc. manufactured portion of] package approval and the U. S. Department of Transportation shipping [container only construction] requirements must be satisfied.

b. All necessary shipping papers prepared as required.

c. Departure, arrival time and destination of [a newly manufactured container portion of] package should be established and monitored to a degree consistent with the safe transportation of the package. (Note: The user or Licensee of package is responsible for the total shipping package.)

(See Appendix 13-1 Control of cleaning, handling, storage, packing, shipping, and preservation of materials). R-1

(14) Inspection Test and Operating Status 7/1/78

Markings such as stamps, tags, labels, routing cards, or other suitable means, are used to indicate the status of inspections and tests performed upon individual items and the status of packages or equipment. Items which conform to inspection and test requirements are identified; nonconforming items are clearly marked for subsequent disposition.

The FBF criteria as part of a quality assurance program are:

a. Identification of the inspection, test, and operating status of packages and components is known by affected organizations.

b. The application and removal of inspection and welding stamps and status indicators such as tags, markings, labels, and stamps are procedurally controlled.

c. Bypassing of required inspections, tests, and other critical operations is procedurally controlled under the cognizance of the QA manager.

d. The status of nonconforming, inoperative, or malfunctioning packages or components is identified to prevent inadvertent use.

(See Appendix 14-1 Identification Tags, Markings, and Labels for Control of Inspection Tests and Operating Status. R-1

(15) Non-Conforming Material, Parts, or Components 7/1/78

Material, parts, or components which do not conform to requirements are controlled to prevent their inadvertent use or installation. Procedures have been established for identification, documentation, segregation, disposition, and notification to affected personnel or organizations. Non-conforming items are reviewed and accepted, rejected, repaired, or reworked in accordance with documented procedures. Ultimate disposition of non-conforming items must be documented. Procedures are established for segregation, identification, removal, and disposal of all non-conforming material. Materials or parts may not be used when a discrepancy occurs which is likely to affect the form, fit, or function of the final item with respect to safety.

The FBF criteria as part of a quality assurance program are:

a. The identification, documentation, segregation, review, disposition, and notification to affected personnel or organizations of non-conforming materials, parts, components, or services are procedurally controlled. The manager of QA has responsibility and authority for the disposition and approval of non-conforming items. The President of FBF, Inc. over-views the actions of the QA manager to assure full compliance with Appendix E to 10 CFR Part 71. R-1

b. Documentation identifies the non-conforming item; describes the non-conformance, the disposition of the non-conformance, and the inspection requirements; and includes signature approval of the manager of QA for disposition.

c. Provisions are established identifying those individual(s) (manager of QA and the President of FBF, Inc.) delegated the responsibility and authority for the disposition and approval of non-conforming items. R-1

d. Non-conforming items are segregated from acceptable items and identified as discrepant until properly dispositioned.

e. Acceptability of rework or repair of materials, parts, components and systems is verified by reinspecting and retesting the item as originally inspected and tested or by a method which is at least equal to the original inspection and testing method. Inspection, testing, rework, and repair procedures are documented.

f. Nonconformance reports dispositioned "accept as is" or "repair" are made part of the inspection records.

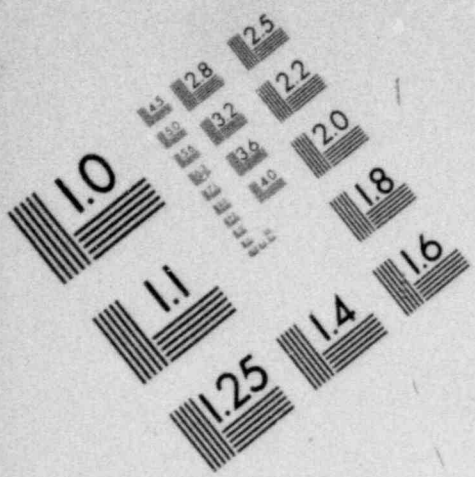
g. Nonconformance reports are periodically analyzed to show quality trends, and the results are reported to management for review and assessment. (See Appendix 15-1 Non-Conforming Materials). R-1

(16) Corrective Action 7/1/78

Conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances, are promptly identified and reported to appropriate levels of management. The cause of the condition adverse to quality are determined and corrected to preclude repetition. The corrective action measures extend to the performance of all suppliers and subcontractors as necessary. The identification of conditions adverse to quality, the cause of the condition, and the corrective action taken is documented. All corrective action is followed-up for the purpose of checking the results of the action. Documented results provide management with the means of assessing any corrective actions.

The FBF criteria as part of a quality assurance program are:

a. Evaluation of conditions adverse to quality (such as nonconformances, failures, malfunctions, deficiencies, deviations, and defective material and equipment) is conducted to determine the need for corrective action in accordance with established procedures.



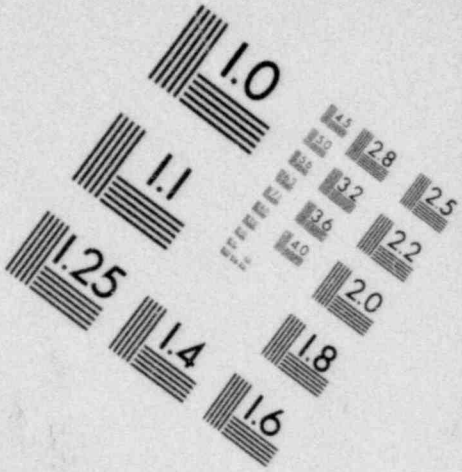
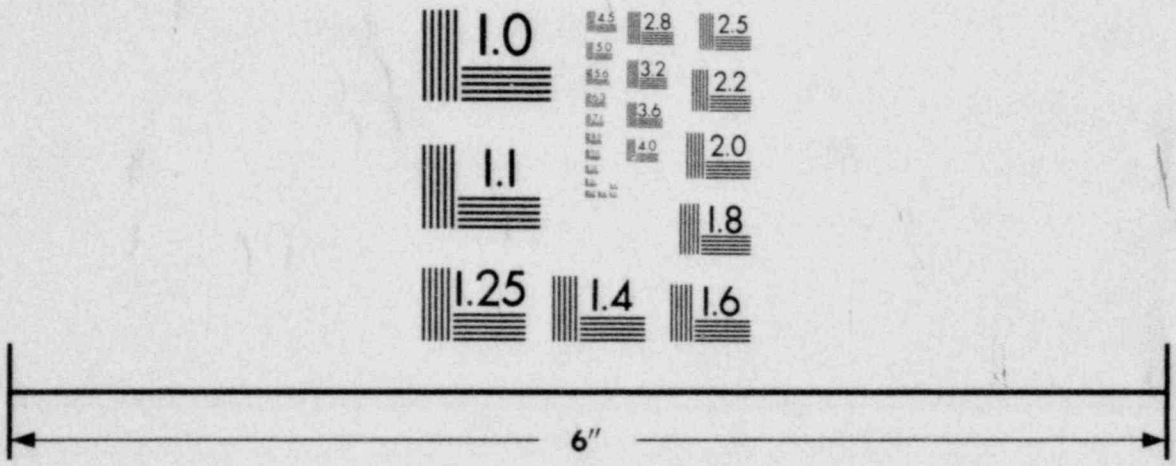
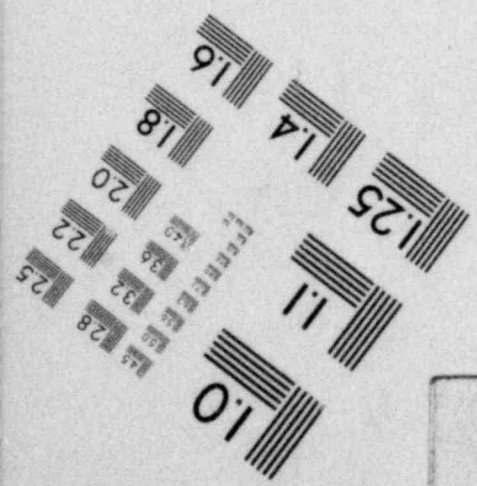
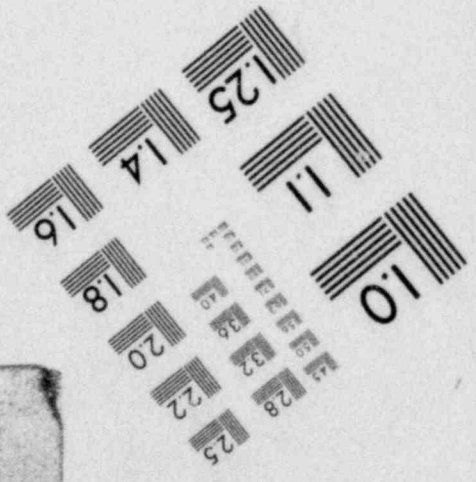


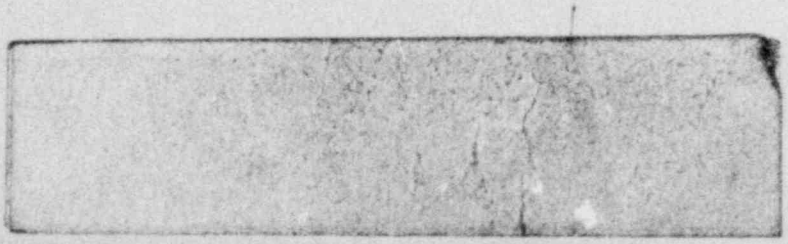
IMAGE EVALUATION TEST TARGET (MT-3)



MICROCOPY RESOLUTION TEST CHART







b. Corrective action is initiated by the manager of QA following the determination of a condition adverse to quality to preclude recurrence. R-1

c. Follow-up reviews are conducted by the President of FBF, Inc. to verify proper implementation of corrective actions and to close out the corrective action documentation.

d. Significant conditions adverse to quality, the cause of the conditions, and the corrective action taken are reported to cognizant levels of management for review and assessment.

(See Appendix 16-1 Corrective Action Reports). R-1

(17) Quality Assurance Records 7/1/78

Sufficient records are maintained to furnish documentary evidence of activities affecting quality for use in the management of the program. The records include work papers and the results of reviews, inspections, tests, audits, monitoring of work performance, and materials analyses. The records also include closely related data such as qualifications of personnel, procedures, and equipment. Inspection and test records, identify the inspector, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. Consistent with applicable regulatory requirements, the FBF has established requirements concerning record retention, such as duration, location, and assigned responsibility. The specific location of all quality assurance records is at the plant office, open for inspection or recall at any time, and well secured in a fire, water, and burglar-proof vault. R-1

The FBF criteria as part of a quality assurance program are:

a. Sufficient records are maintained to provide documentary evidence of the quality and safety of items and the activities affecting quality and safety.

b. QA records include work papers, logs; results of reviews, inspections, tests, audits, and material analyses; monitoring of work performance; qualification of personnel, procedures, and equipment; and other documentation such as drawings, specifications, procurement documents, calibration procedures (where required) and reports; nonconformance reports; and corrective action reports. The QA records are grouped together for ease of reference.

c. Records are identifiable and retrievable.

d. Requirements and responsibilities for record transmittals, retention (such as duration, location, fire protection, and assigned responsibilities), and maintenance subsequent to completion of work are consistent with applicable codes, standards, and procurement documents.

e. Inspection and test records contain the following where applicable:

(1) A description of the type of observation

(2) Evidence of completing and verifying a manufacturing, inspection, or test operation.

(3) The date and results of the inspection or test.

(4) Information related to conditions adverse to quality.

(5) Inspector or data recorder identification.

(6) Evidence as to the acceptability of the results.

f. Record storage facility in a vault, located, and secured to prevent destruction or deterioration by environmental conditions. (See Appendix 17-1 QA Records Retention, Duration, Locations and Responsibility). R-1 R-1

(18) Audits

Quality assurance audits are required to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. A system of planned and periodic audits exists to establish the results of a quality assurance program, and to provide a means of reviewing that program.

The FBF criteria as part of a quality assurance program are:

a. Audits are performed in accordance with preestablished written procedures or check lists and conducted by trained personnel not having direct responsibilities in the areas being audited.

b. Audit results are documented and then reviewed with management having responsibility in the area audited.

c. The President of FBF, Inc. takes the necessary action to correct the deficiencies revealed by the audit. R-1

d. Deficient areas are reaudited on a timely basis to verify implementation of corrective actions which minimize recurrence of deficiencies.

e. Audits include an objective evaluation of quality-related practices, procedures, and instructions and the effectiveness of implementation.

f. Audits include the objective evaluation of work areas, activities, processes, and items, and the review of documents and records.

g. Audits to assure that procedures and activities are meaningful and comply with the overall QA program are performed, insofar as possible, by:

(1) The QA manager, to provide a comprehensive independent verification and evaluation of quality-related procedures and activities.

(2) FBF and principal contractors, to verify and evaluate their suppliers' QA programs, procedures, and activities.

h. Provisions are established requiring that audits be performed in those areas where the requirements of Appendix B to 10 CFR Part 71 are being implemented. These areas shall include those safety-related activities associated with:

(1) Modification and repair of packages (use and maintenance are not applicable).

(2) The preparation, review, approval, and control of designs, specifications, procurement documents, instructions, procedures, and drawings.

(3) Receiving inspections.

(4) Training programs.

(5) The implementation of test procedures.

(6) Calibration of measuring and testing equipment.

i. Audits are regularly scheduled on the basis of the status and safety importance of the activities being performed and are initiated early enough to provide effective quality assurance during the design, procurement, and contracting activities.

j. Audit data are analyzed and the reports, which indicate quality trends and the effectiveness of the QA program, are reported to the President of FBF, Inc. for review and assessment. R-1

(See Appendix 18-1 Audits: Work Areas, Activities, Processes, Items and Review of Documents and Records). R-1

REFERENCES

1. Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Material for Transport and Transportation of Radioactive Material Under Certain Conditions," Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

2. Title 49, Code of Federal Regulations, Parts 171 through 179, Hazardous Materials Regulations, Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

3. Ducan, A. J., Quality Control and Industrial Statistics, 4th ed., Richard D. Irwin, Inc., Homewood, Illinois, 1974.

4. J. M. Juran and F. M. Gryna, "Quality Planning and Analysis," McGraw-Hill Book Company, New York, N. Y., 1970.

5. J. M. Juran (ed.), "Quality Control Handbook," 3rd ed., McGraw-Hill Book Company, New York, N. Y., 1974.

6. American National Standards Institute, "Quality Assurance Program Requirements for Nuclear Power Plants," ANSI N45.2-1971, New York, N. Y., 1971.

7. American National Standards Institute, "Quality Assurance Terms and Definitions," ANSI N45.2.10-1973, New York, N. Y., 1973.

GLOSSARY OF TERMS

As used in this specification, 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.
ADMINISTRATIVE PROCEDURE	A document that specifies or describes an activity in terms denoting: (1) What activity is to be performed; (2) Who is responsible for the activity; (3) When the activity will be performed; and (4) How the activity will be accomplished (sequence of events).
APPROVAL	The act of endorsing or assigning positive authorization, or both.
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 explicitly stating what items are certified, signed and dated by a qualified party, identifying the controlling acceptance standards utilized and attesting that the items or services meet all the specified requirements of the procurement documents.
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.
COMPONENT	A piece of equipment, such as a vessel, piping, pump, valve, core support structure, etc., which may be combined with other components to form an assembly.

DOCUMENT	Any written or pictorial information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, or results.
DOCUMENTATION	A compilation of those documents concerning a specific function, activity, or project.
EXAMINATION	An element of inspection consisting of investigation of materials, components, supplies, or services to determine conformance to those specified requirements which can be determined by such investigations. Examination is usually nondestructive and includes visual, simple physical manipulation, gaging, measurement and written documentation.
HANDLING	An act of physically moving and/or lifting items by hand or mechanical means.
INSPECTION	A phase of quality control which by means of examination, observation or measurement determines the conformance of items, processes, or services to predetermined requirements. Inspection may involve the use of special equipment tools, procedures or documentation.
INSPECTOR (SUPPLIER)	A qualified individual employed by the Supplier whose duties include verification of quality related activities and who is independent of the activity being verified.
INSPECTOR	A qualified individual employed by FBF Inc. whose duties include verification of Supplier's conformance to the requirements of the procurement documents.
ITEM	Any level of unit assembly, including system, subsystem, subassembly, component or material.
MATERIAL	A substance or combination of substances used to form pieces, parts, components, items, etc. (including machinery, metal shapes, plates, castings, forgings aggregates, cements, liquids, etc.).

NONCONFORMANCE	A deficiency in characteristic, documentation, performance or procedure which renders the quality of an item unacceptable or indeterminate. Examples of nonconformances include: physical defects, test failures, incorrect or inadequate documentation; or deviation from design standards, prescribed processing, inspection or test procedures, and procurement document requirements.
OBJECTIVE EVIDENCE	Any statement of fact, information, or record; either quantitative or qualitative pertaining to the quality of an item or service which can be verified by records of test, examinations, inspections measurements, or observations.
PART	An item which has work performed on it and which is attached to, and becomes an element of a component
PROCEDURE	A document which specifies instructions for performance of a particular task. It includes methods to be employed, description of equipment, or material to be used, sequence of operations, etc.
PROCESS	One or more operations, methods, functions, procedures, or other specified actions, which result in the desired end item or result.
PROCUREMENT DOCUMENT	A contractually binding document, including attachments, identifying the requirements which items or services must meet prior to acceptance. Also includes purchase requisitions.
QUALIFICATION (PERSONNEL)	A demonstration of those characteristics or abilities of an individual, gained through training and/or experience, that enable him to perform specific functions.
QUALIFIED EQUIPMENT	Equipment which has been evaluated by sufficient testing to assure performance within specified parameters.
QUALIFIED PARTY OR INDIVIDUAL	A person or organization competent and recognized as knowledgeable to perform certain functions.
QUALIFIED PROCEDURE	A procedure which incorporates all applicable code and standard requirements, manufacturing parameters and engineering specifications, and which has been proven adequate for the intended purpose.

QUALITY	The properties or characteristics, constituting those requisites of specifications, codes, standards, industrial practices, other recognized methods and/or acceptance criteria, by which an item is judged.
QUALITY ASSURANCE	All those planned and systematic actions, including quality administration and quality control, which provide adequate confidence that an item or facility will perform satisfactorily in service.
QUALITY CONTROL	Those quality assurance actions which provide a means to control the characteristics of an item, process or facility to established requirements.
QUALITY REQUIREMENTS MATRIX(QRM)	A document supplied with the FBF procurement documents. The QRM is a summary of the quality requirements as defined in the FBF specifications. It identifies the supplier documentation to be submitted to FBF during the performance of the order and the supplier documentation to be included in the QA data package at the completion of the order. It also designates the applicable sections of this specification.
REPAIR	The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though the item still may not conform to the original requirement in every aspect.
REWORK	The process by which a nonconforming item is made to conform to a prior specified requirement by completion, remachining, reassembling, or other remedial means. (Cutting off excess metal is rework; welding on an extension is repair.)
SCRAP	A disposition which may be imposed upon a nonconforming item when it has been established that the discrepancy renders the item unfit for its intended use and it is not economically or otherwise feasible to repair or rework it. Scrap may also be excess material, or damaged

	material, remaining from fabrication operations which is unsuitable for further use.
SOURCE INSPECTION	A review, observation, or inspection for the purpose of verifying that an action has been accomplished as specified at the location of procurement or manufacture.
SUBSYSTEM	A group of assemblies, components, or both, combined to perform as an element of a system.
SUPPLIER	Any organization under contract for furnishing items or services. It includes the terms vendor, contractor, subcontractor, fabricator, organizations internal to FBF, and subtier levels of these where appropriate.
SYSTEM	A group of subsystems, or subassemblies united for the purpose of performing one or more duties while functioning as a single unit.
USE-AS-IS	A disposition which may be imposed upon nonconforming items when it has been established that the discrepancy does not affect the intended use and that the item will conform to functional requirements.
VERIFICATION	The act of confirming, substantiating, and/or assuring that an action has been performed or a condition achieved in conformance with specified requirements.

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FBF, Inc.

Qualifications of QA Manager

The QA manager must possess a working knowledge of quality assurance and have had a minimum of 10 years experience in the QA-QC field. He must possess special skills and knowledge in calibration procedures, applicable codes, standards, procurement regulations, interpretation of drawings, specifications, material analysis, monitoring of work performance, loging, reporting and reviewing QC findings in inspections, tests and audits. He must display courteous, yet firm, attitude in administering the QA program, and assure a high quality product that fully meets the customer specifications.

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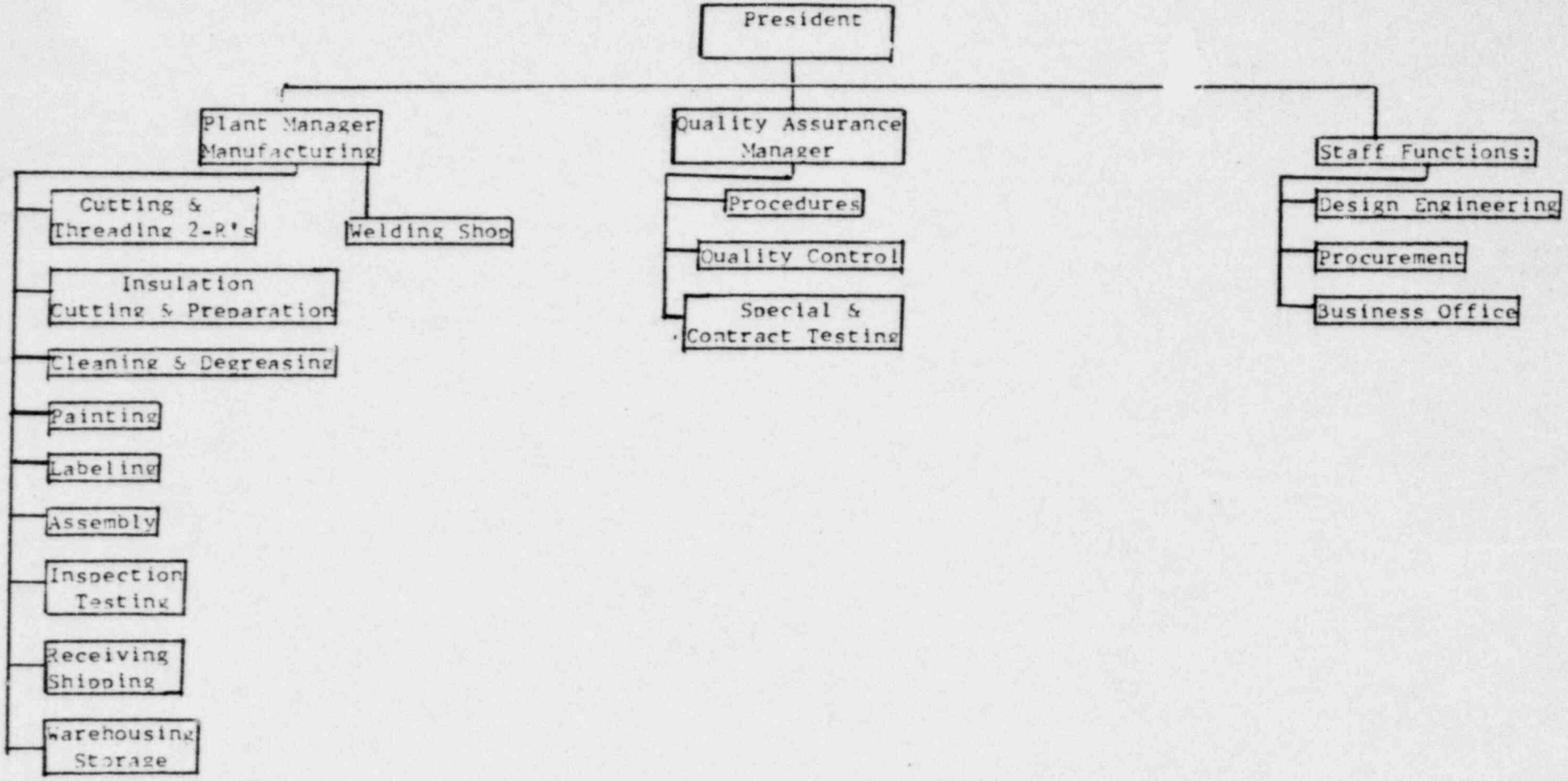
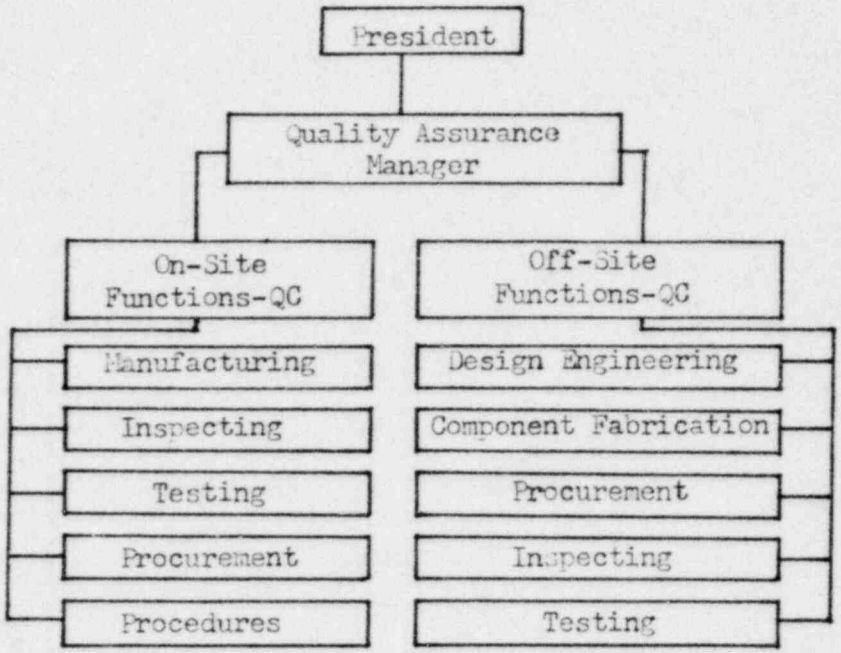
APPENDIX I-1a

FBF, INC.
QA PROGRAM - ORGANIZATION CHART



FBF, Inc.
QA Program - Functional Chart



FBF, Inc.

QA Program - QC Control

QA Responsibilities and Interface Relationships

On-Site Functions and Off-Site Functions

Manufacturing:

The QA manager is responsible for quality control in all phases of manufacturing, which currently includes:

1. Cutting, sizing, threading of 2-R's
2. Cutting, sizing and preparation of insulation
3. Cleaning and degreasing operations
4. Welding and grinding
5. Labeling
6. Assembling
7. Inspecting
8. Testing
9. Painting
10. Packing
11. Shipping
12. Receiving
13. Warehousing and storage

Many of the above functions require special equipment such as micrometers, thread gauges, templets, jigs, fixtures, vacuum equipment, leak detectors, ultra-sonic testers, pressure and vacuum gauges, etc., in determining if manufactured components meet print specifications. The QA manager has full responsibility to see that each part or component meet the specifications or else label them non-conforming and separate the rejects for future re-work or discard to scrap.

Inspecting:

The QA manager is responsible for inspecting all items manufactured and to determine that they meet specifications at each station in the manufacturing process before permitting them to pass to the next stage in the process. Quality parts and components are deemed to be vital in the manufacture of containers and the QA manager has complete authority to stop any process or part at any time quality standards are not met. Full cooperation along this line is required and the Production Superintendent as well as the foreman and equipment operators fully understand this important aspect of quality operations. This type inspection applies whether or not the inspections are performed by the FBF, Inc. QA members or by an outside independent qualified inspector. Independent inspectors qualified to SNT-TC-IA are often used for certified inspections to code when required by the customer.

Testing:

Most certified testing required by customers is performed by an outside independent technician qualified to SNT-TC-IA and performs the tests to specified code, eg: ASME or ASTM, etc. The cooperation of all personnel in the manufacturing, procurement, design engineering, and any other affected organizational units is required. The QA manager handling or coordinating the testing has full authority to stop or remove for

rework or discard to scrap any part or unit that fails to pass the test(s). In those instances where the QA manager conducts tests to the DOT and customer specifications, the full cooperation of all levels of organization is required and the QA manager has full authority to stop work or remove items for rework or discard to scrap.

Procurement:

The QA manager determines that the materials or components ordered meet the specifications - first by checking the purchase order (after evaluating the vendor for quality performance) secondly, by inspecting the material or components upon receipt at FBF, Inc. The items are marked or tagged for control throughout the manufacturing process. The QA manager has full control in matters pertaining to quality and has authority to stop any procurement or return as unacceptable any item not meeting the specifications. The full cooperation of the Purchasing Department, Receiving Department and Vendor is required in these acquisitions.

Procedure:

The QA manager regularly reviews the procedures for compliance with the requirements of Appendix E to 10 CFR Part 71; revises the procedures if needed, and audits the procedure for full compliance at regular intervals. The President of FBF, Inc. over-views the procedures and audits to assure they are in conformance with Appendix E, and working smoothly to assure a high quality product. Again, the cooperation of the entire organization, both within and between organizational units, is required by the President of FBF, Inc.

Design Engineering:

Most of the design engineering required is performed by competent consultants to FBF, Inc. since practically all of the containers manufactured are built to DOT specifications. However, when design engineering is required, the expertise is usually obtained by contract from one of the major Nuclear Installations in Oak Ridge. The President of FBF, Inc. usually coordinates the design work with the consultants and affected FBF, Inc. department managers. Complete cooperation is always achieved. The QA manager follows the design very closely and contributes to assure full compliance with Appendix E to 10 CFR Part 71.

FBF, Inc.

Summary of QA Policies, Goals and Objectives

It is the policy of FBF, Inc. to emphasize:

1) The importance of quality, quality attitudes and acceptance of individual responsibility for achieving quality work.
2) To recognize the role of quality assurance in achieving quality objectives.
3) To train employees in quality workmanship.
4) To produce a high quality product, safely and efficiently according to applicable specifications and codes.

The goals of FBF, Inc. in quality assurance are to:

1) Train employees to perform and recognize quality work.
2) To perform the work correctly the first time.
3) To cooperate and help in identifying quality with the proper attitude toward quality assurance.
4) To achieve quality parts and components for a high quality product that will perform safely and efficiently.

It is the objective of FBF, Inc. to meet the applicable specifications, codes and standards using well trained and highly qualified, competent personnel to produce a safety-orientated quality product manufactured in full compliance with Appendix E to 10 CFR Part 71 and the customer's QA, drawings and specifications.

FBF, Inc.

QA Procedures + Matrix Cross Referenced to Criterion of Appendix E to 10 CFR Part 71

QA Procedures	Matrix X-Referenced to Criterion of Appendix E
1) Organization	1 a. Responsibility for QA program retained and exercised by FBF, Inc. 1 b. QA/QC identified, described and provide control per Appendix E 1 c. Clear and effective lines of communication established to assure direction of QA program and resolution of QA problems 1 d. Organization chart identify elements under control of QA program 1 e. Interface relationships & QA responsibilities described & demonstrate assignment of responsibilities for Appendix E Appendices: 1-1 Qualifications of QA Manager 1-1A QA Organization Chart 1-1B QA Functional Chart 1-1C QA Responsibilities & Interface Relationships
2) Quality Assurance Program	Appendices: 2-1 Brief summary of FBF, Inc. QA policies, goals and objectives; 2-1A matrix of QA procedures referenced to criterion of Appendix E to 10 CFR 71; 2-1B Safety related systems, structures and components controlled by QA program; 2-1C Resolution of disputes involving quality - between QA/QC personnel and other departments.
3) Design Control	3 a. Measures are established to carry out design activities in a planned, controlled and orderly manner. 3 c. Quality standards are specified in design documents and deviations and changes from those quality standards are controlled. 3 e. Designs are reviewed by FBF, Inc. President Appendix 3-1 Design Control
4) Procurement Document Control	4 a. Procedures are established that clearly delineate the sequence of actions to be accomplished in the preparation, review, approval and control of procurement documents. Appendix 4-1 Vendor Evaluation

5) Instructions, Procedures and Drawings

5 a. Activities affecting quality are prescribed and accomplished in accordance with documented instructions, procedures or drawings.

5 e. The QA manager reviews and concurs with inspection plans; tests, calibration and special process procedures; drawings and specifications and changes thereto. The president of FBF, Inc. over-views the work of the QA manager to assure full compliance with Appendix E to 10 CFR 71.

Appendix 5-1 Instructions, Procedures, Drawings

6) Document Control

6 a. The review, approval and issue of documents (such as listed in section 6 L) and changes thereto, prior to release, are procedurally controlled to assure they are adequate and the quality requirements are stated.

Appendix 6-1 Document Control

7) Control of Purchased Materials, Parts, Components

7 a. Qualified personnel evaluate the supplier's capability to provide acceptable quality services and products.

Appendix 7-1 Suppliers Quality Evaluation

8) Identification and Control of Materials, Parts and Components

8 a. Procedures are established to identify and control materials, parts and components, including partially fabricated assemblies.

8 d. Identification of materials and parts important to the function of safety-related systems and components can be traced to the appropriate documentation such as drawings, specifications, purchase orders, manufacturing and inspection documents, deviation reports and physical and chemical mill test reports.

Appendix 8-1 Identification and Control of Materials, Parts and Components

9) Control of Special Processes

9 a. Special processes such as welding, heat treating, nondestructive testing and cleaning are procedurally controlled.

9 b. Procedures, equipment and personnel connected with special processes are qualified in accordance with applicable codes, standards and specifications.

9 c. Special processes personnel are qualified in accord with customer specifications eg.: Welders qualified to ASME Section IX pressure vessel code, etc.

Appendices: 9-1 Welding Procedures; 9-1A Heat Treating; 9-1B Nondestructive Testing: Magnetic Particle, Dye Penetrant, Hallogen Gas Test, Visual Inspection, and Stress Relieving.

10) Inspection

10 a. An inspection program which verifies conformance of quality-affecting activities with requirements is established, documented and accomplished in accordance with written and controlled procedures.

10 b. Inspection personnel are independent from the individuals performing the activity being inspected.
Appendix 10-1 Quality Control Check-Off Sheets (Inspection)

11) Test Control

11 a. A test program to demonstrate that the item or component will perform satisfactorily in service is established, documented and accomplished in accordance with controlled procedures.

11 b. Modification, repairs and replacements are tested in accordance with specifications.

11 c. Written test procedures eg.: ASME or ASTM codes are followed as prescribed in specifications. Equipment is calibrated and personnel qualified as required by code specifications.
Appendix 11-1 QC Check-Off Sheet (Testing)

12) Control of Measuring and Test Equipment

12 a. Provisions, contained in procedures, describe the calibration technique and frequency, maintenance and control of measuring test equipment.

12 b. Measuring and test equipment is identified and traceable to the calibration test data.
Appendix 12-1 Equipment Testing and Calibration: Micrometers, etc.

13) Handling, Storage and Shipping

13 a. Special handling, presentation, storage, cleaning, packaging, and shipping requirements are established and accomplished by qualified individual(s) in accordance with predetermined work and inspection instructions.
Appendix 13-1 Control of cleaning, handling, storage, packing, shipping and preservation of materials.

14) Inspection Test and Operating Status

14 a. Identification of inspection, test, and operating status of packages and components is known by affected organizations.

14 b. The status of non-conforming, inoperative, or malfunctioning packages or components is identified to prevent inadvertent use.
Appendix 14-1 Identification Tags, Markings and Labels for Control of Inspection Tests and Operating Status.

15) Non-Conforming Material, Parts or Components	15 a.	The identification, documentation, segregation, review, disposition and notification to effected personnel or organizations of non-conforming materials, parts, components or services are procedurally controlled. The manager of QA has responsibility and authority for the disposition and approval of non-conforming items. The President of FBF, Inc. overviews the actions of the QA manager to assure compliance with Appendix E to 10 CFR 71. Appendix 15-1 Non-Conforming Materials
16) Corrective Action	16 a.	Evaluation of conditions adverse to quality (such as non-conformance, failures, malfunctions, deficiencies, deviations and defective material and equipment) is conducted to determine the need for corrective action in accordance with established procedures. Appendix 16-1 Corrective Action Reports
17) Quality Assurance Records	17 a.	Sufficient records are maintained to provide documentary evidence of the quality and safety of items and the activities affecting quality and safety.
	17 b.	QA records include work papers, logs; results of reviews, inspections, tests, audits and material analysis; monitoring of work performance; qualification of personnel, procedures and equipment; and other documentation such as drawings, specs, procurement documents, calibration procedures and reports; non-conformance reports; and corrective action reports.
	17 f.	Records storage facility is a concrete and steel vault located and secured to prevent loss or damage due to fire, theft or water. Appendix 17-1 QA Records retention, Duration, Location and Responsibility.
18) Audits	18 a.	Audits are performed in accordance with written procedures or check lists and conducted by trained personnel not having direct responsibility in the areas being audited.
	18 b.	Audit results are documented and then reviewed with management having responsibility in the area audited.
	18 c.	The President of FBF, Inc. takes the necessary action to correct the deficiencies revealed in the audit. Appendix 18-1 Audits: Work Areas, Activities, Items and Review of Documents and Records.

FBF, Inc.

Safety Related Structures, Systems and Components Controlled by the QA Program

The following safety related structures, systems and components are controlled by the FBF, Inc. QA program:

Nuclear Containers

2-R inner container vessel

Tube or pipe - size: I.D.; I.H.; & thickness
Threads inside tube for closure plug
Threads outside tube for closure cap
Proper sealant on threads and cap or plug
Cap or plug for 2-R closure
Label on side of 2-R e.g.; radioactive material
Cleaning 2-R tube
Welding on plate -bottom-end closure
Plate size and thickness for closure
Welding procedure qualification
Welder qualification
Material analysis - plate, tube or pipe and closure cap or plug
Identification throughout process
Documentation check-off sheets and QA records
Certification to specs
Insertion and fit inside insulation
Source holder fit inside 2-R (if applicable)
Lead shielding inside or outside 2-R or both

Insulation around 2-R

Type insulation: fiberboard, plywood, other
Certification - physical and chemical analysis of insulation (if applicable)
Sawing the insulation to size outer drum
Routering insulation to size of 2-R
Fitting insulation into outer container
Fitting insulation around 2-R
Gluing and nailing - specs
In-laying 2-R support - plywood
Maintaining specs on wall - top and bottom thickness of insulation
Documentation - check-off sheet and QA records
Certification to specs
Fitting lead shielding around inside insulation (if applicable)
Identification throughout process

Outer Protective Drum

Size drum, type, metal thickness, no. rolling hoops
Closure, cover, corrigations, metal thickness, convexity
Closure ring - gauge metal, drop forged lugs, one lug threaded
Bolt - size, nut, seal hole size and location
Vents in drum - size and location
Vent covers - type, presence
Markings - label - DOT specs - customer information on label

Paint - color - paint specs
Documents - check-off sheet QA records
Certification - embossed in drum

DOT specification certification by FBF, Inc.
QA package - certs - mill analysis - check-off sheets

QA package - storage - in vault
Audit

FBF, Inc.

Resolution of Disputes Involving Quality Between QA/QC Personnel and Other Departments

FBF, Inc. fosters a policy of cooperation between departments and employees, which is especially effective and fruitful with cross-training on jobs among the various functions in order to balance the work load. Such a policy and cooperative spirit among employees provides a strong esprit' de corps' that enhances quality and makes resolution of disputes involving quality between QA/QC personnel and other departments less of a problem.

However, when such disputes do arise, the President of FBF, Inc. fully supports the QA manager in demanding high quality work and simply settles any such dispute by edict in favor of quality after reviewing the facts of the disagreement. This is always handled in a diplomatic yet firm manner to assure on going cooperation and support of the QA program.

FBF, INCORPORATED

VENDOR EVALUATION

DATE_____ BUYER_____

1.0 Vendor - General

1.1 Vendor Name_____

1.2 Vendor Address_____

1.3 Vendor Telephone Number_____

1.4 Type of Ownership

1.4.1 Privately Owned_____

1.4.2 Publically Owned_____

1.4.3 Subsidiary_____

1.5 Usual Products or Services_____

_____

_____

_____

2.0 Organization

2.1 Key Personnel (Name and Title)

2.1.1 Engineering_____

2.1.2 Manufacturing_____

2.1.3 Sales_____

2.1.4 Contract Administration_____

2.1.5 Are Above Separate Functions?_____

2.1.6 Organizational Chart Available_____ _____
Yes/No Attached

2.2 Summary_____

_____

_____

3.0 Business Activity/Financial

3.1 Date Company Was Founded_____

3.2 Net Sales Per Year_____

3.2.1 Sales 5 years ago_____

3.3 Net Profits Per Year_____% of Sales

3.3.1 Profits 5 years ago_____% of Sales

3.4 Vendors Present Capacity_____

3.4.1 Percent of Capacity Currently Utilized_____

3.4.2 Number of Shifts_____

3.4.3 Ability to Add Additional Shifts_____

3.4.4 Expansion Plans

3.4.4.1 For Manufacturing_____

3.4.4.2 For Offices_____

3.4.4.3 For Warehousing_____

3.4.4.4 Other_____

3.5 Is Vendor involved With Government Contracts_____

3.5.1 % Of Total Sales_____

3.6 Who Is Vendors Largest Customer_____

3.6.1 % Of Total Sales_____

3.7 Average Shop Charging Rates_____

3.8 Is Annual Report Available_____ _____
Yes/No Attached

3.9 Is D & B Report Available_____ _____
Yes/No Attached

3.10 Summary_____

_____

_____

4.0 Labor Relations

4.1 Number of Employees_____

4.1.1 Office_____

4.1.2 Hourly_____

4.2 Are Employees Unionized _____

4.2.1 Office _____

4.2.2 Shop _____

4.2.3 Name of Union(s) _____

4.3 What is Status of Contract _____

4.3.1 Renewal Date _____

4.4 What is Labor History

4.4.1 Number of Strikes During Last 10 Years _____

4.4.2 Duration of Strikes _____

4.4.3 What Were The Key Issues _____

4.5 Type of Work Force

4.5.1 Skilled _____ Unskilled _____

4.6 What is Stability of Work Force _____

4.6.1 If Large Turnover - Why _____

4.7 What Is Worker Attitude _____

4.8 Summary _____

_____

_____

5.0 Facilities and Equipment

5.1 Size of Plant _____

5.1.1 Office _____

5.1.2 Plant _____

5.1.3 Storage _____

5.2 Is Equipment List Available _____ _____
Yes/No Attached

5.2.1 Approximate Average Age of Equipment _____

5.2.2 Is Equipment Suitable For Our Needs _____

5.2.3 Is Equipment Maintained Properly _____

5.2.4 Does Company Have a Preventative Maintenance Program _____

5.3 What Is The General Plant Appearance _____

5.4 Is There A Definite Work Flow Pattern _____

5.5 Will Vendor Do All Operation In House _____

5.5.1 If Not What Will Be Subcontracted _____

_____

5.6 Does Vendor Close Operations For Vacation _____

5.7 Approximate Lead Time For Product Under Consideration _____

5.8 Summary _____

_____

6.0 Energy and Availability of Raw Materials

6.1 Type of Energy Used _____

6.1.1 Any Cut Backs or Interruptions _____

6.1.2 Are Cut Backs Anticipated _____

6.2 Back Up System _____

6.2.1 What % Of Production Can Be Maintained With This Back Up System ____

6.3 Is Vendor Exeperiencing Difficulties In Obtaining Raw Materials _____

6.3.1 Does Vendor Have Alternate Suppliers _____

6.3.2 Observe Types of Raw Materials and Equipment

6.3.2.1 Are They of Good Quality! _____

6.4 Summary _____

_____

_____

7.0 Customer Vendor and Community Relations

7.1 Obtain List of Five Largest Customers and Their Telephone Numbers

_____

_____

_____

FBF, INC.
SUPPLIER QUALITY EVALUATION

TO BE COMPLETED BY BUYER

NAME OF BUYER_____

PRODUCTS OR SERVICES FOR WHICH SUPPLIER IS BEING CONSIDERED _____

_____

_____

TYPE OF QUALITY EVALUATION INITIAL ◯ REINSTATEMENT ◯ RENEWAL ◯

SIGNATURE OF BUYER_____

GENERAL INFORMATION
TO BE COMPLETED BY SUPPLIER AND RETURNED TO BUYER
*(COMPLETE THESE ITEMS ONLY IF THEY ARE APPLICABLE TO THE PRODUCT OR SERVICE YOU ARE TO PROVIDE TO FBF)

1.0 NAME OF COMPANY_____

1.1 NUMBER OF PLANTS OR FACILITIES_____

1.2 ADDRESS AND LOCATION OF PLANTS OR FACILITIES IN WHICH PRODUCTS FOR FBF WOULD BE MANUFACTURED OR SERVICES FOR FBF PERFORMED_____

_____

_____

2.0 NUMBER OF EMPLOYEES ASSOCIATED WITH PRODUCTS OR SERVICES OF INTEREST TO FBF

2.1 PRODUCTION_____

2.2 ENGINEERING_____

2.3 QA/QC_____

3.0 NAME AND POSITION OF KEY PERSONNEL INVOLVED IN:

3.1 POLICY & OVERALL MANAGEMENT_____

3.2 ENGINEERING_____

3.3 MANUFACTURING_____

3.4 QUALITY ASSURANCE_____

SUPPLIER QUALITY EVALUATION

4.0 PREVIOUS CONTRACTS:

4.1 HAS YOUR COMPANY WORKED ON NUCLEAR COMPONENTS: YES ○ NO ○

TYPE OF WORK PERFORMED: _____

_____

4.2 WHAT TYPE OF WORK, IF ANY, HAS YOUR COMPANY DONE FOR FBF? _____

_____

5.0 OUTSIDE SURVEILLANCE WITHIN PLANT OR FACILITIES AS THEY RELATE TO Q.C.:

5.1 GOVERNMENT INSPECTORS: YES ○ NO ○ IF SO, NAME AGENCY _____

_____

5.2 CUSTOMER INSPECTORS: _____

5.3 CUSTOMER INSPECTION PERMITTED: YES ○ NO ○

6.0 DOES YOUR COMPANY HAVE A WRITTEN OR DOCUMENTED QUALITY SYSTEM?

YES ○ NO ○

IF YES, INDICATE THE QUALITY SYSTEM REQUIREMENTS THAT SYSTEM IS INTENDED TO MEET: (CHECK APPROPRIATE)

○ MIL-Q-9858A

○ MIL-I-45208A

○ 10 CFR 71 APPENDIX E

○ ANSI N 45.2

○ OTHER: SPECIFY: _____

7.0 INDICATE THE ESSENTIAL ELEMENTS CONTAINED AND CONTROLLED BY WRITTEN DOCUMENTS IN YOUR QUALITY PROGRAM. ITEMS LISTED CORRESPOND TO SECTIONS OF 10 CFR 71 APPENDIX E:

○ QUALITY ASSURANCE PROGRAM (QUALITY SURVEILLANCE OR QUALITY CONTROL)

○ INDOCTRINATION AND TRAINING

○ ORGANIZATION

SUPPLIER QUALITY EVALUATION

- ◯ PROCUREMENT DOCUMENT CONTROL
- ◯ INSTRUCTIONS, PROCEDURES & DRAWINGS
- ◯ DOCUMENT CONTROL
- ◯ CONTROL OF PURCHASED MATERIAL, EQUIPMENT & SERVICES
- ◯ IDENTIFICATION AND CONTROL OF MATERIAL, PARTS & COMPONENTS
- ◯ CONTROL OF SPECIAL PROCESSES
  - ◯ WELDING
  - ◯ BRAZING
  - ◯ HEAT TREATMENT INCLUDING POSTWELD HEAT TREATMENT
  - ◯ NONDESTRUCTIVE EXAMINATION
  - ◯ PLATING
  - ◯ BENDING AND FORMING
  - ◯ CLEANING
  - ◯ OTHER
- ◯ INSPECTION
- ◯ TEST CONTROL
- ◯ CONTROL OF MEASURING & TEST EQUIPMENT
- ◯ HANDLING, STORAGE, PACKAGING, AND SHIPPING
- ◯ INSPECTION TEST AND OPERATING STATUS
- ◯ NON-CONFORMING MATERIALS, PARTS AND COMPONENTS
- ◯ CORRECTIVE ACTION
- ◯ QA AND QC RECORDS
- ◯ AUDITS

7.1 IS A COPY OF YOUR COMPANY QUALITY MANUAL AVAILABLE PRIOR TO ANY AUDIT

YES ◯ NO ◯

*8.0 IS WELDING PERFORMED BY YOUR COMPANY OR IS IT SUBCONTRACTED?

PLEASE EXPLAIN: _____

IF SUBCONTRACTED, TO WHOM? _____

8.1 PLEASE CHECK TYPES OF WELDING PROCESSES USED BY YOUR COMPANY.

- ◯ GAS WELDING (FGW)
- ◯ SHIELDED METAL ARC (SMAW)
- ◯ SUBMERGED ARC (SAW)
- ◯ GAS METAL ARC (GMAW)
- ◯ GAS TUNGSTEN ARC (GTAW)
- ◯ PLASMA ARC (PAW)
- ◯ ELECTROSLAG (ESW)
- ◯ ELECTROGAS (EGW)
- ◯ ELECTRON BEAM

*9.0 IS NONDESTRUCTIVE EXAMINATION PERFORMED ON YOUR PRODUCTS OR INVOLVED IN YOUR SERVICES

YES ◯ NO ◯

9.1 ARE NONDESTRUCTIVE EXAMINATIONS PERFORMED BY YOUR COMPANY OR SUBCONTRACTED?

EXPLAIN: _____

_____

9.2 CHECK THE TYPE OF NONDESTRUCTIVE EXAMINATION METHODS USED BY YOUR COMPANY.

- ◯ RADIOGRAPHY
- ◯ ULTRASONIC
- ◯ MAGNETIC PARTICLE
- ◯ EDDY CURRENT
- ◯ FLOURESCENT PENETRANT
- ◯ DYE PENETRANT

9.3 ARE NONDESTRUCTIVE EXAMINATION PROCEDURES QUALIFIED? YES ◯ NO ◯

9.4 ARE NDE PERSONNEL QUALIFIED TO ANY OF THE FOLLOWING:

- ◯ SNT-TC-1A
- ◯ NAVSHIPS 250-1500-1
- ◯ MIL-STD-271
- ◯ OTHER

9.5 CHECK THE CODES OR REGULATIONS TO WHICH NDE IS PERFORMED.

- ◯ NAVSHIPS 250-1500-1
- ◯ MIL-STD-271
- ◯ RDT
- ◯ ASME SECTION V
- ◯ ASIM

9.6 ARE HEAT TREATMENTS PERFORMED BY YOUR COMPANY OR SUBCONTRACTED?

EXPLAIN: _____

_____

*10.0 ARE ANY OF THE FOLLOWING HEAT TREATMENTS PERFORMED?

- ◯ ANNEALING
- ◯ NORMALIZING
- ◯ NORMALIZING WITH QUENCH COOLING
- ◯ TEMPERING
- ◯ POSTWELD HEAT TREATMENT
- ◯ STABLIZING STRESS RELIEVING
- ◯ HARDENING

10.1 HOW ARE HEAT TREATMENTS NORMALLY PERFORMED?

- ◯ GAS FURNACE
- ◯ ELECTRIC FURNACE
- ◯ OIL FURNACE
- ◯ LOCAL HEAT TREATMENTS
- ◯ OTHER _____

*11.0 PLEASE FURNISH A COPY OF YOUR QA MANUAL IF AVAILABLE, THAT MAY BE OF ASSISTANCE IN EVALUATION OF THIS REPORT.

*12.0 NAME AND TITLE OF SUPPLIER REPRESENTATIVE COMPLETING THIS SURVEY FORM.

_____

DATE: _____

FBF INC INTERNAL QA PROCEDURES

Section

12-1a Testing and Calibrating for Accuracy - Micrometers

Micrometers are used sporadically by FBF employees in determining thickness of metals, size openings, and various dimensions, and must be checked at least semi-annually (preferably quarterly) against the gage blocks by the FBF QA representative, and any minor repairs and adjustments made. If the micrometer is in error more than the allowable maximum, then it must be returned to the manufacturer for calibrating against the standards approved by the U.S. Bureau of Standards.

12-1b Care and Adjustment of Micrometers - Things FBF Employees Should Remember

The micrometer caliper and other instruments equipped with micrometer heads are vital to the control of accuracy of manufacture in the shop. FBF employees are encouraged to present the micrometers as often as once a quarter to have them checked against gage blocks, and minor repairs and adjustments are made.

This policy enables the QA inspection department to control the accuracy of those gages which are company (FBF) property. It benefits the employee by keeping the tools in first-class condition and promotes quality work.

The maintenance of this condition and the preservation of accuracy of measurements made with a micrometer are possible only if the user observes the rules of good practice. Hence:

1. A micrometer should never be stored with its measuring anvils closed, because flat surfaces wrung together for any length of time tend to corrode. To prevent this, it is good practice to leave a small gap between the anvils.
2. A micrometer should be oiled in only one place--the micrometer screw--and only with light clock oil. Using a heavy oil, which can in the course of time become gummy, makes the micrometer insensitive and may cover up an error in the screw. If a micrometer is stored for any length of time, or where it is likely to rust, it should be covered with a light film of oil and wrapped in oiled paper.
3. A micrometer caliper may be traversed several hundred-thousandths by grasping the frame and rolling the thimble along the hand or arm in several strokes. Grasping the thimble and twirling the frame to open or close a "mike" is frowned upon by good mechanics, probably because it causes excessive wear of the screw.
4. A micrometer caliper should never be used as a snap gage. The development of many types of special-purpose gages has limited the old practice of trying to make one gage or a few general gages do all of the work. Using a micrometer as a snap gage is not practical, because it does not hold its dimension well enough even with the clamp ring, and there is a real danger of springing the mechanism in gaging a slightly oversize part.
5. The accuracy of measurements made with a micrometer depends to some extent on the measuring pressure used. The "feel" necessary to produce the proper measuring pressure between the anvils is acquired

by practice and comparing measurements with precision gage blocks or some other accurate standard. It is actually possible for an expert skilled in the use of a micrometer to duplicate his readings within one half of a tenth of a thousandth of an inch. Whenever a machine operator or inspector has an opportunity, he should compare his "feel" with that of someone else to be sure that he is using the correct pressure. A gage block or accurate plug gage can be used to settle any differences.

6. Before a micrometer is used it is customary to wipe it off and to pull a piece of paper between the anvils.
7. The micrometer screw should run free with no play at any point in its travel. This adjustment is made with the nut, which causes the threaded sleeve to tighten on the screw.
8. A micrometer screw that binds or has loose points along its travel cannot be corrected with the adjustable nut. It must be returned to the gage maker. This condition is caused by abuse or uneven wear and is one of the most common ailments of micrometers.
9. The micrometer mechanism should be cleaned whenever it becomes gummy, contains an abrasive grit, or whenever it is to be adjusted.
10. The micrometer screw should be checked with a precision gage block in at least four places other than zero to verify its accuracy. The procedure consists simply of measuring a selected group of blocks.
11. In adjusting a micrometer to read correctly, the thimble is not set to zero when the anvils are in contact, but is set at some dimension so as to distribute the error. For example, if a

micrometer screw had an accumulating error of .0003 of an inch in the length of its travel and it was set correctly at zero, it would be off .0003 at one inch. However, if the caliper were set correctly, in the middle of its travel, it would be .00015 under at zero and .00015 over at one inch, which is a much better condition. It is customary to give consideration to the size of the work measured with the micrometer and to set if possible, the base somewhere near the mean. From this explanation it is obvious that just because a micrometer does not return exactly to zero when the anvils are in contact does not mean that it is not adjusted properly.

12. When the faces of the spindle and anvil become worn and they are no longer flat and parallel to each other, the error should not exceed .0002 on a micrometer which is graduated to control measurements to a limit of .001, and should not exceed .00005 on a micrometer which is graduated to control measurements to a limit of .0001. Measuring a ball at several points over the surface of the anvils will show up any error in parallelism. Parallelism can be tested by means of two different size balls. If the anvils are in error more than the allowable maximum, the micrometer usually is returned to the manufacturer for repair. The manufacturer has a standard that is checked by the U.S. Bureau of Standards for use in calibrating the micrometer.

12-1c Records of Gage Block Testing for Accuracy and Calibration Against Approved U.S. Bureau of Standards Gage Standards - Micrometers

A detailed record is maintained in the form of a log of the test checks given the micrometers as well as when it becomes necessary to

return the micrometer to the manufacturer for calibration. Such records are available for review at any time upon request. The micrometer identification, date of inspection, the QA representative's initials and a note if the micrometer is returned to the manufacturer for calibration, etc., is contained in the record.

FBF INTERNAL QA PROCEDURES

Section

15-1a Non-Conforming or Rejected Materials: How to Handle and Rework

FBF maintains an effective and positive system for controlling non-conforming materials, including procedures for the identification, segregation, presentation and disposition of reworked or repaired supplies. All non-conforming supplies are positively identified with an appropriate tag noted to prevent use, shipment and intermingling with conforming supplies. Such non-conforming materials are segregated in holding areas inside clearly marked containers marked "Rejected Materials" separate from in process conforming materials. These materials retain this special identification tag throughout any special reworking or repairing and are not returned to the mainstream of conforming materials until checked, tested and released by the QA inspector following the renewing or corrective process and the QA inspector signs or initials and dates the tag indicating acceptance. Non-conforming materials not repaired or renewed are mutilated and placed in the scrap container. Mutilation renders the material useful only as scrap.

15-1b What is Non-Conforming or Reject Material and What Happens to It?

Proper identification at the earliest step in the process is a necessary requirement for setting aside any material that does not fully meet the specifications (either the customer's prints or P.O., DOT specs, NRC requirements or FBF quality specifications).

Any employee can raise the question of quality on any material at any time and request the supervisor, plant superintendent or QA representative to check the material for meeting the quality standards.

The FBF QA inspector spot checks regularly all operations and takes random samples of material from each step in the process to determine if the production units meet all specifications. A formalized check-off sheet is used to document the QA inspection, with each item checker-marked as having passed the QA inspection or Rejected as non-conforming and tagged and removed to the Reject Container maintained in the East building next to the office. This location was selected to draw attention to the rejects and to assure close control and surveillance during the re-working, repairing or renewing operations. The QA inspector signs or initials and dates the check-off sheet for the material and operation inspected and material accepted as conforming. Rejected materials are noted on the QA check-off sheets at time they are tagged and removed to the Reject Container. At no time shall rejected material be re-worked or repaired along with conforming materials. Such operations must be performed separately under the close supervision of the supervisor or plant superintendent, and the material re-inspected by the QA inspector when completely re-worked, while retaining the Reject Tag.

Each employee must realize that quality production is the best job protection, and always strive for a high level of performance in meeting product specifications to produce a high quality product.

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