

WOODLAND ENTERPRISES
QUALITY SYSTEM MANUAL

3rd EDITION REV 1

JANUARY 1, 2012

SECTION A

TITLE PAGE

QUALITY MANAGEMENT SYSTEM MANUAL

FOR THE

CONSTRUCTION , REPAIR AND ALTERATION OF PRESSURE PIPING PER

**ASME B31.1 POWER PIPING , BOILER EXTERNAL PIPING and
 ASME B31.3 PROCESS PIPING
 REPAIR OR ALTERATION OF ASME SECTION I POWER BOILERS,
 ASME SECTION VI HEATING BOILERS and ASME SECTION VIII-1
 PRESSUREVESSELS**

**IN ACCORDANCE WITH
 THE ALBERTA SAFETY CODES ACT AND REGULATIONS
 and company policies and standards**

BY

**WOODLAND ENTERPRISES
 (379778 ALBERTA CORPORATION)**

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SPIRIT RIVER, ALBETA

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AT SHOP AND FIELD SITES IN ALBERTA CONTROLLED FROM

RL 25-77-5-W6M

3rd EDITION REV 1

MANUAL NUMBER _____

REGISTRATION NO. AQP- 2927

ASSIGNED TO _____

WOODLAND ENTERPRISES

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SECTION B

SECTION B: COPY OF CURRENT CERTIFICATE OF AUTHORIZATION

CERTIFICATE

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SECTION C

SECTION C: QUALITY SYSTEM MANUAL REGISTER

A: CONTROLLED COPIES (1-9)

1. ABSA

2. ABSA (2nd Manual for Regional Office)

3. Woodland Enterprises (MASTER COPY)

4. President - WOODLAND ENTERPRISES

5. General manager - WOODLAND ENTERPRISES

6. Quality Control Manager - WOODLAND ENTERPRISES

7. Foreman 1 - WOODLAND ENTERPRISES

8. Foreman 2 -WOODLAND ENTERPRISES

9. Foreman 3 - WOODLAND ENTERPRISES

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SECTION D

SECTION D: SCOPE OF WORK

The Management of WOODLAND ENTERPRISES is completely committed to achieving the highest standard of quality in all the projects undertaken. Periodic reviews will be conducted, by management, to ensure the ongoing effectiveness of this Quality Management system. With that in mind, this manual has been developed to ensure that all work will conform to the standards established in the Alberta Safety Codes Act, ASME B31.1 and B31.3 manuals as well as the policies developed from time to time by the Management of Woodland Enterprises. The management must adhere to and uphold the safety requirements of all of the relevant Acts and regulations. Any question that may arise concerning quality or safety may be taken to the highest level of management at any time. Open dialogue, in regards to quality and safety, is encouraged.

D1.) The work that may be performed under this Quality System manual by WOODLAND ENTERPRISES may include the following, provided there is a Certificate of Authorization Permit valid for the work undertaken.

- a.) New pressure Piping that conforms to the scope and all requirements of ASME 31.1 or ASME B31.3 as applicable, Alberta Safety Codes Act and Regulations.
Within these limitations pressure piping of all sizes, thicknesses and materials allowed by the ASME codes may be constructed, provided the required welding procedures are qualified and registered with ABSA .
- b.) Work under this program may also include repairs, alterations and replacement of B31.1 and/or ASME B31.3 pressure piping systems that are subject to the Alberta Safety Codes Act and Regulations.
- c.) Repairs or alterations to Power Boilers, Heating Boilers and Pressure Vessels that are subject to the Alberta safety Codes Act and regulations may be performed with the approval of the ABSA officer involved.

D2.) The construction of Boilers, Pressure vessels and fittings are not within the scope of this Quality System, therefore WOODLAND ENTERPRISES shall not engage in these activities.

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SECTION D

D3.) EXCEPTIONS :

PRESSURE PIPING that,

- a.) does not exceed DN 50 (NPS 2)
- b.) has a maximum allowable working pressure not exceeding 1035 kilopascals (150psi)
- c.) has a design temperature between -29 degrees Celsius and 186 degrees Celsius
- d.) contains air, nitrogen, argon, carbon dioxide, steam or hot water, and
- e.) is constructed to the applicable ASME Code

Is exempt from all the other requirements of the Pressure equipment Safety Regulation Except section 35 of the Regulation (Unsafe condition, fire or accident)

D4.) The Pressure Equipment Safety Regulation does not apply to the following;

- a.) a pressure vessel or pressure piping that
 - 1.) is fully vented or operating with one or more pressure relief devices with set pressure not exceeding 103 kilopascals and sized so that the operating pressure Cannot exceed 103 kilopascals
 - 2.) does not have a differential pressure on the boundary exceeding 103 kilopascals

Therefore this Quality Management System is not a requirement for the construction, repair or alteration of exempted pressure equipment.

See Pressure Equipment exemption Order (Alberta Regulation 56/2006), Pressure Equipment Safety Regulation (Alberta Regulation 49/2006) and Safety Codes Act for complete details.

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SECTION E

STATEMENT of AUTHORITY

This Quality Management System Manual accurately describes the organization and systems to be used by WOODLAND ENTERPRISES to ensure that :

E1.) Power and Process piping systems are constructed, altered or repaired in compliance with ASME Pressure Piping Codes B31.1 or B31.3 , Alberta Safety Codes Act and Regulations and the Customer Specifications, as applicable.

E2.) Repairs or alterations to Power Boilers, Heating Boilers and Pressure Vessels Are performed in accordance with the Alberta Safety Codes Act and regulations and insofar as is practicable, with ASME Section I, ASME Section VI or ASME Section VIII, as applicable

The Quality Control Manager is hereby appointed to administer the Quality management System described in this manual. The Quality Control Manager has sufficient and well defined responsibility along with the authority and organization freedom to initiate, recommend and provide solutions to any Quality Management System problems.

This Quality management System has the full support of senior management, who will ensure that adequate resources, including trained personnel, are provided in order to effectively implement the Quality Management System.

Any Quality Management System problem which cannot be resolved through designated channels, shall be brought to my attention for resolution without compromising the Codes, Regulations or this Quality Management System.

Date _____

Manager

ORGANIZATION CHART

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SECTION F

ORGANIZATION STATEMENT

The success of this Quality Management System depends on teamwork, therefore The President, through the Manager, will assign duties as required to achieve the desired level of quality assurance.

All team members, including the company principals and managers, will strive, through periodic reviews of the program, to ensure the Quality Management System is suitable for the tasks undertaken and remains effective.

This can only be achieved through ongoing dialog and consultation between all members of the team.

The preceding organization chart depicts the top to bottom flow. Each member of the team, however, has a responsibility to ensure that the client is receiving the very best level of workmanship that we are able to provide.

If a problem arises at the QCI level that cannot be readily resolved it will be taken up the chain of command until a satisfactory solution has been reached.

Consultation with the clients representative may be required as well.

Every member of the team is approachable.

The satisfactory resolution of a problem must be the goal !

The management will ensure that the duties of each team member is defined and communicated to all team members.

The Management will ensure that the resources required to allow each team member to perform their assigned duties are provided and readily available.

Dated _____

Manager

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SECTION G

DEFINITIONS

G.1 ABSA.

The Pressure Equipment Safety Authority, The regulatory organization delegated by the province to provide pressure equipment safety services under the Alberta Safety Codes Act and acts as the sole jurisdictional/regulatory authority as defined in CSA B51 and the ASME Code

G.2 ABSA Safety Codes Officer (ABSA SCO/Authorized Inspector)

G.3 AB - 518 Pressure Piping Construction Requirements

G.4 Alberta safety Codes Act

The Alberta Safety Codes Act as it applies for pressure equipment and the following regulations under the Safety Codes Act:

Pressure Equipment Safety Regulation

Pressure Equipment Exemption Order

Pressure Welders Regulation

Administration Items regulation

G.5 ALTERATION

A change in any item described on the original Manufacturers Data Report which affects the pressure containing capacity of a pressure vessel or pressure piping system. Non-physical changes such as an increase in the maximum allowable working pressure or design temperature of a boiler or pressure vessel shall be considered an alteration. A reduction in the minimum temperature such that additional mechanical tests are required shall also be considered an alteration.

G.6 ASTM American Society for Testing and materials

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SECTION G

DEFINITIONS

- G.7 C.G.S.B Canadian General Standards Board**
- G.8 CODE Latest editions addenda of the American Society of Mechanical Engineers Codes :**
ASME B31.1 Power Piping
ASME B31.3 Process Piping
ASME Section V Non-destructive Examination
ASME Section IX Welding and Brazing Qualifications
ASME Section VIII, Div I Rules for Construction of Vessels
ASME Section I, Power Boilers
ASME Section IV, Heating Boilers
Canadian Standard Association CSA B51 - Boiler, Pressure Vessel and Piping Code
- G.9 CSA Canadian Standards Association**
- G.10 JOB FILE A file which contains all records and documents which are essential to ensure the quality of the product. The file shall be assigned the number of each job. This number shall be the means of identifying each job file.**
- G.11 NONCONFORMITY Any condition which renders an item unacceptable or indeterminate for use because it does not comply with the Code, Alberta safety Code, the Owners specifications, design specifications or this Quality Management System Manual. Examples of nonconformities include physical defects, test failures, improper documentation, loss of material identification and deviations from drawings, specifications or procedures.**

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DEFINITIONS

G.12 OWNERS INSPECTOR

An Inspector designated by the Owner to verify that all required examinations and testing have been completed. This Inspector cannot be an employee of the piping construction, repair or alteration company. For the inspection of piping systems, the inspector shall be satisfied that the piping system conforms to all applicable Code rules and the owners requirements.

G.13 P. & I.D. Process and Instrumentations Diagrams

G.14 PRESSURE PIPING SYSTEMS UNDER the SAFETY CODES ACT JURISDICTION.

Pipes, tubes, conduits, fittings, gaskets, bolting and other components that make up a system, for the conveyance of an expansible fluid under pressure and may also control the flow of that fluid. Transmission pipelines as defined in the Pipeline Act are not subject to the Safety Codes Act.

G.15 QUALITY CONTROL INSPECTOR (QCI)

An Employee of WOODLAND ENTERPRISES designated by the Quality Control Manager to perform the Quality Management system duties as defined in this manual. The Quality Control Inspector reports through the Quality Control manager on any Quality management System related issue.

G.16 QUALITY CONTROL MANAGER (QCM)

An Employee of WOODLAND ENTERPRISES designated by the General Manager to have the responsibility and authority to maintain a Quality Management System and the organizational freedom to recognize Quality Management System problems and to provide solutions to those problems.

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SECTION G

DEFINITIONS

G.17 QSM Quality System Manual

G.18 REGISTERED DESIGN

Drawings, specifications and information required by section 14, 15, 16 and 17 of the Pressure Equipment Safety Regulation, which have been reviewed and accepted for registration by ABSA.

G.19 REPAIR

The work necessary to restore a pressure piping system to a safe and satisfactory operating condition, provided there is no deviation from the original design.

G.20 SNT-TC-1A

“Recommended Practice for Non-destructive Testing Personnel Qualification and Certification” published by the American Society of Non-destructive Testing.

MANUAL CONTROL

H.1 This section describes the system for preparing, revising and controlling the distribution of this Quality Systems manual.

H.2 The QCM is responsible for implementing this system. The QCM's duties include the following:

- a) to approve all proposed changes to the Quality Management System manual, by signature and date on the revision page summary.**
- b) to ensure that all revisions have been accepted, in writing, by ABSA prior to implementation. This acceptance will be indicated by a signature and date on the Revision Summary page.**
- c) to ensure that the revision number, date and page number are shown on each page of the manual. Revised paragraphs will be indicated by a vertical line on each margin alongside the changed paragraph (s).**
- d) to issue revisions using the Document Transmittal form (Section I), to all persons who are assigned a controlled copy of the Quality Systems manual, with instructions that superseded pages are to be destroyed.**

H.3 The QCM shall keep a list of Controlled Quality System Manual numbers and to whom they are assigned.

Uncontrolled Quality System Manuals may be issued for information but shall not be used for construction, repair or alteration. "Uncontrolled" shall be clearly marked on the front page of these uncontrolled manuals.

H.4 A controlled copy of this Quality System Manual shall be available at all times, on sites where work under this Quality Management System is being performed. This copy shall be made available to the ABSA Safety Codes Officer and/or the Owners Inspector upon request.

DOCUMENT TRANSMITTAL

To:

THE FOLLOWING DOCUMENTS ARE ENCLOSED:

Document Title _____

Revision Number _____

Page (s) _____

INSTRUCTIONS:

Destroy previously Issued or Revised pages and return signed confirmation of receipt by fax to: QCM, Woodland Enterprises, (780) 765-2497_____

I confirm the receipt of the above listed documents

Signed _____ **Date** _____

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CONTACT REVIEW

J.1 This section describes the system used to ensure that all contract requirements are defined and agreed upon prior to the start of work.

J.2 The QCM shall review the contract/order prior to acceptance, to ensure that the requirements are adequately defined. Exhibit J(1) Contract Review Form, shall be used to document the contract review. When requirements are inadequately defined or there is no written contract/order the QCM shall contact the Client Representative to ensure contract requirements are stated and agreed upon and shall record the information in the job file.

J.3 The QCM shall ensure that:

- a.) the scope of the work is defined, including the applicable ASME Code and service category. (e.g. ASME B31.3, normal)**
- b.) in the absence of engineered drawing, the Owners Representative has approved the drawings for construction, repair or alteration and that a material list which includes ASME/ASTM material specification numbers, grades, schedules, classes and sizes is provided.**
- c.) the responsibility for the procurement of materials and supplies is defined.**
- d.) the welding procedures are specified and Qualified for the job. If the owners welding procedures are to be used, it shall be on a per job basis only and requires the written permission of the Owner. Any weld procedures to be used must be registered with ABSA.**
- e.) the degree and type of non-destructive examination (NDE), heat treatment and type and duration of pressure tests are defined and responsibility for these requirements is assigned.**
- f.) at the completion of the job a turnover package including AB-83, AB-83 Partial or AB-83F, as appropriate, is completed along with any other documents the owner requires to be included in the package be prepared and turned over to the Owners Representative.**

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CONTACT REVIEW

g.) In the case of a construction project that requires Registration with ABSA (over 0.5 cubic meters), that AB-81 is also prepared and forwarded to the ABSA Administrator/Chief Inspector.

NOTE:

The QCM shall make the owner aware that under the Pressure Equipment safety Regulation, the Owner must have an ABSA Quality Management System, for the scope of the work, if the Owner is to assume responsibility for the Quality Management System functions such as material receiving, material traceability, welding operator supervision and records, control of NDE on site, witnessing pressure tests and preparing Quality Management System records. All requirements of the Quality managements System must be met and; the owner is responsible for Registering the design, with ABSA, of any new piping system that exceeds 0.5 cubic meters.

PRE-JOB REVIEW

CONTRACT REVIEW

Job Number:

Date:

Owner Company: _____

Description of Job: _____

Location: _____

RESPONSIBLE FOR	OWNER	CONTRACTOR
Drawings and		
Design Registration		
Document Control		
Material Procurement		
Material Identification		
Welding		
Non destructive		
Heat Treatment		
Measuring and Test		
Pressure Tests		
Record Retention		

The Alberta Design, Construction and Installation of Boilers and Pressure Vessels Regulations Paragraph 32(2) requires the Owner to have an ABSA authorized Quality System if the Owner assumes responsibility for any quality system function from document control to record retention listed above. A pressure piping system exceeding 0.5 cubic metres in capacity must be registered with the Alberta Boilers Safety Association.

Owners Representative : _____

Date Contracted: _____

Q.C. Manager _____ Date: _____

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K.1 The QCM shall be responsible for the review, approval, distribution and retrieval of all essential documents including design drawings and specifications, P & I D's, mechanical flow sheets, line equipment lists, material lists, spool sheets, isometric drawings, bills of materials, welding procedures, repair or alteration procedures, and work instructions. Any document relevant to a job shall be retained in a file, under a job number, for a minimum of five years.

K.2 Design drawings, calculations and specifications shall be prepared in accordance with ASME Pressure Piping Code, Alberta Safety Codes Act, as applicable, by the owner or by a subcontracted engineering firm experienced in ASME pressure piping design. Spool drawings may be prepared by WOODLAND ENTERPRISES when these are not supplied by the Owner.

K.3 The QCM shall review the design specifications and drawings to ensure that the piping system can be constructed, repaired or altered in compliance with the Code. The design specifications and drawings shall include the following information:

- a.) Code of construction (e.g. B31.3, normal service)**
- b.) Material description including; material specification, grade, dimensions, schedule, type, rating and any additional information required to identify the materials to be used.**
- c.) Design pressure and maximum/minimum temperature of system**
- d.) Non-destructive examination type and extent (e.g. random, 100%)**
- e.) Test pressure and medium to be used**
- f.) Heat treatment temperature and hold time if applicable**
- g.) Construction details, support systems if applicable**
- h.) Welding procedures to be used**
- i) any additional information that may be required to ensure the construction will meet all of the requirements of the Code as applicable.**

Form K(1) may be used to ensure compliance with the above.

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K.4 If it becomes necessary to revise any drawing then the new drawings will bear a revision number and date. All previous drawings will be destroyed or marked VOID and may be retained in the numbered job file (for reference).

A copy of the latest drawing revision will be provided to the appropriate parties, with instructions to destroy any previous copy. No revisions will be made to any document that may affect conformance with the requirements of AB-518 'Pressure Piping Construction Requirement' document throughout the certification period.

K.5 All construction documents issued for the construction of a piping system will be marked " Issued For Construction" and initialled and dated by the issuer.

K.6 The QCM shall be responsible for verifying that the design drawings and specifications have been submitted, in duplicate, to the ABSA Design Survey Section with form AB-96 for systems exceeding 0.5 cubic meters in aggregate capacity. All design drawings for pressure piping systems exceeding 0.5 cubic meters in aggregate capacity shall be stamped by a Registered professional Engineer.

K.7 A current version of the Quality Management System manual must be provided to and accepted by ABSA.

K.8 The current issues of appropriate documents will be made available at all relevant locations and affected personnel.

K.9 Documents will remain legible, readily identifiable and retrievable.

K.10 Documents of external origin are identified and their distribution controlled.

K(1) PRESSURE PIPING SPECIFICATION SHEET

PIPING CONSTRUCTION REPAIR/MODIFICATION

(For construction / Repair/Modification of pressure systems less than Or equal to O.S cubic meters, aggregate volume)

Owner: _____

Contractor: Woodland Enterprises AQP #: 2927

Job Number _____

Date : _____

Line	Design Press	Op Temp	C/A	Code ASME	Service	Test Pressure	Test Medium

Line No.	MPI / LPI Extent %	Radiography Extent %	Hardness Testing	Ultrasonic – Other NDE	Test pressure	Other Requirement

(Note: Pneumatic tests must have prior approval from the Alberta Boilers Safety Association.)

Welding Procedure Specification Numbers: 2272.3

NDE Contractor: _____

Post weld Heat Treatment Yes/No: _____

Approved by Owner: _____

Approved by Contractor : _____ Date: _____

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PIPING DESIGN

L.1 The QCM shall ensure that construction drawings or other engineering documents received from the owner include information, including, the Code of Construction, material specifications, maximum design pressure, maximum and minimum design temperatures, ASME fluid category for process piping, type and extent of NDE required, hydro test pressure, duration and medium, any pre or post weld heat treatment required, design details, size and dimensions of materials to be used , or, that the information needed for the construction of the piping is made available through proper documentation from the Owners Representative.

L.2 When spool drawings are prepared by WOODLAND Enterprises They will be controlled and linkable to Owner supplied drawings.

L.3 All construction drawing will be reviewed and approved by the QCM and the owners representative, prior to release for construction.

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M.1 The QCM, or alternatively the QCI, shall be responsible for ordering materials as required. The materials required will be ordered using the Bill of Materials for the project.

If the Owner has not provided Engineered drawings the QCM will prepare spool drawings upon which will be listed the material specifications, including grade, size, schedule, quantity and include the job number. The materials used must conform to the engineers specifications, if any, the Owners and relevant Code requirements. All fittings used must be registered with ABSA (have a valid CRN).

M.2 Upon receipt of the ordered materials the QCI will verify the materials received are as ordered, meet the specifications and are not damaged.

Any damaged materials will be quarantined until a method of disposition has been agreed upon. Documents received with the materials shall be retained in the job file.

If the order contains any Low Temperature items those Low temperature items will be marked with florescent orange paint. In the case of pipe there shall be a paint stripe the full length of the joint. Regular Temperature materials will be marked with blue paint and in the case of pipe a blue stripe the full length of the joint.

Where there is no mixing of grades on a job, paint marking will not be required unless the leftover materials are transported to storage or to another job site. The unique identification (heat) numbers must remain visible on pipe remnants .

M.3 The above requirements apply equally to Owner supplied materials, the materials being checked against the Owner supplied material list. The Owner would be responsible for supplying documentary proof of the suitability for the construction project, MTR' s for the Owner supplied materials would be an acceptable form of that proof.

M.4 Welding consumable shall be ordered by SFA specification and AWS. classification.

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SECTION N

CONSTRUCTION of PRESSURE PIPING

N.1 The manufacturer shall ensure that a fabrication plan is developed and reviewed with construction personnel.

N.2 If the size of the construction warrants an Inspection Test Plan or a Construction Travel Sheet, then one or both will be developed and understood by construction personnel. A numbered job file will be opened prior to the commencement of the construction and will be maintained during the construction period. All relevant documents will be maintained in the numbered job file. The Owners Inspector will be informed, prior to the start of construction, for the purpose of reviewing the Inspection Test Plan or Construction Travel Sheet, if developed, to determine any inspection hold points that may be required.

N.3 The QCM will ensure that up to date and approved drawings are available for the construction.

N.4 When spool drawings are prepared by the contractor, documented approval has been received from the Owners Representative to ensure that the design, material, fabrication, NDE, PWHT (if required), hydro test and any other requirements are correctly specified.

N.5 The QCM will ensure that materials are available, that drawings issued for construction have been checked for conformance with the relevant Code prior to the start of construction and through the QCI, ensure that welding and other fabrication activities are monitored and documented during the construction period.

N.6 The QCM will ensure that Welding Procedure Specifications (WPS) are suitable for the job. If there is no WPS specified then the QCM in consultation with the Owners Inspector will determine which WPS is to be used.

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SECTION N

CONSTRUCTION of PRESSURE PIPING

N.7 The QCM will ensure that welders have a copy of the Registered Weld Procedure Specification (WPS) and that the WPS is understood and implemented effectively. Welders must be qualified for the job and records of the welders qualifications are kept on file.

N.8 The QCM will ensure that inspection and examination stages are identified, carried out in accordance with acceptance standards, documented, verified and records maintained.

N.9 The QCM, in consultation with the Owners Inspector, will ensure that the type and extent of NDE has been established, identify the spools to receive radiographic examination, supply NDE instructions to the technicians, review the NDE reports and ensure that the records are retained.

N.10 The QCM will ensure, for any ASME B31.1 Boiler External Piping repair, modification or construction, that ABSA approval, inspection and certification is achieved.

N.11 If Post Weld Heat Treatment is required, it will be completed in accordance with the requirements of the engineering specification, verified and documented.

N.12 Pressure Testing must be accomplished in accordance with the requirements of the engineering design and Codes, and documented.

N.13 The QCM will, upon completion of the job, certify the Piping System using an AB - 83 form, supply a copy to the Owner and retain a copy in the numbered job file. When the job is partially completed a Partial AB - 83 form must be completed and provided to the prime contractor.

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SECTION N

CONSTRUCTION of PRESSURE PIPING

N.14 The QCM will, for any repair or modification to a piping system originally registered with ABSA, complete an AB-81 form upon installation and prior to operation. The AB - 81 form must be submitted to ABSA.

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SECTION O

POST WELD HEAT TREATMENT (PWHT)

To ensure that the PWHT process is controlled in accordance with requirements of the engineering design, the manufacturer shall;

O.1 Designate the QCM as the party responsible for the implementation and maintenance of the PWHT procedures.

- O.2 Verify that the PWHT requirements are defined in the engineering design or otherwise made available by the Owner.**
- O.3 Ensure that the PWHT activities are executed in accordance with requirements of the engineering design or the requirements of the Owner.**
- O.4 Ensure that the piping spools requiring PWHT are identified.**
- O.5 Ensure that the PWHT instructions are prepared and supplied to the heat treatment contractor.**
- O.6 ensure that upon completion of the PWHT of the piping, it is inspected and the documentation verified.**
- O.7 Maintain a record of the PWHT documentation in the numbered job file.**

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NONDESTRUCTIVE EXAMINATION and TESTING

P.1 The manufacturer shall ensure that NDE required for the pressure piping fabrication is determined from the engineering drawings supplied by the Owner or from the instructions issued by the Owners Inspector. The type and extent of NDE required will be included on any spool drawings issued for construction.

P.2 The lot size as required by the Owner is determined and included on any

construction drawings.

P.3 NDE procedures are documented and meet the requirements of the current regulations, ASME section V and the applicable ASME B31 Code of Construction.

P.4 NDE interpretations will be performed by an CGSB/SNT-TC-1A level II or III technician.

P.5 Instructions for performing NDE are provided to the technicians as required.

P.6 The manufacturer must ensure that a process for identifying the welded joints requiring NDE is documented and that NDE is performed to meet specific NDE requirements for each lot.

P.7 NDE reports must be reviewed and accepted by the manufacturer.

P.8 The QCM must ensure that NDE documentation is retained in the numbered job file, for the storage life of the file.

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SECTION Q

EXAMINATION

To ensure that the piping conforms to specified requirements at each stage of construction, the manufacturer shall ensure that:

Q.1 The materials received for the construction of the piping system, including any Owner supplied materials, be examined by the QCI, upon receipt to confirm suitability and compliance with the engineering requirements and Codes as

applicable.

Q.2 The type of examination is specified for the various stages of construction and that the examination requirements and procedures are available and understood by the personnel responsible for the testing and examinations.

Q.3 The QCI shall be responsible for the tests and examinations required to be performed by WOODLAND. The Owners inspector has the ultimate responsibility to ensure the examinations and tests satisfy the requirements of the Owner. The owners Inspector shall communicate any special Owner examination requirements to the QCI. The QCI shall document, in the numbered job file, the results of all tests and examinations.

Q.4 Any ‘partial’ piping systems and documents received from subcontractors are examined prior to release for further processing and the documentation (‘Partial AB83’ forms) retained in the numbered job file.

Q.5 Any ‘partial’ piping systems received from a manufacturer outside of Alberta must be accompanied by an AB83F form and must be examined prior to release for construction. The AB83F must be retained in the numbered job file.

Q.6 Any complete piping systems received from a manufacturer within Alberta must be accompanied by a ‘AB83’ form and examined prior to release.

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SECTION Q

EXAMINATION

Q.7 The final inspection is carried out in accordance with the documented procedures to ensure conformance of the finished product to the Engineering Specification, Codes and Regulations.

Q.8 The examination records, which provide evidence that the product has been examined, be retained in the numbered job file.

Q.9 An ABSA SCO inspection is required for any B31.1 Boiler External Piping construction, repairs or modification.

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SECTION R

PRESSURE TESTING

R.1 To ensure the safety of personnel and to prevent damage to any piping system, testing personnel are to refer to the ‘Safe Work Practices’ for pressure testing provided in the WOODLAND Safety Manual. The QCI shall be responsible for the pressure tests which have been called for by the Engineering Specifications, Codes or as directed by the Owners inspector. In no case will the pressure test exceed the lowest pressure permitted by any system component. To facilitate the higher pressure tests required by some systems, parts of the system may have to be

isolated or removed prior to testing.

R.2 Prior to the pressure test the QCI must ensure that the area is secure and safe for all personnel. There shall not be any construction activity in the test area during the period in which the test is under pressure. Warning signs or flagging should be considered around the test area.

R.3 In the absence of an Engineering Specification for the Pressure Test the Maximum Flange Rating may be used as the upper test limit. The Owners Inspector is responsible for providing the required test criteria in the event that an Engineering Specification has not been provided.

R.4 Two gauges, certified within the preceding 12 months , must be used on each test, one of which may be a chart recorder. The gauges and recorders must be of a suitable range for the test requirement. If a chart recorder is not used as one of the gauges, then a log of the test pressures and times must be used to document the test. Logs and/or charts must be retained in the numbered job file. Pressure Piping Systems need only be tested for a minimum of 15 minutes or such longer period as directed by the Owners Inspector.

R.5 Only hydrostatic tests are permitted, except in unusual circumstances and with the approval of an ABSA SCO, a pneumatic or hydropneumatic test may be used.

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PRESSURE TESTING

R.5 (cont.) Water or a mixture of water and methanol may be used as a test medium for the hydrostatic test. Water, if used, must be disposed of in a manner that is in accordance with the Alberta Environmental Protection and Enhancement Act, Code of Practice for the Release of Hydrostatic Test Water From Hydrostatic Testing of Petroleum Liquids and Gas Pipelines.

R.6 The manufacturer must ensure that the test procedure to be used is effective and meets the requirements of the Engineering Design and the Codes of

Construction and that the procedure is being complied with. The prevention of over pressuring the system being tested must be taken into consideration when preparing for the hydrostatic test.

R.7 If the test is for B31.1 pressure vessel repair or modification, prior arrangements must be made to have an ABSA SCO inspect and witness the test.

R.8 Records of tests must be retained in the appropriate numbered job file and retained for a period of not less than 5 years.

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SECTION S

CONTROL of MONITORING and MEASURING DEVICES

S.1 The QCI, in consultation with the Owners Inspector, upon reviewing the Engineering Specifications, if any, will determine which examinations and inspections are required and what equipment will be appropriate for those examinations and inspections.

S.2 Only measuring and test equipment that has been certified, using an international or national standard, within the preceding 12 months may be used for any required tests or measurements. The test or measuring equipment must be inspected prior to use to verify the equipment is in good condition.

S.3 All test or measuring equipment used will be identified by an unique identification number. Certified annually, or when damaged or out of calibration, by a reliable instrument repair facility. Calibration Reports will be retained for each item of test or measuring equipment. Any test or measuring equipment found, or suspected to be faulty, is to be returned to the QCM for immediate repair and/or recalibration.

S.4 Test and measuring equipment that is to be stored or transported will be housed in protective containers. When the test or measuring equipment is not in use it will be stored in the care of the QCM.

S.5 No one, other than an employee of a reliable instrument repair facility, will attempt an adjustment to a test or measuring device.

S.6 Any rental test or measuring equipment must be provided with a current calibration report.

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SECTION T

COMPETENCY and TRAINING

T.1 The management of WOODLAND ENTERPRISES, in it's commitment to quality, will ensure the competency of production personnel. This will be achieved by training and periodic testing as it deems necessary to ensure the competency of the employees. An employee may be assigned to more than one function and would be required to be competent in all the assigned duties.

T.2 The employees that will most likely to require initial and ongoing training will include fitters, Quality Control Inspectors, pressure testers and QC examiners. Other positions or trades may be included as the need arises.

Fitters will be expected to demonstrate their knowledge of the QSM, the ability to

identify material grades, recognize heat numbers and the method of recording them, interpret an isometric drawing and determine materials to be used.

Quality Control Inspectors will have a good knowledge of the Quality System Manual, be able to develop a bill of materials and if necessary order materials from the bill of materials, ensure the orderly progression of the construction, supervise the pressure tests and perform quality inspections.

Pressure testers will be able to set-up and prepare the tests determined to be required, ensure the safety of workers in the area, record times and pressure gauge readings as necessary and satisfactorily dispose of test medium upon completion of the test.

QC examiners will have a good knowledge of the Quality System Manual and be able to confirm the adequacy of the construction, determine the correct materials were utilized, confirm that the NDE performed satisfies the specification provided and that pressure tests were done correctly.

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SECTION T

COMPETENCY and TRAINING

T.3 The QCM with the assistance of management will develop a training plan that ensures the employees will receive adequate training to properly perform the assigned tasks. Records of training and the results of any tests will be retained in the employee file.

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SECTION U

CORRECTIVE and PREVENTIVE ACTION

U.1 In order to minimize the occurrence of unacceptable production practices the Management will develop a Corrective and Preventive Action program. The action program will be administered by the QCM and be reviewed and updated, as required, periodically by management and staff members to ensure it's effectiveness..

U.2 Preventive action is a response to information received that will prevent a potential problem from happening.

Corrective action is a response to a reported problem requiring a remedial action and possibly changes to the production procedures.

U.3 Form U1 will be used to identify any non-conformity and the proposed disposal or remedial action required. The form and the recommended actions will

be accepted by the QCM and the Owners representative.

U.4 Every effort must be made to ensure that the cause of the non-conformity has been corrected thus preventing, to the extent possible, a re-occurrence. After a corrective action has been implemented the QCM will determine the effectiveness of the action taken and the need for further improvement to the action plan.

U.5 Training must be provided to ensure that the Corrective and Preventive Action program will be effective and is being implemented correctly.

U.6 A review of any reports or forms will be conducted periodically to determine the need for further development of the process, to establish trends and the need to initiate improved practices, based upon those trends.

U.7 The Corrective and Preventive Action documents are to be retained and readily available for review by management.

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FORM U1

NONCONFORMITY REPORT

Job Number:	Non-conformance Report No:
Serial Number / DWG. - Line Number:	
Identification Details:	
DESCRIPTION OF NON-CONFORMANCE:	
QCI/QCM Signature:	Date:

PROPOSED DISPOSITION OR REPAIRS:	
Q.C. Manager Approval:	Date:
Client/Owners Design Approval:	Date:
NON-CONFORMANCE RECTIFIED:	
Q.C. Manager Approval	Date:
Owner Inspection Approval:	Date:

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SECTION V

INTERNAL AUDITS

V1. The QCM with the assistance of Management will develop an internal audit procedure and a schedule of the internal audits to be conducted.

V.2 The QCM will conduct those audits and communicate the results to Management and any other affected personnel. Any deficiency discovered by the audit will be acted upon in a timely manner thereby ensuring the maximum effectiveness of the Quality Management System.

V.3 The QCM will verify that follow-up corrective action has proven effective and successful.

V.4 Audit records must be retained and available for review by Management and

others who may be required to view them, from time to time.

V.5 The QCM and management will periodically review the audit process, making any changes they feel would improve the effectiveness of the audits.

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INTERNAL AUDIT**

To ensure the ongoing relevance of this Quality System Manual, the Quality System Manager along with the Senior Management of Woodland Enterprises will, annually, perform an audit of the Quality System Manual and the procedures contained therein. The audit will address;

- A.) The completeness and accuracy of the QC manuals completed during the preceding annual period. If deficiencies are detected then the Quality System manager shall make the changes in procedure that will insure that the problem areas are addressed.
- B.) The relevance of the statements and procedures contained within the Quality System Manual, taking into consideration the operational requirements of the crews involved and the requirements of the clients.
- C.) The ongoing and changing requirements of ABSA and the Alberta Government agencies concerned. The Quality System Manager will make the changes decided upon to the manuals as required. Changes being considered will be reviewed and approved by the Senior Management of Woodland Enterprises before any amendments are issued.
- D.) The review of any “Non- Compliance” reports that may have been issued and determine if there should be procedure or policy changes instituted to minimize or

prevent the re-occurrence of the problem.

The audit and its results shall be retained and form a part of the following years audit. Thus ensuring that any procedure or policy changes have been incorporated and the effectiveness of those changes.

The audit results shall be retained in a file for possible review for a period of not less than 2 years.

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SECTION U

REPAIR OR ALTERATION OF PRESSURE VESSELS

- U.1 All repairs or alterations to a pressure vessels shall be made in accordance with the Alberta Safety Codes act, ASME Section I, ASME Section VI or ASME Section VIII Div1 , as applicable and the requirements of this Quality Systems Manual and the approval of the ABSA officer responsible.
The manufacturer must have a valid certificate of authority for the repair or alteration proposed.
- U.2 The QCM will develop, under a numbered job file, a written procedure for all repairs or alterations containing the following information:
- A) a complete description of the pressure vessel
 - B) year built
 - C) 'A' number
 - D) CRN
 - E) name of manufacturer
 - F) the owners name and vessel identification number if applicable
 - G) the location of the vessel
 - H) a complete description of the repair or alteration
 - I) the weld details
 - J) weld procedure specification (WPS)
 - K) material, including specification number, grade and size to be used
 - L) NDE requirements
 - M) PWHT requirements, if applicable
 - N) pressure test requirements
 - O) any additional requirements or specifications as required.
- U.3 A copy of the written procedure shall be forwarded to ABSA SCO for approval and also, in the case of an alteration, to the ABSA Design Survey Section for acceptance. A copy of the approved procedure, drawings and specifications will be provided to personnel responsible for the repair or alteration.
NO repair or alteration shall be commenced without the necessary ABSA

approval.

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SECTION U

- U.4 All purchasing and receiving will be in accordance with Section M of this Quality System Manual.
- U.5 Pressure testing must be witnessed by an ABSA SCO and be in accordance with section R of this Quality Systems manual. All NDE will comply with Section P Of this Quality Systems Manual and the relevant Codes as applicable.
- U.6 Upon completion of the project the QCM will complete and certify the repair or alteration report (AB40) and present it to the ABSA SCO and owners inspector for acceptance. A copy of the AB40 shall be provided to the ABSA SCO and the owners inspector.
- U.7 The records, drawings, test or examination results and other relevant documents will be included in the numbered job file and be retained for a minimum of 5 years.