QUALITY ASSURANCE MANUAL

TO

ANSI/ASQC STANDARD Q9001

REVISION 5
DATE 7-1-96

LIGO-C950498-05-B

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DOCUMENT TRANSMITTAL

Quality Assurance Manual (QAM) and Quality Assurance Procedures (QAP's) for ANSI/ASQC Standard Q9001 (ISO 9000)

Date: September 20, 1996

TO: **Larry K. Jones**
California Institute of Technology
Controlled Copy Number - 201

FROM: **JIM C. JORDAN - HOUSTON CQA**

Attached is the current Quality Assurance Manual and QAP's for ANSI/ASQC Standard Q9001 (ISO 9000). This will entirely replace the old ISO-9000 QAM & QAP's, which should be discarded. **Don't throw away your ASME Manual(s).**

The current QAM is Revision 5 (7/1/96) and the current QAP's are controlled by the "Index for CBI Quality Assurance Procedures", Revision 12 (9/11/96).

ACKNOWLEDGE RECEIPT OF THIS DOCUMENT BY SIGNING BELOW AND RETURNING ONE COPY OF THIS TRANSMITTAL TO JIM C. JORDAN (HOUSTON CQA) BY 10/18/96. If you wish, you may respond by E-Mail. When using E-Mail, please be sure to refer to the copy number(s) you received.

If you have any questions, call me, Robert Shelton, or Ron Kruzic.

Larry K. Jones
SIGNATURE

10/7/96
DATE

cc:
1113-2-1 (Distribution)
F/U - 10/17/96

September 13, 1996

See Distribution

Attached is a complete, revised, controlled copy of the domestic Quality Assurance Manual(s) to ANSI/ASQC Q9001 and Quality Assurance Procedures.

They have been extensively revised so we elected to re-print the entire Manual and QAP's. Please discard your old ISO 9000 Manual and QAP's and begin using this revision. If you have an ASME Manual, keep it until further notice. The changes have been summarized in the "Summary of QAM Changes" and "QAP Changes for Index Revision 12" which you will find enclosed.

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Jim C. Jordan
Houston CQA

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Summary of QAM Changes
Revision 4 to Revision 5

Page/Paragraph	Changes
Entire QAM	Changed individual pages to sections.
Entire QAM	Changed "Revision Log" to "Table of Contents".
Section SOP	Added acronyms for "Quality Management System" and "Quality Assurance Manual".
Section INTRO	Added acronyms for "Quality Management System", "Quality Assurance Manual" and "Quality Assurance Procedures".
Section GLOSSARY	Added "Authorized Inspector", "Quality", "Supplier Database", "Survey" and "Traceability". Changed "Vendor" to "Supplier" and reworded definition. Added acronyms for "CAR", "COC", "ECN", "GWPS", "NCR" and "QAP". Changed acronym for "MTR".
Paragraph 1.1	Added acronyms and clarified wording.
Paragraph 1.2	Clarified wording in second sentence. Changed titles of individuals in third sentence. Changed page references in fourth sentence.
Paragraph 1.5	Added "warranty" to fifth line.
Page 3 of Section 1.0	Changed organizational chart as shown.
Page 4 of Section 1.0	Changed organizational chart as shown.
Paragraphs 2.1 & 2.2	Added acronym for "Quality Management System".
Paragraph 2.2(G)	Added "Work Instructions".
Paragraph 2.3.1	Changed "revision log" to "Table of Contents".

Summary of QAM Changes
Revision 4 to Revision 5

Page/Paragraph	Changes
Paragraph 2.3.3	Clarified second sentence.
Paragraph 2.3.5	Changed reference to "Section 5.0" to "Glossary".
Paragraph 2.3.7	Added "work instructions".
Paragraph 3.2.4	Clarified first sentence.
Paras. 3.3.3, 3.3.4 & 3.3.5	Changed "Project Manager" to "Contract Team Leader".
Paragraph 4.2	Changed "Product Engineering Supervisor" to "Engineering Manager"
Paragraph 4.3.6	Added last sentence.
Paragraph 4.3.7	Clarified first two sentences and added last two sentences concerning design validation.
Paragraphs 4.4.4 & 4.4.5	Deleted and included in ASME QC Manuals.
Section 6.0	Changed "vendors" to "suppliers" and "products" to "goods".
Paragraph 6.1	Changed "assessment" to "review and approval".
Paragraph 6.2.1	Changed "assessed" to "reviewed" and deleted "when required".
Paragraph 6.2.2	Changed "qualified vendor list" to "supplier database". Reworded entire paragraph.
Paragraph 6.4.3	Reworded paragraph for clarity.
Paragraphs 7.1, 7.2.2 & 7.2.3	Changed "products" to "material and items".
Paragraphs 7.2.1 & 7.3	Changed "material" to "material and items".
Paragraphs 8.2 & 8.3	Changed "Material" to "Products".

Summary of QAM Changes
Revision 4 to Revision 5

Page/Paragraph	Changes
Paragraphs 8.2.2 & 8.2.3	Changed "material" to "material and items".
Paragraph 9.2	Clarified which procedures.
Paragraph 9.4	Changed title of paragraph to "Procedures". Paragraph 9.4.4 became 9.4.1.
Paragraph 9.5	Added new paragraph as "Special Processes". Reworded 9.4.1 into 9.5.1. Paragraph 9.4.5 became 9.5.2. Paragraph 9.4.6 became 9.5.3 with "vendors" changing to "suppliers".
Paragraph 10.2.3	Changed "vendor's" to "supplier's" and clarified last part of sentence.
Paragraph 10.3.1	Added "examination schedules".
Paragraph 10.5.1	Added "examinations" in first line and "contract procedures" in second line. Added "when used" after "quality plans".
Paragraph 12.2.1	Deleted first sentence.
Paragraph 12.2.2	Combined "tags" and "labels". Added "reports" to "records".
Paragraph 12.3.1	Added "tags and labels, routing cards".
Paragraph 12.3.2	Added "examination".
Paragraph 14.2.1	Added "or warranty work".
Paragraphs 16.1 & 16.2.1	Changed "vendors" to "suppliers".
Paragraph 17.1	Added acronym for "Quality Management System".
Paragraphs 19.2 & 20.2	Added reference to QAP at end of sentence.

September 12, 1996

Re: QAP Changes for Index Revision 12

The following QAP's have been revised. Except for those QAP's that are extensively revised, a documented review of this summary sheet for the revised QAP's by the applicable individuals may be used for their indoctrination/training to these QAP's.

QAP 1.1 Rev. 5

1. Moved "Delegation of Authority" into "Scope".
2. Added responsibilities for "Construction Supervisor".
3. Deleted "Vice-President of Product and Technical Development" and "Vice-President of Engineering, Material Supply and Logistics"
4. Changed "Vice-President of Business Development and Operations" to "Vice-President of Operations", "Product Engineering Manager" to " Engineering Manager" and 'Project Manager" to "Contract Team Leader".
5. Changed responsibilities for "Vice-President of Operations", "President (CBI Subsidiary)", "Contract Development Manager", "Contract Team Leader" and "Welding & QC Manager".

QAP 2.3 Rev. 3

1. Changed "Contract Execution Manager" to "Contract Team Leader" in 2.1.
2. Added acronym for Contract QAP in 3.1 and 4.0.
3. Reworded 3.1.3 and 3.1.4.

QAP 2.4 Rev. 0

1. New procedure for the preparation, review and approval of work instructions. Need to review entire procedure for training purposes.

QAP 4.2 Rev. 2

1. Added "via the Contract Team Leader or Welding & QC Manager" to the end 3.4 and 3.5.

QAP 5.6 Rev. 1

1. Added new 4.3 concerning the control of on-line information that printed to execute work.
2. Changed "Corporate Management" to "Responsible Management" in 3.2 and 6.1.

Re: QAP Changes for Index Revision 12

QAP 6.1 Rev. 6

1. Changed "items" and "material" to "goods" in 3.0, 3.2 and 3.4(B).
2. Changed "Vendor" to "Supplier" throughout procedure.
3. Added reference to supplier database in 3.2 and 4.2.2.
4. Clarified requirements for suppliers of ASME work in 3.2.1.
5. Clarified requirement of acknowledgment copy of purchase order to supplier in 3.6(A).
6. Changed "Project Manager" to "Contract Team Leader" in 3.6(C).

QAP 6.2 Rev. 3

1. Extensively revised.
2. Changed "Vendor" to "Supplier" throughout procedure.
3. Changed "qualify" to "survey" throughout procedure.
4. Changed "QVL" to "Supplier Database" throughout procedure.
5. Changed "items" to "goods" throughout procedure.

QAP 6.3 Rev. 4

1. Extensively revised.
2. Changed "Vendor" to "Supplier" throughout procedure.
3. Changed "QVL" to "Supplier Database" throughout procedure.
4. Changed "assessment" to "review" throughout procedure.

QAP 6.4 Rev. 1

1. Extensively revised.
2. Changed "Vendor" to "Supplier" throughout procedure.
3. Changed "items" to "goods" throughout procedure.

QAP 7.1 Rev. 4

1. Extensively revised. Need to review entire procedure for training purposes.

QAP 7.2 Rev. 1

1. Extensively revised. Need to review entire procedure for training purposes.

Re: QAP Changes for Index Revision 12

QAP 9.1 Rev. 4

1. Added "Assembly Checklists" and "Test Procedures" to Engineering-Assigned responsibility in 2.1.
2. Added "welding and welding related procedures" to Welding & QC Manager's responsibility in 2.3.
3. Clarified wording in 5.2(F).
4. Changed "Project Manager" to "Contract Team Leader" in 6.1.
5. Changed "Project Manager" to "Engineering-Assigned" and added reference to CBI Standard 590-1-4 in 10.1.
6. Added "Shop Check Lists" to 10.1.1.

QAP 9.2 Rev. 6

1. Added "welding operator" with "welder" in all paragraphs of 4.0.

QAP 9.3 Rev. 4

1. Changed the Welding & QC Manager responsibility to coordinating the preparation of heat treating procedures in 2.1.
2. Added "any applicable" to 3.4(B)&(C).
3. Deleted 3.5 as it is covered in 3.3.
4. Added text concerning attaching thermocouples directly to the item by welding to renumbered 3.5.

QAP 9.4 Rev. 3

1. Changed "Project Manager" to "Contract Team Leader" in 2.1 and 2.2.
2. Excluded welding, NDE and PWHT procedures from 2.2 for CTL.
3. Combined 3.2 into 2.2.
4. Clarified wording in 4.0 and 5.0.

QAP 10.1 Rev. 6

1. Clarified in 3.1.3 what happens when received items are not acceptable.
2. Added reference to CBI Standard 607-3 in 3.1.5.
3. Added additional paragraph to 3.1.5 concerning items originally planned to be shop assembled may be field assembled or vice versa without revising the drawings.
4. Clarified in 3.2.4 that MTR's may be hard copy or electronic transfer.

Re: QAP Changes for Index Revision 12

QAP 10.2 Rev. 5

1. Moved first sentence of 3.1.1 into 2.1.
2. Clarified that Welding & QC Manager signsoff on the Shop Release for Shipment Checklist in 4.2.1(B).
3. Clarified who witnesses pressure tests in 5.1.2.
4. Added "when required" for making chart records of pressure tests in 5.1.2.1.
5. Clarified wording in 6.0.

QAP 10.4 Rev. 3

1. Changed "Engineering Team Leader" to "Engineering-Assigned" in 4.1.
2. Deleted 4.3 and 4.4.
3. Moved old 4.4(A)&(B) to new 4.3.
4. Made change to 5.1 similar to that in QAP 1.1.
5. Added reference in 6.2 to QAP 16.2 for maintaining copies of Manufacturer's Data Reports.
6. Added new 6.3 for repairs and alterations to pressure retaining items.
7. Deleted 7.1.
8. Added reference to QAP 16.1 and QAP 16.2 in 7.0.

QAP 11.1 Rev. 2

1. Complete new rewrite. Revision 1 had previously been deleted from the QAP Handbook. Need to review entire procedure for training purposes.

QAP 13.1 Rev. 5

1. Changed "Project Manager" to "Contract Team Leader" in 3.6.2.1.
2. Only the Welding & QC Manager determines disposition of nonconforming items in 3.8.
3. Clarified wording in 4.2.

QAP 14.1 Rev. 3

1. Changed "Project Manager" to "Contract Team Leader" in 2.2 and 4.1.
2. Changed responsibility for customer complaints from "Business Development Manager" to "Contract Team Leader" in 2.3, 3.2 and 5.2.
3. Changed "vendor" to "supplier" in 3.1(E), 4.7 and 4.7.1.

Re: QAP Changes for Index Revision 12

QAP 16.1 Rev. 4

1. Added 3.6.4 for organization and storage of records and deleted 3.9.1.
2. Changed "Project Manager" to "Contract Team Leader" in renumbered 3.9.1 and 3.9.2.

QAP 16.2 Rev. 1

1. Extensively revised. Removed the retention periods and referenced CBI Standard 590-1-4 instead. Added "Responsibilities" section.

QAP 17.1 Rev. 5

1. Extensively revised. Need to review entire procedure for training purposes.

QAP 18.7 Rev. 0

1. New procedure for the qualification and training of Construction Welding & QC Personnel. Need to review entire procedure for training purposes.

QAP 19.1 Rev. 3

1. Expanded the documentation requirements for material or welded assemblies supplied by others in 2.6(A).
2. Clarified that the Contract Team Leader presents the originals of R forms to the Inspector at the end of 3.1.4.

The following QAP's have minor changes. A documented review is not required for minor changes.

QAP 1.2 Rev. 1

1. Changed "Project Manager" to "Contract Team Leader" in 3.11.
2. Deleted "when required" in 3.13.

Re: QAP Changes for Index Revision 12

QAP 2.1 Rev. 3

1. Added acronym for Quality Management System in 1.0, 2.1 and 3.1.1.
2. Clarified signoff by Corporate QA Manager for QAP's and QAP index in 3.3.3 (A).
3. Clarified the coordination of the preparation of procedures by the Contract Team Leader in 3.5.2.

QAP 2.2 Rev. 3

1. Changed "Contract Execution Manager" to "Contract Team Leader" in 3.1 and 3.2.

QAP 3.1 Rev. 4

1. Added "Opportunity Development" in Title.
2. Added acronym for Contract Development Manager in 2.1, 3.1.1 and 3.3.4 thru 3.3.7.
3. Deleted "Product" in title of Engineering Manager in 2.3 and 3.1.2.

QAP 3.2 Rev. 4

1. Added acronym for Contract Development Manager in 2.1 and 3.1.1.
2. Changed "Project Manager" to "Contract Team Leader" in 2.2, 2.3, renumbered 3.1.2, 3.2.1, 3.2.3, 3.2.4 and 4.0.
3. Deleted 2.4, 2.5, and 3.1.2 from procedure.

QAP 4.1 Rev. 5

1. Clarified wording in 3.1.1.
2. Changed "Engineering Team Leader" to "Engineering-Assigned" in 3.5.5.

QAP 5.1 Rev. 4

1. Changed "Product Engineering Manager" to "Engineering-Assigned" in 2.0.
2. Changed "Project Manager" to "Contract Team Leader" in 2.0 and 4.2.

QAP 5.2 Rev. 4

1. Changed "Project Manager" to "Contract Team Leader" in 3.1.2 and 3.1.8.
2. Added QAP reference to 3.1.3.
3. Changed "Engineering Team Leader" to "Engineering-Assigned" in 3.2.2.

Re: QAP Changes for Index Revision 12

QAP 5.4 Rev. 5

1. Changed "Project Manager" to "Contract Team Leader" in 2.2.

QAP 5.5 Rev. 3

1. Changed "Project Manager" to "Contract Team Leader" throughout procedure.

QAP 10.3 Rev. 4

1. Changed "Project Manager" to "Contract Team Leader" in 2.0.

QAP 12.1 Rev. 3

1. Changed "shall" to "may" in 3.1.1.

QAP 15.1 Rev. 3

1. Changed "Project Manager" to "Contract Team Leader" in 2.2 and 8.0.

QAP 18.1 Rev. 4

1. Added General Manager of Corporate Welding & QA to 4.2.

QAP 18.2 Rev. 1

1. Corrected title of General Manager of Corporate Welding & QA, Corporate QA Manager and Welding & QC Supervisors throughout procedure.
2. Changed "craftsman' to "craft personnel" throughout procedure.

QAP 18.4 Rev. 1

1. Changed "Plant Manager" to "Manufacturing Manager" in 2.1.
2. Changed "Welding Supervisors" to "Welding & QC Supervisors" in 3.3.

QAP 18.5 Rev. 1

1. Changed "Plant Manager" to "Manufacturing Manager" in 2.1.
2. Changed "Project Manager" to "Contract Team Leader" in 3.3.

Re: QAP Changes for Index Revision 12

QAP 18.6 Rev. 1

1. Deleted "Kankakee" from title.
2. Changed "Plant Manager" to "Manufacturing Manager" in 2.1.
3. Changed "approximately" to "appropriately" in 3.4.

R. E. Shelton
Houston CQA

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QUALITY ASSURANCE MANUAL

TO

ANSI/ASQC STANDARD Q9001

REVISION 5
DATE 7-1-96

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CHICAGO BRIDGE & IRON COMPANY

MISSION

Chicago Bridge & Iron Company provides specialty engineering, fabrication, project management, construction and related services to build and maintain facilities and equipment for industry, utilities and government agencies worldwide.

We will strive to be a company recognized for its dedication to safety, quality and performance, and an organization where our customers, suppliers and our own employees are treated fairly and honestly.

VALUES

Fundamental to achieving our Mission are these basic values:

- People - our people, working together, are the source of our strength. Their knowledge, ingenuity, resourcefulness, and honesty are the windows through which we are judged.

- Products and Services - our products and services are the results of our efforts. Their quality and reliability establishes our worth to our customers.

- Profits - profits are the ultimate measure of how efficiently we provide our customers with the best products and services for their needs. Profits are essential to survive and grow.

GUIDING PRINCIPLES

- Customers are the focus of everything we do - all our work must be done with the satisfaction of our customers in mind. We must understand and meet their current and future needs.

- Continuous improvement is essential to our success. We must strive for excellence in everything we do. Quality, safety, performance and an environment that encourages employee participation are essential to the improvement process.

- We need to establish long term relationships with customers, suppliers, and partners that are mutually rewarding and are based on loyalty, trust and integrity.

- We will offer training and education for our people and strive to provide them challenging and fulfilling career opportunities and an environment that fosters employee ownership and involvement. Growth of our company will occur only through growth of our people.

- We will continue to conduct our business according to the highest ethical standards both as individuals and as a corporations.

Our Mission, Values, and Guiding Principles require a long term focus. Leadership throughout the organization will ensure that actions and decisions are consistent with our commitment to these principles.

TABLE OF CONTENTS

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Authorized Ronald W Kuzyk Date 8/23/96

Corporate QA Manager

STATEMENT OF POLICY

It is Chicago Bridge & Iron Co. (CBI) policy to maintain an effectively managed Quality Management System (QMS) to assure that the quality level of our work meets or exceeds the requirements of ANSI/ASQC Standard Q9001-1994 (ISO 9001), pertinent specifications and this Quality Assurance Manual (QAM).

The objective is to provide an effective quality system by preventing nonconformities during all phases of the work and to satisfy the needs of our customers.

This manual has been reviewed by management. They concur with and endorse this manual and the implementation and maintenance of the QMS which it describes.

Ronald W Allen — 8/20/96

President
Chicago Bridge & Iron Co.

Date

Ronald W Knuppi — 8/19/96

Corporate QA Manager

Date

INTRODUCTION

This Quality Assurance Manual (QAM) documents the Quality Management System (QMS) adopted by CBI for quality management of operations at CBI offices, shops and field construction sites. This System complies with ANSI/ASQC Standard Q9001-1994.

The implementation of this QMS will ensure that the necessary resources are applied to contracts undertaken resulting in quality work for the benefit of CBI and its customers.

Quality Assurance Procedures (QAP's) and referenced CBI Standards provide additional instructions utilized in conjunction with this manual.

If necessary, an Addendum to this manual may be prepared to address specific contractual requirements.

This manual does not apply to customer directed work where CBI provides personnel who work under the customer's QA program.

GLOSSARY

ACCEPT, ACCEPTANCE, ACCEPTED, APPROVAL, APPROVE, APPROVED
Acknowledge, by signoff, that a document or activity has been evaluated and confirmed to meet stated requirements.

AS NECESSARY/WHEN NECESSARY
Decision is a matter of judgment.

AS REQUIRED/WHEN REQUIRED
Decision is contained in codes, CBI Standards, CBI instructions or Quality Assurance Procedures, or customer documents.

AUTHORIZATION
The signoff, on a document, of the individual who confirms that internal review and approval of the document was completed and all comments were resolved.

AUTHORIZED INSPECTOR (AI)
An employee of the Authorized Inspection Agency with which CBI has an agreement to supply inspection services required by ASME and NBIC.

CBI STANDARDS
A series of documents (commonly referred to as Red Book Standards) issued with the full authority of CBI Management. These Standards contain proprietary information and cannot be copied or distributed outside of CBI.

CODE
The code or codes, specified in the customer documents, for design, fabrication and installation.

CONSTRUCTION
The organization that performs fabrication and/or installation, located at the field site.

CUSTOMER DOCUMENTS
Design specifications, design drawings and instructions sufficient for establishing the basis for fabrication and/or installation.

DESIGN CALCULATIONS
A set of calculations which establish product adequacy, provide a basis for ordering and identification of material and justify contract drawing release for use.

DESIGN INPUT
Information obtained from code, statutes, regulations and customer documents.

DESIGN OUTPUT
Design calculations, design sketches, stress analyses or other forms of written communication which define product configuration and size, and identify material specifications.

DETAIL DRAWINGS
Engineering drawings that show the details required for materials, fabrication and installation. Also drawings that contain quality assurance or documentation requirements. Does not include record drawings, cutting sketches, loading diagrams, shop template drawings, etc.

DOCUMENT
Hardcopy or electronic record such as manuals, procedures, process control documents and reports.

ELECTRONIC RECORD
Information or data stored in a form that only a computer can read or process.

ENGINEERING-ASSIGNED
The Engineering group responsible for design and detail activities.

HOLD POINT
A point in which work may not proceed until the individual or agency requesting the hold releases it.

MANUFACTURING
The organization that performs fabrication or shop assembly located at a permanent CBI facility (SHOP).

PROCEDURE - (WORK INSTRUCTIONS)
A document that specifies or describes how an activity is to be performed. It may include methods to be used, equipment to be used and sequence of operations.

PROCESS CONTROL DOCUMENTS
Checklists used for the control and documentation of operations.

PROCUREMENT SPECIFICATIONS
Written specifications for items and services, which include all technical and quality assurance requirements needed by a vendor.

QUALITY
Totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs.

QUALITY PLAN
A document setting out the specific quality practices, resources, and sequence of activities relevant to a particular product, project or contract.

RECORD
A document in hardcopy or electronic (floppy, compact disk, harddisk, etc.) form used to set down permanent information or data.

RECORD DRAWING
A drawing or sketch which is used to record examinations, tests, identity of operations, compliance with procedures, material identification and/or dimensions not specified on detail drawings.

RESPONSIBLE MANAGEMENT
Management individual with direct responsibility for performing activities.

REVIEW
Evaluation for the purpose of acceptance or rejection.

SIGNOFF
The dated (month/day/year), written signature or written initials of an individual for hardcopy documents or the dated mark or symbol traceable to an individual for electronic documents.

SUPPLIER
A company supplying goods or services.

SUPPLIER DATABASE
An information system that lists all suppliers classified by CBI, the supplier's relevant credentials, capabilities, experience, performance measures and a CBI contact person.

SURVEY
A documented evaluation of a supplier's ability to meet subcontract requirements as verified by a determination of the adequacy of the supplier's quality system and by a review of the implementation of that system at the location of the work.

TRACEABILITY
The ability to verify the history, location or application of an item by means of recorded identification.

USE-AS-IS
A disposition that does not violate any code requirements. This disposition may require technical justification which may involve reconciliation with the design.

WELDERS
Welders and welding operators.

WELDING MATERIALS
Coated electrodes, filler metals, fluxes, welding studs and consumable inserts.

WITNESS POINT
A point in which work may proceed providing prior notification was given to the individual or agency requesting the witness point.

WRITTEN REQUISITIONS
Bills (advance or final), shipping orders or instructions that contain all technical and quality assurance information needed for procurement.

ASME	-	American Society of Mechanical Engineers
CAR	-	Corrective Action Request
COC	-	Certificate of Compliance
ECN	-	Emergency Change Notice
GWPS	-	General Welding Procedure Specification
ID	-	Identity
MS	-	Material Specification
MTR	-	Material (Manufacturer's) Test Report (may be referred to as CMTR or CTR)
NBIC	-	National Board Inspection Code
NCR	-	Nonconformance Report
NDE	-	Nondestructive Examination
PO	-	Purchase Order
POT	-	Print Order and Transmittal
PQR	-	Welding Procedure Qualification Record
PWHT	-	Post Weld Heat Treatment
QAM	-	Quality Assurance Manual
QAP	-	Quality Assurance Procedure
QMS	-	Quality Management System
RIR	-	Receiving Inspection Report
SRSCL	-	Shop Release for Shipment Check List
WMS	-	Weld Material Specification

WMT	-	Weld Material Testing Specification
WPQ	-	Welder Performance Qualification Test
WPS	-	Welding Procedure Specification

1.0 MANAGEMENT RESPONSIBILITY

1.1 Scope

The Quality Management System (QMS) described in this Quality Assurance Manual (QAM) has been reviewed by the management of CBI. They concur with and endorse this QAM and the implementation and maintenance of the QMS which it describes.

1.2 Responsibility and Authority

The President of Chicago Bridge & Iron has overall responsibility and authority for all work. The responsibility and authority for execution of individual projects is delegated to the presidents of CBI subsidiaries. The president of each subsidiary works with the President of CBI Technical Services Co. and the Vice-President of Operations in order to execute all aspects of a project. See organizational charts on pages 3 and 4 of Section 1.0. Specific responsibilities for each member of the management team are described in a QAP.

1.3 Resources

Managers shall identify resource requirements applicable to their work and shall provide sufficient and appropriate resources including trained personnel for the work.

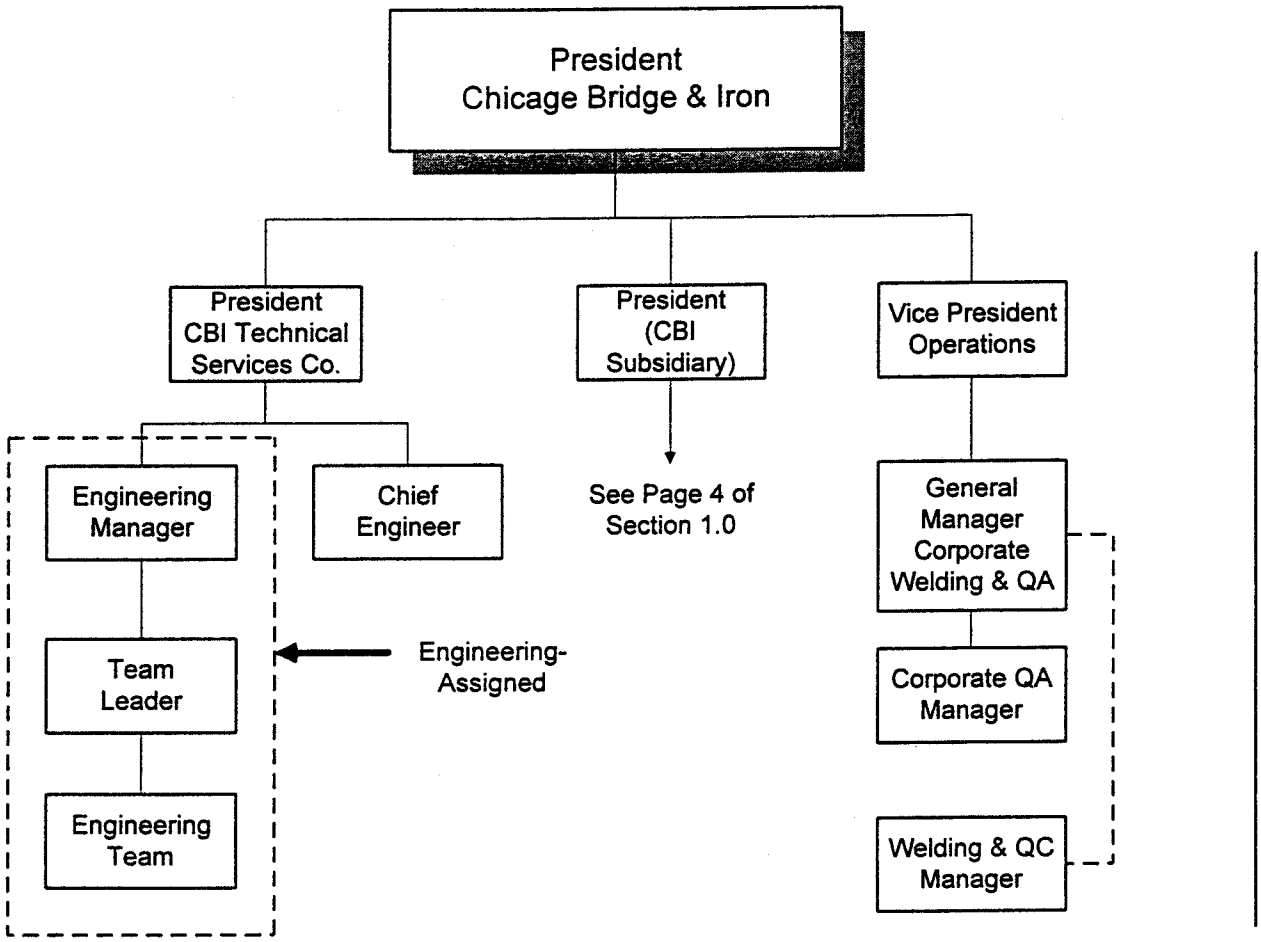
1.4 Management Representative

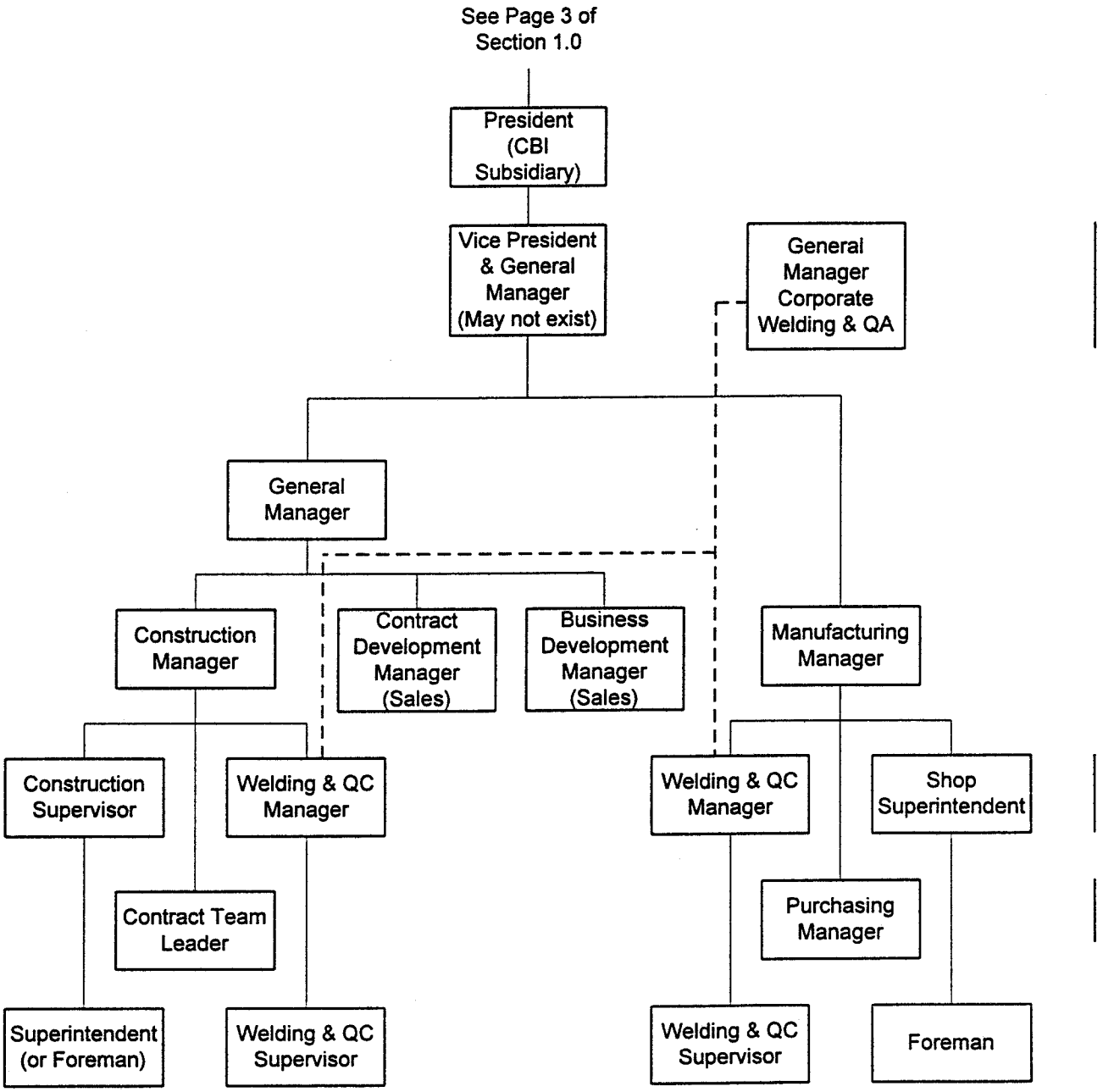
1.4.1 The Corporate QA Manager is the Management Representative and has the authority and responsibility for implementation, maintenance and improvement of CBI's QMS. The Corporate QA Manager has the organizational freedom and authority to:

1. initiate action to prevent the occurrence of nonconformities;
2. identify and document any quality problems;
3. initiate, recommend or provide solutions to problems;
4. verify the implementation and performance of solutions;
5. control further use of nonconforming materials and products until the deficiency or unsatisfactory condition has been resolved.

1.5 Management Review

The Corporate QA Manager shall review QMS/QAM on an ongoing basis to ensure its continued suitability and effectiveness in satisfying the requirements of ANSI/ASQC Standard Q9001-1994 and the QAM Statement of Policy. Methods of determining this include: a thorough review of the results of internal audits, NCRs, CARs, warranty and customer complaints. The Corporate QA Manager reports the results of this review, in writing, annually to the President of CBI. These reports shall be maintained by the Corporate QA Manager.


President
Chicage Bridge & Iron
President
CBI Technical
Services Co.
President
(CBI
Subsidiary)
Vice President
Operations
Engineering
Manager
Chief
Engineer
See Page 4 of
Section 1.0
General
Manager
Corporate
Welding & QA
Team
Leader
Engineering-
Assigned
Corporate QA
Manager
Engineering
Team
Welding & QC
Manager


See Page 3 of Section 1.0
President (CBI Subsidiary)
Vice President & General Manager (May not exist)
General Manager Corporate Welding & QA
General Manager
Construction Manager
Contract Development Manager (Sales)
Business Development Manager (Sales)
Manufacturing Manager
Construction Supervisor
Welding & QC Manager
Welding & QC Manager
Shop Superintendent
Contract Team Leader
Purchasing Manager
Superintendent (or Foreman)
Welding & QC Supervisor
Welding & QC Supervisor
Foreman

2.0 QUALITY SYSTEM

2.1 Scope

The CBI Quality Management System (QMS) provides quality assurance by exercising control over activities affecting quality and through proper identification, distribution, collection and maintenance of quality documentation and records.

2.2 Structure of the QMS

The QMS adopted by CBI has seven basic components :

A. Quality Assurance Manual (QAM)

B. Contract Addenda

C. Quality Assurance Procedures (QAPs)

D. Quality Plans

E. CBI Standards

F. Contract Procedures

G. Work Instructions

2.3 Authorization of the QMS

2.3.1 This QAM is authorized for use by signature of the President and the Corporate QA Manager on the Statement of Policy. The Corporate QA Manager shall sign the Table of Contents to verify revisions listed .

2.3.2 Contract Addenda contain additions to QAM subjects as required to meet customer requirements. The Welding & QC Manager shall authorize Contract Addenda for use.

2.3.3 QAPs contain additional instructions for the performance of quality functions that are described in the QAM. QAPs are authorized for use by the Corporate QA Manager's signoff. Special QAPs issued for a contract may be authorized by either the Corporate QA Manager or the Welding & QC Manager.

2.3.4 Quality Plans, when used, describe the quality planning for a project or process and address quality activities and practices applicable to specific contracts, products or service lines. The Welding & QC Manager shall authorize Quality Plans for use.

2.3.5 CBI Standards are defined in the Glossary. Responsible Management shall authorize CBI Standards for use.

2.3.6 Contract Procedures are described in Section 9.0. Responsible Management shall authorize contract procedures for use.

2.3.7 Work instructions, when used, are detailed procedures used to:

A. Ensure completion of a task or operation.

B. Cover functions performed within a department.

C. Cover functions between two or more departments.

Responsible management shall authorize work instructions for use.

3.0 CONTRACT REVIEW

3.1 Scope

This section describes the pre-contract and post-award reviews of customer documents for adequacy to form the basis for design, fabrication and installation.

3.2 Pre-Contract Review of Customer Documents

3.2.1 The Contract Development Manager (Sales) shall send customer documents, as necessary, to Responsible Management for review.

3.2.2 The customer documents shall be reviewed to ensure that:

A. The requirements are adequately defined to form a basis for design, fabrication and installation of the work.

B. The capability exists within the organization to meet the contractual requirements.

3.2.3 Personnel responsible for reviewing the customer documents shall provide their comments to the Contract Development Manager.

3.2.4 The Contract Development Manager shall coordinate the resolution of comments with the customer prior to the Business Development Manager entering into a contract. The Contract Development Manager shall maintain records of the pre-contract reviews.

3.3 Post-Award Review of Contract Documents

3.3.1 The Contract Development Manager shall distribute the contract documents to those responsible for executing the contract.

3.3.2 Contract documents revised after contract award shall be reviewed by those responsible for executing the contract.

3.3.3 Personnel responsible for executing the contract shall provide their comments on revised requirements to the Contract Team Leader.

3.3.4 The Contract Team Leader shall coordinate the resolution of comments on revised requirements with the customer. The Contract Team Leader shall maintain records of the post-award reviews.

3.3.5 The Contract Team Leader shall advise all involved organizations within CBI of any changes to contract requirements.

4.0 DESIGN AND DETAIL ENGINEERING CONTROL

4.1 Scope

This section establishes the requirements for the control, verification, and validation of design and detail engineering to ensure contract requirements are met.

4.2 Activity Assignment

Engineering responsibilities are assigned to "Engineering-Assigned" by the Engineering Manager. Design activities are assigned to qualified personnel equipped with adequate resources. The Engineering Team Leader identifies the need for interaction with other groups.

4.3 Design Control

4.3.1 Design control activities are accomplished in accordance with CBI Standard 590-1-8.

4.3.2 For contracts where CBI has no contractual design responsibility, refer to CBI Standard 170-0-3.

4.3.3 Design Input

4.3.3.1 Design input shall be obtained from the code and customer documents and from statutory and regulatory requirements. The input requirements shall be reviewed to ensure that they contain sufficient design input information to form the basis for design. Responsible Management shall resolve any conflicting or ambiguous requirements.

4.3.4 Design Output

4.3.4.1 Design output shall meet all design input requirements.

4.3.4.2 Design output shall include or reference acceptance criteria.

4.3.4.3 Design output may be in the form of hand calculations, design sketches and design specifications or may be in electronic form including computer generated documents, calculations and graphical representations.

4.3.4.4 Design Output shall be logically organized and sufficiently detailed such that a person technically qualified can review and understand the analysis without recourse to the preparer.

4.3.5 Design Review of New Product Designs

Reviews of design output shall be planned and conducted at appropriate intervals of the design process for product not adequately covered by design codes. Representatives of all involved functions including specialist personnel shall participate in the design review. Results of the design review shall be documented.

4.3.6 Design Verification

Calculations, analyses, and design sketches shall be prepared and independently verified at appropriate stages by Engineering-Assigned to establish that design input requirements are met. Design verification measures shall be recorded.

4.3.7 Design Validation

Designs shall be validated when required by customer specifications or when determined to be required by Engineering-Assigned. Validation shall confirm the adequacy of the design to the defined operating conditions. Validation may be done by testing of models or prototypes or may be done on the final product by proof tests or commissioning tests. When calculations are generated by computer programs previously tested, approved, and controlled by Engineering Management, only verification of the application and input data is required. For all other programs used to generate calculations, the correctness of the program logic shall be verified by the checker.

4.3.8 Design Changes

Design changes shall be identified and shall be handled in the same manner as the original.

4.4 Detail Drawings

4.4.1 Detail drawings shall be prepared and independently checked by Engineering-Assigned.

4.4.2 Detail drawings shall contain information sufficient in detail to fabricate and construct the product, when used in conjunction with procedures.

4.4.3 Detail drawings shall be reviewed by Engineering-Assigned for conformance with the design output.

4.5 Written Requisitions

4.5.1 Written Requisitions (except for weld material) shall be prepared by Engineering-Assigned.

4.5.2 Written Requisitions shall contain technical and quality assurance information needed for procurement. Material procurement specifications shall be used, when required.

5.0 DOCUMENT AND DATA CONTROL

5.1 Scope

This section covers the system for the control and distribution of procedures and engineering documents. Procedures and documents shall be reviewed and approved for adequacy by authorized personnel prior to issue. Procedures and documents may be distributed in hardcopy (paper) or distributed using e-mail, floppy disk or electronically on line.

5.2 Document Control and Distribution

5.2.1 Engineering documents and procedures are distributed or made available electronically on-line to those requiring them to perform their work.

5.2.2 Except for electronically on line distributions, lists shall be established to enable users to identify current revisions.

5.2.3 The current issue of documents appropriate to the performance of specific tasks shall be available where the work is being performed.

5.2.4 Obsolete documents shall be promptly removed from all work locations including their point of issue and disposed of or adequately marked to indicate that the documents are void.

5.3 Document Changes/Modifications

5.3.1 Changes or modifications to contract documents shall be reviewed and approved by those individuals who performed the original review and approval unless noted otherwise. Any information needed to substantiate a change shall be available to the person responsible for review and approval of the change.

5.3.2 The change shall be identified in the document.

5.3.3 A document shall be reissued whenever a change, modification or revision has been made to it.

5.4 CBI Standards

Standards are issued from CBI Corporate offices. Selective distributions have been established to provide individuals with the standards they require to perform their work. Revisions are issued to holders of sets containing those standards. The standards indicate the departments responsible for maintenance and authorization for use.

6.0 PURCHASING

6.1 Scope

This section establishes the requirements for the review and approval of suppliers and the purchase and verification of goods and services.

6.2 Approval of Suppliers

6.2.1 Suppliers shall be reviewed by the Purchasing Manager with the assistance of other Responsible Management as necessary.

6.2.2 When suppliers are approved, the Purchasing Manager shall update the supplier's rating in the supplier database to the "Approved Supplier" classification.

6.3 Purchasing

6.3.1 Purchasing shall prepare Purchase Orders (PO) for goods and services in accordance with written requisitions. Substitution of material shall be made only with Engineering-Assigned approval.

6.3.2 "Approved Suppliers" shall be utilized when required.

6.3.3 The PO, including any referenced attached procurement specifications, shall contain the technical and QA information needed to satisfy the contract requirements.

6.3.4 The PO shall specify controls to be exercised over suppliers which may include:

A. Notification of hold, witness, inspection and verification points.
B. Resolution of supplier nonconformances.
C. Notification of audit requirements.

6.3.5 The Purchasing Managers signature on the PO shall signify that he has reviewed and approved it for adequacy of specified requirements prior to release.

6.4 Verification of Purchased Goods and Services

6.4.1 Supplier drawings, calculations, documents and procedures, shall be reviewed and approved by Responsible Management, as necessary.

6.4.2 Purchased goods shall be inspected at the source or upon receipt for identity, compliance with the PO and shipping damage. The Customer shall be afforded the right to verify at source or upon receipt that purchased product conforms to specified requirements.

6.4.2.1 The results of receiving inspections shall be documented on Receiving Inspection Reports (RIR) when required.

6.4.2.2 Accompanying documentation (e.g., MTR, COC) shall be reviewed by the Purchasing Manager for completeness, correctness and compliance with the requirements in the PO.

6.4.2.3 The transfer of MTR or COC documentation from the manufacturer may be done electronically.

6.4.3 Users of the services are responsible for verifying conformance with the PO.

7.0 CONTROL OF CUSTOMER SUPPLIED PRODUCT

7.1 Scope

This section establishes the requirements for the verification and identification of material and items supplied by the customer.

7.2 Verification of Customer Supplied Product

7.2.1 Material and items supplied by the customer shall be inspected upon receipt for proper identification, shipping damage and any special contract requirements prior to release for use.

NOTE: It is the customer's responsibility to ensure that customer supplied material and items has been inspected and tested, complies with specified requirements, and has the required documentation.

7.2.2 Any material or items that are lost, damaged, rendered unusable, received without proper documentation or inadequate identification shall be documented and reported to the customer for disposition.

7.2.3 All documentation accompanying customer supplied material or items shall be filed in accordance with contract requirements.

7.3 Identification of Customer Supplied Products

Customer supplied material and items may be identified using the customer's identification system. Alternatively, the CBI identification system described in Section 8.0 may be used.

8.0 PRODUCT IDENTIFICATION AND TRACEABILITY

8.1 Scope

This section establishes the requirements for identification and traceability of material and items during fabrication, delivery and installation.

8.2 Identification and Traceability of CBI Supplied Products

8.2.1 Engineering-Assigned shall prepare contract drawings, procurement specifications and written requisitions which identify the material and items required.

8.2.2 Purchasing shall assign (apply) material and items for a specific contract on the Final Bills.

8.2.3 When required, the Superintendent shall identify material and items with markings, tags or labels so that traceability can be maintained throughout the fabrication and installation processes.

8.3 Identification and Traceability of Customer Supplied Products

See Section 7.0 for identification requirements. The CBI traceability system shall be used.

9.0 PROCESS CONTROL

9.1 Scope

This section identifies the controls required to effectively perform fabrication, installation and servicing processes.

9.2 General

Work on a contract is executed in accordance with detail drawings, written requisitions and procedures (e.g. welding, NDE, testing, heat treatment, etc.). Work is controlled, as required, by the use of process control documents.

9.3 Controlled Conditions

Fabrication, installation, and service activities directly affecting the quality of the product shall be identified and planned to ensure that these processes are performed under suitably controlled conditions. Controlled conditions shall include:

A. Approved procedures which include acceptance criteria when applicable and which comply with referenced standards or Codes and quality plans (when used).

B. Efficient utilization of fabrication and installation equipment and suitable working environment.

C. Monitoring and control of process parameters and product characteristics throughout the fabrication and installation processes.

D. Maintenance of equipment used to assure continued process capability.

9.4 Procedures

9.4.1 CBI Standards contain standard procedures and instructions for the preparation of procedures.

9.4.2 Procedures shall be qualified when required and shall contain acceptance criteria as specified in applicable codes and contract documents.

9.4.3 Equipment and personnel shall be qualified when required.

9.5 Special Processes

9.5.1 Contract procedures for special processes, which are highly dependent on the control of the process or the skill of the operator, or both, in which the specified quality cannot be readily determined by inspections, tests or examinations, shall be generated.

9.5.2 Special processes shall be monitored by qualified supervision.

9.5.3 When suppliers are employed for special processes, they shall be subject to all contract requirements.

10.0 INSPECTION AND TESTING

10.1 Scope

This section outlines the inspection and testing activities and controls for verifying material conformity to specified requirements.

10.2 Receiving Inspection

10.2.1 Incoming items shall be inspected for damage and identity and verified as complying to specified requirements prior to being released for use. In special circumstances, unverified or nonconforming material may be released provided it is positively identified and recorded so that, in the event of a nonconformity, it can be identified and held for disposition.

10.2.2 Receiving inspection and verification shall be performed in accordance with written procedures or quality plans.

10.2.3 Consideration shall be given to the supplier's quality control activities and documentation when determining the level of receiving inspection that is required.

10.2.4 Nonconforming material identified by receiving inspection shall be handled in accordance with established procedures.

10.3 Inspection and Testing

10.3.1 Drawings, inspection and testing checklists, examination schedules, contract procedures or quality plans (when used) shall identify the location and frequency of examinations, inspections and tests.

10.4 Final Inspection

10.4.1 Final inspection for completion of the product and associated documents shall be performed.

10.4.2 No item shall be released to the Customer until all activities, including inspections, examinations and tests have been completed and all associated records and data are available and accepted.

10.5 Inspection and Test Records

10.5.1 Records of examinations, inspections and tests shall be made as required by drawings, contract procedures, quality plans (when used), etc., to provide evidence of the results and shall identify those individuals performing, approving or releasing the item or activity.

11.0 CONTROL OF INSPECTION, MEASURING AND TEST EQUIPMENT

11.1 Scope

This section describes the methods used to assure that inspection, measuring and test equipment used in activities affecting quality are properly controlled, calibrated and maintained.

11.2 Identification of Measurements

Drawings and procedures identify measurements to be made.

11.3 Inspection, Measuring and Test Equipment

11.3.1 The Corporate Calibration Program establishes requirements for the control of calibration and maintenance of measuring and testing equipment (including test software used for inspection).

11.3.2 The Corporate Calibration Program includes the following:

A. Type of equipment requiring calibration

B. Equipment identification requirements

C. Location of equipment (when required)

D. Calibration procedure to be used for each type of equipment

E. The method of calibration , including basis for calibration

F. Acceptance and rejection criteria for calibration

G. Required frequency of calibration or verification of calibration

H. Calibration record requirement

I. Requirements for action to be taken when equipment is found out of calibration

d

11.4 Equipment Selection and Use

The selection of inspection, measuring and test equipment shall be based on:

A. The type of measurements to be made.

B. The degree of accuracy required.

12.0 INSPECTION AND TEST STATUS

12.1 Scope

This section identifies the controls for verifying the status of inspections, examinations and tests.

12.2 Verification Controls

12.2.1 The status of inspections, examinations and tests shall be maintained at all stages of the fabrication and installation process. Such identification ensures that only products which have passed the required inspections, examinations and tests are accepted for use.

12.2.2 The status of inspections, examinations and tests shall be by any one or a combination of the following methods and shall include the identification of conforming and nonconforming products:

A. Temporary markings.

B. Authorized symbols or stamps.

C. Tags and labels.

D Routing cards.

E. Records (e.g., reports, checklists, record drawings, receiving inspection reports, quality plans).

F. Physical location (shall be in combination with one of the above).

12.2.3 The methods described in 12.2.2 shall include identification of the individuals performing and accepting the operations.

12.3 RECORDS

12.3.1 Temporary markings, tags and labels, routing cards and temporary records may be destroyed provided the information is retained in permanent records or no longer required.

12.3.2 When required, inspection, examination and testing results shall be documented on reports or process control documents.

13.0 CONTROL OF NONCONFORMING PRODUCT

13.1 Scope

13.1.1 This section describes the requirements for evaluating nonconformities.

13.1.2 Defects that can be repaired per an existing approved procedure or reworked shall not be considered nonconforming unless discovered after final acceptance.

13.2 Nonconformity Control

13.2.1 Individuals detecting a potential nonconforming item or condition, shall immediately report it to their supervisor.

13.2.2 The potential nonconforming item shall be marked, tagged or segregated for identification.

13.2.3 The potential nonconformance shall be reported to Responsible Management who shall evaluate the condition and notify other involved groups as necessary. If the condition is evaluated as nonconforming, resolution shall be accomplished by one of the following:

A. Rework to meet the specified requirement

B. Repair

C. Accept with customer, AI or 3rd party agreement to use-as-is

D. Revise the document containing the requirement (if an item complies with all contract requirements but not with the document defining the requirement).

E. Reject or scrap

14.0 CORRECTIVE AND PREVENTIVE ACTION

14.1 Scope

This section identifies the actions to be taken to eliminate or minimize the recurrence of a quality problem.

14.2 Corrective Action Procedure

14.2.1 All CBI personnel are responsible for identifying quality problems. Methods include observation, inspection, surveillance, auditing, customer complaints (or warranty work) and nonconformities.

14.2.2 Any individual that discovers a problem that is potentially detrimental to product quality shall report it to their supervisor.

14.2.3 The cause of the nonconforming condition shall be determined and documented after thorough analysis of the circumstances of the nonconforming condition.

14.2.4 After consultation with appropriate management and consideration of the cause and effect of the nonconforming condition, adequate corrective and preventive action shall be taken to rectify the nonconformity and to prevent further recurrence.

14.2.5 The corrective action taken shall be confirmed to be effective.

14.3 Preventive Action

14.3.1 Preventive Action results from actions taken when processing:

A. Corrective Action
B. Nonconformances
C. Audit Reports
D. Management Reviews

14.3.2 Preventive Action measures include:

A. Training
B. Modification of the process which may include revision to:

1. Quality System
2. Procedures
3. Design
4. Drawings
5. Tools or equipment

14.3.3 Preventive Action taken is reported in conjunction with the paragraph 14.3.1 actions.

15.0 HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY

15.1 Scope

This section describes requirements for the safe handling, storage, packaging, preservation, and delivery of materials.

15.2 Handling, Storage, Packaging, Preservation and Delivery Requirements

15.2.1 Standard handling, storage, packaging, preservation and delivery requirements are described in a QAP.

15.2.2 When required, because of customer requirements or because the item is very heavy, oversized or unusually susceptible to damage, special procedures shall be prepared. These procedures shall describe additional material protection and preservation requirements necessary to provide control.

16.0 CONTROL OF QUALITY RECORDS

16.1 Scope

This section describes the system for controlling quality records including those of CBI suppliers.

16.2 Records Requirements

16.2.1 Quality records including those from suppliers shall be generated, maintained and retained as determined by CBI, Code statutory/regulatory and customer requirements.

16.2.2 Quality records shall be legible and traceable. Either hardcopy or electronic records may be used.

16.2.3 Where agreed contractually, the customer or customer's 3rd party shall have access to quality records for the purpose of evaluation.

16.2.4 Records retained by CBI shall be stored in a suitable environment to minimize deterioration and prevent loss.

17.0 INTERNAL QUALITY AUDITS

17.1 Scope

This section defines methods used to verify CBI's compliance with requirements of their Quality Management System (QMS) and to determine its effectiveness. Verifications are accomplished through planned, comprehensive audits at periodic intervals, by qualified individuals not having direct responsibilities in the areas audited.

17.2 Internal Auditing Procedures

17.2.1 The Corporate QA Manager shall be responsible for internal auditing in accordance with auditing procedures.

17.2.2 The Corporate QA Manager shall establish an audit schedule based on the status and importance of activities to ensure that all aspects of the quality system are audited.

17.2.3 Audits shall include review of work in progress and documentation.

17.2.4 The results of audits shall be documented and sent to responsible individuals of the audited department or area. Responses to findings contained in the audit report shall be requested and follow-up conducted to assure response and timely corrective and preventive (if required) action to each reported finding.

17.2.5 When audits reveal inadequacies in the QMS, they shall be reviewed by management and appropriate changes to the quality system shall be made.

18.0 TRAINING

18.1 Scope

This section establishes the requirements for training, qualification and certification.

18.2 Training and Qualification Requirements

18.2.1 CBI controlled training, qualification and certification procedures, standards and programs shall be used, when applicable to the activities of assigned personnel.

18.2.2 Each organization (department, group, etc.) shall develop documented training and qualification procedures (or QAPs) that include references to CBI controlled procedures, standards and programs as applied, for personnel performing activities affecting quality. These procedures shall follow the guidelines of ISO 9004 Article 18, applicable to the scope of activities performed. As a minimum, the procedures shall include:

A. Identification of qualification requirements for individuals performing specialized operations, processes, tests, audits or inspections.

1. Personnel required by applicable codes or contract specifications to be formally qualified shall be qualified prior to performing the work.

2. Evidence of qualification shall be maintained.

B. Identification of training requirements for all personnel as appropriate to the activities performed.

1. Personnel shall be given sufficient training to enable them to understand and perform their work.

2. Personnel responsible for implementation and control of this manual and associated QAPs shall be trained in this manual and appropriate QAPs.

18.2.2 (cont'd)

C. Records of qualification and training shall meet the requirements of ISO 9001 Article 4.16 and 4.18 and the guidelines of ISO 9004 Article 17. Documentation of qualification and training shall be available to supervisors responsible for assigning personnel to work activities requiring qualification and training.

18.2.3 Training and Qualification procedures shall be accepted by the QA Manager.

19.0 SERVICING

19.1 Scope

This section addresses servicing.

19.2 Servicing Requirements

When required, servicing shall be performed and verified in accordance with CBI Standards, contract procedures or as described in a QAP.

20.0 STATISTICAL TECHNIQUES

20.1 Scope

This section addresses statistical techniques.

20.2 Statistical Technique Requirements

20.2.1 When required, statistical techniques shall be performed in accordance with CBI Standards, contract procedures or as described in a QAP.

20.2.2 Statistical techniques may be used to establish process capability and to measure product characteristics.

INDEX FOR CBI
QUALITY ASSURANCE PROCEDURES

+ Addition
- Deletion
* Revision
Ø Documentation
¢ Index Correction

INDEX FOR CBI
QUALITY ASSURANCE PROCEDURES

INDEX FOR CBI
QUALITY ASSURANCE PROCEDURES

CONTROLLED COPY #201

Ronald W Thayer
Houston CQA

9/12/96
Date

TITLE MANAGEMENT RESPONSIBILITY

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP	REK	RWK	LBR BGG	AGR JAB	CMD

	BY	DATE
PREPARED	REK	8-19-92
REVISED	RWK	7-12-96
AUTHORIZED	RWK	9/6/96

REFERENCED STANDARD REV. NO.

Extensively Revised

1.0 SCOPE:

The purpose of this procedure is to describe the responsibilities of CBI managers. Managers may delegate functions to qualified personnel to act for them but retain overall responsibility for implementation of the requirement.

2.0 RESPONSIBILITIES:

2.1 **PRESIDENT CHICAGO BRIDGE & IRON CO.** Responsible for all CBI operations.

2.2 **VICE-PRESIDENT OPERATIONS.** Reports to the President of Chicago Bridge & Iron Co. Responsible for technical policy and standards, product development, product and process change management and Corporate Operations (includes Corporate Welding & QA).

2.3 **PRESIDENT (CBI SUBSIDIARY).** Reports to the President of Chicago Bridge & Iron Co. He is responsible for all CBI Subsidiary operations.

2.4 **VICE-PRESIDENT AND GENERAL MANAGER (CBI SUBSIDIARY).** Reports to the President (CBI Subsidiary). Individuals indicated as reporting to the President (CBI Subsidiary) may instead report to the Vice-President. This position does not always exist.

2.5 **GENERAL MANAGER (FACILITY OR SUBSIDIARY).** Reports to the President (CBI Subsidiary). Responsible for Customer Service, Contract Development, Contract Team Leaders and jobsite activities.

2.6 **BUSINESS DEVELOPMENT MANAGER (BDM) (Sales).** Reports to the General Manager. Responsible for obtaining contracts.

2.7 **CONTRACT DEVELOPMENT MANAGER (CDM) (Sales).** Reports to the General Manager. Responsible for preparing proposals, identifying customer and Code requirements during pre-contract review and reviewing the contract prior to signing by the BDM to assure that it reflects all that was agreed to by CBI and the customer.

2.8 **GENERAL MANAGER CORPORATE WELDING & QA.** Reports to the Vice-President Operations. Responsibilities include:

2.8.1 QA, Welding, Calibration and NDE Policy.

2.8.2 Procedure content and qualification for welding, heat treating and NDE.

2.8.3 Metallurgical and testing laboratories.

2.8.4 Training of personnel for welding, welding supervision, NDE, heat treating and repair and maintenance of welding equipment.

2.9 **CORPORATE QA MANAGER.** Reports to the General Manager Corporate Welding & QA. Responsibilities include:

2.9.1 Controlling contents and distribution of the QAM.

2.9.2 Assuring that appropriate QA procedures are generated, reviewed and approved.

2.9.3 Monitoring and auditing of quality related activities.

2.9.4 Evaluation and implementation of corrective action.

2.9.5 Coordinating and controlling QA related functions.

2.9.6 Conducting and reporting the annual Management Review.

2.10 **PRESIDENT CHICAGO BRIDGE & IRON TECHNICAL SERVICES COMPANY (CBITSC).** Reports to the President of Chicago Bridge & Iron Co. Responsible for all activities of CBITSC including coordinating with the President (CBI Subsidiary), the activities of engineering groups.

2.11 **CHIEF ENGINEER.** Reports to the President CBITSC. Responsible for design policy and guidelines.

2.12 **ENGINEERING MANAGER.** Reports to the President CBITSC. In addition, he receives technical guidelines from the Chief Engineer. Responsibilities include:

2.12.1 Review and distribution of customer specifications and requirements within Engineering.

2.12.2 Review and approval of customer and vendor design calculations.

2.12.3 Preparation, review and acceptance of CBI design calculations.

2.12.4 Initiation and distribution of procurement specifications.

2.12.5 Overseeing the preparation, review and approval of detail drawings.

2.12.6 Preparation, distribution and review of record drawings and, when requested, of shop and field check lists.

2.12.7 Preparation and distribution of written requisitions.

2.12.8 Preparation of pressure test procedures.

2.12.9 Review and approval of venting requirements.

2.13 **MANUFACTURING MANAGER.** Reports to the President (CBI Subsidiary). Responsibilities at assigned facility include:

2.13.1 Production and QC activities.

2.13.2 Providing guidance for Welding & QC, Purchasing and production personnel.

2.13.3 Ensuring that manufacturing equipment is maintained.

2.13.4 Scheduling workloads to utilize available resources efficiently.

2.13.5 Reviewing contracts and assigning personnel for contract execution.

2.14 **CONSTRUCTION MANAGER.** Reports to the General Manager. Responsibilities include:

2.14.1 Production and QC activities.

2.14.2 Providing guidance for Welding & QC and production personnel.

2.14.3 Ensuring that construction equipment and facilities are maintained.

2.14.4 Scheduling workloads to utilize available resources efficiently.

2.14.5 Reviewing contracts and assigning personnel for contract execution.

2.15 **CONTRACT TEAM LEADER.** Reports to the Construction Manager. Responsibilities include:

2.15.1 Planning and managing the execution of all work activities for one or more projects.

2.15.2 Establishing and maintaining lines of communications with the customer, 3rd party and the Corporate QA Manager.

2.15.3 Monitoring and reporting progress to all involved parties.

2.15.4 Upon completion of the contract, transmitting to the customer any records or data required to be submitted.

2.15.5 Assembly/development of the cross-functional contract team.

2.15.6 Coordinating the activities of all departments concerned with assigned projects.

2.15.7 Assisting in planning and scheduling.

2.15.8 Negotiating and accepting changes to the contract and distributing these to CBI departments.

2.15.9 Coordinating all contractual matters with the customer.

2.15.10 Assuming the responsibilities of the Welding & QC Manager if none is assigned to the contract.

2.15.11 Assuring that documentation and work is completed and performed correctly.

2.15.12 The preparation of contract procedures.

2.15.13 Managing warranty and Customer complaints.

2.16 **CONSTRUCTION SUPERVISOR.** Reports to the Construction Manager. Responsibilities include:

2.16.1 Developing the detailed construction plan.

2.16.2 Providing guidance for the Superintendent.

2.16.3 Assisting jobsite and customer needs.

2.17 **WELDING & QC MANAGER.** Reports to the Manufacturing Manager or the Construction Manager. Responsibilities include:

2.17.1 Controlling QC activities at assigned location.

2.17.2 Coordinating controls relating to welding including preparation of welding procedure qualifications and material specifications.

2.17.3 Assuring that appropriate QC procedures are generated, reviewed and approved, when required.

2.17.4 Assuring the product is completed in accordance with this quality system. This is the responsibility of the designated Welding & QC Manager (ASME/NBIC certificate holder).

2.18 **WELDING & QC SUPERVISOR.** The Welding & QC Supervisor reports to the Welding & QC Manager. Responsibilities include:

2.18.1 Assuring that trained personnel perform and evaluate tests and examinations.

2.18.2 Assuring that processes, examinations and testing conform to the contract procedures and Code requirements.

2.18.3 Assuring that customer, Authorized Inspector and 3rd party inspectors are provided the opportunity to review process control documents, and has the opportunity to witness examinations, test and reports.

2.18.4 Assuring that receiving inspections are performed and material is identified.

2.18.5 Instructing welders concerning the implementation of welding procedures to be used.

2.18.6 Assuring that records and nonconformities are properly handled.

2.18.7 Assuring that current drawings are in use.

2.19 **PURCHASING MANAGER.** Reports to the Manufacturing Manager. Responsibilities include:

2.19.1 Purchasing material in accordance with information supplied by Engineering.

2.19.2 Assisting in the disposition of rejected material.

2.20 **SUPERINTENDENT (OR FOREMAN) (SHOP OR JOBSITE).** Reports to the Manufacturing Manager or Construction Supervisor. Responsibilities include:

2.20.1 Supervising production work performed on one or more contracts.

2.20.2 Assuring job safety.

2.20.3 Coordinating production activities with those of quality control.

2.20.4 Assuming the responsibilities of the Welding & QC Supervisor if none is assigned to the contract.

TITLE AUTHORIZED INSPECTORS (AI)

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP		RWK			CMD

	BY	DATE
PREPARED	JCJ	10-10-95
REVISED	JCJ	6-19-96
AUTHORIZED	RWK	9/6/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

Authorized Inspectors are employees of the Authorized Inspection Agency or jurisdiction. They shall have been qualified by written examination under the rules of any State of the United States or Province of Canada which has adopted the Code.

Inspection by an AI is required for all stamped ASME work.

2.0 RESPONSIBILITIES:

The Welding and QC Managers, Welding and QC Supervisor, jobsite Superintendent and Engineering-Assigned are the primary contacts for the AI.

3.0 GENERAL:

3.1 By local arrangements, suitable office space will be afforded the Authorized Inspector.

3.2 The Authorized Inspector shall have free access any time Code work is being performed.

3.3 The Authorized Inspector shall have for his use a current controlled copy of the QC Manual.

3.4 The Authorized Inspector shall be provided access to all drawings, calculations, specifications, procedures, check lists, repair procedures, records, test results, Material Test Report (MTR) and any other documents necessary to perform his duties.

3.5 The Authorized Inspector shall have the right to call for and witness performance qualification tests when the ability of any welder or welding operator is in question. He shall also have the right to require requalification of welding procedures for just cause.

3.6 Concurrence of the Authorized Inspector is required prior to any repairs to defects in materials and revising contract drawings covering repairs.

3.7 The Authorized Inspector through the Authorized Inspection Agency may review and accept revisions and/or Addenda to the QC Manual prior to use.

3.8 The Authorized Inspector shall have the right to require proof of the NDE operator's ability to perform and interpret the examinations specified. He has the right to ask for requalification of NDE procedures and personnel for just cause.

3.9 The Welding and QC Manager will assist the Authorized Inspection Agency personnel in performing their duties.

3.10 Engineering-Assigned shall initiate notification of the Authorized Inspection Agency. See CBI Standard 493-1.

3.11 The Contract Team Leader will advise the Authorized Inspection Agency that Authorized Inspection is required two (2) weeks prior to beginning construction.

3.12 The Welding and QC Supervisor assures that the Authorized Inspector is provided the opportunity to review process control documents, and has the opportunity to witness examinations, tests and reports.

3.13 Engineering-Assigned shall transmit the completed Data Report to the Authorized Inspector.

TITLE QUALITY SYSTEM

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK			CMD

	BY	DATE
PREPARED	REK	8-19-92
REVISED	JCJ	6-26-96
AUTHORIZED	RWK	9/6/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the basic components of the Quality Management System (QMS).

2.0 RESPONSIBILITIES:

2.1 Corporate QA Manager - The Corporate QA Manager is responsible for the QMS including the Quality Assurance Manual (QAM) and Quality Assurance Procedures (QAPs).

2.2 The Welding & QC Manager is responsible for preparing Contract QAPs and Contract Addenda.

3.0 STRUCTURE OF THE QUALITY MANAGEMENT SYSTEM:

3.1 Quality Assurance Manual (QAM)

3.1.1 The QAM is based on the twenty (20) subsections of ANSI/ASQC Q9001-1994 and describes the QMS implemented and maintained by CBI.

3.1.2 The QAM is distributed to management and is made available to customers, potential customers and assessors for review. It is available to employees at work locations.

3.1.3 The Corporate QA Manager shall establish and maintain a controlled distribution list for the QAM. It shall indicate name, location and copy number.

3.1.4 Revisions to the QAM are controlled and require the approval of the Corporate QA Manager. As a minimum, revisions are distributed to holders of controlled copies of the QAM.

3.2 Contract Addenda

3.2.1 Contract Addenda contain controls that modify the QAM.

3.2.2 The Welding & QC Manager is responsible for the preparation and distribution of Contract Addenda.

3.3 Quality Assurance Procedures (QAPs)

3.3.1 The QAPs are keyed directly to the individual sections of the QAM and contain details used to achieve the controls outlined in the QAM.

3.3.2 Each QAP defines the scope of its application and the individual responsible for the performance of specific tasks.

3.3.3 Except as allowed in QAP 2.3, the QAPs are distributed with controlled copies of the QAM. Uncontrolled copies are made available to customers, potential customers and assessors for review.

A. Each QAP shall contain the Corporate QA Manager's signoff to denote approval. Each QAM/QAP binder set contains an index of QAPs. That index shall contain a revision number and the Corporate QA Manager's signoff to denote approval.

B. Revisions to QAPs are controlled and require the approval of the Corporate QA Manager. Revisions with a revised index are distributed to all holders of controlled copies of the QAM.

3.4 CBI Standards

See QAP 5.3.

3.5 Contract Procedures

3.5.1 Procedures are prepared and issued for each contract when required to control the production process and the quality of the work. They are written to comply with referenced codes and standards, customer specifications and CBI requirements.

Examples of procedures are:

A. Special Process Procedures

B. Inspection and Test Procedures

C. Erection Procedures

D. Manufacturing Procedures

3.5.2 Procedures are provided to individuals responsible for performing, monitoring and reporting their work. The coordination of their preparation is the responsibility of the Contract Team Leader except that welding, NDE and PWHT procedures shall be coordinated by the Welding & QC Manager.

4.0 QUALITY PLANS:

Quality plans may be used for a specific contract or a line of products or services. Quality plans are described in QAP 2.2.

5.0 QUALITY SYSTEM FORMAT:

All elements of the quality system (QAM, Contract Addenda, QAPs, CBI Standards, Contract Procedures and Quality Plans) may be provided in either hardcopy or electronic format.

6.0 ADDITIONAL PLANNING CONSIDERATIONS:

When evaluating the specific requirements of a contract, consideration shall be given to the following activities:

6.0 (cont'd)

A. identification and acquisition of any special controls, processes, equipment, resources and skills that may be needed to achieve the required quality;

B. updating existing quality control, inspection and testing techniques;

C. identification of complex measurement requirements requiring the design and development of specialized measuring equipment not currently available;

D. clarification of acceptance criteria for all specified requirements.

TITLE QUALITY PLAN

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK			CMD

	BY	DATE
PREPARED	REK	8-19-92
REVISED	JCJ	6-18-96
AUTHORIZED	RWK	9/6/96
REFERENCED STANDARD	REV. NO.	

1.0 SCOPE:

This procedure describes the preparation, review, approval and use of quality plans.

2.0 RESPONSIBILITIES:

The Welding & QC Manager is responsible for evaluating the customer's quality requirements and for coordinating the preparation of the quality plan (when used).

3.0 PROCEDURE:

3.1 The Contract Team Leader and other Responsible Management shall review the customer's documents to determine what activities and practices are needed to perform the contract and if a quality plan is required for the contract.

3.2 Quality plans, when used, shall be prepared by the Welding & QC Manager. Upon receipt of approval from Responsible Management, he shall authorize and forward the quality plan to the Contract Team Leader. The Contract Team Leader shall obtain approval from the customer when required.

3.3 Quality plans define quality objectives and are typically used to list major documents to be submitted to the customer and key operations to be performed. Items typically included are:

A. submission of Detail Drawings for approval
B. submission of procedures for approval
C. qualification of personnel
D. performance of milestone work items

3.3.1 The Welding & QC Manager shall denote applicable witness or hold points.

3.4 The quality plan may or may not have individual "Hold" or "Witness" points for the customer or customer's 3rd party depending upon contract requirements.

3.5 Upon receipt of the approved quality plan, it shall be distributed to the designated individuals.

3.6 Revisions or changes to quality plans are handled in the same manner as the original.

3.7 When required, individual items on the quality plan shall be signed off by designated management as they are successfully completed. The customer or the customer's 3rd party may show their concurrence by sign off in a separate column.

4.0 RECORDS:

Completed quality plans are contract records and shall be maintained.

CBI

DOC. ID QAP 2.3
REV. NO. 3
CONTRACT

TITLE CONTRACT QAPs

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR	AGR	CMD
				BGG	JAB	

	BY	DATE
PREPARED	REK	8-19-92
REVISED	RWK	6-26-96
AUTHORIZED	RWK	9/6/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes how to change Quality Assurance Procedures (QAP) when requirements of a contract necessitate different or additional controls.

2.0 RESPONSIBILITIES:

2.1 The Corporate QA Manager, Welding & QC Manager, Contract Team Leader or other Responsible Management shall change the QAP when the requirements of the contract so necessitate.

2.2 The Corporate QA Manager or Welding & QC Manager shall authorize QAPs for use.

3.0 PROCEDURE:

3.1 When it is determined after review of customer documents that a Contract QAP (CQAP) is required, it shall be handled as follows:

3.1.1 The change may be initiated as:

A. A new QAP for that contract only or

B. An "X"ed QAP where a QAP is changed for the contract and designated with an "X" (e.g., QAP 5.1X would describe the control of drawings for a particular contract).

3.1.2 New QAP for a Contract:

A. The document ID shall be CQAP X.X

Manual section identifier

Same as QAP being replaced

B. The CQAP shall be formatted the same as QAPs.

3.1.3 An "X"ed QAP for the contract shall be written by revising the affected QAP paragraphs and re-designating the procedure with an "X" and contract number.

3.1.4 The CQAP or "X"ed QAP shall be authorized and issued to individuals requiring them for the contract and shall be utilized instead of the standard QAP.

4.0 RECORDS:

CQAPs are internal records not transmitted to the customer. They are maintained until the end of the contract.

DOC. ID QAP 2.4
REV. NO. 0
CONTRACT

TITLE WORK INSTRUCTIONS

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
	~~CJP~~		~~RWK~~	~~BGG~~	~~AGR~~
				LBR	JAB

	BY	DATE
PREPARED	RWK	8-8-96
REVISED		
AUTHORIZED	RWK	9/6/96
REFERENCED STANDARD	REV. NO.	

1.0 SCOPE:

This procedure describes the preparation, review and approval of work instructions (WI). WIs shall not alter any QAM or QAP requirements.

2.0 RESPONSIBILITIES:

2.1 Any CBI individual may prepare a WI.

2.2 Department Managers shall determine the need for WIs to cover a particular task, operation or function. The responsible Department Manager shall authorize WIs for use.

3.0 PROCEDURE:

3.1 WIs shall contain the necessary detailed written directions to complete a task, operation or function, shall be formatted (Scope, Responsibilities, Procedure, Records and Attachments) and use the same form paper as QAPs. WIs shall be identified as follows:

1) Document ID shall be: COH - WI 3.1

Office Code
Manual Section Identifier
Sequential Procedure Number (ie. 1, 2, 3....)

3.2 The responsible Department Manager shall authorize the WI for use by signoff to denote approval.

3.3 The distribution, revision and voiding of WIs shall be controlled by the responsible Department Manager.

4.0 RECORDS:

WIs are internal records not transmitted to the customer. They are maintained until no longer required.

CBI

DOC. ID QAP 3.1
REV. NO. 4
CONTRACT

TITLE PRE-CONTRACT REVIEW
(OPPORTUNITY DEVELOPMENT)

APPROVED

Engr	Corp Weld GFM	Corp QA RWK	Const	Mfg	HSB CMD

	BY	DATE
PREPARED	ALD	8-19-92
REVISED	JCJ	6-19-96
AUTHORIZED	RWK	9/11/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the responsibilities and procedure for pre-contract review of customer documents.

2.0 RESPONSIBILITIES:

2.1 The Contract Development Manager (CDM) is responsible for transmitting, as necessary, customer documents to those responsible for review.

2.2 The Construction Manager or Manufacturing Manager are responsible for performing reviews of customer documents.

2.3 The Engineering Manager is responsible for performing reviews of customer documents.

2.4 The Purchasing Manager is responsible for performing reviews of customer documents as required.

2.5 The Welding & QC Manager or the General Manager of Corporate Welding & QA are responsible for performing reviews of customer documents as required.

3.0 PROCEDURE:

3.1 Receipt and Distribution of Pre-Contract Documents

3.1.1 The CDM shall transmit customer documents for review to Responsible Management.

3.1.2 The Engineering Manager shall circulate the customer documents within Engineering-Assigned for review and comment as applicable.

3.1.3 The Construction Manager or Manufacturing Manager shall circulate the customer documents within his organization for review and comment as applicable.

3.2 Scope of Review

3.2.1 During the pre-contract planning stage, a thorough review and understanding of all requirements is essential in meeting contract objectives. When reviewing, the following points shall be considered:

A. General Scope of Work - An overall understanding of the general scope of work is required. This will reveal whether the work is within the general capacity of the organization.

B. Technical Requirements - A careful review shall be made of referenced Codes, standards and specifications for all technical requirements. Particular emphasis shall be given to difficult and unusual contract requirements particularly where there has been little or no previous experience.

C. Plant and Equipment - Capacity of plant and equipment to perform the work shall be considered. Any need for new or additional capacity shall be assessed.

D. Personnel - Quantity, level of competence and experience of existing personnel shall be considered when evaluating the company's ability to perform the work. Special attention shall also be given to the selection and training of new personnel and personnel to be transferred from other company locations.

E. Quality Management System - The adequacy of system shall be evaluated with regard to contract QA requirements. The need for supplements to the QA Manual or QA Procedures, Quality Plans, procedures and instructions shall be considered.

3.2.1 (cont'd)

F. Design - A thorough review of any requirements for design input shall be made to evaluate the organizations capability to perform it.

G. Ambiguities - When review of the customer documents reveals areas that are not clearly understood, steps shall be taken to clarify these with the customer to assure that all such items are resolved. All clarifications of ambiguities shall be in writing.

3.3 Review of Customer Documents

3.3.1 Engineering-Assigned shall determine whether the customer documents provided are adequate to form the basis for design, fabrication and installation of the work. As a minimum, the following items shall be considered:

A. design requirements
B. environmental conditions specified
C. functions and boundaries of the work
D. code edition and addenda
E. material requirements
F. operation requirements
G. proper certification of the design specifications
H. other such details as required to provide a basis for design and construction

3.3.2 The Construction Manager or Manufacturing Manager shall review the customer documents for the overall scope of work and to ensure that:

A. requirements are adequately defined and documented

B. the company has the capability to fulfill contractual requirements

3.3.3 The Welding & QC Manager or the General Manager of Welding & QA and other Responsible Management shall review the customer documents for specific QA requirements and shall ensure that:

A. any special controls, processes, procedures, equipment, resources and skills that may be needed to achieve the required quality are identified

B. the existing quality control, inspection and testing techniques are capable of meeting the specified requirements

C. the acceptance criteria has been adequately defined for all specified requirements

D. the requirements for the preparation and maintenance of records are identified

3.3.4 Each individual responsible for reviewing the documents shall document his review either by letter with comments or by sending a marked up copy of the documents to the CDM.

3.3.5 The CDM uses the comments/information received from the reviewers to prepare the proposal.

3.3.6 The CDM upon receipt of a customer order, reconciles any differences with the proposal, prior to the Business Development Manager signing the contract.

3.3.7 The CDM shall keep a record of all pre-contract reviews and the resolution of any comments with the customer.

4.0 RECORDS:

Documentation of pre-contract review is an internal record. It is not included with records transferred to the customer.

CBI

DOC. ID QAP 3.2
REV. NO. 4
CONTRACT

TITLE POST-AWARD REVIEW

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
		GFM	RWK			CMD

	BY	DATE
PREPARED	ALD	8-19-92
REVISED	JCJ	6-19-96
AUTHORIZED	CPWK	9/11/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the responsibilities and procedure for post-award reviews of customer documents.

2.0 RESPONSIBILITIES:

2.1 The Contract Development Manager (CDM) is responsible for transmitting contract documents to those responsible for execution of the contract.

2.2 The General Manager or Manufacturing Manager is responsible for assigning a Contract Team Leader (CTL).

2.3 The CTL is responsible for coordinating review of revised or additional customer contract documents.

3.0 PROCEDURE:

3.1 Receipt and Distribution of Contract Documents

3.1.1 The CDM shall transmit contract documents to those responsible to execute the contract per internal requirements. The transmittal shall include the date of order for application of Code.

3.1.2 Comments or questions on contract documents shall be referred to the CTL for resolution.

3.2 Review of Revised or Additional Customer Documents

3.2.1 The CTL transmits revised or additional documents to those executing the contract.

3.2.2 Each Manager or designated personnel shall review the revised or additional documents for the affect on the:

A. work-in-progress
B. work already completed
C. procurement of materials
D. ability to perform revised or additional work scope

3.2.3 The CTL shall coordinate the review, follow-up and resolution of comments with the customer.

3.2.4 The review of revised documents shall be recorded and maintained by the CTL.

4.0 RECORDS:

Documentation of post-award review is an internal record. It is not included with records transferred to the customer. The CTL shall maintain contract review records as required by CBI Standard 590-1-4 unless longer times are required by contract.

TITLE PREPARATION OF DETAIL DRAWINGS, EMERGENCY CHANGE NOTICES, WRITTEN REQUISITIONS AND PROCUREMENT SPECIFICATIONS

APPROVED

Engr	Corp Weld	Corp QA	Const	Mfg	HSB
CJP		RWK			CMD

	BY	DATE
PREPARED	JGS	8-19-92
REVISED	JCJ	6-19-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure establishes the requirements for the preparation, review, approval, and release of detail drawings, emergency change notices (ECNs), written requisitions and procurement specifications (except welding material).

2.0 RESPONSIBILITIES:

Engineering-Assigned shall be responsible for the preparation, review, approval and release of detail drawings, ECNs, written requisitions and procurement specifications.

3.0 DETAIL DRAWINGS:

3.1 Preparation

3.1.1 The Engineering Team Leader shall assign individuals to prepare detail drawings. Identification of the preparer shall be on the drawing.

3.1.2 Detail drawings shall include information based on design documents, customer documents, statutory and regulatory requirements, and the code in sufficient detail to fabricate or erect the item when used in conjunction with procedures.

3.1.3 The following information, as necessary, shall be included on the detail drawings:

A. Description - item size and configuration

B. Dimensional tolerances

3.1.3 (cont'd)

C. Welding, heat treating, nondestructive examination and testing requirements
D. Material specification

3.2 Preparation of Emergency Change Notices (ECN)

3.2.1 The Engineering Team Leader shall assign an individual to prepare the ECN. Identification of the preparer shall be on the ECN.

3.2.2 The ECN shall contain sufficient information to adequately convey to holders of the contract drawing the changes that are to be made to the drawing. Information shall be based on applicable contract requirements.

3.3 Review and Approval

3.3.1 An individual assigned by the Engineering Team Leader, other than the preparer of the detail drawing or ECN, shall review and approve the detail drawing or ECN for conformance of details to the design documents, customer documents and code. The reviewer shall signoff on the detail drawing or ECN to indicate approval.

3.3.2 The Engineering Team Leader shall be responsible for assuring that the contract drawings or ECN have been reviewed for conformance with the design output.

3.4 Customer Approval

Engineering-Assigned shall coordinate any submittals to the customer or other involved parties for their approval when required.

3.5 Revisions

3.5.1 After initial release of the detail drawings, revisions may be made as required for performance of the work.

3.5.2 Engineering-Assigned shall review proposed changes to ensure that the changes are in compliance with the design documents, customer documents, statutory and regulatory requirements and code before the drawing is revised.

3.5.3 All revisions shall be identified.

3.5.4 The revised drawing shall be reviewed and approved in the same manner as the original.

3.5.5 When ECNs are used, affected drawings shall be revised by Engineering-Assigned as soon as practical, but no later than ninety (90) days after issuance of the ECN and prior to proof testing or overload of the item.

3.5.6 No more than six (6) ECNs shall be issued against a drawing before the drawing is revised.

4.0 WRITTEN REQUISITIONS:

4.1 Written requisitions shall contain technical and quality assurance information needed for procurement. This information may be included on the written requisition or included in a procurement specification.

4.2 Written requisitions shall contain material management requirements sufficient to maintain traceability in accordance with CBI Standard 607-2.

4.3 Advance Bill shall be based on the design documents, customer documents and code. These shall be handled in accordance with CBI Standard 592-6 or 233-0-5.

4.4 Final Bill of Material shall be based on the design documents, customer documents and code. These shall be handled in accordance with CBI Standard 592-6 or 233-0-5.

4.5 Shipping Orders shall be based on the design documents, customer documents and code. Shipping Orders shall be handled in accordance with CBI Standard 592-6-2 or 233-0-5.

5.0 PROCUREMENT SPECIFICATIONS:

5.1 Procurement specifications shall be based on the design documents, customer documents and code. The Engineering Team Leader shall assign an individual to prepare procurement specifications. Identification of the preparer shall be on the specification.

5.2 An individual assigned by the Engineering Team Leader, other than the preparer of the specification, shall review the specification for correctness and completeness and approve the specification for use. This approval shall be documented by a signoff on the specification.

5.3 For ASME work, the following is required:

5.3.1 When the forming of heads is subcontracted to another organization, the Procurement Document shall require written certification by the Subcontractor that the requirements of the applicable Code are satisfied. (See PG-81 of Section I, UG-81 of Section VIII Division 1 or AF-135 of Section VIII Division 2, as applicable).

5.3.2 When vessel shell sections, heads and other pressure boundary parts of carbon or low alloy steel are cold formed by a Subcontractor, the Procurement Document shall require written certification by the Subcontractor that the requirements of UCS-79(d) for Section VIII Division 1 or AF-605 for Division 2 have been satisfied.

6.0 ATTACHMENTS: (Typical)

6.1 Attachment 1 - Advance Bill

6.2 Attachment 2 - Final Bill of Material

ATTACHMENT 1

ADVANCE BILL

STRUCTURE

CERTIFICATION OF COMPLIANCE FOR PURCHASER ☐ NO ☐ YES __ NO. OF COPIES

MILL INSPECTION NO ☐ YES ☐ BY

DESIGN SPECS

CERTIFIED TEST REPORTS FOR PURCHASER ☐ NO ☐ YES __ NO. OF COPIES

SPECIAL INSTRUCTIONS

LIST	MARK	PCS	DESCRIPTION	LENGTH FT	LENGTH IN.	SPEC	ID	CODE	NO FAB	LN	PCS	ORDER OR RESERVE	SOURCE
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													

PURCH ACTION	REVISION	BY								
		CHKD								
		DATE								
DATE		LINE								
		PURCH ACTION								
		DATE								

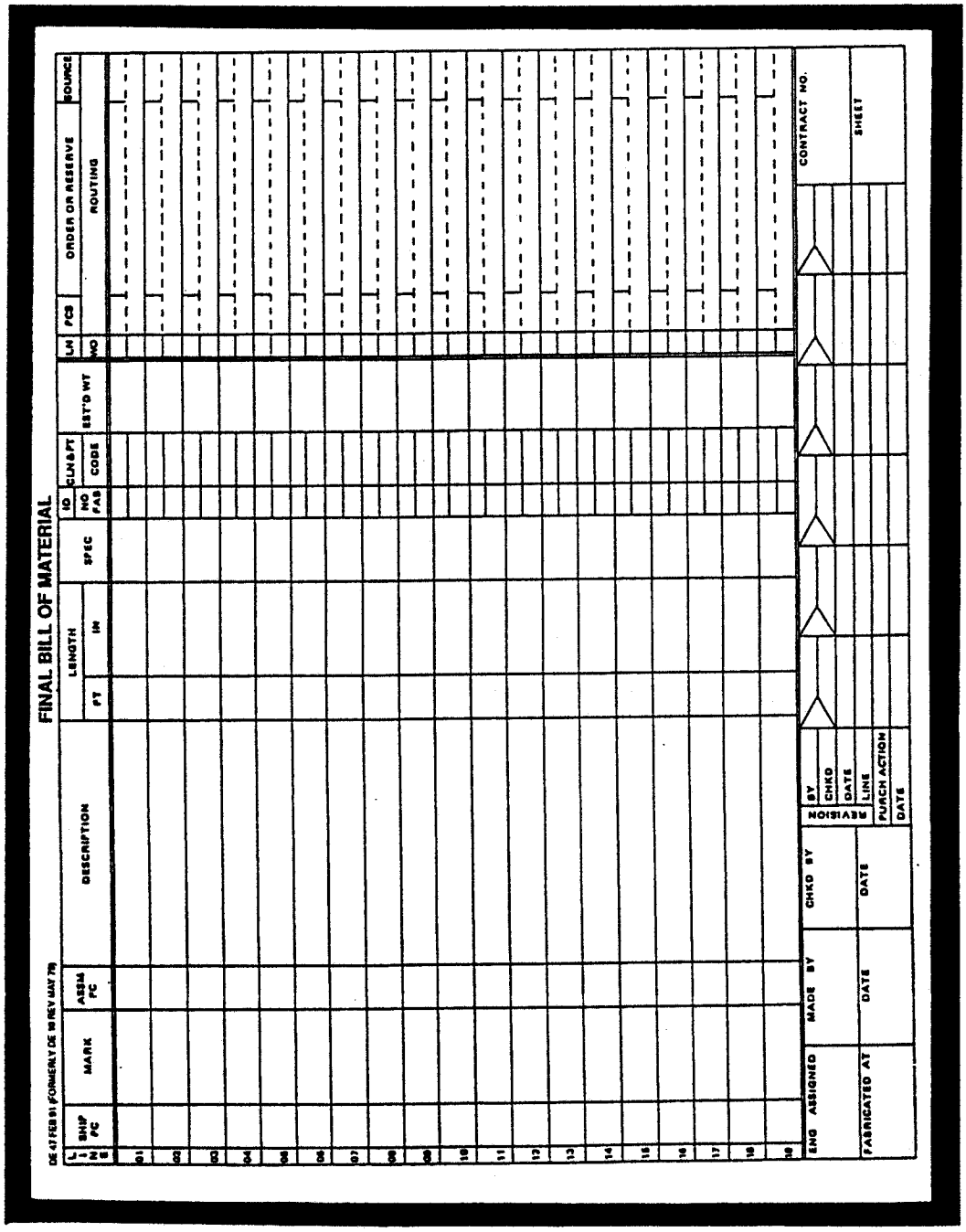
ENG ASSIGNED	MADE BY	DATE	CHKD BY	DATE	MFG ASSIGNED	CONTRACT NO.	SHEET

Printed in USA

DE46E MAY 94 (FORMERLY DE 24 REV AUG 79)

TITLE PREPARATION OF DETAIL DRAWINGS, EMERGENCY CHANGE NOTICES, WRITTEN REQUISITIONS AND PROCUREMENT SPECIFICATIONS

ATTACHMENT 2



TITLE ADDITIONAL DESIGN REQUIREMENTS FOR ASME WORK

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP		RWK		JAB AGR	CMD

	BY	DATE
PREPARED	RES	10-10-95
REVISED	JCJ	6-19-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD	REV. NO.	

1.0 SCOPE:

This procedure lists additional design requirements to be performed by Engineering-Assigned for ASME work.

2.0 RESPONSIBILITIES:

Engineering-Assigned shall be responsible to perform the additional design requirements for ASME work as listed in this procedure.

3.0 PROCEDURE:

3.1 For ASME Section VIII, Division 2 vessels, the Certified User's Design Specification shall be reviewed by a Registered Professional Engineer experienced in pressure vessel design.

3.2 For ASME Section VIII, Division 2 vessels, Engineering-Assigned shall transmit the Certified User's Design Specification and any revisions to the Authorized Inspector.

3.3 The Engineering Team Leader shall approve calculations for use by signoff.

3.4 For ASME Section VIII, Division 2 vessels, the Manufacturer's Design Report shall be certified by a Registered Professional Engineer experienced in pressure vessel design. A reference to the latest revision of all contract drawings shall be included in the certification. Engineering-Assigned shall transmit the certified Manufacturer's Design Report and any revisions to the Authorized Inspector via the Contract Team Leader (CTL) or Welding & QC Manager.

3.5 For ASME Section VIII, Division 1 and ASME Section I, Engineering-Assigned shall transmit the Design Calculations and any revisions, or evidence thereof, to the Authorized Inspector via the CTL or Welding & QC Manager.

3.6 For ASME Section VIII, Div. 2 vessels, if the Certified User's Design Specification is revised, the Registered PE shall reconcile the Certified Manufacturer's Design Report with it.

3.7 Safety Relief and Venting for ASME Vessels

3.7.1 Engineering-Assigned shall review Code and customer specifications of the pressure relief requirements with the customer. Where pressure relieving devices are not part of the contract, the review should determine that nozzles for these devices have been provided and so indicated on the drawings and the Manufacturer's Data Report.

3.7.2 If venting calculations are performed by CBI, they shall be controlled the same as design calculations.

3.7.3 If venting calculations are provided by the purchaser, they shall be reviewed by Engineering-Assigned.

TITLE DOCUMENT AND DATA CONTROL

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK			CMD

	BY	DATE
PREPARED	JGS	8-19-92
REVISED	JCJ	6-20-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

1.1 This procedure lists the types of documents requiring control and describes how control is accomplished or where to find the control described.

1.2 The documents requiring control are:

A. QAM and QAP
B. Contract Documents
C. Engineering Drawings and Emergency Change Notices
D. Written Requisition
E. Procedures
F. CBI Standards
G. Design Output
H. Procurement Specifications

2.0 RESPONSIBILITIES:

The Corporate QA Manager, Engineering-Assigned, Contract Development Manager (CDM), Contract Team Leader (CTL), Welding & QC Manager and CBI Corporate Offices are responsible for controlling the above listed documents.

3.0 DOCUMENT FORMAT AND DISTRIBUTION:

3.1 Documents or data are distributed in one of the following formats:

A. Hardcopy (paper)
B. E-mail, floppy disk or compact disk
C. Electronically on line (always available to the user)

3.2 Acknowledgment receipt control for distributions is required for hardcopy, e-mail, floppy disk or compact disk.

3.3 Documents and data made available electronically on line are controlled by the provider and do not require acknowledgment receipt control.

3.4 Forms depicted in the QAM and QAP's apply only to documents distributed by hardcopy. Documents distributed by e-mail, floppy disk, compact disk and electronically on line shall contain all information required by this manual; however, the information does not need to be presented as shown on the forms.

4.0 PROCEDURE:

4.1 QAM and QAP - the Corporate QA Manager is responsible for distributing the QAM and QAP as described in QAP 2.1 and 2.3.

4.2 Contract Documents - Contract Documents are distributed and controlled by the CDM and CTL per QAP 5.2.

4.3 Engineering Drawings and Written Requisitions - Engineering-Assigned controls detail drawings and written requisitions per QAP 5.2.

4.4 Procedures - procedures shall be controlled in accordance with QAP 5.4.

4.5 CBI Standards - The control of CBI "Red-Book" standards is described in QAP 5.3.

4.6 Design Output - design output shall be controlled in accordance with CBI Standard 590-1-8.

TITLE DISTRIBUTION OF DETAIL DRAWINGS, EMERGENCY CHANGE NOTICES, WRITTEN REQUISITIONS AND PROCUREMENT SPECIFICATIONS

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP		RWK			CMD

	BY	DATE
PREPARED	JGS	8-19-92
REVISED	JCJ	6-20-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure establishes the requirements for the distribution of detail drawings, emergency change notices (ECN), written requisitions and procurement specifications (except welding material). Also see QAP 5.6.

2.0 RESPONSIBILITIES:

Engineering-Assigned shall be responsible for the distribution of detail drawings, ECNs, written requisitions and procurement specifications.

3.0 DETAIL DRAWINGS (or Graphical Representations):

3.1 Issue

3.1.1 Approved detail drawings shall be listed on a "0" sheet (see Attachment 1) by drawing number, revision number, and drawing title. A computer printout may be used providing it contains all necessary information.

3.1.2 Engineering-Assigned distributes the approved detail drawings and the "0" sheet to those individuals or organizations on the distribution list provided by the Contract Team Leader (CTL) using a POT (Print Order Transmittal- See Attachment 2) as described in CBI Standard 592-5-1.

3.1.3 Drawings and "0" sheets may also be made available electronically on-line (see QAP 5.6). For this case, no POT is required.

3.1.4 Each individual or organization required to acknowledge receipt shall do so by signoff on a copy of the POT. The POT (with signoff) shall be returned to Engineering-Assigned.

3.1.5 Further distribution shall be controlled by those individuals or organizations receiving the issued detail drawings.

3.1.6 Engineering-Assigned retains the original POT as a follow-up to assure that each individual or organization designated on the POT acknowledges receipt. A follow-up copy of the POT shall be sent to those individuals or organizations who have not acknowledged receipt.

3.1.7 Originals of detail drawings shall be retained by Engineering-Assigned.

3.1.8 When Engineering-Assigned determines that drawing revisions are required, Engineering-Assigned shall determine the status of work to see if a "HOLD" is necessary. If so, Engineering-Assigned shall notify the CTL to place a "HOLD" on the work. The notification may be verbal. When necessary, the "HOLD" shall be confirmed in writing and a copy sent to the Responsible Management. The "HOLD" shall remain in effect until a written "RELEASE" is provided by Engineering-Assigned.

3.1.9 Drawings which become obsolete for whatever reason shall be withdrawn from use.

3.2 Emergency Change Notice (ECN) Release

3.2.1 The approved ECN shall be released for use by sending a copy to personnel who require the change in order to perform the work.

3.2.2 Within three (3) working days after releasing the ECN for use, the Engineering-Assigned shall make distribution of the ECN to all holders of contract drawings in the same manner as a revision to the affected drawings. In the shop, further processing shall be in accordance with QAP 5.2. Alternatively, the affected drawing may be revised to incorporate the changes on the ECN and distributed within three (3) working days after issuance of the ECN.

4.0 WRITTEN REQUISITIONS:

4.1 Advance Bills and Final Bills shall be controlled in accordance with CBI Standard 592-6 or 233-0-5. Advance Bills shall be distributed in accordance with CBI Standard 592-5-1.

4.2 Revisions to Advance Bills and Final Bills shall be distributed in accordance with CBI Standard 592-5-1.

4.3 Shipping Orders shall be controlled and distributed in accordance with CBI Standard 592-6-2.

4.4 All written requisitions may also be made available electronically on-line.

5.0 PROCUREMENT SPECIFICATIONS:

Procurement specifications shall be distributed with the Advance or Final Bills in accordance with CBI Standard 592-6 or 233-0-5 or may be made available electronically on-line.

6.0 RECORDS:

6.1 Detail drawings are contract records and shall be maintained by Engineering-Assigned.

6.2 The POTs shall be maintained by Engineering-Assigned until completion of the contract. The POTs may then be discarded.

6.3 Written requisitions are contract records and shall be maintained by Engineering-Assigned.

6.4 Procurement Specifications are contract records and shall be maintained by Engineering-Assigned.

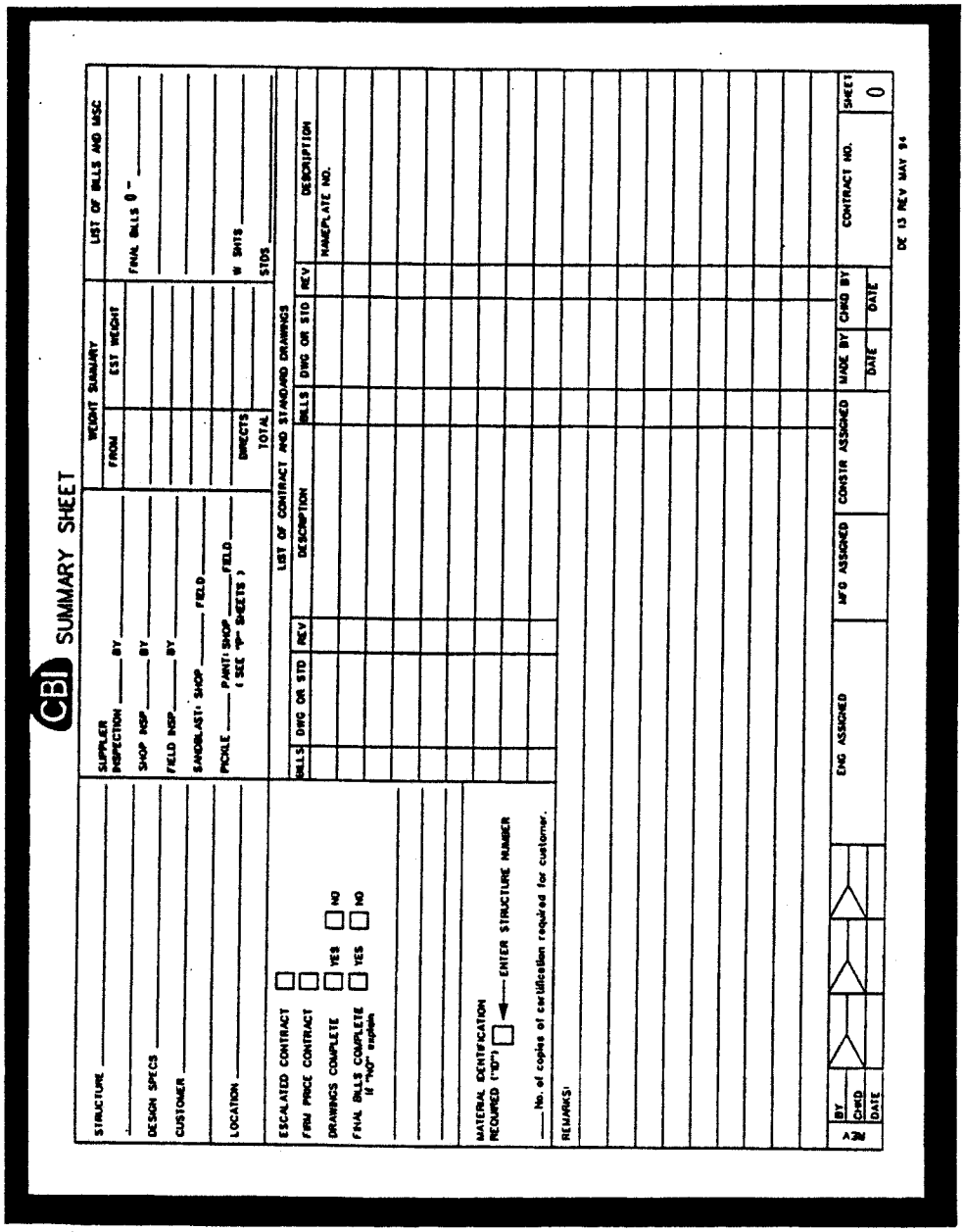
7.0 ATTACHMENTS (Typical):

7.1 Attachment 1 - "0" Summary Sheet

7.2 Attachment 2 - Print Order & Transmittal

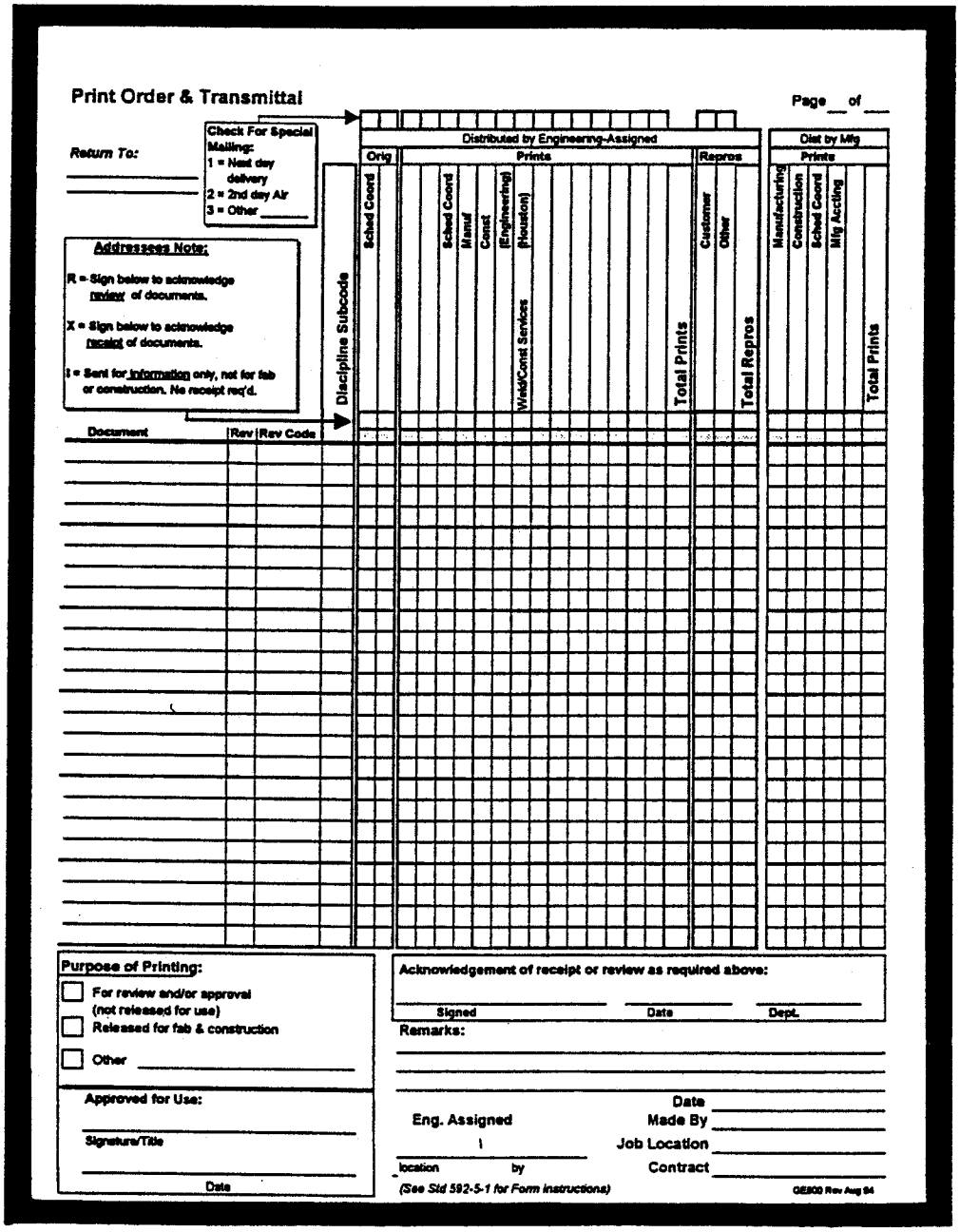
TITLE DISTRIBUTION OF DETAIL DRAWINGS, EMERGENCY CHANGE NOTICES, WRITTEN REQUISITIONS AND PROCUREMENT SPECIFICATIONS

ATTACHMENT 1



TITLE DISTRIBUTION OF DETAIL DRAWINGS, EMERGENCY CHANGE NOTICES, WRITTEN REQUISITIONS AND PROCUREMENT SPECIFICATIONS

ATTACHMENT 2



Print Order & Transmittal

Page ___ of ___

Return To:

Check For Special Mailing:
1 = Next day delivery
2 = 2nd day Air
3 = Other ____

Addressees Note:

R = Sign below to acknowledge review of documents.

X = Sign below to acknowledge receipt of documents.

I = Sent for information only, not for fab or construction. No receipt req'd.

Distributed by Engineering-Assigned

Orig: Sched Coord

Prints: Discipline Subcode | Sched Coord | Sched Coord | Manuf | Const | (Engineering) | (Houston) | Weld/Const Services | Total Prints

Repros: Customer | Other | Total Repros

Dist by Mfg — Prints: Manufacturing | Construction | Sched Coord | Mfg Acctng | Total Prints

Document | Rev | Rev Code

Purpose of Printing:

- ☐ For review and/or approval (not released for use)
- ☐ Released for fab & construction
- ☐ Other _____

Approved for Use:

Signature/Title

Date

Acknowledgement of receipt or review as required above:

Signed | Date | Dept.

Remarks:

Eng. Assigned

location | by

Date Made By

Job Location

Contract

(See Std 592-5-1 for Form instructions)

GE800 Rev Aug 94

DOC. ID QAP 5.3
REV. NO. 1
CONTRACT

TITLE CBI STANDARDS

PAGE NO. 1 OF 1

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP	BGG	RES REK RAJ			CMD

	BY	DATE
PREPARED	JGS	9-4-92
REVISED	RAJ	4-17-95
AUTHORIZED	RNK	8/8/95
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the control and use of CBI Standards.

2.0 RESPONSIBILITIES:

2.1 Managers shall identify those individuals requiring controlled sets of Standards to perform their work and shall make standards available for their use.

2.2 Individuals with controlled sets of Standards shall ensure that the sets are kept up-to-date.

3.0 CONTROL OF STANDARDS:

3.1 Standards are controlled from CBI - Corporate offices.

3.2 For hardback and compact disk formats, distributions have been established to provide individuals with the standards they require to perform their work. Standard revisions are sent to all holders of controlled sets containing those standards. The standards indicate the departments responsible for maintenance and authorization for use.

3.3 Standards may also be issued in electronic on-line format. See QAP 5.6

4.0 USE OF STANDARDS:

Standards shall be used in conjunction with or as referenced in QAPs. If more stringent, the QAP requirements take precedence over CBI standards.

TITLE CONTRACT QA DOCUMENTS

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK			CMD

	BY	DATE
PREPARED	ALD	8-19-92
REVISED	JCJ	6-20-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the system followed for initiation, distribution and control of Contract QA documents.

2.0 RESPONSIBILITIES:

2.1 The Welding & QC Manager (Manufacturing or Construction) is responsible for assembling, distributing and controlling the contents of Contract QA documents.

2.2 The Contract Team Leader (CTL), in conjunction with the Welding & QC Manager, is responsible for establishing the appropriate distribution of Contract QA documents.

3.0 PROCEDURE:

3.1 Assembly

3.1.1 Contract QA documents may be assembled in the form of a specific Contract QA Handbook, product line or service manual, or distributed individually. Contract documents typically include:

A. Quality plans and checklists

B. Contract procedures

C. QAM Addenda

D. Contract QAPs

E. Customer documents (or reference thereto)

F. Code Dimensional Checks

G. Copy of Code Certificate of Authorization for ASME jobsites.

3.1.2 When customer approval is required, the procedures and quality plans shall not be distributed until after customer approval.

3.2 Distribution (other than electronically on-line)

3.2.1 The Welding & QC Manager shall prepare a transmittal letter addressed to each recipient.

3.2.2 The Welding & QC Manager shall distribute the Contract QA documents with copies of the letter of transmittal, retaining the original. When specific Contract QA Handbooks or product line or service manuals are used, contents shall be as indicated on a selective distribution list.

3.3 Receipt and Acknowledgment (other than electronically on-line distributions)

3.3.1 Upon receipt of a revision to or new Contract QA documents or specific QA Handbook, or product line or service manuals, each recipient shall:

A. Check identification and revision numbers of documents transmitted against the accompanying transmittal letter or index to assure that they are correct, complete, applicable to the contract and that the correct quantity has been received.

B. For revisions, destroy obsolete documents or mark them "VOID" and keep them separately.

C. When required, sign and date the letter of transmittal and return it immediately, noting any discrepancies (e.g., missing documents or index errors) to be corrected.

3.3.2 The Welding & QC Manager shall assure that an acknowledgment is received from each recipient. A follow up copy of the transmittal letter shall be sent to those individuals or organizations who have not acknowledged receipt.

3.4 Audits (other than electronically on-line documents)

3.4.1 Hardcopy Contract QA documents or specific QA Handbooks or product line or service manuals shall be checked by the Welding & QC Manager periodically to assure:

A. Completeness according to the index and selective distribution list (for Contract specific QA Handbooks).

B. There are no obsolete documents.

C. Good physical condition (usability) of contents.

3.5 Distribution Using Electronically On-line Format

3.5.1 The provider makes available electronically on-line documents needed by the user.

3.5.2 See QAP 5.6 for control of electronic on-line documents.

4.0 RECORDS:

4.1 Contract QA documents shall be maintained as required by contract, Code, jurisdiction and CBI Standards.

4.2 Copies of transmittal letters used to record receipt of signed acknowledgments shall be retained until completion of the contract.

4.3 Signed acknowledgments may be discarded after processing.

TITLE CUSTOMER DRAWINGS

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK			CMD

	BY	DATE
PREPARED	RGL	8-19-92
REVISED	JCJ	6-20-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure establishes the requirements for use of customer drawings in lieu of CBI detail drawings when required by the contract. "Customer Drawings" includes any documents supplied by the customer to be used by CBI to accomplish the work.

2.0 RESPONSIBILITIES:

The Contract Team Leader (CTL) is responsible for control and distribution of customer drawings.

3.0 CONTROL OF CUSTOMER DRAWINGS

3.1 The CTL shall obtain the customer drawings and acknowledge receipt if requested. He shall advise the customer of shortages, discrepancies or inadequacies (e.g., missing drawings or dimensions - not whether an item is adequate for intended use unless required by contract). Only customer drawings that have been approved for use by the customer shall be distributed within CBI. Revisions shall be reviewed by the CTL to determine the impact on any work already accomplished. Appropriate individuals or organizations shall be notified if necessary.

3.2 The CTL shall review the scope of work with Engineering-Assigned to determine the need for engineering review of the customer drawings.

3.3 The CTL shall establish an internal distribution. Engineering-Assigned shall be included on the distribution if required for review. The CTL shall retain copies of all current customer drawings.

3.4 The CTL shall initiate an index of approved customer drawings with current revision levels if the customer does not supply an index.

3.5 The customer drawings together with the index of approved drawings shall be distributed by the CTL. A transmittal document and receipt acknowledgement may be required depending on the number of sets, the method transmitted and where the customer documents are transmitted. Appropriate control shall be determined by the CTL. When receipt acknowledgement is established, follow-up on overdue responses shall be documented.

3.6 Recipients of customer drawings shall properly file and update the customer drawings and sign and return receipt acknowledgement when required.

3.7 The CTL shall require that obsolete drawings are removed from use.

4.0 RECORDS:

4.1 Customer drawings and the approved drawing index are contract records and shall be maintained by the CTL as required by contract, Code, jurisdiction and CBI Standards.

4.2 When transmittal documents are required they shall be maintained until the end of the contract.

TITLE CONTROL OF DOCUMENTS MADE AVAILABLE ELECTRONICALLY ON-LINE

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP		RWK	LBR BGG	AGR JAB	CMD

	BY	DATE
PREPARED	RAJ	4-17-95
REVISED	RWK	6-27-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the procedure used to control access, entry of information and approvals for documentation made available electronically on-line.

2.0 DEFINITIONS:

Electronic On-Line Documentation: Information stored as a file in a form that only a computer can process or read and that is maintained up-to-date by the provider.

3.0 RESPONSIBILITIES:

3.1 The originating organization will prepare the document template.

3.2 Responsible Management will establish requirements for access, entry of information, and approvals for electronic documentation.

4.0 GENERAL:

4.1 The provider (owner of the information) makes available electronically on-line, checked, approved and up-to-date information (documents) required by others in the organization.

4.2 Information made available electronically on-line replaces the need to distribute documents hardback, floppy disk and compact disk formats. Since electronic on-line information is maintained current and is accessed by users on an as-needed basis, acknowledgment receipt and distribution lists are not required.

4.3 Electronic on-line information that is printed in order to execute work, such as detailed drawings and welding, NDE or PWHT procedures, shall be controlled by those individuals or organizations issuing the information.

4.4 Access, revision permission and logging of data shall be controlled, as necessary, as described below.

5.0 LEVELS OF PERMISSION:

5.1 When required, access will be established for the following levels of permission:

5.1.1 Read Permission:

A. Allows a user to view information but not to make entries.

B. Permission to print copies of the stored information may be allowed.

5.1.2 Write Permission:

A. Allows a user to modify or create some or all information in a document.

B. Write permission may be restricted to one or more fields in the document.

5.1.3 Delete Permission:

Allows those with authority to delete a document from the system.

5.1.4 Approve Permission:

Allows those with authority to approve a document.

6.0 ACCESS CONTROLS:

6.1 Responsible Management will establish with all involved organizations the appropriate permission levels of document users.

6.2 Electronic controls will be established, when needed, to restrict permission levels to the document as appropriate. Acceptable controls include:

A. Passwords - Requires entry of a password unique to the user.

6.2 (cont'd)

B. Document Approval Authorization System (DAAS) - Requires entry of a password combined with actual signature.

C. Hardware Keys - Requires use of a physical key, magnetic pattern or optical pattern.

D. Tokens - Requires use of a physical key in combination with a password.

7.0 APPROVAL (INCLUDES SIGN-OFF AND AUTHORIZATION):

7.1 Access and permission for approvals shall be controlled per 5.0 and 6.0.

7.2 An identifying mark or symbol traceable to individuals with approval authority shall be established.

8.0 RECORDS:

8.1 Electronic User Information

Records shall be maintained which document the permission levels of users.

8.2 Electronic Documents

Electronic documents shall be maintained as required by the relevant quality management system control (QAM, QAP, or procedure).

TITLE PURCHASE ORDERS

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR	AGR	CMD
				BGG	JAB	
					GJC	
					RRH	

	BY	DATE
PREPARED	RGL	12-9-92
REVISED	JCJ	6-28-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the preparation, distribution and control of Purchase Orders including related specifications.

2.0 RESPONSIBILITIES:

2.1 The Purchasing Manager shall initiate Purchase Orders per this procedure and the requirements in the CBI Standards contained in the "Purchasing" distribution.

2.2 Engineering-Assigned is responsible for preparing written requisitions for material.

2.3 The Welding & QC Manager is responsible for preparing written requisitions for welding material.

3.0 PROCUREMENT OF GOODS

3.1 Engineering-Assigned (or Welding & QC Manager for welding material) prepares written requisitions (Advance Bills, Final Bills of Material, Shipping Orders) and procurement specifications in accordance with QAP 4.1 and transmits these to the Purchasing Manager.

3.2 After the Purchasing Manager receives and reviews the contents of the written requisition or procurement specification, he selects an approved supplier from the supplier database for supplying the goods and prepares a Purchase Order (PO) (Attachment 1).

3.2.1 For ASME work, suppliers of material or parts requiring:

a) welding, must hold an ASME Certificate of Authorization.

3.2.1 (continued)

b) tack welding, must hold an ASME Certificate of Authorization unless ASME Section IX qualified weld procedures and welders are utilized.

c) welding of temporary lifting or alignment lugs, must hold an ASME Certificate of Authorization unless ASME Section IX qualified weld procedures and welders are utilized and the temporary welds are removed and the metal surface restored to a smooth contour.

For both (b) and (c) above, the Welding & QC Manager shall review and approve the weld procedures.

3.3 The Purchasing Manager may not add to, delete or alter any of the requirements of the written requisition or procurement specification without written approval of the originator.

3.4 PO's shall contain the following information, as applicable:

A. PO Number
B. Complete description of goods
C. Procurement Specifications
D. Engineering drawings/sketches (whenever required)
E. Any special provisions or exclusions
F. Reference identification of material
G. Requirements for Test Certification
H. Source Inspection Requirements.
I. Requirements for intervention points (hold, witness, inspection, etc.)
J. Audit requirements
K. Requirements for resolution of nonconformance
L. Requirements for approval of supplier documents
M. Requirements for Code Certificate of Authorization for ASME work.

3.5 Prior to release, the PO's shall be reviewed by the Purchasing Manager and approved for adequacy of specified requirements.

3.6 Distribution of PO's shall be as follows:

A. Supplier: Original (or fax of original) and acknowledgment copy* with all applicable procurement specifications.
B. Receiving personnel: with drawings/sketches (if required)
C. Contract Team Leader (CTL): as required
D. Appropriate Purchasing files
E. Engineering-Assigned: as required

3.7 When the supplier's acknowledgment copy of the PO is received, the Purchasing Manager reviews it and checks it against the original PO requirements. If any discrepancies are noted, the Purchasing Manager shall resolve them with the supplier. If the acknowledgment is acceptable, it shall be filed with the PO.

3.8 Purchase Order Revisions

3.8.1 Revisions to purchase orders are processed in the same manner as the original.

3.8.2 Revised purchase orders are identified with a revision number.

4.0 PROCUREMENT OF SERVICES:

4.1 When procurement of engineering services is required, it shall be in accordance with written instructions from the Product Engineering Manager.

4.2 When procurement of other services (calibration, machining, etc.) is required, the following applies:

4.2.1 The group responsible for the work being subcontracted provides a written requisition to the Purchasing Manager outlining the scope of work.

*Acknowledgment copy as/when required by the Purchasing Manager

4.2.2 The Purchasing Manager selects an approved supplier from the supplier database for providing the service and prepares a PO that includes all the information from the written requisition.

4.2.3 The Purchasing Manager may not add to, delete, or alter any of the requirements of the written requisition without written approval of the originator.

4.2.4 PO's shall contain the following information, as a minimum:

A. PO Number

B. Complete description of required services

C. Drawings/sketches (if required)

4.3 Review, approval and distribution of PO's are handled per steps outlined in paragraphs 3.5 and 3.6 respectively.

5.0 CUSTOMER VERIFICATION OF PURCHASED PRODUCT:

The customer shall be given the right to verify at the source or upon receipt at a CBI location that the purchased product complies with the specified requirements.

6.0 RECORDS:

Purchase orders are contract records and shall be maintained by Purchasing as required by CBI Standards.

7.0 ATTACHMENTS: (Typical)

Attachment 1 - Purchase Order

ATTACHMENT 1

PURCHASE ORDER

PURCHASE ORDER NUMBER

CONTRACT

DATE

TO:

SHEET NO. OF

SHIP PREPAID TO:

BUYER	REQUISITION BY	SHIP VIA	STATE TAX APPLIES		CONFIRMING	NON-CONFIRMING
F.O.B.	TERMS		EXEMPT		SHIP BY DATE	

PLEASE ENTER OUR ORDER FOR THE FOLLOWING, SUBJECT TO THE TERMS & CONDITIONS ON REVERSE SIDE HEREOF

ITEM NO.	QUANTITY	DESCRIPTION	ID	PRICE	INTERNAL USE

☐ ACKNOWLEDGMENT COPY ATTACHED – PLEASE RETURN AT ONCE AND INDICATE FIRM SHIPPING DATE.

☐ NO ACKNOWLEDGMENT NECESSARY

SPECIAL CONDITIONS

Furnish all invoices and bills of lading in duplicate to us at:

We reserve the right to refuse all invoices unless bills of lading, express receipts or prepaid bills are attached to the invoices.

BY
AUTHORIZED PURCHASING SIGNATURE
ADDRESS ALL CORRESPONDENCE TO SIGNEE

PURCHASE ORDER NO. & CONTRACT NO. TO APPEAR ON ALL INVOICES, PACKAGES AND SHIPPING PAPERS.

Printed in USA

PO 306 REV SEP 93

CBI

DOC. ID QAP 6.2
REV. NO. 3
CONTRACT

TITLE SUPPLIER SURVEY

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
			RWK		RRH
			JCJ		GJC
			RES		

	BY	DATE
PREPARED	RGL	8-19-92
REVISED	RWK	6-28-96
AUTHORIZED	RWK	8/15/96
REFERENCED STANDARD	REV. NO.	

Extensively Revised

1.0 SCOPE:

This procedure describes the system for supplier survey.

2.0 RESPONSIBILITIES:

2.1 The Purchasing Manager shall be responsible for providing the Corporate QA Manager with necessary supplier information.

2.2 The Corporate QA Manager shall be responsible for coordinating the survey and reviewing the survey team's report.

2.3 The survey team leader shall be responsible for performing the survey and preparing the report.

2.4 Purchasing shall be responsible for maintaining the supplier database and review of suppliers per QAP 6.3.

3.0 SUPPLIER SURVEY:

3.1 The Purchasing Manager shall notify the Corporate QA Manager of the need for a supplier survey after reviewing the supplier per QAP 6.3.

3.2 The Corporate QA Manager coordinates supplier surveys.

3.3 The Purchasing Manager shall provide the following information about the prospective supplier:

A. Name of company, location(s) to be surveyed, and name of person to be contacted.

B. Goods or services to be furnished.

C. Copy of supplier's QAM (if required).

3.4 The Survey Team Leader selected by the Corporate QA Manager shall:

3.4.1 Organize survey teams after consulting with Purchasing, Engineering and other departments as warranted by the goods or services offered by the supplier. He may determine that a one-man team will suffice.

3.4.2 Review available data concerning the prospective supplier.

3.4.3 Prepare the survey plan (Audit Plan as shown in Attachment 1).

3.4.4 Hold a pre-survey meeting with the survey team if applicable. Orient team members as to the scope and nature of the survey and any special requirements. Outline to each member the areas to which he should give particular attention and the scope of the report that he should make at the close of the survey. Distribute checklists and review as necessary.

3.4.5 Hold a brief pre-survey meeting with supplier personnel. Present the survey plan, discuss its scope and execution.

3.4.6 Prepare a written summary of the team conclusions, including corrective actions deemed necessary.

3.4.7 Present these conclusions to the supplier representatives at an exit meeting.

3.4.8 Prepare the Supplier Evaluation Report (Attachment 2). This report shall be a summary of written contributions by survey team members and shall be reviewed by the Corporate QA Manager. If acceptable, a copy of the report shall be kept in the Corporate QA Manager's Supplier File and the original forwarded to the Purchasing Manager.

3.4.9 Forward the survey team conclusions by letter to the supplier, Corporate QA Manager, and Purchasing Manager.

3.5 Requirements for Survey

3.5.1 Survey of a prospective supplier is performed to verify that its policies, facilities, organization and system of quality assurance are adequate to meet Code and contract requirements and that the QA system is effectively implemented.

3.5.2 The survey team shall evaluate the supplier's entire QA system, including written Manuals (when available), procedures and policys, stated intent and practice, and by observation of actual operations.

The survey team may identify a lack of apparent capability in certain functions. This does not necessarily disqualify a supplier. For example, tests and examinations may be performed by a subcontractor or (if more economical) by CBI. An apparently inadequate quality assurance staff could be augmented by a CBI resident inspector to obtain assurance of required quality and documentation. In such instances, a supplier may be approved with restrictions. Such restrictions are noted in the supplier database. However, lack of necessary facilities or equipment (unless supplemented by capable subcontractors), lack of experience, inadequate talent or ability of personnel, or poor attitude of management toward quality matters would indicate that a supplier could not be expected to produce goods or services of acceptable quality.

3.6 The Supplier Evaluation Report shall follow a uniform outline and include:

A. Date of survey.
B. Members of survey team.
C. Goods or services for which supplier is approved.
D. Location of plant or facility which was surveyed.
E. Restrictions.
F. Conclusions.
G. Signature of Team Leader.

4.0 RECORDS:

Supplier survey reports are internal records and are to be retained by the Purchasing Manager as required by CBI Standards.

5.0 ATTACHMENTS (Typical):

5.1 Attachment 1 - Audit Plan

5.2 Attachment 2 - Supplier Evaluation Report

ATTACHMENT 1

AUDIT PLAN

ORGANIZATION TO BE AUDITED:

LOCATION:

DATE/SCHEDULE:

SCOPE:

REQUIREMENTS:

APPLICABLE DOCUMENTS:

ACTIVITIES TO BE AUDITED:

AUDIT PERSONNEL:

PROCEDURE:

CHECKLIST:

Team Leader Signature

Date

CQA-43 10/93

ATTACHMENT 2

CBI

SUPPLIER EVALUATION REPORT

SUPPLIER _____

LOCATION _____

PRODUCT _____

DATE EVALUATED _____

DATE OF REPORT _____

IDENTIFICATION _____

PAGE _____ OF _____

CQA-S2 REV 7/96

TITLE SUPPLIER REVIEW

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
		REK	RWK		RRH
					GJC

	BY	DATE
PREPARED	RGL	12-9-92
REVISED	RWK	6-28-96
AUTHORIZED	RWK	8/15/96
REFERENCED STANDARD	REV. NO.	

Extensively Revised

1.0 SCOPE:

This procedure establishes the requirements for the review of suppliers.

2.0 RESPONSIBILITIES:

The Purchasing Manager shall be responsible for the review of suppliers and preparation, maintenance and distribution of the supplier database.

3.0 REVIEW OF SUPPLIERS:

3.1 Potential suppliers shall be reviewed by the Purchasing Manager with the assistance of other Responsible Management as necessary. The Purchasing Manager determines what method or combination of methods, listed in A - J below, will be used to review the supplier. The method to be used shall be based on the type and complexity of the goods or services to be provided. Approval of the supplier for use shall be based on one or a combination of the following methods:

A. On-site surveys of the potential supplier's quality system per QAP 6.2 leading to approval.

B. Review and approval of the supplier's QA Manual and associated quality system procedures.

C. Testing product samples to confirm satisfactory results and quality.

D. Evaluating test results of similar products provided to CBI that demonstrated satisfactory results and quality.

E. Examining supplier's past history providing CBI similar products of acceptable quality.

F. Reviewing published information concerning the experience of other users that document acceptable quality.

G. Receiving approval from CBI's customer to use a supplier based on the customer's survey and audit program (when applicable).

H. Accepting the supplier's quality system certification to the appropriate ANSI/ASQC Q9000 series standard.

I. For ASME work, accepting the appropriate Code Certificate of Authorization.

J. Accepting suppliers approved and listed in the supplier database of another CBI location.

3.2 Approved suppliers shall be placed in the supplier database noting their location, approval basis and the goods or services they are approved to supply.

3.3 Suppliers shall be removed from the supplier database by the Purchasing Manager if it is determined through supplier control, see QAP 6.4, that they are no longer approved to provide the goods or services.

4.0 RECORDS:

The supplier database is an internal record. It shall be updated, maintained and distributed by the Purchasing Manager.

TITLE SUPPLIER CONTROL

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR	JAB	CMD
				BGG	AGR	
					RRH	
					GJC	

	BY	DATE
PREPARED	RAJ	10-10-95
REVISED	RWK	6-28-96
AUTHORIZED	RWK	8/15/96
REFERENCED STANDARD	REV. NO.	

Extensively Revised

1.0 SCOPE:

This procedure establishes the methods used to manage suppliers of goods or services.

2.0 RESPONSIBILITIES:

2.1 The Purchasing Manager coordinates supplier activities.

2.2 Responsible Management provides technical expertise to assist the Purchasing Manager in surveillance, review and approval activities.

3.0 SUPPLIER REQUIREMENTS:

3.1 Supplier requirements will be outlined in the purchase order (PO) and procurement specifications.

3.1.1 The PO and procurement specifications will contain all technical and quality assurance requirements necessary to produce the goods or services.

3.1.2 The PO and procurement specification will indicate any requirements for notification, hold points, witnessing or surveillance by CBI or by the customer, AI or 3rd party.

3.1.3 The PO and procurement specification shall indicate any requirements for procedures, qualifications (personnel or procedures) and documentation or reports.

3.2 Engineering-Assigned prepares written requisitions and procurement specifications for goods and services (except for welding materials). See QAP 4.1.

3.3 The Welding & QC Manager prepares procurement specifications for welding materials. See QAP 9.2.

3.4 Purchasing prepares PO's and provides them to suppliers along with any required procurement specifications. See QAP 6.1.

4.0 SUPPLIER PROCEDURES AND DOCUMENTS:

4.1 The Purchasing Manager coordinates review and approval of all supplier documents and procedures. The Purchasing Manager will obtain specialized expertise of other Responsible Management when needed to evaluate or approve supplier documents or procedures.

4.2 When required, Engineering-Assigned will review and approve the following supplier documents for conformance to design requirements, the PO and procurement specifications:

- design documents
- detail drawings
- written requisitions (bills, procurement specifications)
- test specimen plans
- heat treating procedures
- testing procedures (hydro and hydropneumatic)

4.3 When required, the Welding & QC Manager will review and approve the following supplier documents for conformance to the PO and procurement specifications:

- welding procedures
- NDE procedures
- NDE reports
- quality records
- dimensional records
- heat treating records

4.4 Purchasing will communicate any comments including non-conformities to the supplier.

5.0 SUPPLIER SURVEILLANCE:

5.1 The type and extent of controls exercised over the supplier to verify conformance to contract quality system requirements will depend on the type of goods or services to be supplied, and where appropriate, on records of previously demonstrated capability and performance.

5.2 The Purchasing Manager or other Responsible Management shall determine the need for surveillance (in-process inspection and audits). When required, surveillance shall be conducted on suppliers to ensure their quality system controls are effective and in compliance with quality system requirements.

5.3 The Purchasing Manager shall arrange for surveillance when required. When necessary, other responsible managers will provide personnel with the necessary expertise for surveillance.

5.4 Surveillance reports will be generated when required to document activities. Surveillance activities may also be documented on process control documents.

6.0 RECORDS:

6.1 Supplier documents and data are contract records and shall be maintained by the Purchasing Manager or forwarded to other Responsible Management for inclusion with other contract records. Typical supplier records include:

- procedures
- drawings
- procurement specifications
- performance and procedure qualifications
- NDE reports
- testing reports
- dimensional reports
- Data Reports or Partial Data Reports
- Design calculations
- MTR's & COC's
- Record drawings showing material traceability & welder ID
- Heat treat records

6.2 Surveillance reports are typically internal records and will not be maintained unless required for the contract.

TITLE RECEIPT OF CUSTOMER SUPPLIED MATERIAL WHEN THE CUSTOMER IS RESPONSIBLE FOR VERIFICATION OF MATERIAL

APPROVED

Engr	Corp Weld	Corp QA	Const	Mfg
MJK		RWK	BGG	JAB
			LBR	AGR
				JIC
				GJC

	BY	DATE
PREPARED	RGL	12-9-92
REVISED	JCJ	9-6-96
AUTHORIZED	RWK	9/12/96
REFERENCED STANDARD		REV. NO.

Extensively revised

1.0 SCOPE:

This procedure covers the receipt, inspection and release of customer supplied and verified material in the following conditions:

1.1 When the customer supplies material on non-ASME jobs.

1.2 For ASME work, when CBI provides parts or services to another Stampholder who supplies the material and assumes full Code responsibility for the vessel. CBI must not have design responsibility and is not the ASME "Manufacturer".

1.3 This procedure is not to be used when CBI is responsible by Code or contract for verification of material. See QAP 7.2 for procedures to be followed in this case.

2.0 RESPONSIBILITIES:

2.1 It is the customer's responsibility to ensure that supplied material has been inspected and/or tested and complies with specified requirements. The customer shall supply CBI with documentation needed to perform the receipt inspection.

2.2 The Contract Team Leader (CTL) is responsible to ensure that the customer provides all documentation necessary to receive, inspect and release customer supplied material.

2.3 The Welding & QC Manager in the shop or the Welding & QC Supervisor at the jobsite shall assure that documentation supplied by the customer is adequate for receiving purposes.

2.4 Receiving personnel shall perform receipt inspection.

2.5 Purchasing or other Responsible Management is responsible for releasing customer supplied material for use and maintaining records relating to customer supplied items, such as ordering information, receiving inspection reports, and supplier documentation.

3.0 PROCEDURE:

3.1 Receipt

3.1.1 When materials are received from the customer, the receiving personnel shall notify the Welding & QC Manager in the shop or Welding & QC Supervisor at the jobsite of its arrival and forward any associated documentation received with the material.

3.1.2 The Welding & QC Manager in the shop or Welding & QC Supervisor at the jobsite shall check to see that all necessary information is available to properly identify and inspect the material and shall provide this information to Receiving personnel. When complete information is not available, the CTL shall be notified.

3.2 Inspection and Release

3.2.1 Receiving personnel shall:

A. Verify that all items received are listed on the shipping documents and properly identified.

B. Inspect all items for any evidence of shipping damage.

C. Inspect and document any special receiving requirements specified by CBI or by customer documents accompanying the items.

D. Document the inspection on a Receiving Inspection Report (RIR). RIRs may be customer supplied forms or CBI forms (see CBI Standard 607-3-3).

3.2.1 (continued)

E. Forward the completed RIR to Purchasing or other Responsible Management.

3.2.2 Purchasing or other Responsible Management shall review the completed RIR, release the items for use if acceptable, and inform receiving personnel of the disposition.

3.3 Nonconformities

3.3.1 Any nonconformities found including missing items, incorrectly made items, incorrectly identified items and damaged items shall be reported to the customer for his disposition by the CTL via the RIR or a nonconformance report.

3.4 Storage of customer supplied material shall be per QAP 15.1.

4.0 RECORDS:

The RIR, together with any associated documentation received with the material, are contract records and shall be maintained by Purchasing or other Responsible Management.

TITLE RECEIPT OF CUSTOMER SUPPLIED MATERIAL WHEN CBI IS RESPONSIBLE FOR VERIFICATION OF MATERIAL

APPROVED

Engr	Corp Weld	Corp QA	Const	Mfg	HSB
MJK		RWK	BGG	JAB	CMD
			LBR	AGR	
				JIC	
				GJC	

	BY	DATE
PREPARED	REK	10-10-95
REVISED	JCJ	9-6-96
AUTHORIZED	RWK	9/12/96
REFERENCED STANDARD	REV. NO.	

Extensively revised

1.0 SCOPE:

This procedure covers the receipt, inspection and release of customer supplied material in the following conditions:

1.1 For ASME work, when CBI is Code responsible for verifying that material is acceptable for its intended use. This will always be true for ASME work when CBI assumes full Code responsibility for the vessel and signs the Manufacturer's Data Report.

1.2 For any work, when CBI is contractually responsible for verifying that material is acceptable for its intended use.

1.3 See QAP 19.1 for instructions regarding customer supplied material in NBIC work.

2.0 RESPONSIBILITIES:

2.1 It is the customer's responsibility to ensure that supplied material has been inspected and/or tested and complies with specified requirements. The customer shall supply CBI with documentation needed to perform the receipt inspection.

2.2 The Contract Team Leader (CTL) is responsible to ensure that the customer provides all documentation necessary to receive, inspect and release customer supplied material.

2.3 The Welding & QC Manager in the shop or the Welding & QC Supervisor at the jobsite shall assure that documentation supplied by the customer is adequate for receiving purposes.

2.4 Receiving personnel shall perform receipt inspection.

2.5 Purchasing or other Responsible Management is responsible for releasing customer supplied material for use and maintaining records relating to customer supplied items, such as ordering information, receiving inspection reports, and supplier documentation.

3.0 PROCEDURE:

3.1 Customer supplied material shall be received in the same manner as material received from a supplier (See QAP 10.1) or as allowed in 3.2 below. Ordering information and documentation shall be supplied by the customer.

3.2 When customer supplied material is received at a jobsite, the following may be used instead of paragraph 3.1:

A. The customer shall supply ordering information and documentation.

B. The Welding and QC Supervisor shall complete the upper portion of the "Metal Receiving Inspection Report" or the "Stores Receiving Inspection Report" (see CBI Standard 607-3-3). When complete information is not available, notify the CTL.

C. Receiving personnel shall:

1. Verify that all items received are listed on the shipping documents and properly identified.

2. Inspect all items for any evidence of shipping damage.

3. Inspect and document any special receiving requirements specified by CBI or by customer documents accompanying the items.

4. Document the inspection on a Receiving Inspection Report (RIR). (see CBI Standard 607-3-3).

3.2 (C) (continued)

5. Forward the completed RIR and customer supplied documentation to Purchasing or other Responsible Management.

D. If any item is found unacceptable during receiving inspection, it shall be so noted on the RIR as nonconforming and forwarded to Purchasing or other Responsible Management for disposition.

E. Purchasing or other Responsible Management shall review the material documents and the receiving portion of the report to verify that all Code and customer requirements have been met. One copy of the released "Receiving Inspection Report" is then sent to the Welding and QC Supervisor at the jobsite.

F. After receipt of the released "Receiving Inspection Report" from Purchasing or other Responsible Management, the material may be incorporated into the product.

3.3 Storage of customer supplied material shall be per QAP 15.1.

4.0 RECORDS:

The RIR, together with any associated documentation received with the material, are contract records and shall be maintained by Purchasing or other Responsible Management.

TITLE MATERIAL CONTROL

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	RF		REK RAJ RES	JJJ LBR	RWK AGR	CMD

	BY	DATE
PREPARED	RAJ	12-9-92
REVISED	RAJ	10-10-95
AUTHORIZED	GPWK	10/23/95
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the system used to control material, except welding material.

2.0 RESPONSIBILITIES:

2.1 Engineering-Assigned determines material management requirements.

2.2 The Superintendent applies the material in accordance with contract drawings. He is responsible for maintenance of material identification throughout use.

2.3 The Purchasing Manager is responsible for maintenance of material documentation.

3.0 PROCEDURE:

3.1 Engineering-Assigned determines material management requirements in accordance with CBI Standard 607-2.

3.2 Engineering-Assigned specifies material management requirements by indicating the material management coding on written requisitions.

3.3 Purchasing assigns (applies) material in the source column of the original "Final Bill of Material".

3.4 Material is released for use in accordance with QAP 7.1 or QAP 10.1.

3.5 The Superintendent applies the material in accordance with contract drawings and written requisitions.

3.6 When CBI Standard 607-3 requires use of a Daily Fabrication or Stores Release Report (DFR, see Attachment 1), it shall be processed in accordance with CBI Standard 607-3-5. The DFR documents application of material and is used to maintain material traceability.

3.7 Upon receipt of the DFR, Purchasing verifies material application using the Final Bills or Shipping Order per Standard 607-3.

3.8 If the check of the DFR discloses any discrepancies, Purchasing investigates the discrepancies.

4.0 UNASSIGNED MATERIAL: - See CBI Standard 607-3-6

4.1 Unassigned material is material that was not ordered specifically for the job on which it is to be used.

4.2 A request for the use of unassigned material may be initiated by shop personnel or by Purchasing using the "Verification of Unassigned Material". (See Attachment 2)

4.3 Purchasing shall make checks to determine that the material meets the full specification given on the "Advance Bill" and/or the "Final Bill of Material".

4.4 Approval must be obtained from Engineering-Assigned if the material is not as originally specified.

5.0 IDENTIFICATION OF MATERIAL:

The Superintendent (Foreman) shall assign and mark serial numbers and identification, when required, to maintain traceability of parts and materials to material test reports. The material supplier identification number or heat serial coding will be transferred when original marking is removed. See Standard 606-1-1.

6.0 RECORDS:

All records generated per this procedure are contract records and shall be maintained by Purchasing.

7.0 ATTACHMENTS: (Typical)

7.1 Attachment 1 - Daily Fabrication or Stores Release Report

7.2 Attachment 2 - Verification of Unassigned Material

ATTACHMENT 1

CBI

DAILY FABRICATION OR STORES RELEASE REPORT
METAL OR MISCELLANEOUS

See Standard 607-3-5 for instructions on using this form.

Contract No. _____

Recorder's ID _____
Date _____
Sheet No. _____

ROUTE TO	ROUTED BY	DATE	FOR ACTION	DONE BY	DATE

	No. of Pieces	Engr'g Piece Mark	Heat Serial Code	Mill Markings		Material applied (use optional)					Notes
				Heat/Lot/Control No.	Slab or Serial No.	Quan.	Item	Thick.	Spec.	CBI Order No.	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											

ORIGINAL TO PURCHASING
COPY TO QA
COPY RETAINED BY FOREMAN

File No. _____

Printed in USA

GO 637 REV JAN 88

ATTACHMENT 2

CBI

VERIFICATION OF "UNASSIGNED" MATERIAL

Request for Verification by: ☐ Shop ☐ Jobsite ☐ Purchasing

For use on contract _____ Engineering piece mark _____

Advance bill no. _____ Line no. _____ Final bill or shipping order no. _____ Line no. _____

Material specification _____ Size needed _____

Source of material considered, check (✓) one

Stock _____

Leftover _____

Material from another contract _____

Stamping or marking of material considered

Contract no. _____

Ordered item no. _____

Material specification _____

Lot or heat and slab no. _____

Thickness or size _____

☐ Mike readings required

Request made by _____ Date _____

Purchasing's Verification

	Yes	No
Material specification agrees with billing.		
Material considered is identified.		
Supplier's material certification has been located and checked.		
Material has been verified as being proper for the application.		
Additional operations required.		
Material is approved for use.		

Additional Operations Required To Bring Considered Material into conformity

	Yes
Heat Treatment	
Physicals	
Impacts	
UT	
MT	
PT	

Material Released for Fabrication

Purchasing _____ Date _____

QC/QA _____ Date _____

Notes: If the material is used (other than welding materials), the Production Superintendent or storeroom must report it on a Daily Fabrication or Stores Release Report and purchasing will check what has been reported. A copy of the supplier's material certification must be filed under the contract on which it is used and an entry must be made on the Material Verification Summary Sheet. Use back of form for mike readings where material requires miking per Standard 607-3.

File No. ☐

Printed in USA

See Standard 607-3-6 for instructions on using this form.

QO 638 (FRONT) REV JAN 85

ATTACHMENT 2 (cont'd)

VERIFICATION OF "UNASSIGNED" MATERIAL

Identification No. of Micrometer of Thickness Gage Used _____

Mike Readings By _____

Printed in USA

GO 838 (BACK) REV JAN 88

TITLE PROCESS CONTROL

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP	REK	RWK	LBR	AGR	CMD
				BGG	JAB	

	BY	DATE
PREPARED	ALD	12-9-92
REVISED	JCJ	6-24-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the various systems used to control manufacturing and construction operations.

2.0 RESPONSIBILITIES:

2.1 Engineering-Assigned is responsible for preparing Inspection & Testing (I & T) Checklists, Assembly Check Lists, Test Procedures, Record Drawings and Radiography Examination Schedules.

2.2 Construction Services is responsible for writing and maintaining equipment and erection manuals.

2.3 The Welding & QC Manager is responsible for preparing welding and welding related procedures and Quality Plans (when used).

2.4 The Superintendent is responsible for the preparation of Work Order Cards (WOC).

3.0 PROCESS CONTROL DOCUMENTS:

3.1 The Welding & QC Manager shall review process control documents. Any errors, omissions or corrections shall be resolved with Engineering-Assigned prior to the documents being issued for use.

3.2 When required, these documents shall be submitted to the customer and AI for review, comment, approval and the insertion of "hold" or "witness" points as applicable (see 9.0).

3.3 I & T checklists are used to control and document the completion of required inspections and tests. See CBI Standard 750-1.

3.4 Assembly Checklists and Record Drawings are typically used to control and document operations. (See CBI Standard 750-1.) (For examples, see Attachments 1, 2 and 3)

3.5 Radiograph Examination Schedules (see CBI Standard 750-1) are used to control and assure the minimum required Radiographs are taken. The form is used to document the actual number of Radiographs taken versus required Radiographs per seam and thickness.

3.6 Quality Plans

3.6.1 If required, Quality Plans shall be generated and used per QAP 2.2.

3.6.2 Quality Plans may be expanded upon in more detail by reference to other process control documents.

3.7 Designated Manufacturing or Construction personnel shall review and signoff or fill-in the appropriate documents as work progresses.

3.8 After completion of the documents, they shall be returned to the Welding & QC Manager for final review and acceptance.

4.0 WORK ORDER CARDS (WOCs):

4.1 WOCs may be used to control non-welding Fabrication operations.

4.2 WOCs control the routing of items through specific operations or machines and departments. Sequenced operations will be crossed out as they are completed.

4.3 WOCs can also identify the necessity of such required items as stenciling versus marking, daily fabs, verification of unassigned materials, etc.

4.4 WOCs do not require submittal to the customer for review, approval or the insertion of witness and hold points.

5.0 ASSEMBLY CHECKLISTS AND RECORD DRAWINGS:

5.1 Process Control Documents are used to control operations and provide a means of recording information for assemblies and parts requiring welding, heat treating or nondestructive examinations requiring procedures.

5.2 Process Control Documents are typically used to control and document various fabrication and construction activities such as:

A. joint identity and location
B. joint fitup
C. required joint weld procedure
D. welder identity
E. finished joint check
F. required NDE, PWHT, PMI, hardness, dimension checks, etc. procedures
G. material identity
H. radiograph identity and location (spot) or film interval (100%)

5.3 Signoffs on Process Control Documents certify that the indicated individual activity or the indicated group of activities are complete and meet requirements. Signoffs are typically used for the items specified in paragraph 5.2 and certify that:

A. Materials are identified and recorded
B. Welders used were qualified
C. The operation is properly performed in accordance with the referenced procedure
D. Weld joint identification has been recorded
E. Reports are completed

5.4 When required, Process Control Documents shall be submitted to the customer and AI for review, comment, approval and the insertion of "hold" and "witness" points as applicable (see 9.0).

5.5 After completion of the Process Control Documents, they shall be returned to the Welding & QC Manager for final review and acceptance.

6.0 ERECTION MANUALS:

6.1 Erection Manuals are used to control field erection of standard product lines. Erection manuals are issued (as required) by the Contract Team Leader to the site Superintendent.

6.2 Erection manuals are used to control basic erection techniques and the sequence of operations. Erection Manuals are proprietary information and are not submitted to the customer for review, comment, approval and the insertion of "hold" or "witness" points.

7.0 PROCEDURES:

Procedures are used to control specific operations and special processes requiring detailed instructions such as NDE, testing, welding, PWHT, etc. (see QAP 9.4) .

8.0 CBI STANDARDS:

CBI Standards provide individuals with standardized information that they require to perform their work. Their use is described in QAP 6.3.

9.0 HOLD AND WITNESS POINT CONTROL:

9.1 CBI, the AI or the customer may place "hold" or "witness" points on applicable Process Control Documents.

9.2 Work shall not proceed beyond a designated "hold" point until the "hold" point is signed off by the authority who placed it or they have voided it.

9.3 The authority voiding a "hold" point must initial and date such action.

9.4 Individuals placing "hold" points shall be given timely notification (per local agreement) of the anticipated reaching of the "hold" point.

9.5 Work may proceed past a "witness" point, provided the individual placing it has been given timely notification (per local agreement) of the anticipated reaching of the "witness" point.

10.0 RECORDS:

10.1 The following Process Control Documents are Contract Records and shall be maintained by the Welding & QC Manager or Engineering-Assigned per CBI Standard 590-1-4:

10.1.1 Assembly Check Lists, Shop Check Lists, etc.

10.1.2 I & T Checklists

10.1.3 Record Drawings

10.1.4 Radiography Examination Schedules

10.1.5 Quality Plans

10.1.6 Contract Procedures

10.2 The following process control documents are not maintained as Contract Records:

10.2.1 Erection Manuals

10.2.2 Work Order Cards (WOC)

10.2.3 In-House Procedures

10.2.4 CBI Standards

11.0 ATTACHMENTS: (Typical)

11.1 Attachment 1 - Assembly Check List

11.2 Attachment 2 - Shop Check List

11.3 Attachment 3 - Record Drawing

ATTACHMENT 1

CBI ASSEMBLY CHECK LIST

Description			CBI			
Seq. No.	Operation, Inspection, or Examination to be Completed	Applicable Procedure or Instruction	Init. Req'd "X"	Operation Insp. or Exam Accepted		For A.I. Only
				Initial	Date	

Made By	Chkd by	REV	By				Contract Number	No.
Date	Date		Chkd					Sheet ____ of ____
			Date					

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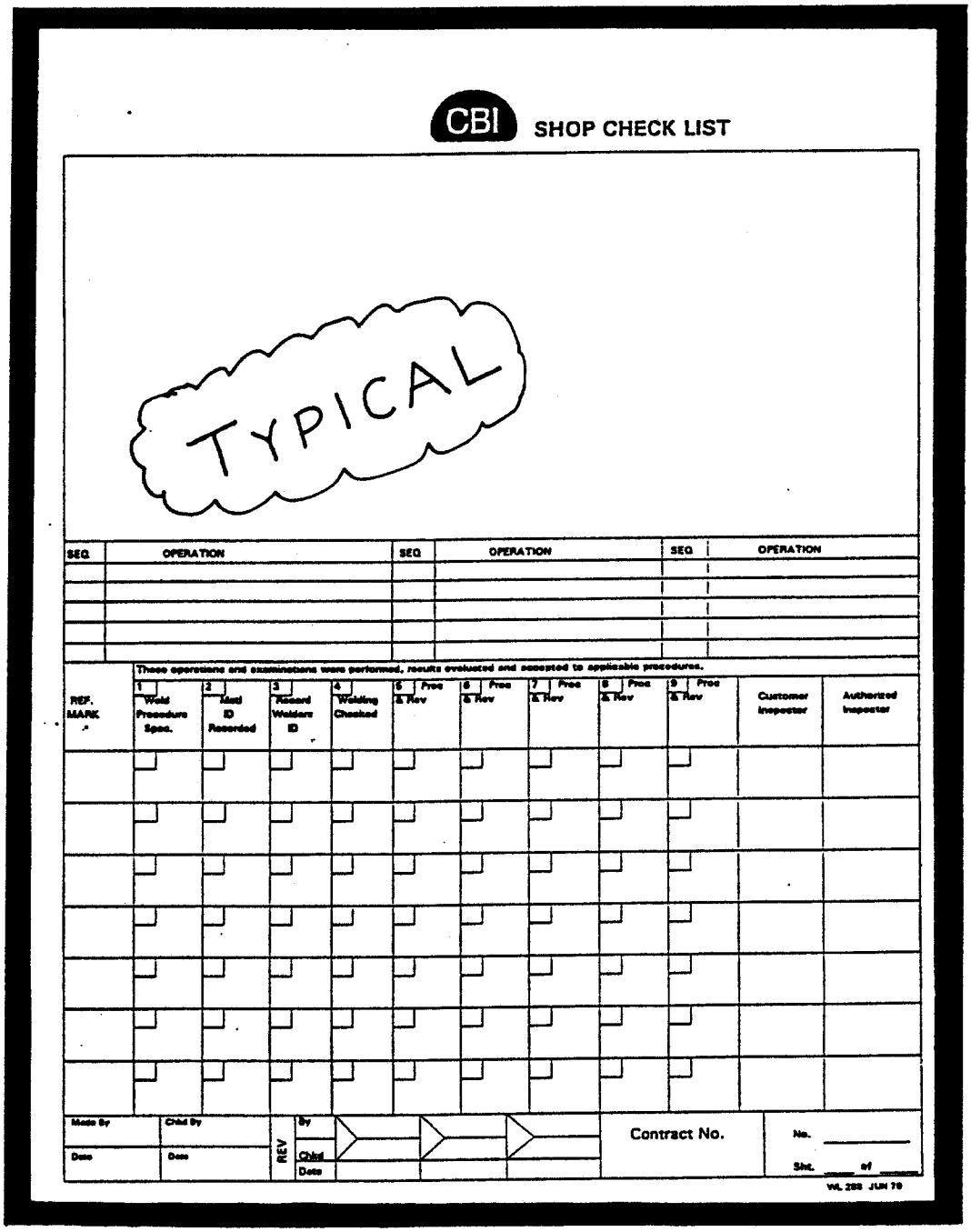
ATTACHMENT 2



CBI SHOP CHECK LIST

TYPICAL

SEQ	OPERATION	SEQ	OPERATION	SEQ	OPERATION

These operations and examinations were performed, results evaluated and accepted to applicable procedures.

REF. MARK	1 Weld Procedure Spec.	2 Matl ID Recorded	3 Assgnd Welders ID	4 Welding Checked	5 Proc & Rev	6 Proc & Rev	7 Proc & Rev	8 Proc & Rev	9 Proc & Rev	Customer Inspector	Authorized Inspector

Made By / Date | Chkd By / Date | REV By / Chkd / Date | Contract No. | No. / Sht. ___ of ___

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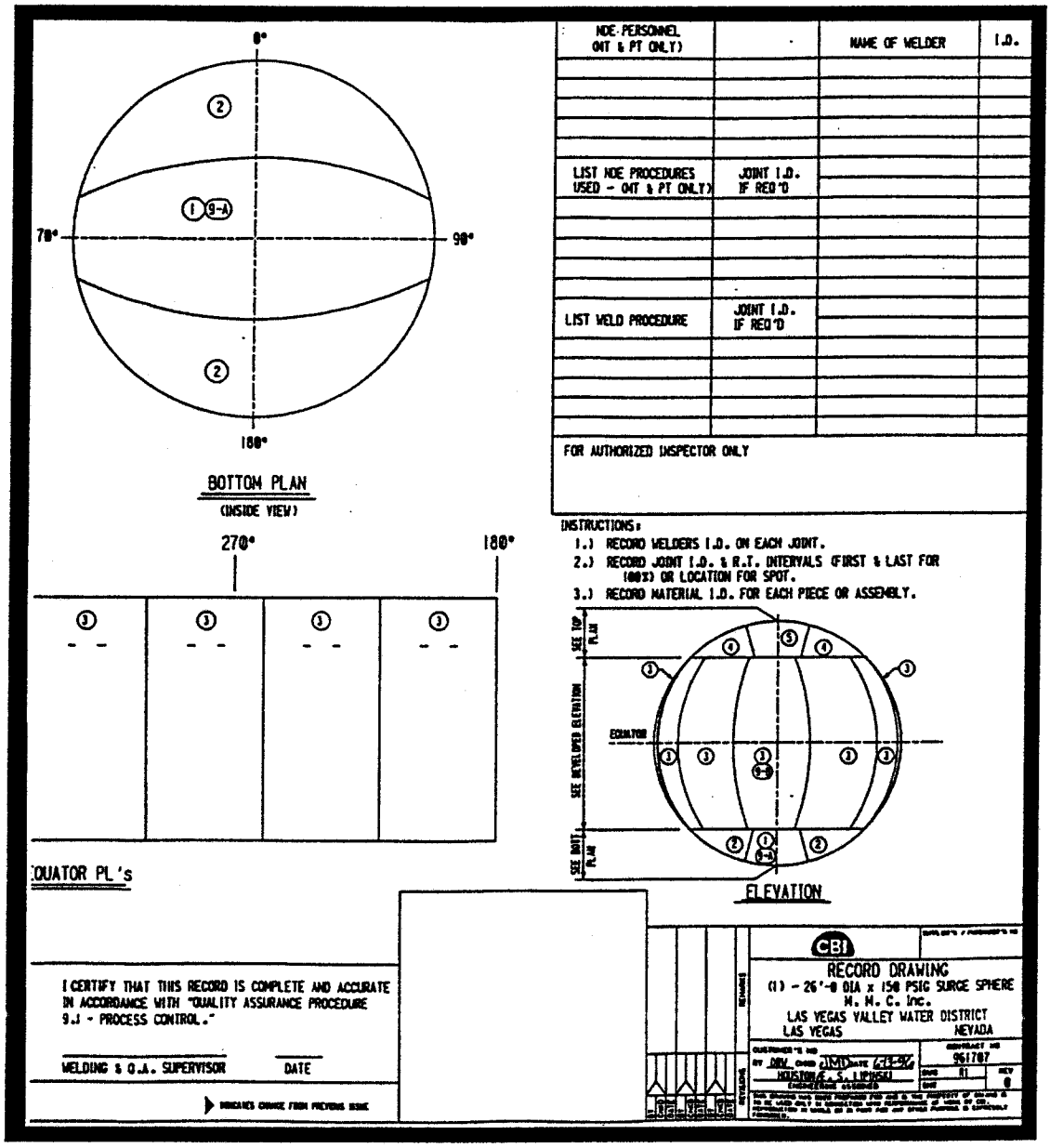
ATTACHMENT 3



TITLE WELDING CONTROL

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR BGG	AGR JAB	CMD

	BY	DATE
PREPARED	ALD	12-9-92
REVISED	JCJ	7-1-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the system used to control welding, including tack welding, welding material, procedures and welders.

2.0 RESPONSIBILITIES:

2.1 The Welding & QC Manager coordinates controls relating to welding, preparation of welding procedure specifications (WPS), welding procedure qualifications (PQR), Welding Material Specifications (WMS) and Welding Material Test Specifications (WMT).

2.2 The Purchasing Manager is responsible for ordering the welding materials.

2.3 The Welding & QC Supervisor controls the use of welding materials and the welding operations at the worksite.

3.0 WELDING MATERIALS:

3.1 Procurement Specifications

3.1.1 Procurement specifications for welding materials provide all technical and quality assurance requirements needed by the vendor.

3.1.2 Procurement specifications are not required for standard readily available materials which are described in SFA material specifications of the ASME Code. They are required when it is necessary to specify additional requirements.

3.1.3 The Welding and QC Manager shall assign an individual to prepare procurement specifications when none are available (WMSs for commonly used welding materials are provided in CBI Standard 821-1). Identification of the preparer shall be on the specification.

3.1.4 Prior to release, the procurement specification shall be reviewed by the Welding & QC Manager for adequacy of specified requirements.

3.2 Written Requisitions

3.2.1 Written requisitions are prepared by the Welding & QC Manager or by Engineering-Assigned and shall contain technical and quality assurance information needed for procurement. This information may be included on written requisitions or included in procurement specifications.

3.2.2 For ASME work, all welding materials shall be purchased to the SFA Material Specifications of the ASME Code. See CBI Standard 821-1.

3.3 Procurement

The purchase of welding materials shall be initiated by the Purchasing Manager in accordance with written requisitions from Engineering-Assigned or the Welding & QC Manager.

3.4 Receiving and Inspection

3.4.1 Welding materials shall be inspected to determine compliance with the order. Checks shall include but are not limited to the following:

A. Review of any required certification for compliance with order specifications.

B. Confirmation that identification of material concurs with accompanying documentation.

C. Inspection for any visible signs of shipping damage or other damage which could affect performance of the welding material.

D. Inspection shall be documented on the Purchase Order or a Receiving Inspection Report. (See Attachment 2).

3.5 Release of Welding Material For Use Requiring a WMS

3.5.1 In the shop, release of welding material for use shall be by the Manufacturing Welding & QC Manager.

3.5.2 In the field, release of welding material for use shall be by the Welding & QC Supervisor.

3.5.3 Release shall be documented on the Purchase Order or a Receiving Inspection Report.

3.6 Storage of Welding Materials

Storage of welding materials shall be in accordance with CBI Standard 823 or specific instructions for the contract. As a minimum:

A. Storage shall be in a clean, dry atmosphere free from effects due to weather.

B. Welding material shall be organized by type and size.

C. The welding material storage area shall be secured if necessary to prohibit access by unauthorized personnel.

D. Nonconforming or non-released welding material shall be segregated if practical and/or clearly marked to indicate that it cannot be issued for use.

3.7 Control of Welding Materials

3.7.1 Selection of the correct welding materials shall be determined by the Superintendent or Welding & QC Supervisor in accordance with contract drawings, welding procedures, process control documents, Bill Sheets and other specific contract instructions.

3.7.2 Welding materials shall be drawn for use under the direction of the Welding & QC Supervisor.

3.7.3 Welding & QC Supervisors shall maintain surveillance over welding operations to ensure usage of the proper welding materials.

4.0 WELDER AND WELDING OPERATOR QUALIFICATIONS:

4.1 Instructions for welder qualifications (includes welding operator) are given in CBI Standard 839-1. For ASME work, all welders and welding operators shall be qualified to ASME Section IX.

4.2 All welder and welding operator qualifications are controlled by the Welding & QC Manager with the following requirements:

A. Each welder and welding operator shall be qualified for applicable contract requirements including referenced codes or specifications.

B. Welder and welding operator tests shall be conducted using a qualified Welding Procedure Specification (WPS).

C. When required by the contract, welder and welding operator tests shall be witnessed by the customer, AI and/or customer's 3rd party inspector.

D. Each welder and welding operator shall be assigned a unique identifying number or symbol.

E. Welder and welding operator performance qualifications shall be documented on Performance Qualification Test forms and any other form required by contract. (See Attachment 1 for a typical example.)

4.3 Maintenance of Welder and Welding Operator Qualifications

4.3.1 Qualifications shall be maintained by the Welding & QC Manager in accordance with applicable Code and standards. Maintenance of qualifications shall be updated at least every six (6) months.

4.3.2 Copies of qualifications shall be maintained at jobsites until completion of the work.

5.0 WELDING PROCEDURE SPECIFICATIONS (WPS):

5.1 Instructions for the preparation and writing of WPS's are given in CBI Standard 830-1. For ASME work, all WPS's shall be qualified to ASME Section IX.

5.1.1 Requirements for welding procedure specifications shall be determined after contract review to determine technical requirements for welding procedures.

5.1.2 WPS's shall be standard procedures or prepared for each contract in accordance with contract requirements including referenced Codes or specifications.

5.1.3 Each WPS shall have substantiating Procedure Qualification Records (PQR) to demonstrate the satisfactory performance of the WPS. Depending upon contract requirements, PQR's may be previously qualified or performed new for the specific contract.

5.2 Procedure Qualifications Records (PQR)

5.2.1 Instructions for the preparation and writing of PQR's is given in CBI Standard 831-1.

5.2.2 PQR's shall include, as a minimum, the following:

A. Base materials and welding materials.
B. Records of all essential and nonessential variables.
C. Results of mechanical and chemical testing.
D. Results of nondestructive examination.
E. Certification of PQR by a CBI Welding Engineer.

5.2.3 When required by the contract, preparation, welding, inspection and testing shall be witnessed by the customer, AI or customer's 3rd party inspector.

6.0 CONTROL OF WELDING:

6.1 Assignment of Welders

The assignment of work to welders is the responsibility of the Superintendent who shall consult with the Welding & QC Supervisor to determine that the welders are qualified to perform the work. Welding & QC Supervisors are responsible for advising the Superintendent when a welder is not qualified or lacks training and experience to the degree that sufficient supervision cannot be given to ensure proper results.

6.2 Welding Activities

6.2.1 The Welding & QC Supervisor shall review the procedure and instruct the welder or welding operator in its use. This instruction may be verbal and/or by demonstration.

6.2.2 Welding & QC Supervisors shall monitor welding for compliance with the WPS and perform inspections required by process control documents.

6.2.3 Documentation of welding verifications and inspections shall be made on process control documents when required.

6.3 Welder Identification for ASME Work:

6.3.1 The welder shall stencil his identifying symbol adjacent to and at intervals of not more than 3 ft. along the weld or a record shall be kept of the welder on each joint. These are the category A, B, C, D joints per paragraph UW-3, of ASME Section VIII, Division 1; per paragraph AD-400, of ASME Section VIII, Division 2; per paragraph PW-28, of ASME Section I, and per ASME B31.1.

6.3.2 All welders or welding operators that have welded permanent nonpressure attachment welds (except minor attachments per Article AD-900, Division 2) on a vessel and/or tack welds that become part of the final pressure weld shall be listed on an "Assembly Check List" or "Record Drawing".

6.4 Tack welds that become part of the final pressure weld shall be removed completely or have their stopping and starting ends properly prepared for incorporation into the final weld and shall be visually inspected by the Welding & QC Supervisor.

7.0 RECORDS:

7.1 WPS's and PQR's are contract records and shall be maintained by the Welding & QC Manager.

7.2 Records required by this procedure, other than WPS's and PQR's, are internal records unless otherwise contractually agreed. They are not collected with contract records or included with records transferred to the customer. They shall be maintained by the Welding & QC Manager.

8.0 ATTACHMENTS: (Typical)

8.1 Attachment 1 - Performance Qualification Test Form

8.2 Attachment 2 - Field Receiving Inspection Report for Welding Material

ATTACHMENT 1

PERFORMANCE QUALIFICATION TEST
In Accordance with Section IX of the ASME Code - Latest Edition
SHIELDED METAL ARC PROCESS

Material - Spec: _____ to _____ of P No. _____ to P No. _____
Weld Procedure Specification Number (WPS): _____
Filler Metal (F No.) F: _____
Filler Metal (SFA) Specification SFA: _____

		Test Method		Record of Utilization		
		2 Bends per QW-462	Radiography of 6" of test plate	Month / Year	Type of Insp.	Initials
Back gouge to clean metal and weld overhead	This test qualifies all thickness ranges to be welded. OVERHEAD - BOTH SIDES	Result 1 ☐ Result 2 ☐	Result ☐			
Back gouge to clean metal and weld horizontal	This test qualifies all thickness ranges to be welded. HORIZONTAL - BOTH SIDES	Result 1 ☐ Result 2 ☐	Result ☐			
Back gouge to clean metal and weld vertical	All passes uphill except first pass and wash passes which may be run downhill or uphill. This test qualifies all thickness ranges to be welded. VERTICAL - BOTH SIDES	Result 1 ☐ Result 2 ☐	Result ☐			
Back gouge to clean metal and weld vertical	All passes are to be run downhill. This test qualifies range 0" to 3/4" 3/8" SINGLE BEVEL BUTT VERTICAL	Result 1 ☐ Result 2 ☐	Result ☐			

1. Qualification on butt welds also qualifies welder for fillet welds and butt welds with back-up bars
2. Qualification with F-6 & F-4X electrodes may be made on P-1 test plates.
3. Radiography of a 6" section of plate may be used in lieu of bend test.
4. Qualification with F-4 electrode also qualifies for F-3, F-2, and F-1.
5. Acceptance of test results includes the examination of welded coupon(s) for complete penetration and fusion.

Date	Location	Social Security No.	Birth Date	Started CBI Year:	Specimen Mark

WE CERTIFY THAT THE STATEMENTS MADE IN THIS RECORD ARE CORRECT AND THAT THE TEST WELDS WERE PREPARED, WELDED, AND TESTED IN ACCORDANCE WITH SECTION IX OF THE ASME CODE - LATEST EDITION / AND MAINTAINED FROM THE TIME OF TEST TO THIS DATE.

CBI REPRESENTATIVE _____ DATE _____

Address: _____
City: _____ State: ____
Full Name: _____
First Middle Last

X = X-Ray
V = Visual
R = Renewal

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ATTACHMENT 2

FIELD RECEIVING INSPECTION REPORT FOR WELDING MATERIALS

Contract Number _____ CBI Order Number _____

Supplier _____ Manufacturer _____

RECEIVING INSPECTION

Quantity Received and Inspected _____

_____

Size and Type _____

_____

Specification _____

Condition of Material _____

_____

_____

Nonconformity: Yes No

If yes explain: _____

_____

_____

Explain Disposition: _____

_____

_____

Material Meets Requirements of:

☐ Bill Sheet ☐ Purchase Order ☐ Requisition

Release for Fabrication: _____ Date _____
(Welding & QC Supervisor)

WL 247 REV DEC 89

TITLE HEAT TREATING

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR BGG	AGR JAB	CMD

	BY	DATE
PREPARED	ALD	12-9-92
REVISED	JCJ	6-25-96
AUTHORIZED	RWK	9/10/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the system used to control heat treating. This procedure does not address preheat or postheat relating to welding.

2.0 RESPONSIBILITIES:

2.1 The Welding & QC Manager is responsible for coordinating the preparation of heat treating procedures and monitoring heat treating activities.

2.2 Engineering-Assigned shall review heat treating procedures when the heat treat is not performed in a furnace.

2.3 The Superintendent is responsible for the performance of the heat treating.

3.0 PROCEDURE:

3.1 CBI Standard 732 provides general information regarding heat treating. Detailed specific information is provided in related standards.

3.2 Heat treating shall be performed in accordance with written procedures. Procedures shall provide for suitably controlled conditions including heating and cooling rates, holding times and required indicating and recording temperature devices for control of temperature distribution.

3.3 Heat treating shall be performed on items as designated on contract drawings or process control documents. Post Weld Heat Treatment (PWHT) may also be performed to provide dimensional stability provided the Welding Procedure Specification(s) (WPS) allows PWHT.

3.4 Upon receipt of an item PWHT'd and requiring additional PWHT, the Welding & QC Manager shall:

3.4 (cont'd)

A. Review the PWHT history to make certain that the cumulative time on the item will not exceed the allowable time.

B. Review any applicable process control documents to assure all operations, examinations and repairs have been completed and accepted.

C. Release any CBI "Hold" point on any applicable process control documents when the above reviews have been completed.

3.5 The heat treatment shall be performed using a calibrated time-temperature recorder in conjunction with thermocouples which are attached to blocks or clips in direct contact with the item or attached directly to the item. When thermocouples are attached directly to the item by welding, the work shall be done by qualified welders in accordance with a contract welding procedure. Attaching thermocouples directly to the item by capacitor discharge shall be done in accordance with the equipment manufacturers instructions.

3.5.1 In lieu of a time-temperature recorder, a calibrated temperature measuring device in conjunction with a timer may be used.

3.5.2 In lieu of thermocouples attached to the item, a furnace with atmosphere measuring thermocouples may be used provided its accuracy has been verified.

3.6 A time-temperature recording chart, electronic record or time-temperature tabulation sheet (Attachment 1) shall be made of the actual heat treatment. Charts, electronic records or tabulations shall include the contract number, location, ID of furnace (if applicable), recorder serial number, date of performance, procedure used, identification of the operator(s) and identification of items which were heat treated. The chart shall be made available to the AI.

3.7 The process control document shall be signed off to certify satisfactory completion of the heat treatment in accordance with the procedure.

4.0 SUBCONTRACTED HEAT TREATING:

4.1 If heat treatment is subcontracted, written procedures will be furnished by the vendor to the Welding & QC Manager. Time-temperature charts will be required and these will be reviewed by the Welding & QC Manager for conformance with furnished procedures and Code requirements. The charts and written procedures for ASME work shall be provided to the Authorized Inspector for his review and acceptance.

4.2 When heat treatment items(s) are returned from the subcontractor's facility, the items shall be examined for damage and loss of identification.

5.0 RECORDS:

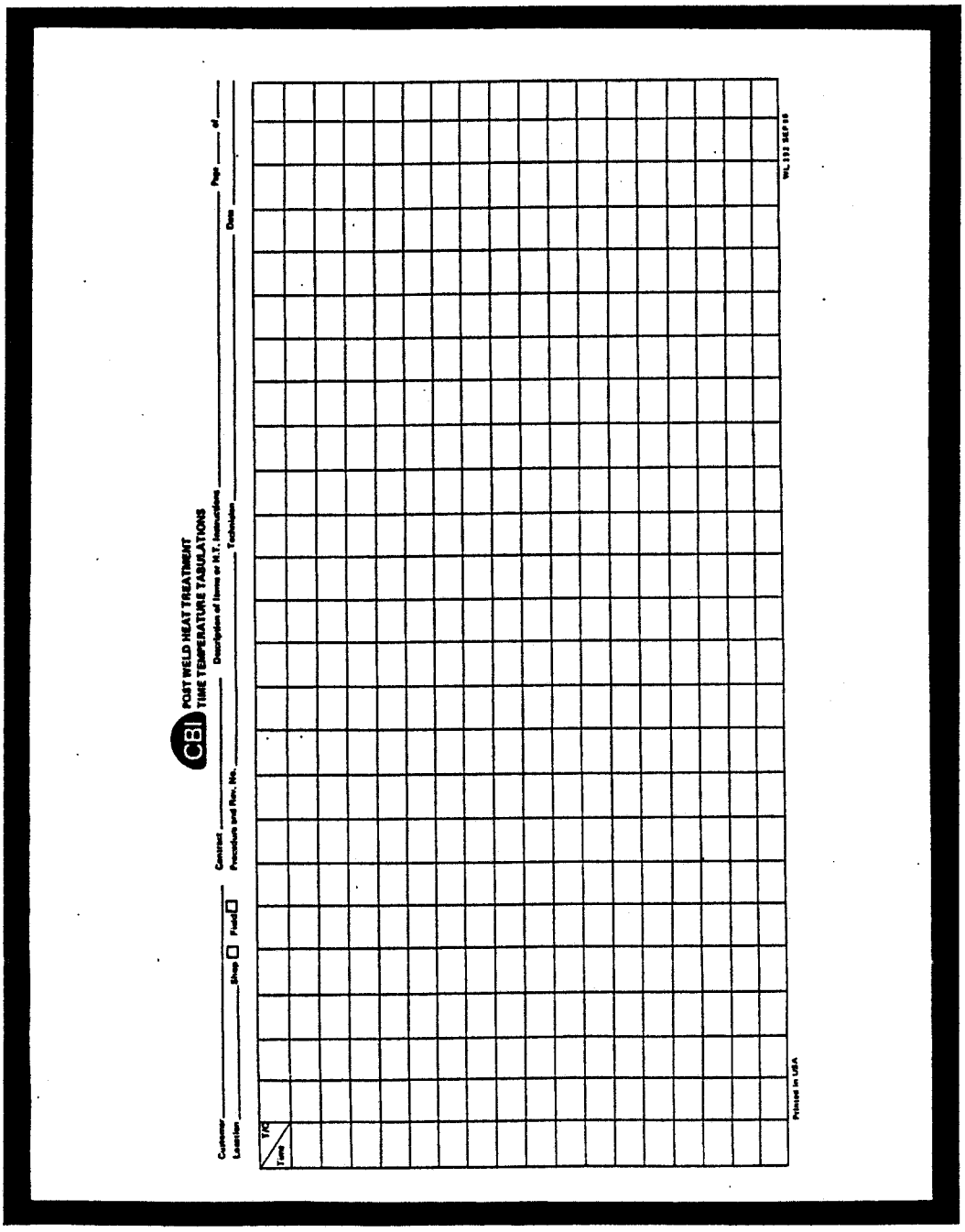
5.1 Heat treatment records are contract records and shall be maintained.

5.2 When heat treatment for properties is performed, a copy of the furnace chart, electronic record or time-temperature tabulation chart and the heat treating instructions shall be included with other certification documentation for the material.

6.0 ATTACHMENTS: (Typical)

Attachment 1 - Time-Temperature Tabulation Sheet

ATTACHMENT 1



CBI

DOC. ID QAP 9.4
REV. NO. 3
CONTRACT

TITLE CONTROL OF PROCEDURES

PAGE NO. 1 OF 2

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR	JAB	CMD
				BGG	AGR	

	BY	DATE
PREPARED	ALD	12-9-92
REVISED	JCJ	6-25-96
AUTHORIZED	RWK	9/10/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the system used to control procedures, including those used for special processes.

2.0 RESPONSIBILITIES:

2.1 Engineering-Assigned, the Welding & QC Manager and the Contract Team Leader are responsible for identifying the need for procedures required by contracts.

2.2 The Contract Team Leader is responsible for coordinating the preparation of all required procedures except welding, NDE and PWHT procedures as discussed in QAP 9.2, 9.3 or 10.2.

3.0 PROCEDURE:

3.1 Procedures are prepared and issued for each contract when required to control the process and the quality of work. They are written to comply with referenced codes and standards, customer specifications and CBI requirements.

3.2 Preparation

3.2.1 Responsible Management knowledgeable in the activity shall prepare procedures.

3.2.2 The procedures shall outline each operation to perform the work and shall describe any documentation required.

3.2.3 When required by Codes or customer specifications, procedures shall be qualified by testing, demonstration or as necessary to prove their effectiveness.

3.2.4 Procedures shall specify requirements for personnel qualifications.

3.2.5 Procedures shall include acceptance criteria when necessary to evaluate the results of the work performed.

3.3 Procedures shall be distributed or made available to individuals needing them for their work.

3.3.1 Procedures shall be distributed in accordance with QAP 5.1.

3.4 Work done to procedures shall be monitored by qualified supervision to ensure that:

A. Equipment used to make or measure the product is calibrated (when required), functional and operated within the limits of the qualified procedure.

B. Equipment used in the process is maintained to assure continued process capability.

C. Process parameters are controlled.

D. Operators have the skill, capability and knowledge to perform the operation and are meeting quality requirements.

E. Special environments where time, temperature or other factors that would affect product quality are maintained.

F. Records of personnel, equipment and procedure qualifications are current and maintained.

4.0 INSTRUCTIONS:

Written "in-house" instructions may be used to provide additional direction to individuals performing work and do not require customer approval.

5.0 RECORDS:

Procedures and records required by procedures are contract records and shall be maintained as required by contract, Code, jurisdiction and CBI Standards. Instructions are internal records.

TITLE RECEIVING INSPECTION

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP		RWK	LBR	AGR	CMD
				BGG	JAB	

	BY	DATE
PREPARED	ALD	12-9-92
REVISED	JCJ	6-27-96
AUTHORIZED	RWK	9/12/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the receipt, inspection and release of items (excluding welding materials (see QAP 9.2) and Customer supplied material (see QAP 7.1) from a vendor or CBI shop.

2.0 RESPONSIBILITIES:

2.1 The Purchasing Manager maintains records relating to purchased items including purchase orders, receiving inspection reports and vendor documentation.

2.2 The Receiving personnel perform the inspection of items per this procedure.

2.3 The Purchasing Manager shall release for use items requiring a Receiving Inspection Report.

2.4 The Welding & QC Manager or other Responsible Management shall release items received from a CBI shop when a Shop Release for Shipment Checklist is required.

3.0 PROCEDURE:

3.1 Receipt

3.1.1 When required to assure that the material received is properly identified and documented, the Purchasing Manager shall initiate Receiving Inspection Reports (RIRs) (see Attachment 3) and Material Verification Summary Sheets (MVSSs) (see Attachment 4). (See CBI Standard 607-3.)

3.1.2 When items are received from a vendor or CBI shop, the Receiving personnel shall obtain any documentation supplied with the items.

3.1.3 The Receiving personnel shall perform the receipt inspection immediately upon receipt and, if not acceptable, place the items in a designated hold area or identify them with a Hold Tag (Attachment 1).

3.1.4 For items from a vendor, Receiving personnel check to see that he has required information for the items from the Purchasing Manager. This includes the Receiving Inspection Report (RIR) (see CBI Standard 607-3-3) when required, and the Purchase Order (PO) including any sketches or drawings.

3.1.5 For items from a CBI shop, a Shop Release for Shipment Checklist (SRSCL) (Attachment 2) may be required (see CBI Standard 607-3). The SRSCL is used to document:

A. final inspection of items before shipment

B. the items have been manufactured and documented per the applicable Code, CBI and QAM requirements

C. Authorized Inspector's agreement that the items have been inspected and meet Code requirements

D. purchaser acceptance, if required, by contract

E. receiving inspection at the receiving shop or field

Manufacturing-Assigned initiates the SRSCL and the receiving location completes the form. See CBI Standards 607-3 and 607-3-8.

Items originally planned to be shop assembled may be field assembled or vice versa without revising the drawings or material requisitions if agreed to by the Contract Team (Contract Team Leader, Engineering-Assigned and the Shop and Field Welding & QC Managers). Such agreements shall be noted on the SRSCL and in these cases a copy of the SRSCL shall be sent to the Contract Team Leader and the Field Welding & QC Manager.

3.1.6 CBI Standard 607-3 or other contract procedures specify when receipt inspection is required.

3.2 Inspection and Release of Items from a Vendor

3.2.1 When RIR's are not required, the Receiving personnel checks the items for compliance with the PO, shipping damage and identity. When RIR's are required, he shall perform all the checks required by the form.

3.2.2 Receiving personnel document acceptance on the PO, shipping documents or RIR and, when required, forwards them to Purchasing or other Responsible Management for review and approval.

3.2.3 If any item is found unacceptable during receiving inspection, it shall be so noted on the PO shipping documents or RIR as nonconforming and forwarded to Purchasing or other Responsible Management for disposition.

3.2.4 Upon receiving the completed RIR from Receiving personnel, Purchasing or other Responsible Management releases the items for use if the results of the receipt inspection and the check of the vendor documentation (Manufacturer's Data Reports, MTR's (via hardcopy or electronic transfer), NDE reports, etc.) are acceptable. If there are nonconformances requiring resolution, copies of RIR's and documentation shall be provided to the Welding & QC Manager. Operations or tests which are to be performed by CBI to make the material acceptable per the material specification are noted under the Nonconformities section of the Receiving Inspection Report by Purchasing.

3.3 Inspection and Release of Items from a CBI Shop

3.3.1 The Receiving personnel inspect the items. As a minimum, he assures that the proper material identification is marked on the items and that there has been no apparent shipping damage.

3.3.2 When a Shop Release for Shipment Check List is required, Receiving personnel sign off in the "Receiving Shop or Field" column of the SRSCL and forwards it to the Welding & QC Manager or Supervisor for disposition.

3.3.2.1 Each shipment of ASME Section VIII parts from another CBI Plant listed on the "Shop Release For Shipment Check List" shall be inspected for identification and shipping damage. The form shall be signed to indicate that part(s) have been properly received. Shipping damage, identification discrepancies, or deficiencies described shall be considered as nonconformities.

3.3.2.2 For ASME Section I parts of boiler shipments from another CBI Plant, in addition to the "Shop Release For Shipment Check List", Partial Data Reports for those parts shall be executed by the shipping Plant and the Authorized Inspector and forwarded in duplicate to the CBI Plant responsible for the completed boiler. The Partial Data Reports shall be attached to the Master Data Report for the completed boiler unit.

3.3.2.3 For ASME work, the signature of the Authorized Inspector in the shop on the "Shop Release for Shipment Check List" indicates to the Authorized Inspector in the field that the material test reports including unwelded Code material have been reviewed and accepted in accordance with the Code.

3.3.3 If any item is found to be unacceptable during inspection, the Receiving personnel shall note it on the shipping documentation or on the SRSCL and forward it to the Welding & QC Manager or Supervisor for disposition.

3.3.4 When an item is found to be acceptable, the release for use shall be the Receiving personnel's signoff on the shipping documents or SRSCL.

3.4 Preliminary Release

3.4.1 In special circumstances, i.e., when the material meets the requirements but the documentation or markings are deficient and the item needs to be used, Purchasing or other Responsible Management

3.4.1 (continued)

may release unverified material provided it is positively identified so that, in the event of a nonconformity, it can be located and held for disposition.

3.4.2 For items to be released, Purchasing or other Responsible Management shall indicate a preliminary release in the "Material Released for Fabrication" block. A copy of the RIR shall be sent to the Welding & QC Manager so that controls can be established to positively identify the material.

3.4.3 When Purchasing or other Responsible Management resolves deficient documentation or markings, the final release on the RIR shall be signed and a copy sent to the Welding & QC Manager.

3.4.4 Nonconforming material may be released for use if it is determined that the nonconformity is likely to be resolved provided the item is positively identified so that it can be located and held for disposition. (See CBI Standard 607-3-3 for additional controls.

4.0 RECORDS:

Records generated per this procedure are contract records (except the hold tag) and shall be maintained by the Purchasing Manager.

5.0 ATTACHMENTS: (Typical)

5.1 Attachment 1 - Hold Tag

5.2 Attachment 2 - Shop Release for Shipment Check List

5.3 Attachment 3 - Receiving Inspection Report

5.4 Attachment 4 - Material Verification Summary Sheet

Attachment 1

CONTRACT NO. **HOLD** TAG NO.

FOR: ☐ DISPOSITION ☐ IDENTIFICATION
☐ REPAIR ☐ VERIFICATION
☐ OTHER _____

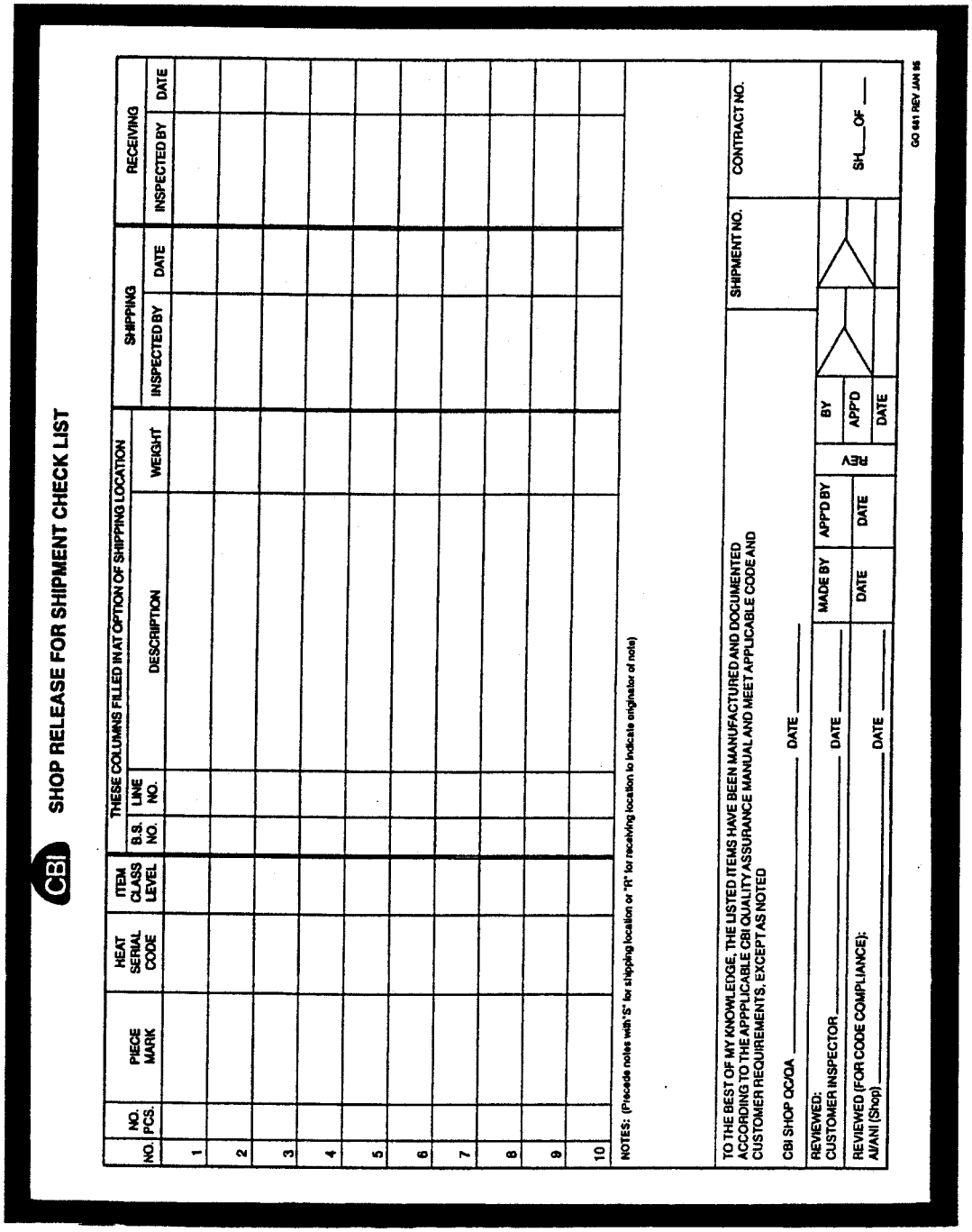
_____ BY _____ DATE

Released _____ BY _____ DATE

GO 684 REV JUN 87

(YELLOW)

Attachment 2



SHOP RELEASE FOR SHIPMENT CHECK LIST

NO.	NO. PCS.	PIECE MARK	HEAT SERIAL CODE	ITEM CLASS LEVEL	THESE COLUMNS FILLED IN AT OPTION OF SHIPPING LOCATION: B.S. NO.	LINE NO.	DESCRIPTION	WEIGHT	SHIPPING: INSPECTED BY	SHIPPING: DATE	RECEIVING: INSPECTED BY	RECEIVING: DATE
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

NOTES: (Precede notes with "S" for shipping location or "R" for receiving location to indicate originator of note)

TO THE BEST OF MY KNOWLEDGE, THE LISTED ITEMS HAVE BEEN MANUFACTURED AND DOCUMENTED ACCORDING TO THE APPPLICABLE CBI QUALITY ASSURANCE MANUAL AND MEET APPLICABLE CODE AND CUSTOMER REQUIREMENTS, EXCEPT AS NOTED

SHIPMENT NO. CONTRACT NO.

CBI SHOP QC/QA _____ DATE _____

REVIEWED: MADE BY APP'D BY REV BY APP'D DATE

CUSTOMER INSPECTOR _____ DATE _____ DATE _____ DATE _____ SH___OF___

REVIEWED (FOR CODE COMPLIANCE): _____ DATE _____ DATE _____

AI/ANI (Shop) _____ DATE _____

CO 1461 REV JAN 95

ATTACHMENT 3

METAL RECEIVING INSPECTION REPORT

ROUTE TO	BY	DATE	FOR

Contract No. _____
CBI Order No. _____
Supplier _____
Ordered Item No. _____ Quan. Ordered _____
Material Spec. _____
Description _____
Initiated By _____ Date _____

RECEIVING INSPECTION: From Information on Material

Carrier or Car or Truck No. _____ Quantity Received _____
Quantity Inspected _____ Partial ☐ Complete ☐
Material Spec. (Marked on Material) _____
Supplier ID No. (Heat, Slab, Lot, Serial, Etc.)

_____ _____
_____ _____

Thickness Record or Sketch

x x
x x
x x

Width OK Yes ☐ No ☐ See "Nonconformities"
Length OK Yes ☐ No ☐ See "Nonconformities"
Size OK Yes ☐ No ☐ See "Nonconformities"
Surface OK Yes ☐ No ☐ See "Nonconformities"

FOR HEAT TREATED PLATE:

Purchasing to Check (✓) Applicable Mill Stamping

☐ Mill Heat Treated	Stamped MT	Yes ☐	No ☐
☐ CBI to Heat Treat	Stamped G	Yes ☐	No ☐

Nonconformities if "Yes", Explain Yes ☐ No ☐

_____

_____

Material is held for Disposition and Tagged "Hold" Yes ☐ No ☐

Reported By _____ Date _____ Ident. No. of Micrometer or Thickness Gage Used _____

NONCONFORMITIES

(For Material as Received)
Description (By Purchasing) _____

_____

_____

By CBI Before Material Meets the Specification and is Released For Use:

Heat Treatment - Yes ☐	MT - Yes ☐	UT - Yes ☐	PT - Yes ☐
No ☐	No ☐	No ☐	No ☐

Other: _____
Processed By _____ Date _____

Disposition (By QC/QA) _____

_____

_____

Approved By _____ Date _____
QC/QA
Disposition of Nonconformity Made By _____ Date _____

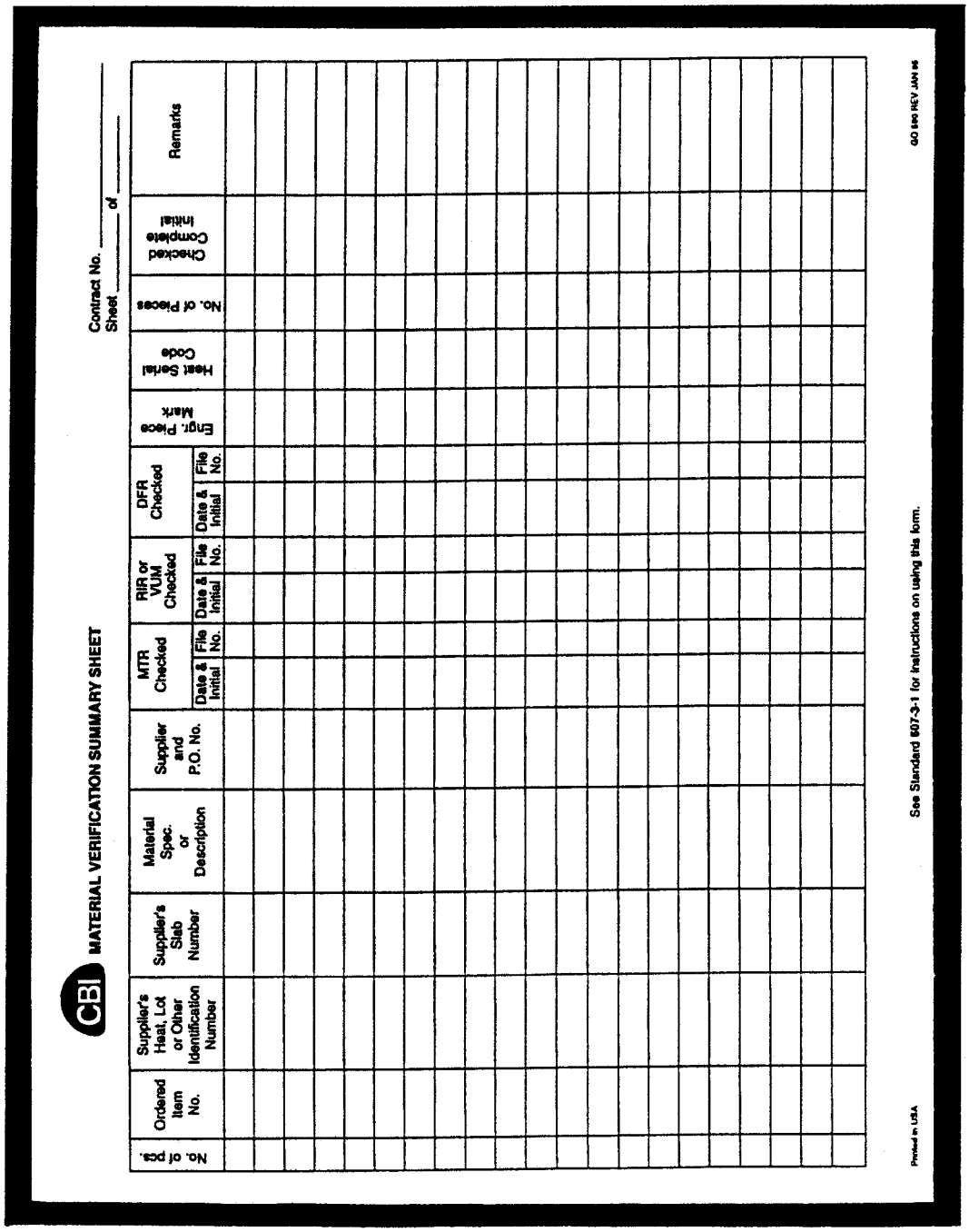
MATERIAL RELEASED FOR FABRICATION

Purchasing _____ Date _____
QC/QA _____ Date _____

FILE NO.

Printed in USA See Standard 607-3-3 for instructions on using this form DO 599 REV JAN 95

ATTACHMENT 4



CBI MATERIAL VERIFICATION SUMMARY SHEET

Contract No. _____
Sheet _____ of _____

No. of pcs.	Ordered Item No.	Supplier's Heat, Lot or Other Identification Number	Supplier's Slab Number	Material Spec. or Description	Supplier and P.O. No.	MTR Checked		RIR or VUM Checked			DFR Checked			Engr. Piece Mark	Heat Serial Code	No. of Pieces	Checked Complete Initial	Remarks
						Date & Initial	File No.	Date & Initial	File No.		Date & Initial	File No.						

See Standard 607-3-1 for instructions on using this form.

Printed in U.S.A.

GO 590 REV JAN 86

TITLE NDE, INSPECTION AND TESTING

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR	JAB	CMD
				BGG	AGR	

	BY	DATE
PREPARED	ALD	12-9-92
REVISED	JCJ	6-25-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the system used to control non-destructive examination (NDE) and other inspection and testing.

2.0 RESPONSIBILITIES:

2.1 The Welding & QC Manager is responsible for coordinating the preparation of NDE procedures and has general responsibility for monitoring NDE, inspection and testing.

2.2 The NDE Supervisor directly supervises NDE operations.

2.3 Engineering-Assigned prepares pressure and vacuum testing procedures.

3.0 NDE:

3.1 NDE Procedures

3.1.1 For ASME work, NDE procedures shall meet ASME Section V.

3.1.2 NDE procedures shall fulfill all contract requirements including any referenced codes or specifications.

3.1.3 When required, NDE procedures shall be demonstrated to the satisfaction of the customer, AI or 3rd party.

3.1.4 When required, NDE procedures shall be submitted to the customer or 3rd party for approval before using.

3.2 NDE Personnel

3.2.1 Only personnel (including vendor personnel) qualified in accordance with contract requirements shall be used.

3.2.2 Personnel required to be certified to the requirements of SNT-TC-1A (Code and contract required edition) shall be qualified and certified in accordance with the CBI NDE Personnel Training Qualification & Certification Program for NDE personnel or approved vendor program (see QAP 6.4).

3.2.3 NDE personnel records shall be maintained in appropriate files at their work location.

3.3 Control of NDE Work

3.3.1 NDE shall be performed in accordance with procedures as required by contract drawings and process control documents.

3.3.2 The status of completed examinations shall be indicated on process control documents as required.

3.3.3 The status of partially completed examinations shall be indicated by either:

A. Written reports of examination results to the stopping point, transmitted to the NDE personnel who continue the examination.

B. Temporary records or markings on the item denoting results of examination and point of termination.

3.4 Nondestructive examinations shall be documented on written reports or signed for on process control documents. These records and radiographic film shall be made available to the customer, AI or customer's 3rd party per contractual agreement.

3.5 When NDE services are subcontracted for ASME work, the qualification and certification of competency of subcontractors' NDE personnel shall be in accordance with the requirements of the Code. (For radiography and ultrasonic testing, the personnel qualifications must meet the guidelines of SNT-TC-1A.) The subcontractor's Personnel Training, Qualification and Certification Program shall be reviewed and accepted in writing by the Welding and QC Manager.

4.0 INSPECTION:

4.1 Visual inspection shall be performed when required by a process control document.

4.2 Dimensional inspection shall be performed by trained personnel as required.

4.2.1 For ASME work:

A. The Welding and QC Manager shall identify requirements for Code dimensional checks. Such Code checks are made after product completion.

B. The Welding & QC Manager shall signoff each line of the "Shop Release for Shipment Check List". This signoff signifies dimensional compliance with specified tolerances.

C. Appropriate Code dimensional check results are made available to the Authorized Inspector for his review.

D. Deviations from specified tolerance or Code requirements shall be considered nonconformities.

E. The Welding & QC Supervisor is responsible for assuring that:

1. All checks to verify Code requirements are performed.

2. Appropriate Code dimensional check results are made available to the Authorized Inspector.

5.0 TESTING:

5.1 Pressure and Vacuum Testing

5.1.1 Pressure testing shall be performed in accordance with written procedures and process control documents.

5.1.2 Pressure tests are witnessed by Responsible Management and, as requested, by the customer or the customer's 3rd party inspector. Advance notice of the pressure test shall be provided as required for the contract.

5.1.2.1 A chart record of the actual test shall be made, when required. The chart of the completed successful test shall be appropriately identified with such items as the contract number, location, signature and date of performance, the procedure used, etc.

5.1.3 A chart record or electronic record shall be made for pressure tests of vessels. For other items pressure and vacuum tested, a record shall be made. The record or chart shall be marked with the item identification, procedure identification, identification of the gauges, date of performance and the signature and date of Responsible Management to signify acceptance. When required the record shall be presented to the customer, AI or customer's 3rd party for signature and date to signify concurrence that the test was performed in accordance with the procedure.

5.2 Leak Testing

5.2.1 Leak testing shall be performed in accordance with process control documents and written procedures prepared as noted for NDE procedures.

5.2.2 Personnel performing leak tests shall be qualified in accordance with the applicable NDE procedure.

5.2.3 Leak tests shall be documented on process control documents or reports.

6.0 RECORDS:

Records required to control and document NDE, inspection and testing are contract records and shall be maintained by the Welding & QC Manager or other Responsible Management as required by contract, Code, jurisdiction and CBI Standards. They typically include the following:

A. NDE, inspection and testing procedures.

B. Process Control Documents.

C. Reports.

D. Pressure Test Records (charts when applicable).

TITLE FINAL INSPECTION

APPROVED	Engr	Corp Weld	Corp QA RWK	Const	Mfg	HSB CMD

	BY	DATE
PREPARED	ALD	12-9-92
REVISED	JCJ	6-26-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes methods required to assure that all inspection and testing required by the contract has been completed and that the specified contract requirements have been achieved.

2.0 RESPONSIBILITIES:

The Contract Team Leader has overall responsibility for assuring that documentation and work is complete and performed correctly.

3.0 PROCEDURE:

3.1 Review of Documentation

3.1.1 Engineering-Assigned is responsible for verifying that all drawings, material specifications, etc., for which Engineering-Assigned is responsible are complete.

3.1.2 The Purchasing Manager is responsible for assuring that all materials and items were purchased in accordance with contract requirements and that all purchasing related records are complete.

3.1.3 The Welding & QC Manager is responsible for review of:

A. Process control documents including Quality Plans, Record Drawings and Checklists to verify that all items have been completed.

B. Supporting records including NDE Reports, Quality Records, Dimensional Reports, etc., for completeness.

C. Nonconformance control lists to verify satisfactory resolution of all nonconformances.

3.2 Final Visual Inspection

3.2.1 When all work is complete, the Welding & QC Manager will notify the customer, 3rd party or AI, as required, prior to the final inspection.

3.2.2 When all work is complete, the Welding & QC Manager shall make a final visual inspection to verify satisfactory appearance and completeness in accordance with the contract drawings.

3.2.3 Areas which will be made inaccessible by subsequent work shall be inspected before becoming inaccessible.

4.0 RECORDS:

Documentation of final inspection shall be made by signoff on the process control documents.

A report of the final inspection of the completed structure shall be made when required. Records required by this procedure are contract records and shall be maintained.

TITLE DATA REPORTS AND STAMPING FOR ASME WORK

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP	REK	RWK	LBR	AGR	CMD
				BGG	JAB	

	BY	DATE
PREPARED	REK	10-10-95
REVISED	JCJ	6-26-96
AUTHORIZED	RWK	9/10/96
REFERENCED STANDARD	REV. NO.	

Extensively Revised

1.0 SCOPE:

This procedure specifies the requirements for completing Code Data Reports.

2.0 RESPONSIBILITIES:

2.1 Engineering-Assigned is responsible for preparing the Data Report and for distributing the completed Data Report.

2.2 The Welding & QC Manager or Welding & QC Supervisor is responsible for signing the Data Report on behalf of CBI.

3.0 DEFINITIONS:

Issue date - The date that all reviews are complete and the Data Report is ready to be sent to the Welding & QC Manager.

4.0 PREPARATION OF THE DATA REPORT:

4.1 Using the appropriate ASME forms for the item being stamped, Engineering-Assigned prepares the Data Report.

4.2 See CBI Standard 4000-4-1 for required forms and instructions for filling out forms.

4.3 The Data Report and required documentation shall be provided to the AI for his certification after:

A. Confirming that the work has been completed in accordance with the contract drawings as listed on the Data Report. These final contract drawings become the "as-built" drawings for the work.

B. Confirming that all process control documents have been completed and all nonconformances and audit findings resolved.

4.3.1 The signature of the Authorized Inspector on the Manufacturer's Data Reports, indicates he has satisfied himself all Code requirements have been met in the shop or field and is his authorization to apply the Code symbol.

4.3.2 For shipments from a CBI shop to a CBI jobsite, the signature of the Authorized Inspector on the "Shop Release For Shipment Check List" indicates to the Authorized Inspector in the field or receiving shop that material test reports, the system for transfer of identification for unwelded Code materials, and the fabrication and welding of Code material have been reviewed and accepted as being in accordance with the Code and this manual. These forms for each shipment shall be made available to the Authorized Inspector at the receiving location.

4.3.3 Manufacturer's Partial Data Reports (when applicable) and "Shop Release for Shipment Check List" shall be forwarded to the receiver.

5.0 STAMPING:

5.1 Code symbol stamps are controlled by the designated Welding & QC Manager (ASME/NBIC certificate holder).

5.2 Stamping (or applying the stamped nameplate) to the completed product after obtaining the signature of the Authorized Inspector is the responsibility of the Welding & QC Manager. The pre-stamped nameplate shall be controlled by the Welding & QC Manager; and he shall assure the application of the proper nameplate to the appropriate product.

5.3 The nameplate shall be made in accordance with CBI Standard 9201-5-3 after receipt of request from Engineering-Assigned. The name plate shall be similar in layout and required information to the samples shown in paragraph 8.0.

6.0 NATIONAL BOARD REGISTRATION OF NEW WORK:

6.1 See CBI Standard 4000-4-1 for National Board Registration requirements and control of National Board numbers.

6.2 Engineering-Assigned shall submit an original and one legible copy of Manufacturer's Data Report, within 90 days of certification, to the National Board of Boiler and Pressure Vessel Inspectors. All vessels shall be registered unless specifically prohibited by the purchaser. If prohibited by the purchaser for Section VIII, Division 2 Products, Engineering-Assigned shall maintain a copy of the Manufacturer's Data Report per QAP 16.2.

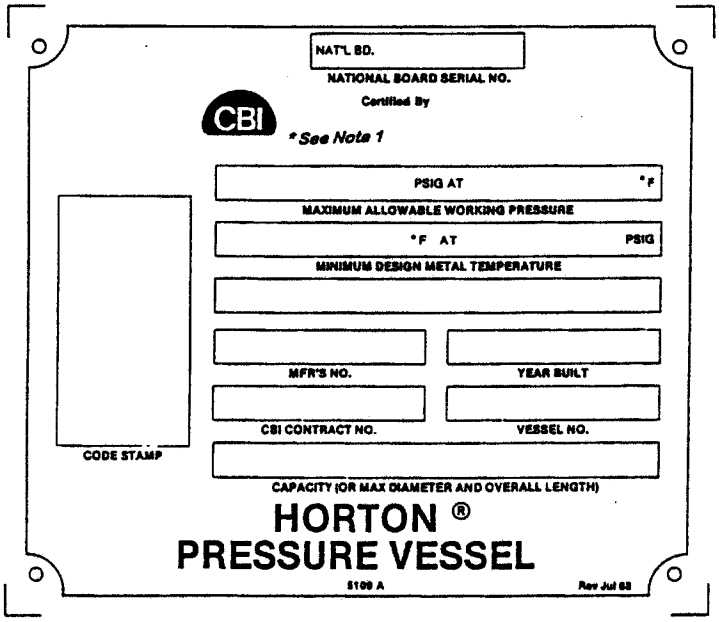
6.3 For repairs and alterations to Pressure Retaining Items which are performed in accordance with the National Board Inspection Code, see QAP 19.1.

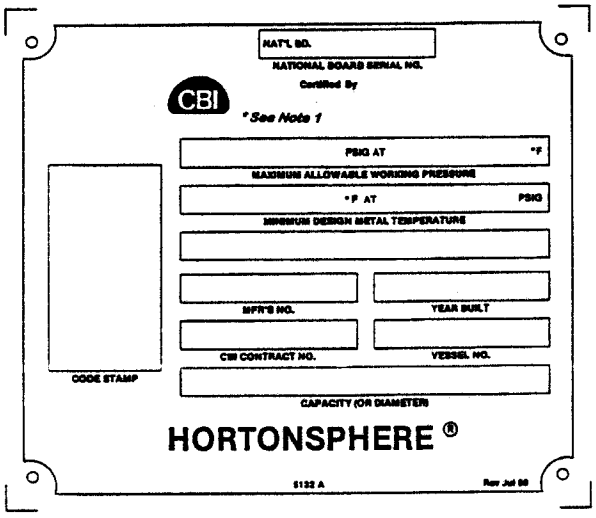
7.0 RECORDS:

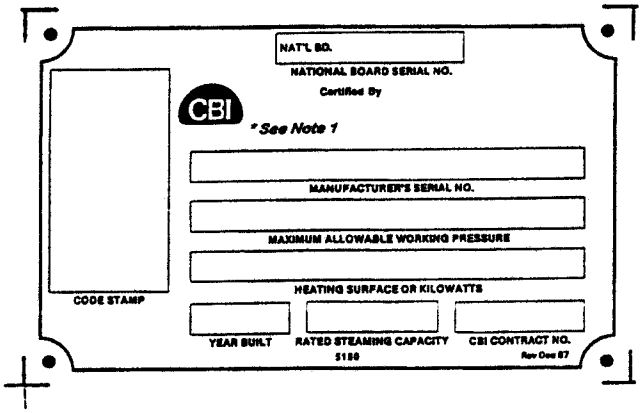
Data Reports are quality records and shall be maintained per QAP 16.1 and QAP 16.2.

8.0 ATTACHMENTS:

Typical Samples of Nameplates







* NOTE 1: Enter Company Name

CBI

DOC. ID QAP 11.1
REV. NO. 2
CONTRACT

TITLE CALIBRATION

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR	AGR	CMD
				BGG	JAB	

	BY	DATE
PREPARED	RAJ	8-19-92
REVISED	JCJ	6-24-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD	REV. NO.	

Extensively Revised

1.0 SCOPE:

This procedure describes the system for calibration and verification of inspection, measuring and test equipment used for acceptance purposes.

NOTE: Simple and rugged measuring equipment such as rules and tapes, weld gauges and other similar items are not items requiring "calibration" and do not require positive marking. These items shall be subject to routine visual surveillance by supervision and shall be replaced if worn or damaged.

2.0 RESPONSIBILITIES:

2.1 The General Manager of Corporate Welding & QA has overall responsibility for maintenance and control of the Corporate Calibration Program.

2.2 The Welding & QC Manager is responsible for assuring that equipment is calibrated and controlled in accordance with the Corporate Calibration Program and CBI Standard 1146.

3.0 GENERAL:

Calibration shall be in accordance with the Corporate Calibration Program. Equipment requiring regular calibration is listed in CBI Standard 1146.

4.0 RECORDS:

Calibration records are internal records and shall be maintained by the Welding & QC Manager.

TITLE INSPECTION AND TEST STATUS

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR	AGR	CMD
				BGG	JAB	

	BY	DATE
PREPARED	RAJ	8-19-92
REVISED	RWK	6-27-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD	REV. NO.	

1.0 SCOPE:

This procedure describes the requirements for indicating the status of inspections, examinations and tests throughout all stages of manufacturing and construction.

2.0 RESPONSIBILITIES:

Personnel responsible for the inspection, examination or test shall provide temporary marking to indicate status and to complete required reports and checklists which formally indicate status, as required.

3.0 PROCEDURE:

3.1 The system of identifying the status of inspections, examinations and tests shall be any one or a combination of the following methods and shall include the identification of conforming and nonconforming products.

3.1.1 Temporary Marking - As inspections are performed, the status may be temporarily marked adjacent to the areas examined. Normally this will be done with paint or chalk markers. Temporary marking shall be simple, such as "UT - OK", "RT - REPAIR", etc.

3.1.2 Authorized Symbols or Stamps - Status may be accomplished by the application of authorized symbols or stamps to an item or to documentation.

3.1.3 Tags and Labels - Tags and labels may be used to indicate status by affixing or attaching them to an item.

3.1.4 Routing Cards - Routing cards accompanying the item may be used to indicate status.

3.1.5 Records - Records including process control documents and reports may be used to indicate status.

3.1.5.1 Reports

A. Reports shall indicate as a minimum:

1. Date
2. Identity of individual performing the activity
3. Method
4. Procedure used
5. Description of area (weld, etc.)
6. Results

B. Reports shall be made on appropriate forms or may be in electronic format.

C. Reports can be individual for a single part or weld or may include a group of similar items.

D. Reports shall be signed by the individuals performing, evaluating and reviewing the results and shall have provision for customer and 3rd party to sign when required.

3.1.5.2 Process Control Documents

Checklists, quality plans or record drawings indicate status.

A. Checklists can indicate the status of single items or a group of similar items.

B. When a checklist signoff is for a group of similar items, it cannot be completed by signing off until all such items are completed and considered acceptable.

C. Checklists are signed off to indicate completion of the activity.

3.1.6 Physical Location - Items may be segregated to indicate status (e.g., conforming or nonconforming). This method would be used in combination with one of the above methods.

4.0 RECORDS:

4.1 Temporary records may be discarded when the information is transferred to the permanent record.

4.2 Permanent records required by this procedure including reports, checklists, quality plans, record drawings, etc. are contract records. These records shall be maintained as required by CBI Standards.

TITLE NONCONFORMITIES

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK	LBR	AGR	CMD
				BGG	JAB	

	BY	DATE
PREPARED	REK	8-19-92
REVISED	RWK	6-27-96
AUTHORIZED	RWK	9/10/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the method for the handling of nonconformances including identification, segregation, reporting, disposition, notification and resolution. Items which have been tested, examined or inspected, and are discovered not to meet specified requirements shall be considered nonconforming. If documentation or noncompliance with a procedure or process renders an activity or an item unacceptable, it shall be considered as nonconforming.

2.0 RESPONSIBILITIES:

2.1 The individual detecting the nonconformance (or potential nonconformance) or his supervisor is responsible for notifying the Welding & QC Manager.

2.2 The Welding & QC Manager is responsible for the control of nonconformances.

2.3 Engineering-Assigned is responsible for the review and acceptance of nonconformance dispositions when the disposition is "use-as-is".

3.0 PROCEDURE:

3.1 Nonconformities or potential nonconformities shall be reported to the Welding & QC Manager for control. Nonconformities found during receiving inspection shall be handled per QAP 10.1.

3.2 If the Welding & QC Manager evaluates the items or condition as nonconforming (excluding repairs found prior to final acceptance which can be performed per an existing approved procedure or reworked), he shall generate a Nonconformance Report (NCR) (Attachment 3).

3.3 When it is necessary to stop all work on an item, the item shall be marked with a Hold Tag (Attachment 1) or segregated where practical.

3.4 The Nonconformance Control List (NCL) (Attachment 2) shall be filled out in conjunction with the NCR to index and track the status of nonconformities.

3.5 NCR's shall be filled out as required by the form.

3.6 Responsible Management shall enter a recommended disposition on the NCR. Resolution shall be accomplished by one of the following:

3.6.1 Repair the nonconforming item.

3.6.2 Obtain "Use-As-Is" approval.

3.6.2.1 In some instances, items will meet all requirements of the code but fail to comply with a customer or internal requirement. In these cases, a request may be made to leave the operation or use the item "as-is". For deviations to customer requirements the NCR shall be submitted to the customer by the Contract Team Leader for approval.

3.6.2.2 The NCR shall be reviewed and approved by Engineering-Assigned. If design calculations are required to justify the disposition, they shall be included with the NCR.

3.6.3 Rework the nonconforming item.

3.6.3.1 Rework shall be controlled the same as required for the original work.

3.6.3.2 Rework shall be accomplished in accordance with approved procedures or contract drawings.

3.6.4 Revise the document containing the requirements.

If it is determined that an item complies with all contractual requirements but not with the documents defining the requirements (drawings, procedures, etc.), action shall be initiated to have the document changed to reflect the "as-built" condition. All changes shall be handled in accordance with the controls for that document.

3.6.5 Reject the nonconforming item.

The item shall be marked "Rejected" and an NCR completed. The Welding & QC Manager shall advise the Purchasing Manager of disposition via a copy of the NCR. Purchasing shall dispose of rejected material and remove all material certification from the product documentation.

3.7 When required by Code or contract, the Welding & QC Manager shall obtain local review and approval by customer, AI or third party representatives. No review is required for rejected items.

3.8 After disposition has been determined and appropriate controls provided by the Welding & QC Manager, the Hold Tag, if used, shall be released.

3.9 When disposition is complete, the "Nonconformance Resolved/Repaired" line on the NCR and "Disposition Completed" column of the NCL shall be signed off by the Welding & QC Manager. The signoff serves to indicate that the "Recommended Disposition" is approved and completed satisfactorily. Hold Tags, if used, shall be removed.

4.0 CONTROL OF REPAIRS FOR ASME WORK:

4.1 Concurrence of the Authorized Inspector is required:

A. prior to any repairs to defects in material.

B. prior to revising contract drawings covering repairs.

4.2 For ASME Section VIII, Division 2 Products, documentation of material repairs shall indicate the extent, location and nondestructive examination(s) of the repair.

4.3 Material repairs to ASME Section I Pressure parts that could affect the safety or performance must have the consultation and agreement of the Authorized Inspector.

4.4 Upon completion of repairs, the Nonconformance Report is presented to the AI for review and acceptance.

4.5 The Welding & QC Manager shall advise the AI of the disposition of rejected material.

5.0 VENDOR NONCONFORMITIES:

The Purchasing Manager shall forward notifications of significant or unresolved vendor nonconformities to the Welding & QC Manager for resolution. The Welding & QC Manager shall notify the Purchasing Manager of the resolution which may be by:

A. Engineering-Assigned issue of revised requisitions so that the nonconformance is acceptable.

B. Advising the Purchasing Manager that CBI will complete the work to bring the material into conformance with the specified requirements.

C. Rejecting the material.

6.0 RECORDS:

NCR's and NCL's are contract records and shall be maintained by the Welding & QC Manager.

7.0 ATTACHMENTS: (Typical)

7.1 Attachment 1 - Hold Tag

7.2 Attachment 2 - Nonconformance Control List (NCL)

7.3 Attachment 3 - Nonconformance Report (NCR)

ATTACHMENT 1

CONTRACT NO. **HOLD** TAG NO.

FOR: ☐ DISPOSITION ☐ IDENTIFICATION
☐ REPAIR ☐ VERIFICATION
☐ OTHER _____

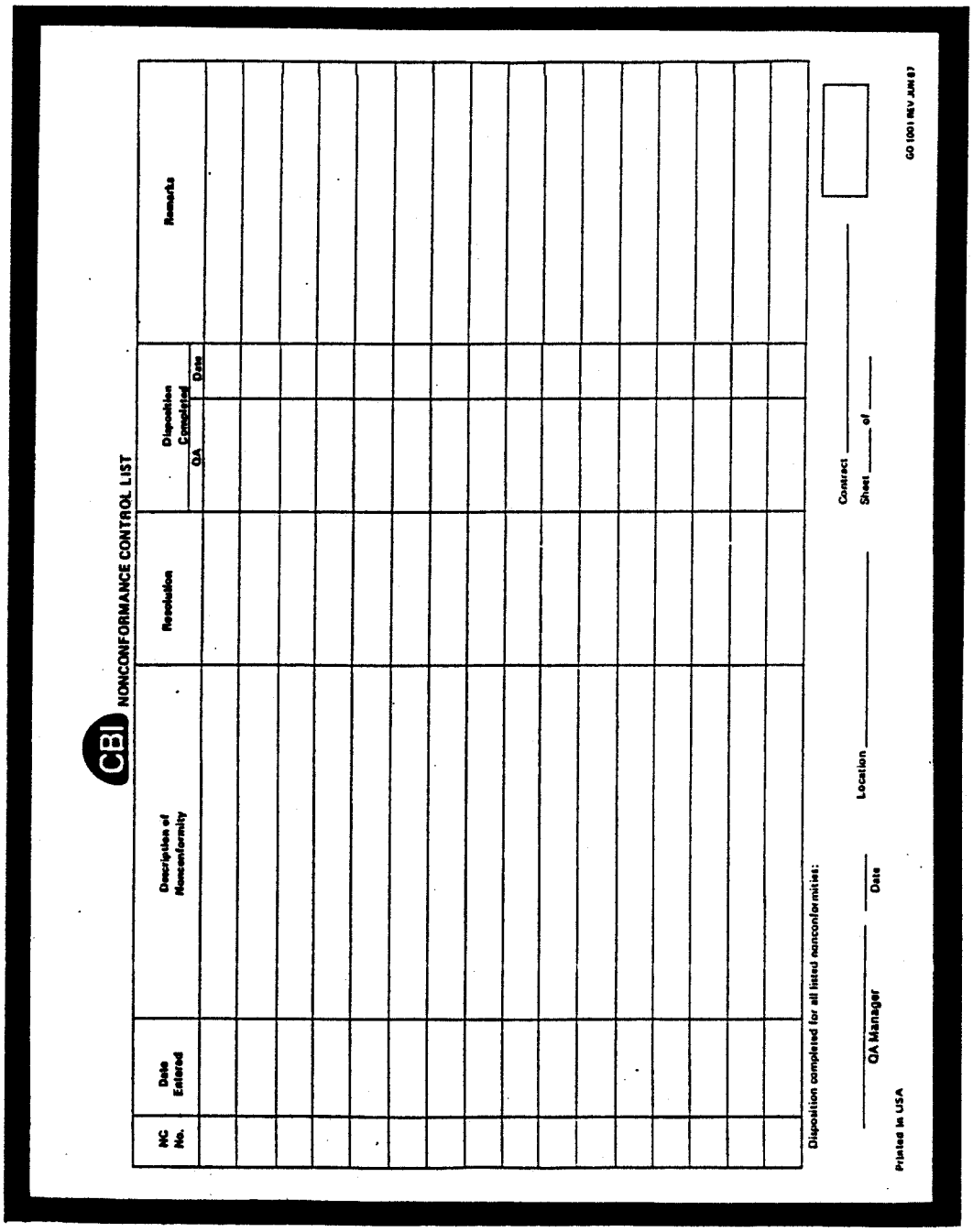
_____
BY DATE

Released _____ _____
BY DATE

GO 664 REV JUN 87

(YELLOW)

ATTACHMENT 2



NONCONFORMANCE CONTROL LIST

NC No.	Date Entered	Description of Nonconformity	Resolution	Disposition Completed QA	Disposition Completed Date	Remarks

Disposition completed for all listed nonconformities:

QA Manager _____ Date _____

Location _____

Contract _____

Sheet _____ of _____

Printed in USA

GO 1001 REV JUN 87

ATTACHMENT 3

CBI

NONCONFORMANCE REPORT

NC No. _____
REV No. _____
HOLD TAG No. _____
PAGE 1 of _____

PROJECT NAME _____
CBI CONTRACT NO. _____ PREPARED BY _____
CUSTOMER P.O. NO. _____ DATE _____
ITEM _____ CBI DWG. NO. _____

DESCRIPTION OF NONCONFORMITY (Describe Actual and Required Conditions and Discovery Reference)

CAUSE OF NONCONFORMITY _____

RECOMMENDED DISPOSITION
☐ REPAIR ☐ REWORK ☐ REJECT ☐ REVISE REQUIREMENT ☐ USE-AS-IS ☐ OTHER

CBI ENGINEERING JUSTIFICATION REQ'D
☐ NO ☐ YES IF YES ☐ SEE ATTACHED IF YES ☐ SEE STRESS ANALYSIS

LOCAL REVIEW
CBI QA/QC MGR. _____ DATE _____
CBI ENGR. _____ DATE _____
CUST. REP. _____ DATE _____
AI _____ DATE _____

NONCONFORMANCE RESOLVED / REPAIRED
_____ DATE _____
CBI QA/QC MGR.
_____ DATE _____
AUTHORIZED INSPECTOR ACCEPTANCE

"NONCONFORMANCE REPORT"/CQA-25A JAN 96

TITLE CORRECTIVE ACTION

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
			RWK	LBR	AGR
				BGG	JAB

	BY	DATE
PREPARED	REK	8-19-92
REVISED	JCJ	7-3-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the system to implement corrective action (including initiation, resolution and verification) for significant conditions adverse to quality.

2.0 RESPONSIBILITIES:

2.1 CBI employees or their supervisors shall be responsible for reporting significant conditions adverse to quality and reporting customer complaints.

2.2 The Welding & QC Manager or Contract Team Leader (CTL) shall be responsible for evaluating the condition and initiating a Corrective Action Request (CAR) as necessary.

2.3 The CTL shall be responsible for evaluating customer complaints.

2.4 The Corporate QA Manager is responsible for resolution of CAR's.

3.0 SIGNIFICANT CONDITIONS ADVERSE TO QUALITY:

3.1 Significant conditions adverse to quality are:

A. A significant design error found after the component has been completed and accepted.

B. Repetitive conditions which should receive management attention to preclude repetition.

C. Similar conditions of major significance which should receive management attention for resolution or to preclude repetition.

D. Conditions indicative of either a fundamental materials problem or process out of control.

3.1 (cont'd)

E. Conditions in work performed by suppliers under situations described above.

F. Deficiencies in products supplied to customers of which CBI is made aware through customer complaints.

3.2 Customer complaints shall be evaluated by the CTL and provided to the Welding & QC Manager if Corrective Action is required.

4.0 PROCEDURE:

4.1 The employee who identifies a significant condition adverse to quality shall report it to their supervisor, the Welding & QC Manager or the CTL. The Welding & QC Manager, after consulting with others as necessary, shall evaluate the conditions. If necessary, the Welding & QC Manager shall initiate a CAR (Attachment 1) by recording information required under Part 1, including a description of the condition and cause. He shall then transmit the CAR to the Corporate QA Manager and retain a copy. The condition may originate from customer reports and/or complaints or as a result of analysis of work operations or quality records.

4.2 Upon receipt of a CAR, the Corporate QA Manager shall analyze the processes or operations resulting in the situation and coordinate resolution and/or corrective action with management of the organizations involved and others as needed. The corrective action shall take into account the cause and effect of the condition. The corrective action shall include necessary preventive action measures such as training and modification of the process.

4.3 The Corporate QA Manager shall then complete and sign-off Part 2 of the CAR, prescribing corrective action to be taken and the time limit for such action. The Corporate QA Manager shall retain the original CAR and transmit copies to the management of the involved organizations and the originating employee.

4.4 Performance of appropriate corrective action at specific work locations shall be verified by the Corporate QA Manager and documented by his signoff in Part 3 of the CAR.

4.5 The Corporate QA Manager shall maintain a follow-up file to assure corrective action is taken within the specified time. He shall maintain a register of CARs.

4.6 The completed CAR shall be maintained by the Corporate QA Manager.

4.7 For supplier corrective action, the Corporate QA Manager shall issue a letter requesting corrective action and a scheduled completion date.

4.7.1 The Corporate QA Manager shall review the supplier's response and, if acceptable, document his approval by signoff on the supplier's response document. A copy of the signed supplier's response shall be included in the supplier's history file.

4.7.2 Verification of the completion of the corrective action shall be performed by the Corporate QA Manager.

5.0 RECORDS:

5.1 CARs generated per this procedure are internal records. They are not contract related and therefore not collected with contract records or included with records transferred to the customer. They shall be maintained by the Corporate QA Manager.

5.2 The CTL shall keep a record of all customer complaints and the resolution.

6.0 ATTACHMENTS:

Attachment 1 - Corrective Action Request (CAR)

ATTACHMENT 1

CBI

CAR NO. _____

CORRECTIVE ACTION REQUEST (CAR)

PART 1

INITIATED BY _____ DATE _____

Contract (s) (if any) _____

Description of condition and cause _____

Hold pt established ☐ Yes ☐ No Where _____

PART 2

Resolution co-ord. with _____

Corrective action _____

Copies to _____

_____ _____

Corporate QA Mgr Date

PART 3

Corrective action has been completed at required location (s) _____ _____

Corporate QA Manager Date

Copies of completed report to _____

(Attach additional information as needed)

CQA 41 Rev Jan 83

TITLE HANDLING, STORAGE, PACKAGING, PRESERVATION AND DELIVERY

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
			RWK			CMD

	BY	DATE
PREPARED	REK	8-19-92
REVISED	JCJ	6-21-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD	REV. NO.	

1.0 SCOPE:

This procedure establishes the requirements for the safe handling, storage, packaging, preservation and delivery of materials.

2.0 RESPONSIBILITIES:

2.1 Standard handling, storage, packaging, preservation and delivery requirements are the responsibility of each shop and construction organization. Methods used to control these operations include CBI standards, procedures and verbal instructions.

2.2 When required, special procedures and/or instructions shall be prepared by the Contract Team Leader (CTL) to cover additional contract material protection and preservation requirements.

3.0 HANDLING:

3.1 All material shall be safely handled and protected using pallets, containers, conveyers, cranes, hoists, vehicles or any other methods as required to prevent damage or deterioration.

3.2 Equipment and devices shall be inspected for proper operation and cleanliness as appropriate to avoid damage or contamination to the products.

4.0 STORAGE:

4.1 All material shall be properly stored and/or segregated in designated areas or stockrooms to prevent damage or deterioration from the weather or nearby operations.

4.1.1 Storage may be in enclosed areas or outdoors depending upon the nature of the item (e.g., size, shape, weight, material, etc.).

4.1.2 Stockrooms and special storage containers shall be kept locked if necessary.

4.2 The receipt and dispatch of materials to and from storage areas shall be performed by assigned personnel.

4.3 When appropriate, the condition of items in storage shall be periodically checked for signs of deterioration.

5.0 PACKAGING AND PRESERVATION:

5.1 All materials requiring packaging shall be suitably packaged to avoid damage or deterioration during shipment.

5.2 Any special methods for cleaning, packing and preservation including the details for moisture elimination, cushioning, blocking and crating shall be performed in accordance with written procedures and/or instructions.

5.3 All packaging shall be marked to identify material.

6.0 DELIVERY:

6.1 All products shall be suitably protected to avoid damage or deterioration during shipment.

6.2 Instructions including sketches showing packing and loading arrangements, location of tie downs and any required exterior protection shall be prepared as needed to prevent damage to materials during shipment.

6.3 No item shall be released for shipment to the customer until all required inspections and tests are verified as completed and accepted.

7.0 MONITORING:

Operations for handling, storage and shipping of material shall be monitored by the Welding & QC Manager or responsible management to ensure compliance with specifications.

8.0 RECORDS:

Procedures generated per this QAP are contract records. They are included in the Contract QA Handbook when applicable or maintained by the Welding & QC Manager or CTL.

CBI

DOC. ID QAP 16.1
REV. NO. 4
CONTRACT

TITLE QUALITY RECORDS

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP		RWK	LBR	AGR	CMD
				BGG	JAB	

	BY	DATE
PREPARED	REK	8-19-92
REVISED	JCJ	6-28-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure describes the accumulation, control and protection of completed quality records. See QAP 16.2 for ASME work.

2.0 RESPONSIBILITIES:

Maintenance responsibilities are as specified in CBI Standard 590-1-4.

3.0 RECORD FORMAT:

3.1 Records may be stored in paper or electronic form.

3.2 Paper Records

3.2.1 Paper records may be typewritten, computer generated or handwritten.

3.2.2 Originals or photocopies are acceptable.

3.2.3 Completed paper records shall not contain "white-out".

3.2.4 Revisions shall be lined out, corrected and initialed and dated.

3.3 Electronic Records

3.3.1 Electronic records are records stored on floppy disks, compact disks, hard disks, etc.

3.3.2 Revisions to electronic records shall be controlled to allow traceability to the individual making the change and the date of the change and allow determination of the previously recorded information.

3.4 Temporary Records

3.4.1 The use of temporary or working copy records is permissible. The data shall be transferred to the official document. Authorized personnel shall verify the accuracy of data transfer by comparison of the official document to the temporary documents.

3.4.2 Transfer of initials or signoffs shall be attested to by the individual doing the transfer (eg, REK/ALD when REK is transferred by ALD).

3.5 Record Review

3.5.1 All individuals with record responsibility are responsible for reviews of their records prior to turnover.

3.5.2 Review shall be made for technical adequacy, completeness of data and signatures, traceability as required by applicable procedures, legibility and completeness of the document package.

3.5.3 These reviews shall be made either as records are generated or upon completion of work prior to record turnover.

3.6 Storage, Preservation and Safekeeping of Records

3.6.1 Records shall be stored indoors and located to prevent damage from moisture, temperature, magnetic fields, etc.

3.6.2 Paper records shall not be stored loosely, but shall be firmly attached to binders or stored in folders or envelopes.

3.6.3 All records shall be kept for the period of time specified in CBI Standard 590-1-4, the applicable QAP, the contract, the code or applicable legislation.

3.6.4 Records shall be organized and stored for ease of handling and retrieval. Internal or confidential records shall be marked or segregated, as required.

3.7 Record Revision or Supplements

3.7.1 Corrections to records shall be made preferably by the individual responsible for generating the record or the part of the record to be corrected.

3.7.2 If sufficient space is not available to make the correction, or if the record needs to be supplemented by additional information, a continuation sheet may be used. The continuation sheet shall be traceable to and filed with the record to be revised or supplemented.

3.7.3 All corrections made to records and all supplements shall receive review and approval in the same manner as the original entry.

3.7.4 Minor changes (typographical corrections or editorial corrections) may be made without review and approval.

3.8 Handling and Identification of Radiographic Film and Reports

3.8.1 Radiographic film shall be stored in the original type film cartons whenever possible. Film turned over directly to the customer may be stored in other containers, if necessary. Each box should contain a copy of the radiographic report(s) pertaining to the contents.

3.8.2 An index shall be made for the radiographic film. Each box shall contain its number, its contents by vessel or item location and seam number and the radiographic report numbers.

3.9 Record Transfer and Storage

3.9.1 The Contract Team Leader (CTL) shall collect and package the records per customer requirements. Records shall be transferred to the customer or his delegate as indicated in the customer documents.

3.9.2 The CTL shall request a signed receipt from the customer acknowledging receipt of the records.

CBI

DOC. ID QAP 16.2
REV. NO. 1
CONTRACT

TITLE QUALITY RECORDS FOR ASME AND NBIC WORK

PAGE NO. 1 OF 2

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	CJP		RWK	LBR	JAB	CMD
				BGG	AGR	
					RRH	
					GJC	

	BY	DATE
PREPARED	REK	10-10-95
REVISED	JCJ	6-27-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD	REV. NO.	

Extensively Revised

1.0 SCOPE:

This procedure describes the accumulation, control, retention and protection of completed quality records for ASME and NBIC work. Except as modified here, these requirements are in addition to QAP 16.1.

2.0 GENERAL:

2.1 When transmitting records to Engineering-Assigned, the records shall be placed in folders and listed on an index or cover letter specifying the number of folders and types of records included.

2.2 The Pressure Vessel Booklet (PVB) is the repository for contract documentation and shall be prepared per CBI Standard 4000-10. It shall contain the following records, as a minimum:

1. Manufacturer's Data Reports/Partial Data Reports. (This includes NBIC form R1, R2, R3 and R4 when applicable.)
2. Material Certification Records (MTR & COC).
3. Pressure Test Charts.
4. Heat Treating Records.
5. Record Drawings and Assembly Check Lists.
6. Material Verification Summary Sheets.
7. Material Repair Records for Section VIII Division 2 Products (nonconformities).
8. Procedures (NDE, Welding, PWHT and Pressure Test) for Section VIII Division 2 Products.

2.3 Quality records shall be retained and protected as required by CBI Standard 590-1-4.

3.0 RESPONSIBILITIES FOR MAINTENANCE AND TRANSMITTAL OF QUALITY RECORDS:

3.1 The Purchasing Manager is responsible for:

1. Accumulating supplier records for purchased materials and items.

2. Collecting and maintaining Material Certifications (MTR and COC) and Material Verification Summary Sheets and transmitting them to Engineering-Assigned for inclusion in the PVB.

3.2 The Shop Welding & QC Manager is responsible for collecting and maintaining the shop quality records and transmitting them to Engineering-Assigned for inclusion in the PVB.

3.3 The Field Welding & QC Supervisor is responsible for collecting and maintaining jobsite quality records and transmitting them to the Construction Welding & QC Manager.

3.4 The Construction Welding & QC Manager is responsible for collecting the jobsite quality records and transmitting them to Engineering-Assigned for inclusion in the PVB.

3.5 Engineering-Assigned is responsible for the required quality records, assembling them in a PVB and distributing the PVB per CBI Standard 4000-10.

CBI

DOC. ID QAP 17.1
REV. NO. 5
CONTRACT

TITLE INTERNAL AUDITING

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
			RWK	LBR	JAB
			JCJ	BGG	AGR
			RES		

	BY	DATE
PREPARED	RGL	12-9-92
REVISED	RWK	6-27-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD	REV. NO.	
	Extensively Revised	

1.0 SCOPE:

This procedure describes the system of internal auditing used to verify whether quality activities and related results comply with planned arrangements and to determine the effectiveness of the Quality System.

All groups performing quality related work shall be audited to determine, evaluate and document the effectiveness and implementation of the Quality Assurance Manual (QAM) and the ASME Quality Control System (QCS). This shall be accomplished through a comprehensive system of planned and documented internal quality audits scheduled on the basis of the status and importance of the activity to be audited.

2.0 RESPONSIBILITIES:

2.1 The Corporate QA Manager is responsible for auditing as outlined in this procedure.

2.2 Auditors are responsible for the performance and reporting of audits in accordance with this procedure and shall be independent of those having direct responsibility for the activity being audited.

3.0 AUDITING:

3.1 Engineering shall be audited annually at each location for the following product lines:

3.1.1 ASME Section I, VIII, NBIC and API-510 work.

3.1.2 Low temperature and cryogenic tanks (API 620 Appendix Q&R) for LNG, LPG, ammonia storage and when 5% or 9% Ni steel is used for ethane, ethylene or liquid oxygen/nitrogen/argon storage.

3.2 Manufacturing, which includes purchasing activities, shall be audited at each location as follows:

3.2.1 Annually for the products listed in 3.1.1 above.

3.2.2 For each project for the products listed in 3.1.2 above.

3.3 Construction jobsites shall be audited for the products listed in 3.1.1 and 3.1.2 above. Normally, one audit shall be made at each jobsite. Varying conditions may influence the need for more than one audit or no audit at all. The Corporate QA Manager shall determine exceptions to making one audit. The audit shall be performed at a time mutually agreeable (activities more than 1/4 or less than 3/4 done) to the Auditor and the Welding & QC Manager.

4.0 PROCEDURE:

4.1 Auditing consists of interviews, observing activities and conditions in areas of concern and reviewing documents to determine and evaluate the effectiveness and implementation of the Quality System.

4.2 Prior to conducting the audit, the Auditor shall contact the Manager of the location to be audited and provide an "Audit Plan" (Attachment 1) for the purpose of confirming the plans for the audit. The audit plan may evaluate the complete quality system or portions of it.

4.3 An Audit Checklist shall be used to record QAM paragraphs audited, operations witnessed and to maintain a record of audit findings (see paragraph 5.0).

4.4 Auditors shall have adequate training and knowledge of the activities to be audited.

4.5 Auditors shall give primary attention to identifying significant or potentially significant findings and their correction. In addition, the following guidelines shall apply:

4.5 (cont'd)

A. Implementation of the QAM requires use of referenced CBI Standards. The audit shall include review for compliance with these Standards when applicable.

B. Auditors shall verify that procedures being used are applicable for the work and are being properly implemented.

C. The checklist should contain entries for all major QAM subjects; however, timing of the audit may not allow all subjects to be audited.

D. Review of documentation showing compliance with the QAM shall be limited to those documents required by the QAM to be at the audited location during the time of the audit.

4.6 An exit interview shall be conducted with involved management at the conclusion of each audit to discuss audit findings and clarify misunderstandings.

5.0 FINDINGS:

5.1 Findings shall be documented on the "Audit Finding" form (see Attachment 2).

5.1.1 Any condition which shows nonconformance to the QAM, QCS, CBI Standards, technical procedures, drawings or work instructions shall be considered a finding.

5.1.2 Inadequate program knowledge by people required to perform in accordance with designated portions of the QAM, which would result in lack of program effectiveness, shall be considered a finding.

5.2 The Auditor shall:

A. Report all findings, except those immediately resolved and corrected.

5.2 (cont'd)

B. Assign finding numbers using prefixes to identify the departments addressed (S = Shop, F = Field, E = Engineering, P = Purchasing, S = Sales, etc.).

C. Fill out the top portion, the "Controlling Requirements" section and the "Finding" section. When applicable, also fill out the "Recommended Resolution" section.

D. Address findings to the Manager of the location audited for resolution unless the audit finding requires resolution by a department other than the one being audited. For this case, address the finding to the appropriate department Manager.

E. Review the resolution or corrective action taken. If acceptable, indicate agreement by signing and dating the form. If the response is unacceptable, try to resolve with the audited organization. If resolution cannot be obtained, send the finding to the Corporate QA Manager for resolution.

5.3 The Manager responsible for resolution shall indicate the resolution or corrective action taken, sign and return the finding to the Auditor.

6.0 AUDIT REPORTS:

6.1 A written report shall be used to distribute findings. The report shall be addressed to all Managers with finding response responsibilities and shall include:

A. Response instructions.

B. Observations not reported as findings.

C. A statement on the effectiveness of the quality management systems audited.

6.1.1 For ASME and NBIC stamped work, the Welding & QC Manager shall review the reports to assure that products are completed in the field in accordance with the QCS. After review, he shall sign and date the report. Audit Reports shall be retained for one year, during which time they shall be available for inspection by the Authorized Inspector.

6.2 Audit reports shall be completed and mailed within 30 calendar days of the audit date. The audit checklist is not considered part of the report and shall be maintained by the Auditor with a copy to the Corporate QA Manager.

6.3 Reports shall be distributed to the:

A. Manager responsible for resolution of the Finding(s)
B. Corporate QA Manager
C. General Manager of Corporate Welding & QA
D. Area Welding & QA Manager
E. Manager with primary responsibility for the activities discussed, such as:

Send to	Reason
Product Engineering Manager; Project Engineering Supervisor Chief Engineer	Engr. Audits & Audits With Engineering Findings
Manager Inspection and Testing	Audits With NDE Related Findings
Welding & QC Manager (CBI Organization listed as the Certificate Holder)	Audits for ASME Section I, VIII, NBIC and API-510 Products

7.0 RESOLUTION

7.1 After all findings from each audit are resolved, the Auditor shall write a letter to the involved Manager(s) with copies per paragraph 6.3. Attach the signed, resolved findings and indicate that the audit is closed.

7.2 When all audits for a contract have been closed, the Auditor shall write a letter to the involved Managers, with a copy to the Corporate QA Manager, stating that audit activity on the contract has been completed.

8.0 FOLLOW-UP AUDITS:

8.1 Subsequent audits of locations with previous findings shall have the affected activities reviewed to verify the implementation and effectiveness of the corrective action taken.

9.0 RECORDS:

Audit reports are maintained by the Corporate QA Manager for 5 years.

10.0 ATTACHMENTS(Typical):

10.1 Attachment 1 - Sample Audit Plan

10.2 Attachment 2 - Audit Finding Form

ATTACHMENT 1

AUDIT PLAN

ORGANIZATION TO BE AUDITED:

LOCATION:

DATE/SCHEDULE:

SCOPE: *Provide brief overview of audit coverage including contracts as applicable.*

REQUIREMENTS: *List latest QAM and any addenda or supplements.*

APPLICABLE DOCUMENTS: *Normally the same as "Requirements".*

ACTIVITIES TO BE AUDITED: *List QAM or checklist elements to be covered.*

AUDIT PERSONNEL: *If more than one, indicate who is team leader.*

PROCEDURE: *QAP 17.1*

CHECKLIST: *Indicate that the checklist is attached or reference the unique I.D. of checklist to be used.*

_____
Team Leader Signature

_____
Date

CQA-43 10/93

ATTACHMENT 2

AUDIT FINDING

LOCATION
AUD/CONTR NO.
FINDING NO.
TO: DATE:
AT: AUDITOR:

Enter the "Resolution And/Or Corrective Action Taken" below and return to the auditor in 30 days or as requested in the cover letter.

To be Completed by Auditor

CONTROLLING REQUIREMENT(S) (include QAM section):

FINDING:

RECOMMENDED RESOLUTION (optional):

To be Completed by Addressee

RESOLUTION AND/OR CORRECTIVE ACTION TAKEN:

Signature Location Date

To be Completed by Auditor

DATE _____ VERIFIED & ACCEPTED _____ (Nuclear)

CONCUR _____ (Other)

CBI

DOC. ID QAP 18.1
REV. NO. 4
CONTRACT

TITLE GENERAL TRAINING

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
			RWK		

	BY	DATE
PREPARED	RGL	8-19-92
REVISED	JCJ	6-27-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure contains general training information not included in specific organizational training procedures.

2.0 RESPONSIBILITIES:

2.1 The Corporate QA Manager is responsible for assuring all organizations provide and document training and qualification as outlined in the QAM.

2.2 The Corporate QA Manager is responsible for establishing minimum qualification and training requirements for individuals not included in organizations specific procedures.

3.0 ORGANIZATIONAL TRAINING, QUALIFICATION AND CERTIFICATION:

3.1 The Corporate QA Manager shall approve all quality system training and qualification procedures.

3.2 The Corporate QA Manager shall provide for internal quality audits (QAM Section 17) to affirm that training, qualification and certification activities of each organization are performed and documented (when required). Auditors shall report potential deficiencies in training and qualification procedures to the Corporate QA Manager.

3.3 The Corporate QA Manager shall inform organization management of any potential deficiencies in training and qualification procedures identified during audits or other activities and monitor their resolution.

4.0 QUALIFICATION AND TRAINING FOR TOP MANAGEMENT:

4.1 The Corporate QA Manager is responsible for the training of top management. Training in the quality system will be on an as needed basis. It is expected that necessary familiarization, understanding and training will take place as they participate in the overall management of the system. This will be supplemented by specific training as necessary coincident with the annual management review process.

4.2 For the purposes of this procedure, top management includes:

A. Presidents

B. Vice-Presidents

C. General Managers

D. Chief Engineer

E. Manufacturing Managers

F. Construction Managers

G. General Manager of Corporate Welding & QA

H. Corporate QA Manager

4.3 These individuals have overall responsibility for all activities. Activities as described in this quality system, except for management review, are delegated to other trained and qualified individuals.

4.4 These individuals are qualified based on their broad experience and background in the business of CBI as contained in proprietary company records. These individuals are selected for their positions by the Board of Directors or other top management.

5.0 RECORDS:

No specific records are required by this procedure.

TITLE QUALIFICATION & TRAINING REQUIREMENTS OF CORPORATE WELDING & QA PERSONNEL

APPROVED: Engr | Corp Weld | Corp QA RWK | Const | Mfg

	BY	DATE
PREPARED	RAJ	6-15-95
REVISED	JCJ	6-27-96
AUTHORIZED		9/11/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure lists the minimum qualification and training requirements for individuals involved in Corporate Welding and QA activities.

2.0 RESPONSIBILITIES:

The General Manager of Corporate Welding & QA shall be responsible for assuring all individuals in his Department are properly qualified and trained for the activities they are performing.

3.0 QUALIFICATION REQUIREMENTS:

3.1 The Corporate QA Manager shall have at least a high school education with additional college or technical education as deemed necessary by the General Manager of Corporate Welding & QA and shall have appropriate experience in quality assurance activities required for the position.

3.2 Welding & QA Engineers, Leaderman, QC Engineers and QA Engineers shall have at least a high school education with additional college or technical education as deemed necessary by the General Manager of Corporate Welding & QA. Welding & QA Engineers shall also have completed the CBI Welding Engineer Training Program (CBI Standard 152-23-1) or equivalent program.

3.3 Auditors shall have at least a high school education with additional college or technical education as deemed necessary by the General Manager of Corporate Welding & QA and shall be qualified as required by applicable codes or quality systems.

3.4 The Weld Lab Manager shall have at least a high school education with additional college or technical education as deemed necessary by the General Manager of Corporate Welding & QA and shall have completed the CBI Engineer Training Program (CBI Standard 152-22) or equivalent program.

3.5 Welding & QC Supervisors shall have completed the CBI Welding Supervisor Training Course (CBI Standard 152-23-2) and have the appropriate welding experience required for their assignment.

3.6 NDE Engineers shall have at least a high school education and the appropriate Shop NDE/Testing experience required for the position.

3.7 NDE Technicians shall be qualified per QAP 10.2.

3.8 Welding & QC Department craft personnel shall have the necessary experience and be qualified as appropriate for their assignments.

4.0 TRAINING REQUIREMENTS:

4.1 All individuals shall receive training in the operations they perform. This shall include but not be limited to:

4.1.1 Sufficient knowledge to operate the electronic systems they will be using (PC, E-mail, etc.) including the requirements to ensure security of these systems and the data contained in them.

4.1.2 Knowledge of the Redbook Standards, Codes and other technical references applicable to the activities being performed.

4.2 Unless it has been ascertained that the individual has already received the training required by 4.1.1, this training shall be conducted prior to the commencing of the assignment. Previous assignments using the same equipment and software is acceptable evidence of prior training.

4.3 Training in the contents of Redbook Standards, Codes and other technical references shall be on an as-needed basis over the duration of the assignment.

4.4 All individuals (except craft personnel) shall be trained in the Quality Management System requirements, including subsequent revisions related to their activities. This training shall include familiarization with the QA Manual, QAP's and references applicable to the activities they are performing.

5.0 RECORDS:

5.1 Records of Qualification:

5.1.1 The General Manager of Corporate Welding & QA is responsible for verifying the qualification requirements of 3.0 as documented in department personnel files, except that NDE Technicians records shall be contained in their NDE file.

5.2 Records of Training:

5.2.1 Training in the QAM, applicable QAP's and any other required references as given in 4.4 shall be documented. Documentation shall consist of a record of the individual's name(s), date(s) of training, QAM, QAP's or references covered in the training and the name & signature of the individual conducting the training session. Training records may be grouped, and separate training records for each individual are not required.

5.2.2 If previous training of a transferring individual is deemed acceptable by the Manager or Supervisor, this conclusion shall be documented and placed in the individual's records.

5.2.3 Documentation of other training required by 4.0 is optional.

TITLE QUALIFICATION & TRAINING REQUIREMENTS FOR ENGINEERING PERSONNEL

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
	CJP		RAJ REK		

	BY	DATE
PREPARED	CJP	6-15-95
REVISED		
AUTHORIZED	RWK 8/8/95	
REFERENCED STANDARD	REV. NO.	

1.0 SCOPE:

This procedure lists the minimum qualification and training requirements for individuals involved in design and detail engineering activities.

2.0 RESPONSIBILITIES:

Managers or supervisors shall be responsible for assuring that individuals are properly qualified for the activities they are performing. Engineering Team Leaders shall be responsible for assuring that individuals reporting to them are properly trained.

3.0 QUALIFICATION REQUIREMENTS:

3.1 Individuals responsible for final design output for a structure, system, or component shall possess at least one of the following:

A. a bachelor's degree in an engineering discipline from an accredited educational institution.

B. current registration as a professional or structural engineer in at least one state or Canadian province.

3.2 Engineering Team Leaders shall meet the requirements given in 3.1 or shall have at least 10 years experience in engineering the structures, systems, or components assigned to them.

3.3 Qualification requirements contained in codes, standards, or other requirements applicable to the contract shall apply when more stringent than those given in 3.1 and 3.2.

3.4 Other than as given above, Product Engineering Managers, Product Engineering Supervisors, and Engineering Team Leaders have responsibility for assessing the qualifications of individuals reporting to them with respect to their capability to undertake specific functions.

4.0 TRAINING REQUIREMENTS:

4.1 All individuals shall receive training in the operations they perform. This training shall include but not be limited to:

4.1.1 Development of sufficient knowledge to operate the electronic systems they will be using (PC, CAD, electronic mail, etc.) including requirements necessary to ensure security of these systems and the data contained in them.

4.1.2 Orientation in CBI Standards 170-0-3, 220, and 220-0-2 covering general design and detail engineering organization and policies.

4.1.3 Knowledge of the Redbook Standards, codes, and other technical references applicable to the activities being performed.

4.2 Unless it has been ascertained that the individual has already received the training given in 4.1.1 and 4.1.2, this training shall be conducted prior to commencing the assignment. Previous assignments using the same equipment and software is acceptable evidence of prior training. Previous training in engineering organization and policies may be ascertained by personal knowledge or discussion with the individual.

4.3 Training in contents of Redbook Standards, codes, and other technical references shall be on an as-needed basis over the duration of the assignment.

4.4 All individuals shall be trained in the Quality Management System requirements, including subsequent revisions, related to their activities. The training shall include familiarization with the QA Manual, QAP's, and referenced CBI Standards applicable to the activities they are performing as well as related activities necessary to enhance understanding of the overall system.

4.4.1 Engineering Team Leaders are responsible for determining the scope of training required for individuals in the team and for maintaining records that such training has been received.

4.4.2 Managers and supervisors are responsible for determining the scope of training for all other individuals reporting to them and for maintaining records that such training has been received. This training shall provide sufficient understanding of the Quality Management System to ensure its effective implementation.

4.4.3 The need for training shall be determined each time an individual is transferred to a new group or is assigned an activity in which the individual has no experience.

5.0 RECORDS:

5.1 Records of Qualification

5.1.1 Verification of degree or experience shall be maintained in personnel files.

5.1.2 Verification of registration as a professional or structural engineer shall be by possession of current license.

5.2 Records of Training

5.2.1 Training in the QAM and applicable QAP's shall be documented as given in 4.4. Documentation shall consist of name(s) of individual(s), date(s) of training, QAM paragraphs and QAP's covered in training, and signature of the individual responsible for conducting the training. A separate training record for each individual is not required. If the previous training of a transferring individual is deemed acceptable, this conclusion shall be documented in the records of the individual's new manager, supervisor, or team leader.

5.2.2 Documentation of other training required by 4.0 is optional.

CBI

DOC. ID QAP 18.4
REV. NO. 1
CONTRACT

TITLE QUALIFICATION & TRAINING REQUIREMENTS OF MANUFACTURING WELDING & QC PERSONNEL

PAGE NO. 1 OF 3

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
			RWK		JAB
					AGR

	BY	DATE
PREPARED	RWK	6-15-95
REVISED	JCJ	6-27-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure lists the minimum qualification and training requirements for individuals involved in Manufacturing Welding and QC activities.

2.0 RESPONSIBILITIES:

2.1 The Manufacturing Manager shall be responsible for assuring that the Welding & QC Manager is properly qualified and trained for the position.

2.2 The Welding & QC Manager shall be responsible for assuring that all individuals in his Department are properly qualified and trained for the activities they are performing.

3.0 QUALIFICATION REQUIREMENTS:

3.1 The Welding & QC Manager shall have at least a high school education with additional college or technical education as deemed necessary by the Plant Manager and shall have completed the CBI Welding Engineer Training Program (Std 152-23-1) or equivalent program.

3.2 Welding Engineers shall have at least a high school education with additional college or technical education as deemed necessary by the Welding & QC Manager and shall have completed the CBI Welding Engineer Training Program (Std 152-23-1) or equivalent program.

3.3 Welding & QC Supervisors shall have completed the CBI Welding Supervisor Training Course (Std 152-23-2) and have the appropriate welding experience required for their assignment.

3.4 The Inspection Supervisor shall have at least a high school education and the appropriate Shop experience required for the position.

3.5 Inspectors shall have the appropriate Shop experience required for their assignment.

3.6 The NDE Supervisor shall have at least a high school education and the appropriate Shop NDE/Testing experience required for the position.

3.7 NDE Technicians shall be qualified per QAP 10.2.

3.8 Any Welding & QC Department individual to be utilized in auditing activities shall be appropriately trained and qualified for that activity.

4.0 TRAINING REQUIREMENTS:

4.1 All individuals shall receive training in the operations they perform. This shall include but not be limited to:

4.1.1 Sufficient knowledge to operate the electronic systems they will be using (PC, E-mail, etc.) including the requirements to ensure security of these systems and the data contained in them.

4.1.2 Knowledge of the Redbook Standards, Codes and other technical references applicable to the activities being performed.

4.2 Unless it has been ascertained that the individual has already received the training required by 4.1.1, this training shall be conducted prior to the commencing of the assignment. Previous assignments using the same equipment and software is acceptable evidence of prior training.

4.3 Training in the contents of Redbook Standards, Codes and other technical references shall be on an as-needed basis over the duration of the assignment.

4.4 All individuals shall be trained in the Quality Management System requirements, including subsequent revisions related to their activities. This training shall include familiarization with the QA Manual, QAP's and references applicable to the activities they are performing.

5.0 RECORDS:

5.1 Records of Qualification:

5.1.1 Verification of the qualification requirements of 3.0 shall be maintained in the individuals file, except that NDE Technicians records shall be contained in their NDE file.

5.2 Records of Training:

5.2.1 Training in the QAM, applicable QAP's and any other required references as given in 4.4 shall be documented. Documentation shall consist of a record of the individual's name(s), date(s) of training, QAM, QAP's or references covered in the training and the name & signature of the individual conducting the training session. Training records may be grouped, and separate training records for each individual are not required.

5.2.2 If previous training of a transferring individual is deemed acceptable by the Manager or Supervisor, this conclusion shall be documented and placed in the individual's records.

5.2.3 Documentation of other training required by 4.0 is optional.

TITLE QUALIFICATION & TRAINING REQUIREMENTS OF MANUFACTURING PRODUCTION PERSONNEL

APPROVED

Engr	Corp Weld	Corp QA	Const	Mfg
		RWK		JAB
				AGR
				DSW
				JFH

	BY	DATE
PREPARED	DWM	6-22-95
REVISED	JCJ	6-27-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE

This procedure lists the minimum qualification and training requirements for individuals involved in Manufacturing production activities.

2.0 RESPONSIBILITIES

2.1 The Manufacturing Manager shall be responsible for assuring that the Shop Superintendent is properly qualified and trained for the position.

2.2 The Shop Superintendent shall be responsible for assuring that all individuals in his department are properly qualified and trained for the activities they are performing.

3.0 QUALIFICATION REQUIREMENTS

3.1 The Shop Superintendent shall have at least a high school education with additional college or technical education as deemed necessary by the Plant Manager and shall have completed the CBI Engineer Training Program (Std 152-22) or equivalent program.

3.2 The Assistant Superintendent-Production shall have at least a high school education with additional college or technical education as deemed necessary by the Shop Superintendent and shall have completed the CBI Engineer Training Program (Std 152-22) or equivalent program.

3.3 Contract Team Leaders (CTL's) (Project Coordinators) shall have at least a high school education with additional college or technical education as deemed necessary by the Shop Superintendent and appropriate Shop experience as required for the position.

3.4 General Foremen and Foremen shall have at least a high school education or equivalent training and the appropriate Shop experience as required for the position.

3.5 Craft personnel shall have demonstrated their knowledge and/or skill to perform their craft or shall have demonstrated their ability to learn their craft by successfully passing qualification tests, where such tests are established.

3.6 Any production personnel to be used in auditing activities shall be appropriately trained and qualified for that activity.

4.0 TRAINING REQUIREMENTS

4.1 All individuals shall receive training in the operations they perform. This shall include but not be limited to:

4.1.1 Sufficient knowledge of shop equipment to ensure its safe operation and suitability for producing quality components.

4.1.2 Sufficient knowledge to operate the electronic systems they will be using (PC, E-mail, etc.) including the requirements to ensure security of these systems and the data contained in them.

4.1.3 Knowledge of the Redbook Standards, Codes and other technical references applicable to the activities being performed.

4.2 Unless it has been ascertained that the individual has already received the training required by 4.1, this training shall be conducted prior to the commencing of the assignment. Previous assignments using the same equipment and software is acceptable evidence of prior training.

4.3 Training in the contents of Redbook Standards, Codes and other technical references shall be on an as-needed basis over the duration of the assignment.

4.4 All individuals shall be trained in the Quality Management System requirements, including subsequent revisions related to their activities. This training shall include familiarization with the QA Manual, QAP's and references applicable to the activities they are performing.

5.0 RECORDS

5.1 Records of Qualification:

5.1.1 Verification of the qualification requirements of 3.0 shall be maintained in the individuals file.

5.2 Records of Training:

5.2.1 Training in the QAM, applicable QAP's and any other required references shall be documented as given in 4.4. Documentation shall consist of a record of the individual's name(s), date(s) of training, QAM, QAP's or references covered in the training and the name & signature of the individual conducting the training session. Training records may be grouped, and separate training records for each individual are not required.

5.2.2 If previous training of a transferring individual is deemed acceptable by the Shop Superintendent or Assistant Superintendent-Production this conclusion shall be documented and placed in the individual's records.

5.2.3 Documentation of other training required by 4.0 is optional.

CBI

DOC. ID QAP 18.6
REV. NO. 1
CONTRACT

TITLE QUALIFICATION & TRAINING REQUIREMENTS OF PURCHASING DEPARTMENT PERSONNEL

PAGE NO. 1 OF 3

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg
			RWK		GJC
					RRH

	BY	DATE
PREPARED	JCV	6-20-95
REVISED	RWK	6-28-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure lists the minimum qualification and training requirements for individuals involved in procurement activities.

2.0 RESPONSIBILITIES:

2.1 The Manufacturing Manager shall be responsible for assuring that the Purchasing Manager is properly qualified and trained for the position.

2.2 The Purchasing Manager shall be responsible for assuring that all individuals in his department are properly qualified and trained for the activities they perform.

3.0 QUALIFICATION REQUIREMENTS:

3.1 The Purchasing Manager shall have at least a four (4) year degree and overall technical and business knowledge of Chicago Bridge & Iron Company.

3.2 Buyers shall have at least a four (4) year degree or past experience in the purchasing field as deemed necessary by the Purchasing Manager.

3.3 The QA Coordinator shall have at least a High School diploma with either additional college/technical training or required experience for the position as deemed necessary by the Purchasing Manager.

3.4 Any Purchasing individuals to be utilized in auditing activities shall be appropriately trained and qualified for the activity.

4.0 TRAINING REQUIREMENTS:

4.1 All individuals shall receive training in the operations they perform. This shall include but not be limited to:

4.1.1 Sufficient knowledge to operate the electronic systems they will be using (PC, E-mail, etc.) including the requirements to ensure security of these systems and the data contained in them.

4.1.2 Knowledge of the Redbook Standards, Codes and other technical references applicable to the activities being performed.

4.2 Unless it has been ascertained that the individual has already received the training required by 4.1.1, this training shall be conducted prior to the commencing of the assignment. Previous assignments using the same equipment and software is acceptable evidence of prior training.

4.3 Training in the contents of Redbook Standards, Codes and other technical references shall be on an as-needed basis over the duration of the assignment.

4.4 All individuals shall be trained in the Quality Management System requirements, including subsequent revisions related to their activities. This training shall include familiarization with the QA Manual, QAP's and references applicable to the activities they are performing.

5.0 RECORDS:

5.1 Records of Qualification:

5.1.1 Verification of the qualification requirements of 3.0 shall be maintained in the individuals file.

5.2 Records of Training:

5.2.1 Training in the QAM, applicable QAP's and any other required references as given in 4.4 shall be documented. Documentation shall consist of a record of the individual's name(s), date(s) of training, QAM, QAP's or references covered in the training and the name & signature of the individual conducting the training session. Training records may be grouped, and separate training records for each individual are not required.

5.2.2 If previous training of a transferring individual is deemed acceptable by the Manager or Supervisor, this conclusion shall be documented and placed in the individual's records.

5.2.3 Documentation of other training required by 4.0 is optional.

TITLE QUALIFICATION & TRAINING REQUIREMENTS OF CONSTRUCTION WELDING & QC PERSONNEL

APPROVED

Engr	Corp Weld	Corp QA	Const	Mfg	Const
		RWK	BGG		CRK
			LBR		RGW
			DAD		JRS
			TLH		

	BY	DATE
PREPARED	JCJ	2-19-96
REVISED		
AUTHORIZED	RWK	5/14/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure lists the minimum qualification and training requirements for individuals involved in Construction Welding and QC activities.

2.0 RESPONSIBILITIES:

2.1 The Construction Manager shall be responsible for assuring that the Welding & QC Manager is properly qualified and trained for the position.

2.2 The Welding & QC Manager shall be responsible for assuring that all individuals in his Department are properly qualified and trained for the activities they are performing.

3.0 QUALIFICATION REQUIREMENTS:

3.1 The Welding & QC Manager shall have at least a high school education with additional college or technical education as deemed necessary by the Construction Manager and shall have completed the CBI Welding Engineer Training Program (Std 152-23-1) or equivalent program.

3.2 Welding Engineers shall have at least a high school education with additional college or technical education as deemed necessary by the Welding & QC Manager and shall have completed the CBI Welding Engineer Training Program (Std 152-23-1) or equivalent program.

3.3 Welding & QC Supervisors shall have completed the CBI Welding Supervisor Training Course (Std 152-23-2) and have the appropriate welding experience required for their assignment.

3.4 NDE Technicians shall be qualified per QAP 10.2.

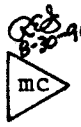
3.5 Any Welding & QC Department individual to be utilized in auditing activities shall be appropriately trained and qualified for that activity.

4.0 TRAINING REQUIREMENTS:

4.1 All individuals shall receive training in the operations they perform. This shall include but not be limited to:

4.1.1 Sufficient knowledge to operate the electronic systems they will be using (PC, E-mail, etc.) including the requirements to ensure security of these systems and the data contained in them.

4.1.2 Knowledge of the Redbook Standards, Codes and other technical references applicable to the activities being performed.



4.2 Unless it has been ascertained that the individual has already received the training required by 4.1, this training shall be conducted prior to starting the assignment. Previous assignments using the same equipment and software are acceptable evidence of prior training.

4.3 Training in the contents of Redbook Standards, Codes and other technical references shall be on an as-needed basis over the duration of the assignment.

4.4 System requirements, including subsequent revisions related to their activities. This training shall include familiarization with the QA Manual, QAP's and references applicable to the activities they are performing.

5.0 RECORDS:

5.1 Records of Qualification:

5.1.1 Verification of the qualification requirements of 3.0 shall be maintained in the individual's file, except that NDE Technician's records shall be contained in their NDE file.

5.2 Records of Training:

5.2.1 Training in the QAM, applicable QAP's and any other required references as given in 4.4 shall be documented. Documentation shall consist of a record of the individual's name(s), date(s) of training, QAM, QAP's or references covered in the training and the name & signature of the individual conducting the training session. Training records may be grouped, and separate training records for each individual are not required.

5.2.2 If previous training of a transferring individual is deemed acceptable by the Manager or Supervisor, this conclusion shall be documented and placed in the individual's records.

5.2.3 Documentation of other training required by 4.0 is optional.

TITLE NATIONAL BOARD REPAIRS AND ALTERATIONS

APPROVED	Engr	Corp Weld	Corp QA	Const	Mfg	HSB
	MJK		RWK	BGG LBR	JAB AGR	CMD

	BY	DATE
PREPARED	RES	10-10-95
REVISED	JCJ	8-19-96
AUTHORIZED	RWK	9/9/96
REFERENCED STANDARD		REV. NO.

1.0 SCOPE:

This procedure covers the special requirements for repairs and alterations to pressure retaining items which are performed in accordance with the National Board Inspection Code (NBIC). Repairs and alterations are defined in the NBIC. All such repairs or alterations performed by CBI will be done in accordance with this procedure, the QAM and the jurisdictional requirements at the final location.

This QAP contains additions to or modifications of the requirements of the QAM. Except as modified here, all other requirements of the QAM are applicable to repairs and alterations, to the extent required by contractual scope of work. CBI Standard 934 contains additional instructions for NBIC work.

2.0 SPECIAL CONSIDERATIONS:

2.1 Prior to the start of work, the scope of repairs and alterations shall be presented to the Inspector for his concurrence.

2.2 In the case of routine repairs, determine whether routine repairs are acceptable to the jurisdiction where the work is to be performed, in addition to the Inspector's concurrence. The requirement for in-process involvement of the Inspector and stamping are waived for routine repairs. Routine repairs shall be documented with NBIC Form R-1 "Report of Welded Repair" and shall include a statement on line 9, Remarks: "Routine Repair".

2.3 For ASME Section VIII Division 2, NBIC requires a repair plan certified by a Registered Professional Engineer which has to be accepted by the Inspector. This may be prepared by the user or CBI.

2.4 NBIC Nameplates (Also see CBI Standard 9201-5-3)

Applying the "repair", "altered" or "rerated" nameplate or applying CBI's contract number and dating to existing R symbol stamp "repair" nameplates signifies that the work was performed in compliance with the requirements of the NBIC.

A. "Repair" nameplates are used with NBIC Form R-1. A single nameplate may be used for more than one repair, so a new nameplate is not always required. If the product already has an R symbol stamp "repair" nameplate applied by CBI, the new contract number and date are added to the existing nameplate.

B. "Alteration" nameplates are used with NBIC Form R-2. All alterations require a new nameplate.

C. "Rerated" nameplates are also used with NBIC Form R-2. All reratings require a new nameplate.

D. Subject to the acceptance of the Inspector, nameplates and stamping may not be required for routine repairs.

2.5 CBI is responsible for all Code required activities in the scope of the repair or alteration even if some activities are performed by others. The only exception to this is when design certification for an alteration is provided on a Form R-2 "Report of Alteration" by another valid "R" Certificate Holder. In such a case, the organization performing the design must provide a Form R-2, "Report of Alteration" certifying the design. This will be attached to CBI's Form R-2.

2.6 For material or welded assemblies supplied by others, the following requirements apply in lieu of QAM requirements for material procurement.

A. Documentation (COC's, MTR's or Code Data Reports) shall be supplied to CBI for:

- Plate Material.
- Welded assemblies.
- Product forms ordered to a CBI Material Specification or a material supplementary requirement

For all other product forms, the material may be accepted as complying with the ASME material specification if the ASME material specification provides for the marking of each piece, bundle, lift, or shipping container with the specification designation, including the grade, type, and class, if applicable, and each piece, bundle, lift, or shipping container is so marked.

B. Documentation shall be reviewed for Code compliance and traceability to the material, product or welded assembly by the Welding and QC Manager or Purchasing, as determined by the Welding and QC Manager.

C. A receiving inspection of the material, product or welded assembly shall be made using the "Metal Receiving Inspection Report" or "Stores Receiving Inspection Report". Release of the item for use on the "Metal Receiving Inspection Report" or "Stores Receiving Inspection Report" by the Welding and QC Manager or Purchasing signifies documentation meets Code requirements and traceability of the material or assembly to the documentation is acceptable.

D. Such items will not be incorporated into the product until the "Metal Receiving Inspection Report" or "Stores Receiving Inspection Report" has been received from Purchasing or the Welding and QC Manager marked "Released for Fabrication".

2.7 For those contracts which exclude preparation of detail drawings by CBI, the QAM requirements regarding the preparation of drawings are not applicable. See QAP 5.5 for distribution of customer drawings.

2.8 Pressure Test

2.8.1 Upon completion of repairs to pressure retaining items, the repairs shall be pressure tested except as provided in paragraph 2.8.4.

2.8.2 Upon completion of alterations that involve the installation of a replacement part and/or the alteration will impact the design pressure, the design temperature or the design rated capacity, the item shall be pressure tested except as provided in paragraph 2.8.4.

2.8.3 Pressure tests may be pneumatic provided concurrence has been received from the inspector, the jurisdiction, where required, and the owner.

2.8.4 As an alternate to the pressure test, NDE methods may be substituted provided concurrence has been received from the inspector and the jurisdiction, where required.

3.0 RESPONSIBILITIES:

3.1 Engineering-Assigned:

3.1.1 Requests a nameplate by transmitting a shipping order, a drawing or sketch of the nameplate and a draft copy of Form R-1 "Report of Welded Repair" or Form R-2 "Report of Alteration" via a POT to the Shop Schedule Coordinator with copies to the Shop Welding and QC Manager and as necessary to the Construction Welding and QC Manager.

3.1.2 Requests field application of a stamp by transmitting a draft copy of Form R-1, "Report of Welded Repair" or Form R-2, "Report of Alteration" via a POT to the Shop Welding and QC Manager with a copy to the Construction Welding and QC Manager as necessary.

3.1.3 Applies any stamped "rerated" nameplate to a vessel when the vessel is rerated by Engineering-Assigned.

3.1.4 Prepares and checks National Board Form R-1, "Report of Welded Repair", or Form R-2, "Report of Alteration". It shall clearly define the scope of CBI's responsibility, and shall be distributed as indicated below. Engineering-Assigned may delegate preparation of Form R-1 or Form R-2 to the Contract Team Leader or Construction Welding and QC Manager. If delegated, the preparer shall send the Form R-1 or Form R-2 to Engineering-Assigned for approval. Engineering-Assigned will contact the Shop Welding and QC Manager for the next sequential Form R number, when applicable, and include it on the form in the appropriate locations. As an alternate, either Engineering-Assigned, the Shop Welding and QC Manager, or the Construction Welding and QC Manager may insert the sequential Form R number once it has been assigned by the Shop Welding and QC Manager. Engineering-Assigned shall transmit the original form via POT to the Contract Team Leader with a copy to the Shop Welding and QC Manager. The Contract Team Leader will present the original to the Inspector.

Any Manufacturer's Partial Data Report or National Board Form R-3 "Report of Parts Fabricated by Welding" required for welded components shall be attached and made a part of the Form.

3.1.5 Makes the necessary distribution of completed forms.

3.1.5 (continued)

Legible copies shall be distributed as follows:

Owner or User
Inspector
Jurisdiction (if required)
Authorized Inspection Agency (AIA) responsible for In-Service Inspection
NBIC (if registered) within 90 days of completion

3.2 Shop Welding and QC Manager:

3.2.1 Maintains custody of the R symbol stamp.

3.2.2 Maintains the log of sequential "Form R" numbers.

3.2.3 Applies the R symbol stamp to the nameplate. This may be delegated to the Construction Welding & QC Manager.

3.2.4 Reviews requests for nameplates after receipt of information from Engineering-Assigned.

3.2.5 Assigns the next sequential Form R number.

3.2.6 Supplies any necessary stamps to the Construction Welding and QC Manager and assures that they are returned after field application.

3.2.7 Assures the proper application of nameplates by reviewing a copy of the completed Form R-1, "Report of Welded Repair" or Form R-2, "Report of Alteration" and maintains a written record of this activity.

3.3 Shop Schedule Coordinator/Shop Production:

3.3.1 Makes nameplates in accordance with CBI Standard 9201-5-3 after receipt of request from Engineering-Assigned.

3.3.2 Sends nameplates to the jobsite, Construction Welding and QC Manager, or Engineering-Assigned, as applicable.

3.4 Construction Welding and QC Manager:

3.4.1 Notifies Engineering-Assigned as to the scope of work and when a stamp/nameplate needs to be at a jobsite.

3.4.2 Controls pre-stamped nameplates and assures the application of the proper nameplate to the appropriate product.

3.4.3 Applies the "repair", "altered" or "rerated" nameplate or applies CBI's contract number and dating to existing R symbol stamp "repair" nameplates. These actions signify that the work was performed in compliance with the requirements of the NBIC.

3.4.4 Determines that concurrence of the AI has been received (as shown by his signature on the Form R-1 or R-2) prior to applying the stamped nameplate or dating existing R symbol stamp "repair" nameplates.

3.4.5 Applies the stamp, if required, to the product in accordance with 2.4 and returns the stamp to the Shop Welding & QC Manager.

3.4.6 Sends a copy of the completed Form R-1, "Report of Welded Repair" or Form R-2, "Report of Alteration" to the Shop Welding and QC Manager.

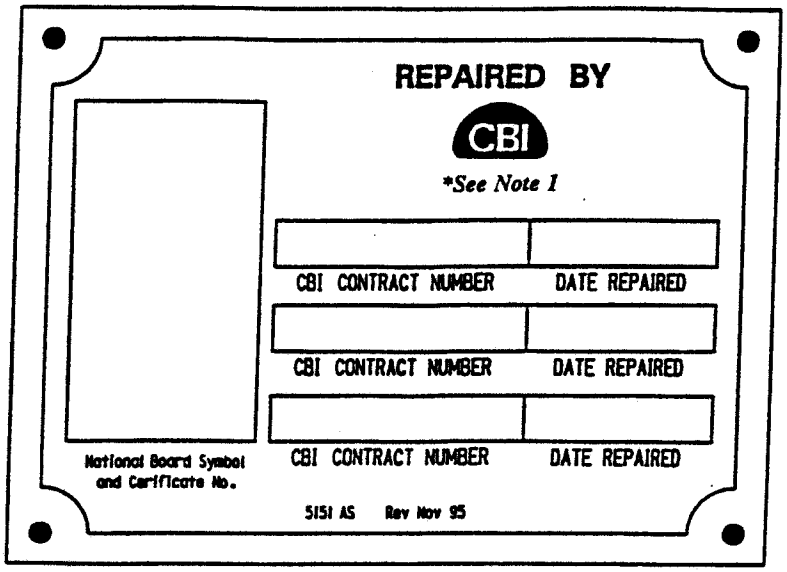
4.0 RECORDS:

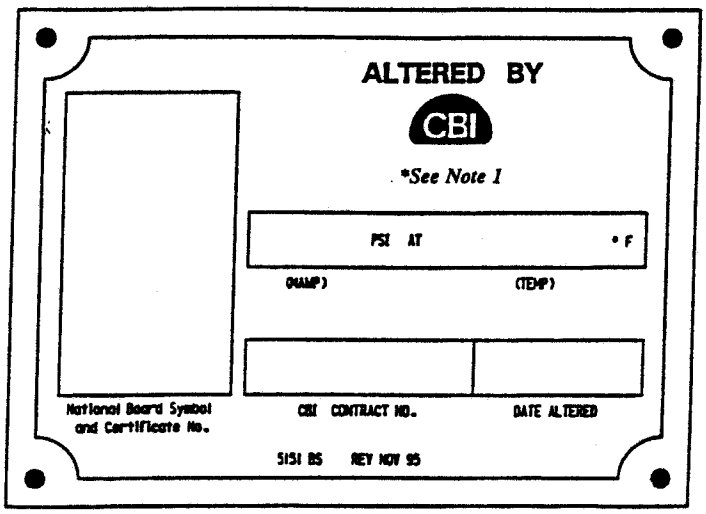
4.1 Records generated per this procedure are contract records and shall be maintained by Engineering-Assigned.

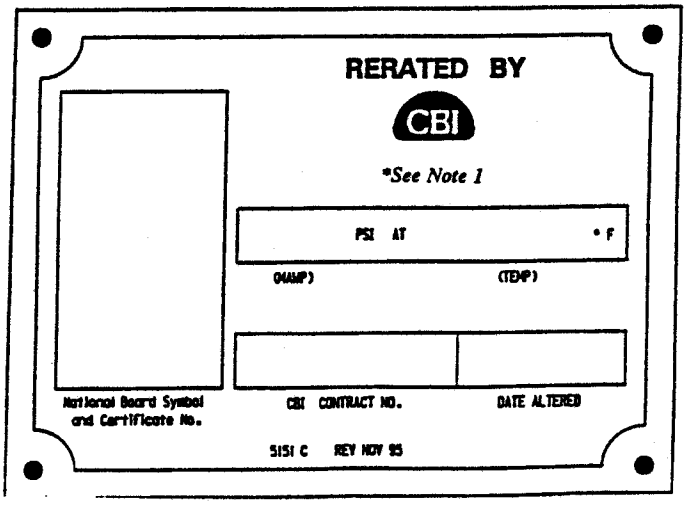
4.2 The sequential Form R number log is a record and shall be maintained by the Shop Welding & QC Manager.

5.0 ATTACHMENTS:

Typical samples of nameplates.







*NOTE 1 Enter Company Name