
BRENT GEDAK WELDING LTD

QUALITY CONTROL MANUAL
Brent Gedak Welding Ltd
126 Lamoro Street – Shop/Office
Estevan, Saskatchewan, S4A 1C8
Phone: **(306) 634-5150 (Business)**
 (306)634-5148 (Fax)

**ALL WORK TO BE PERFORMED AT
SHOP AND FIELD SITES CONTROLLED FROM THIS LOCATION**

MANUFACTURE:	PRESSURE VESSELS FITTINGS (A, E, F &H) BOILER EXTERNAL PIPING PROCESS PIPING POWER PIPING
REPAIR/ALTER:	PRESSURE VESSELS POWER BOILERS BOILER EXTERNAL PIPING POWER PIPING PROCESS PIPING FITTINGS (A, E, F &H)
WELDER TESTING	WELDER/ WELDER OPERATOR TESTING
IN ACCORDANCE WITH:	ASME SECTION I ASME SECTION II A-B-C-D ASME SECTION V ASME SECTION VIII, DIVISION I ASME SECTION IX ASME B31.1 ASME B31.3 CSA B51 SBPV ACT AND REGULATIONS NBIC

BRENT GEDAK WELDING LTD

TABLE OF CONTENTS

<u>SECTION</u>	<u>CONTENTS</u>	<u>REV.</u>	<u>DATE</u>
	Facing Page	1	25/10/16
	Table of Contents	1	25/10/16
1	Statement of Authority	1	25/10/16
2	Organizational Chart	1	25/10/16
3	Glossary of Terms	1	25/10/16
4	Manual Control	1	25/10/16
5	Pre job Review	1	25/10/16
6	Design & Specifications Control	1	25/10/16
7	Material Control	0	09/08/10
8	Examination and Inspection Program	1	25/10/16
9	Repair & Alterations	1	25/10/16
10	Welding Control	1	25/10/16
11	Treaded Piping	0	09/08/10
12	Correction of Non-conformities	0	09/08/10
13	Non-Destructive Examination	1	25/10/16
14	Heat Treatment	1	25/10/16
15	Calibration	1	25/10/16
16	Hydrostatic Testing	1	25/10/16
17	Pneumatic Test Procedures	0	09/08/10
18	Authorized Inspector	0	09/08/10
19	Records Retention	0	09/08/10
20	Welder Testing	1	25/10/16
21	Sample Forms	1	25/10/16

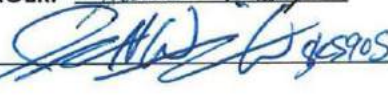
REVISION ACCEPTANCE

QUALITY CONTROL MANAGER:



DATE: Nov.22/2016

AUTHORIZED INSPECTOR:



DATE: Dec.13, 2016

Technical Safety Authority of Saskatchewan

October 25, 2016

Controlled. 1

Revision No. 0

BRENT GEDAK WELDING LTD

STATEMENT OF AUTHORITY

SECTION 1

- 1.1 **BRENT GEDAK WELDING LTD** has, at my instruction, established this Quality Control Program. The purpose of the program is to establish the organization and systems which will be employed in order to achieve full compliance with ASME I, II, V, VIII Division I, IX, B31.1, B31.3, CSA B51, the **SBPV** Act and Regulations, the NBIC and any Customer Specifications.
- (a) Boiler external piping is constructed in accordance with the latest edition and addenda of ASME Section I, II, V and IX, CSA B51 and the additional requirements imposed by the **SBPV** Act and Regulations and customer specifications.
 - (b) Non-boiler external piping is constructed in accordance with the latest edition and addenda of ASME B31.1 "Power Piping", B31.3 "Process Piping", Section II, V and IX, and any additional requirements **imposed by the SBPV Act and Regulations, and customer specifications.**
 - (c) Fabrication of Pressure Vessels & Fittings (A, E, **F** &H) shall be fabricated in accordance with ASME Section VIII, Division I, CSA B51 and additional requirements imposed by the **SBPV** Act and Regulations, and customer specifications.
 - (d) Boiler & Pressure Vessel and Fitting (A, E, **F** &H) Alteration and Repair will be done in accordance with the latest edition and addenda of the applicable NBIC Code, ASME Code, CSA B51, the **SBPV** Act and Regulations, customer specifications, and any additional requirements.
 - (e) Welders/Welding Operator performance qualification tests shall be conducted in accordance with the **SBPV** Act and Regulations, and ASME Section IX.
 - (f) All code work shall be performed at BRENT GEDAK WELDING LTD, 126 Lamoro Street, Estevan Saskatchewan, S4A 1C8, and/or field sites controlled from the above location.

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- 1.2 The authority for the administration and implementation of the Quality Control Program is hereby assigned to the Quality Control Manager, who shall have sufficient and well-defined responsibilities and organizational freedom to initiate, recommend and implement solutions for any Quality Control problems.
- 1.3 It is the responsibility of the Quality Control Manager to obtain complete compliance with the requirements established in this Manual, on each project within the Quality Control Manager's area of authority. When major problems or conflicts of opinion cannot be resolved within the Organization, they shall be presented to me for final resolution. The resolution of quality control problems will not compromise the **SBPV** Act and Regulations, CSA Codes, ASME Codes, or this Program.
- 1.4 The Quality Control Program has the full support of Management.



Brent Gedak
President

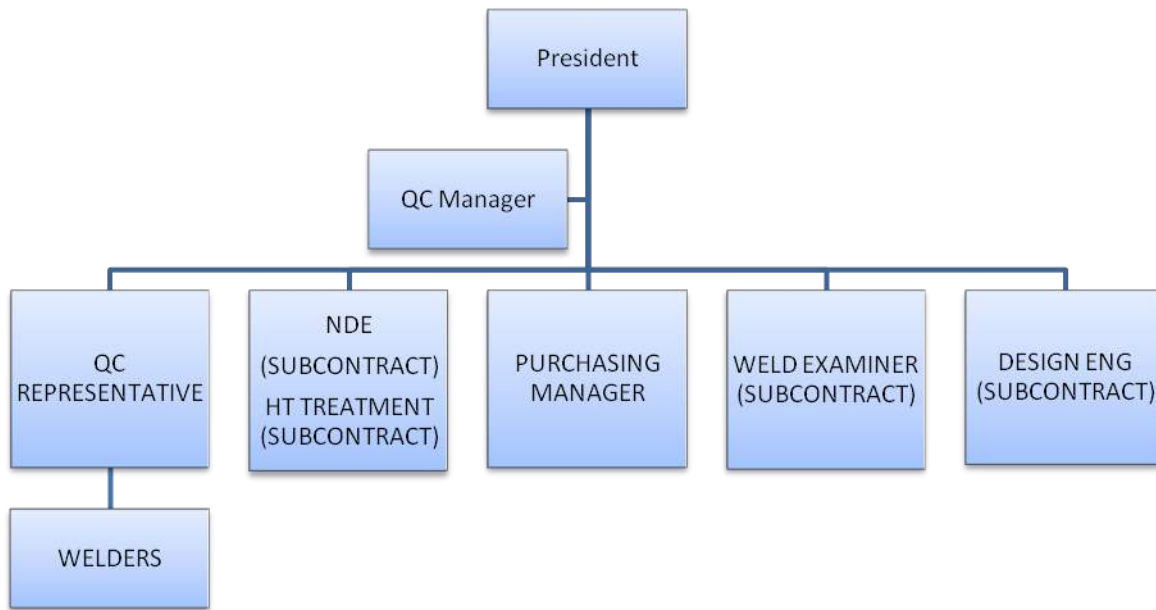
Nov.22/2016

Date

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ORGANIZATIONAL CHART

SECTION 2



NOTE: More than one position may be held by one person.

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GLOSSARY OF TERMS

SECTION 3

ALTERATION: Any change in the item described on the original Manufacturer's Data Report which required a change of design calculations or otherwise affects the pressure containing capability of the boiler or pressure vessel. Nonphysical changes such as an increase in the maximum allowable working pressure (internal and external) or design temperature of a boiler or pressure vessel shall be considered an alteration. A reduction, i.e., minimum temperature, such that additional mechanical tests are required, shall also be considered an alteration.

ANSI: American National Standards Institute.

ASME: American Society of Mechanical Engineers.

ASME B31.1: Power Piping.

ASME B31.3: Chemical Plant and Petroleum Refinery Piping.

ASME B31.5: Refrigeration Piping.

ASME, SECTION I: Power Boilers

ASME, SECTION II (Parts A, B, C, and D): Material, Welding Consumables, and Properties.

ASME, SECTION IV: Heating Boilers.

ASME, SECTION V: Nondestructive Examination.

ASME, SECTION VIII, DIV. I: Pressure Vessels.

ASME, SECTION IX: Welding and Brazing Qualifications.

CSA, B51: Boiler, Pressure Vessel and Pressure Piping Code.

CSA, B52: Mechanical Refrigeration Code.

CSA: Canadian Standards Association

C.G.S.B.: Canadian General Standards Board.

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AUTHORIZED INSPECTOR (AI): A person designated as an Inspector for the purpose of administering the Saskatchewan Boiler and Pressure Vessel Act and Regulations.

CLIENT'S INSPECTOR: Designated by the Client, this inspector may verify that all required examinations, testing and inspection of piping systems have been completed to the extent necessary to ensure that they conform to all applicable Codes, Regulations, and Client requirements.

JURISDICTIONAL AUTHORITY: A person designated as an Inspector for the purpose of administering the Technical Safety Authority of Saskatchewan (TSASK) Act and Regulations.

MAINTENANCE: Any work other than new construction; such as repairs & alterations where maintenance is being performed all work shall be in accordance with this manual.

NBIC: National Board Inspection Code and reference standard NB-23 used for repairs of ASME code section boilers, vessels, parts, fittings, etc.

NONCONFORMANCE: Any condition that renders an item unacceptable, or indeterminate, for use in accordance with the Code, the Client's specifications, or the design specifications. Examples of nonconformance include physical defects, test failures, incorrect or inadequate documentation, material identification/deviations from prescribed processing, inspection, or test procedures. Nonconformances also include deviations from this Quality Control Manual.

WELDER PERFORMANCE QUALIFICATIONS: The demonstration of a welder or welding operator's skill and ability to produce welds in accordance with the WPS.

P AND ID (Abbreviation): Process and Instrumentation Drawing.

PRESSURE EQUIPMENT INSPECTOR: A person who conducts code inspections on behalf of an insurer or owner in connection with a quality management system and holds a valid licence certified by TSASK.

PROCEDURE QUALIFICATION RECORD (PQR): The document that records the test results which establish the properties of the weldment.

REGISTERED DESIGN: Any drawings, specifications, and information which have been reviewed and registered by the Technical Safety Authority of Saskatchewan.

REPAIR: Any work necessary to restore a boiler or pressure vessel to a safe and satisfactory operating condition, provided there is no deviation from the original design.

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QUALITY CONTROL MANAGER (QCM): The designee that manages and controls the Quality Management System program and assures compliance with Code and Jurisdictional requirements. The QCM has the authority and organizational freedom to identify quality control problems and to initiate, recommend and provide solutions to those problems. The QCM shall have direct access to the highest level of management at which decisions are made and provide specific functions as detailed in this Quality Management System Manual. The QCM shall verify the correction of nonconforming work and shall control further processing, delivery or application of nonconforming work until a disposition has been obtained. The QCM shall be the liaison with the Jurisdictional Authority.

QUALITY CONTROL REPRESENTATIVE: The designee of Quality Control Manager. The designee can function in any role the Quality Control Manager deems acceptable. The designee is responsible to the Quality Control Manager for all assigned duties within the scope of the Manual.

TECHNICAL SAFETY AUTHORITY OF SASKATCHEWAN ACT:

The TSASK Act is the legislation that introduced TSASK as an Authority (or Delegated Administrative Organization) for enforcing the Saskatchewan Provincial Act and Regulations correctly titled “The Boiler and Pressure Vessel Act, 1999” and “The Boiler and Pressure Vessel Regulations”. These Act and regulations may be referred to as SBPVAR – Saskatchewan Boiler and Pressure Vessel Act and Regulations.

UNCONTROLLED MANUAL: A Quality Control Manual issued upon request and current at the time of issuance, but which is not maintained by subsequent revisions or updating.

WELDING PROCEDURE SPECIFICATIONS (WPS): The document which describes in detail all of the variables which are essential, supplementary essential, and nonessential to the welding processes employed by the ASME Code, Section IX.

WELDING EXAMINER: Qualified personnel designated by the individual who has signed the Statement of Authority in this Quality Control Manual to perform the duties as defined in this Quality Control Manual. The Welding Examiner reports directly to the Quality Control Manager. The Welding Examiner must hold a Welding Examiner Certificate of Competency issued pursuant to the Technical Safety Authority of Saskatchewan Act and Regulations.

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MANUAL CONTROL

SECTION 4

- 4.1 The Quality Control Manager will issue controlled copies of the Manual in accordance with the list of Manual Holders as stated in Exhibit A. Each Manual will bear the same control number on its title page as shown on the List.
- 4.2 **An internal audit shall be conducted at the 18 month interval over the 3 year certification which consists with the reviewing the manual and quality system** coincident with the issue of any Code edition or addenda, standards, and revising the manual and or system as necessary to incorporate any required changes and implementing any changes within 6 months of the issue date of the new edition or addenda. **The intent is to fully audit the Quality System one time during the 3 year certification period.** When revisions are required, they are presented to the Authorized Inspector for his acceptance, and then distributed to Manual Holders.
- 4.3 Any revision made to this Quality Control Manual will be **BOLDED** and UNDERLINED to identify the change. Revisions made to all controlled copies on next submission of the manual, the bolded text will be removed and only new changes will be bolded text.
- 4.4 Revisions will be approved by the Quality Control Manager and submitted to the Authorized Inspector for his review and acceptance prior to issue. The revision acceptance will be signed off on the Table of Contents page, which will also reflect the revision number and revised date.
- 4.5 Revised sections of the Manual are then issued by the Quality Control Manager to Manual Holders on the list, together with a revised Table of Contents page showing the latest Revision Number and Date of each section of the Manual, and the dated signatures of the Quality Control Manager and the Authorized Inspector.
- 4.6 Revised exhibits pages are issued individually with a revised "Sample Forms" page.
- 4.7 A current copy of the Quality Control Manual is available for use by the Authorized Inspector and the Authorized Inspectors Supervisor at the shop and at field sites.
- 4.8 The Quality Control Manager is responsible for maintaining the contact between the Company and the Authorized Inspection Agency.
- 4.9 Uncontrolled manuals may be issued to outside organizations for information only, and shall not be used within BRENT GEDAK WELDING LTD "Uncontrolled Copy" shall be prominently indicated on the front page of these manuals.

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PREJOB REVIEW

SECTION 5

- 5.1 If any of the required quality control functions are to be performed by the Owner/Subcontractor, then the Quality Control Manager must make the Owner/Subcontractor aware that, under the **SBPV** Act and Regulations, any Owner/Subcontractor who assumes responsibility for any Quality Control functions such as material receiving, inspection, material traceability, welding, welder supervision, performing pressure tests or preparing quality control records must have their own Authorized Quality Control Program. If the Owner/Subcontractor does not have an Authorized Quality Control Program for performing these functions, then the Owner/Subcontractor cannot perform them.
- 5.2 Prior to the commencement of any work performed by BRENT GEDAK WELDING LTD and at field sites controlled from the above location to the discretion of the Quality Control Manager a meeting shall be conducted with the Client to establish responsibilities for:
- a. the supplying of engineering
 - b. job access – safety – work facilities
 - c. responsibility for supplying materials
 - d. responsibility for NDE and testing
 - e. procedures for alteration/repair documentation
 - f. communication and contract personnel
 - g. client requirements for inspection and documentation
 - h. on-site nonconformities
 - i. the establishment of any third party involvement
 - j. for any non-pressure requirements
 - k. time tables
 - l. operations and construction cooperation
 - m. transportation and shipping
 - n. insurance requirements
 - o. damage resulting from: any Contractor personnel or Client's personnel
 - p. the loss of material due to theft
 - q. lay down and storage facilities
 - r. on-site equipment availability, and
 - s. the Client's engineering standards
 - t. calculations
 - u. systems for registration
 - v. notification to Authorized Jurisdiction

The Contract Review (Exhibit V) shall be completed, signed and dated by the Quality Control Manager and the Owner's Representative prior to the start of the project **if owner does not supply scope of work documentation.**

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DESIGN & SPECIFICATION CONTROL

SECTION 6

- 6.1 This section outlines the system for the review, approval, distribution and retrieval of all design drawings and specifications, including: specifications, P and ID's, mechanical flow sheets, line equipment lists, material lists, spool sheets and, isometrics. The Owner is responsible for preparation and approval of all design specifications, drawings and calculations and for submitting the design to the Jurisdictional Authority for registration when applicable.

The Quality Control Manager will issue the latest revised drawings and documents and recall and destroy all superseded documents, one copy of each superseded drawing or document marked "VOID" shall be kept for reference by the Quality Control Manager in the job file.

- 6.2 If the drawing and calculations are completed by the Owner/subcontractor, no work shall commence until design registration is complete or prior approval has been received in writing from the Owner allowing the start of the job.

In the event any pressure piping fabrication is to be initiated prior to design registration, the Owner/Subcontractor shall have the design package submitted to the Jurisdictional Authority in advance of the construction process. This will include the drawings and calculations. The Authorized Inspector shall have been notified for permission to begin construction prior to registration. The design cannot be commissioned into operating service until design registration is completed and any deficiencies identified through the registration process shall be corrected to the satisfaction of the Authorized Inspector. The Owner shall agree to all these conditions in writing.

All pressure piping fabricated requires the completion of the Pressure Piping Construction Data Report and the Completion of Construction Report signed off and forwarded in the job file.

- 6.3 The Quality Control Manager is responsible for the review and control of all design documents. His duties include:
- (a) To review design specifications and drawings to ensure these contain sufficient information to construct pressure vessels, fittings, and piping system in accordance with Code requirements; and to contact the owner if additional information is needed. Details normally required on drawings/design specifications include:
- (1) Material description including; material specification, grade, dimensions, schedule, type and rating.

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- (2) Design pressure and temperature of system.
 - (3) Nondestructive examination and extent (ie. random, 100%)
 - (4) Test pressure and medium.
 - (5) Heat treatment temperature and holding time if applicable.
 - (6) Construction details, supports etc.
 - (7) Welding procedure information (W.P.S. numbers/electrode classification)
 - (8) Applicable Code of Construction
 - (9) Approval of construction by a sign off from the Quality Control Manager.
 - (10) Additional requirements.
- (b) To obtain written approval from the Owner prior to making any proposed changes.
- (c) Spool Drawings
- Review and approve any spool drawings prepared by BRENT GEDAK WELDING LTD from Owner's design specifications and drawings.
- (d) Job File
- To initiate a Job File and ensure that all design specifications, Owner's material lists, P.O.'s etc. are kept in this file, each identified with the job name.
- (e) Drawing and Specification Distribution
- To maintain a drawing index (Exhibit R) indicating the drawing title, number and revision, copies issued and the name of the person to whom they were issued.
 - To issue approved drawings, specifications, welding procedures, P.O.'s material lists and applicable quality control forms to each Quality Control Representative.
 - To recall and destroy all superceded documents. Alternatively, these may be marked "Void" and kept in Job File.
- (f) As Built Drawings
- To obtain the owner's approval of any revisions and submit the final "as built" drawing to the owner along with all pertinent records.

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6.4 Handling of Drawings and Specifications at Site

The Quality Control Manager shall:

- (a) Maintain the Job File at site containing as built drawings and documents, issue drawings and specifications to site personnel, collect and mark "VOID" or destroy all superceded documents.
 - (b) Forward **a copy** the Job File to the **Owner** when the job is completed.
- 6.5 The Quality Control Manager will complete the Statutory Declaration (Exhibit M) for all items that qualify as pressure fittings (A, E, **F** &H), and submit this document in duplicate along with a Design Registration Application (Exhibit Q), drawings, calculations and specifications to the TSASK or applicable jurisdiction. Before the manufacture of pressure fittings for installation in other jurisdictions, the applicable jurisdiction should be contacted to determine requirements for design and construction.
- 6.6 **For any pressure piping that meets or exceeds .5m or 17 cubic feet in volume registration of the design shall be required for submission to the Jurisdiction. Two copies of the applicable drawings/ prints and the General Engineering Requirements for Design & Construction of Pressure Piping Systems shall be forwarded for review and acceptance prior to construction.**

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MATERIAL CONTROL

SECTION 7

PROCUREMENT

7.1 Material required for fabrication will be purchased and supplied by BRENT GEDAK WELDING LTD or Owner supplied.

(a) Purchased Material

All materials required shall be listed on a Material Requisition/Receiving Report Form (Exhibit N), showing a complete description with job name, material specification, grade of material, as per design drawings and/or Owners specifications.

After this has been checked and approved by the Quality Control Manager by signing and dating, it will be issued to the Purchasing Department.

The Purchasing Manager shall order all materials on a Purchase Order after it has been approved by the Quality Control Manager. The Purchase Order shall contain all information detailed on the Material Requisition Form, and shall include a request for Mill Test Reports and supplementary requirements and shipping instructions. This material order must conform to the specifications of ASME, Section II Code. All Mill Test Reports and Purchase Orders will be maintained in the Job File and will be made available to the Client's Inspector and the Authorized Inspector.

Material released for fabrication will conform to the exact specifications shown on the shop drawings and will be checked and verified by signature of the Quality Control Manager. Any nonconforming material will be handled in accordance with Section 12, "Correction of Nonconformances".

(b) Client-supplied Material

It is the responsibility of the Quality Control Manager, or his designate, to ensure that materials are received in accordance with the Client's specifications and are identified with material specifications in accordance with the Client's Material List/Purchase Order. A Material Requisition/Receiving Report Form (Exhibit N) will be issued, showing customer supplied material.

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BRENT GEDAK WELDING LTD will receive all materials that the client has selected to ship. Materials will be listed in a filing system by job name, with full description and specifications, including MTR's, grade and type of material.

Material released for fabrication will conform to the exact specifications shown on the shop drawings and will be checked and verified by signature of the Quality Control Manager. Any nonconforming material will be handled in accordance with Section 12, "Correction of Nonconformances".

Material left over from a job will either be returned to the vendor/ owner or kept as stock for future code fabricating usage. The material will be traceable to the MTR by the original job name applied as per Section 7.2 of the manual.

IDENTIFICATION AND TRACEABILITY

- 7.2 The identification of each item, component, or part is the responsibility of the Quality Control Manager or his designee who shall, upon receipt of material, check them against the received MTR and the Purchase Orders and clearly identify them by marking the items with the job name with a paint stick. Materials shall be checked for compliance including O.D., thickness, material specifications, chemical composition, gross defects, etc.

The Quality Control Representative will verify that the material test reports (MTRS) include physical tests and chemical analysis and conform to ASME Code Section II requirements, same edition and addenda as indicated on the construction drawing. If the MTRS conform to ASME Code Section II, the Quality Control Representative will initial the MTRS. The Material Requisition/Receiving Report will then be completed with the applicable information (Exhibit N).

The withdrawal of materials from stock will require checking by the Quality Control Manager prior to fabrication or installation.

For small multiple parts or fittings, bulk storage identification may be used by applying markings to a container with a quantity, heat number and job name. This would be adequate to prove the materials have been accepted for fabrication and segregated for a particular job.

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At the start of a job, the Quality Control Manager will determine whether color coding of piping or job name application to the required materials will be adequate or suitable for material traceability.

The Quality Control Representative will if applicable, color code acceptable pipe material in accordance with the Material Identification Color Coding (Exhibit H), by painting a stripe, the full length of the pipe. Color coding ensures that traceability to each material specification is maintained. Heat numbers will be marked with a paint stick on all cut lengths. Shop-fabricated piping shall be identified with a spool number. The color code shall be available for verification by the Authorized Inspector and the Client's Inspector.

If the Client color code is used, then the Client's color code schedule shall be available at the shop/field.

For fittings, the original manufacturer's stamping will be used to maintain traceability to the specifications.

NONCONFORMING ITEMS/MATERIAL

- 7.3 Should it be necessary to substitute material outside the acceptable guidelines of the NBIC for the repair or alteration of a registered design of a pressure vessel or fitting, the proper substitutions must be approved in writing by the Owner's Representative, the Quality Control Manager and accepted Authorized Inspector. In such instance, revised documents will be prepared and issued in accordance with Section 6. When acceptable to the AI, minor changes may be indicated on the existing drawing with the approval signature of the Designer and the Quality Control Manager. Material Substitution Report (Exhibit U) shall be completed and forwarded for acceptance prior to the repair/ alteration change being performed.

Any material/item that does not meet above requirements shall be considered a nonconformity and shall be processed in accordance with Section 12 of this Manual. A copy of the nonconformance shall be kept in the job file for the Authorized Inspectors review and signature if required.

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EXAMINATION AND INSPECTION PROGRAM

SECTION 8

- 8.1 The Quality Control Manager shall ensure the Client's Inspector and the Authorized Inspector will be informed reasonably in advance of the commencement of construction, and kept informed of progress throughout construction.

The Quality Control Manager shall ensure an inspection form is applicable to the examination and test points of the work being performed (Exhibit I, J or Exhibit **K**). The Quality Control Manager shall be responsible for ensuring all inspections are performed. The inspection form is to be presented to the Authorized Inspector and/or Owner for the designation of hold points.

- 8.2 It is the responsibility of the Quality Control Manager to ensure that fabrication does not proceed without confirmation that the required inspections have been performed on all material or parts prior to their release for construction.
- 8.3 The Quality Control Manager shall ensure material traceability, welding specifications, procedure qualification records, joint preparation, fit-up, dimensions, alignment, welds, etc are addressed for all code job packages. These functions are detailed in Section 10, "Welding Control".
- 8.4 In-process inspections are performed on Boilers & Pressure Vessels at the inspection points required. These inspections are dated and signed by the Quality Control Manager or his designate. The completion of required examinations, inspections, and tests, as well as the documentation for ensuring traceability of radiographs and other nondestructive examinations reports to individual weldments, shall be by means of the Boiler and Pressure Vessel Traveler Form (Exhibit I) or marked-up drawings.
- 8.5 **In-process Repair/ Alteration inspections are performed on boilers & pressure vessels at the inspection points required. These inspections are dated and signed by the Quality Control Manager/Representative. The completion of required examinations, inspections, and tests, as well as the documentation for ensuring traceability of radiographs and other nondestructive examinations reports to individual weldments, shall be by means of the Boiler and Pressure Vessel Repair/ Alteration Traveler Form (Exhibit K) or marked-up drawings.**
- 8.6 The Quality Control Manager shall notify the Authorized Inspector and the Owner's Inspector (if applicable) of any upcoming hold points sufficiently in advance in order to allow for adequate scheduling of time to take place for the required inspections.

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All completed pressure piping systems shall be examined by the Quality Control Representative for specifications, and code requirements. Examples of items to be examined are given in the Pressure Piping Compliance Plan (ITP) (Exhibit J) and the Pressure Piping Examination Guide (Exhibit W).

- 8.7 All pressure tests, hydrostatic tests, pneumatic tests, service tests, and sensitive leak tests shall be completed in accordance with design specifications and applicable Code requirements. All pneumatic tests to be completed for code purposes shall be subject to approval by the Authorized Inspector prior to testing.

The Quality Control Manager shall prepare the Manufacturer's Data Report and verify that the nameplate stamping information is complete and correct in the Sample Nameplate (Exhibit P {a}) format. After the pressure test has been accepted, the QCM will certify the Manufacturer's Data Report by signing and dating, and then present it to the Authorized Inspector for signoff and acceptance. For any pressure piping, the Pressure Piping Data Report and Completion of Construction Report for Piping (Exhibit B) shall be signed and dated by the QCM and presented for signoff and acceptance to the Authorized Inspector and/or Owner's Inspector when applicable.

The Quality Control Manager will distribute the Manufacturer's Data Report with any required Partial Data Reports attached to;

- a) the Authorized Inspector,
- b) the customer,
- c) the job file, and
- d) the jurisdiction where the vessel will be located.

- 8.8 The Job/ documentation file shall be reviewed for completion by the Quality Control Manager and submitted to the Client. The package shall include all the required records and any applicable signoffs of acceptance by the Client's Inspector and/or the Saskatchewan Boiler and Pressure Vessel Safety Authorized Inspector

- 8.9 Category "A", "E", "**F**" and "H" pressure fittings will be manufactured in accordance with this written quality system with the following modifications and exceptions:

Inspection by the Authorized Inspector is not mandatory for the manufacture of pressure fittings. All inspections performed by the

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Authorized Inspector as described in this manual or by Code, shall be performed by the Quality Control Manager except as follows:

In instances where a Category "H" Fitting Containing Lethal Substances is to be manufactured, fabrication inspection by the Authorized Inspector is required by CSA B51. The required fabrication inspection shall be conducted in accordance with the new pressure vessel criteria contained in this section of the manual.

The Travel Sheet (Exhibit I) used for construction of new pressure vessels shall be used for each fitting or concurrent batch of fittings and shall be signed and dated by the Quality Control Manager, as each function is completed for each fitting or batch of fittings.

The Quality Control Manager shall verify the hydrostatic test pressure to the approved drawing and witness the hydrostatic test.

Each Category "A" or "E" pressure fitting (and category "H" fittings that are not miniature pressure vessels) will as a minimum, be identified in accordance with specifications MSS SP-25, and where possible the full identification as shown in the example below will be stamped on the fitting:

BRENT GEDAK WELDING LTD
CRN S/N
MAWP PSI AT DEG. F
MDMT DEG. F AT PSI
YEAR BUILT

BRENT GEDAK WELDING LTD

REPAIRS AND ALTERATIONS

SECTION 9

NOTE: All procedures of this **manual** are to be followed except as indicated in this section, and will also be in accordance with NB-23 of the NBIC for repairs and alterations.

- 9.1 The Quality Control Manager shall ensure that no repair or alteration shall be made to any pressure retaining component of a boiler, pressure vessel, fitting, fired heater pressure coil, or piping without the prior notification of the Authorized Inspector or Owner's Inspector and that all procedures of this manual will be followed.
- 9.2 Subject to the approval of the Authorized Inspector, the Quality Control Manager shall develop a repair/alteration procedure **if the document has not been provided by the owner or his representative. The Quality Control Manager shall ensure an inspection form is applicable to the examination and test points of the work being performed (Exhibit J, or Exhibit K). The Quality Control Manager shall be responsible for ensuring all inspections are performed. The inspection form is to be presented to the Authorized Inspector and/or Owner for the designation of hold points.**
- 9.3 If requested by the Authorized Inspector, the Quality Control Manager shall ensure all procedures, calculations and drawings (if applicable) are submitted to the Authorized Inspector prior to start of work on a Repair/Alteration Report (Exhibit D).
- 9.4 The Quality Control Manager shall ensure that when an alteration to a boiler or pressure vessel is made such as when the maximum allowable working pressure, allowable temperature, or the minimum design metal temperature is changed, an additional name plate shall be affixed adjacent to the original name plate of the boiler or vessel. This additional name plate shall show the following:
- (a) specify if an alteration or re-rate;
 - (b) name of company responsible for the change;
 - (c) maximum allowable working pressure and temperature;
 - (d) minimum design metal temperature (where applicable);
 - (e) the date of alteration;
 - (f) CRN.
- 9.5 Letter sizing on name plates shall be 5/32" (4mm) or as applicable ASME code dictates, an example of the nameplates is referenced on Exhibit "P (b)".

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9.6 Code Inspection Requirements:

When field or on plant-site repairs are performed for an organization with a TSASK Safety Authorized Quality Management System Inspection Program, the Quality Control Manager shall establish who will be responsible for the Code inspections when the contract is initiated.

Owners who have a TSASK Safety Quality Management System Certificate of Authorization may be authorized to perform the repair Code inspections that are otherwise performed by an Authorized Inspector. The scope of permitted Owner Code inspections is defined in their Owner's User Manual and this is limited to repairs done at their facilities only. In some cases an Owner may be authorized to perform all repair Code inspections at their site (other than alterations) whereas in other cases the scope may be limited to routine or basic repairs. Also an Owner may elect to have all repair Code inspections done by the Jurisdictional Authority.

The Authorized Inspector (and Pressure Equipment Inspector, when applicable) shall be notified prior to the project start to accept repair methods and designate any hold and inspection points. The Authorized Inspector may require that the procedure be submitted to the TSASK Codes and Standards Compliance Office for acceptance. For routine repairs conducted at plant sites, with prior agreement from the Authorized Inspector and the Owner, the Code inspection requirements may be modified or waived.

A Designate Pressure Equipment Inspector is required to certify the Repair Report. BRENT GEDAK WELDING LTD shall complete and certify this report for all repairs including those defined as routine (Owner certification of compliance shall also be obtained when applicable). For routine repairs where Code inspections have been waived a notation "Routine Repair" shall be made in remarks section of the Repair Report. A copy of the report shall be provided to the **Authorized Inspector and Pressure Equipment Inspector, when applicable.**

The Quality Control Manager will ensure that copies of the latest repair procedure and instructions are provided to all personnel responsible for the repair.

If the pressure vessel is still under warranty, the Quality Control Manager will contact the Owner to obtain acceptance of proposed work from the manufacturer.

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WELDING CONTROL

SECTION 10

- 10.1 All welding will be performed in accordance with the latest edition and addenda of ASME Section IX and the **SBPV** Act and Regulations.
- 10.2 The Quality Control Manager is responsible for reviewing job specifications to ensure Registered Weld Procedure Specifications are available and acceptable for the proposed work. **The Quality Control Manager shall maintain and control all revised Welding Procedure Specifications on file to ensure only the most up to date procedures are available for construction.**
- 10.3 The Quality Control Manager will oversee all procedures, welders, and welding operator's qualification tests.
- 10.4 All Welding Procedure Specifications and referencing Procedure Qualification Records will be prepared, signed and dated by the Quality Control Manager and submitted to the TSASK for acceptance and registration.
- 10.5 The Quality Control Representative is responsible for ensuring that welders receive the necessary instructions, that all welding is performed in accordance with qualified weld procedures and that only welders holding VALID SASKATCHEWAN Welder's License's for the procedure that will be used.
- 10.6 The Quality Control Manager will be responsible for the following when fabrication is taking place:
- (a) Selecting the proper weld procedure.
 - (b) Issuing welders with identification symbols if required.
 - (c) Ensuring that all weld sized are in accordance with the design.
 - (d) Verify that all welds are identified either by metal stamping or recording of the welding identification on weld maps.
 - (e) Ensuring that all welding is performed in accordance with the approved procedure.
 - (f) Maintain a record of welders name and qualifications on a weld log including the welder 6 month continuity requirement based on ASME Section IX QW- 322. (Exhibit O)
 - (g) Inspect completed welds.

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- 10.7 The Authorized Inspector may require re-qualification of welder operators or welding procedures specification if there is reason to question their ability to make sound welds.
- 10.8 All welded repairs to base materials will be referred to the Authorized Inspector prior to the repair being performed.
- 10.9 Welding Procedures will be made available to the Welders in work area. The welders will have access to the Weld Procedures which are kept in the custody of their respective Quality Control designee.

All Tack welds shall be made using procedures registered and approved by the Jurisdiction to ASME Section IX. The welds shall be produced by a qualified welder. Tack welds left in place shall be properly prepared by grinding or other suitable means and shall be visually examined for defects, and if found to be defective shall be removed. If material is supplied and has been tack welded into place, the tacks will be removed by grinding or other suitable means prior to welding. **The Quality Control Manager/ Representative shall ensure all tack welds have been removed prior to completion of final welding.**

- 10.11 The surfaces of the parts to be welded shall be free of scale, rust, oil, grease and other detritus foreign matter at least ½" from the welding joint for ferrous and 2" from non ferrous materials.

WELDING CONSUMABLE CONTROL

- 10.12 The Quality Control Representative is responsible for the control of all welding consumables and will verify, prior to use, that these are identified with the correct S.F.A. number and A.W.S. classification (for example: E7018, S.F.A. 5.1). The Quality Control Manager will ensure all welding consumables will be ordered by the proper S.F.A./A.W.S. specifications and classifications. The welding consumables will meet the specifications of ASME Section II, Part C.

All low-hydrogen and alloy electrodes shall be kept in a heated storage area upon removal from hermetically sealed containers, in accordance with ASME Section II or the manufacturer's recommendations whichever are more strict. Welders will only remove enough low hydrogen electrodes from heated storage required for welding for a four-hour work period or as ambient weather conditions

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permit, but in no case longer than a four-hour period. Electrodes which have been removed from the oven for more than four hours will be discarded or used for non- code work only.

In the event of a subcontracting welder supplying welding consumables, the subcontractor shall follow the BRENT GEDAK WELDING LTD Welding Consumable Control (Section10.12) of the Quality Control Manual for control of these supplied welding consumables.

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MECHANICALLY ASSEMBLED PIPING

SECTION 11

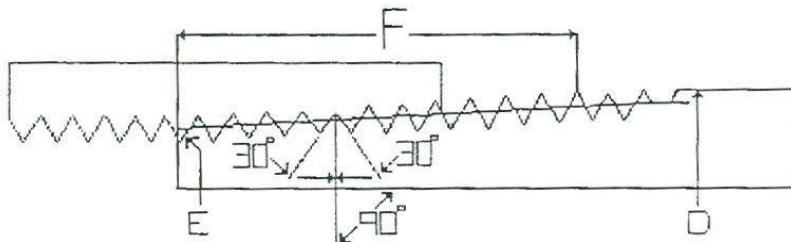
- 11.1 The QCM shall ensure the threaded piping procedure is referenced on the construction, repair or alteration drawing and that the referenced Threaded Piping Procedure specifies fluid service or range of fluid services that the procedure is applicable to pipe materials, pipe sizes and minimum wall thicknesses to be used, pipe thread assembly dimensional requirements, drill sizes for pipe taps, and type of pipe joint sealant to be used.
- 11.2 The Quality Control Manager is responsible for assuring that the threaded piping system meets the requirements of the TSASK Act and Regulations, the Code of Construction and the Owner's requirements. The Superintendent will ensure that workers installing threaded piping follow the construction requirements of this procedure.
- 11.3 The Quality Control Inspector will examine threaded piping installation to ensure that it is constructed and tested in accordance with the Issued for Construction Documents.
- 11.4 The QCM shall only specify the following specifications and grades for use for the Threaded Procedure: ASME B31.3 Category D and Normal Fluid Services 260°C- Maximum temperature service. Materials are limited to:
- SA53 Grade B
 - SA106 Grade B
 - SA333 Gr. 6
 - SA312 TP 304(L)
 - SA312 TP 316(L)
- 11.5 For ASME B31-3 Process Piping, 3/8 NPS through 2 NPS shall be a minimum Schedule 80 unless otherwise specified in the client specifications. 1/8 and 1/4 NPS shall be no less than Schedule 160 unless specified by the client specifications.
- 11.6 All threads shall be (NPT), ASME Standard B1.20.1 Taper Pipe Threads. All make-up threads shall be full cut with clean roots and crowns and free of objectionable burrs.

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- 11.7 All threads shall be wrapped with UL Gas approved Teflon tape. The Teflon tape will be coated with a thin layer of Jet Lube TF-15 pipe dope (or client specified pipe dope) prior to make-up.
- 11.8 Pipe make-up will be in accordance with Table 1, Pipe Thread Assembly Dimensional Requirements. Pipe wrench mark depth shall not encroach upon the pipe minimum design thickness (Thickness required for containing pressure plus the piping system specified corrosion allowance).
- 11.9 Components containing female threads (couplings, tees, bushings, elbows, etc.) shall be purchased whenever possible. Drill and tap dimensions shall be determined from the Pipe Fitters Handbook or the Machinery's Handbook. Drill sizes for NPT pipe taps are shown in Table 2. Components containing male threads may be purchased or cut by BRENT GEDAK WELDING LTD using dies in good condition.

A taper will only allow the pipe to be screwed into a fitting a certain distance till it jams, unlike threading a nut on a bolt. The procedure specifies this distance as the effective thread (F). It also specifies another distance, the engagement, which is the distance the pipe can be screwed in by hand without much effort. For workers, instead of these distances, it may be more convenient to know how many threads to make by hand and how many with a wrench as specified in the table below.

Table 1



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NOMINAL PIPE SIZE	NUMBERS OF THREADS PER INCH	O.D. OF PIPE "D"	MINOR DIA. AT SMALL END OF PIPE *1	PITCH DIA. AT START OF EXT. THREAD "E"	LENGTH OF EFFECTIVE THREAD EXTERNAL "F"	Example Hand Engagement plus Wrench Makeup Lengths not necessarily equal to length of effective Thread			
						LENGTH OF ENGAGEMENT TIGHTENED BY HAND	WRENCH MAKEUP LENGTH	HAND TIGHT THREADS	WRENCH MAKEUPS THREADS
1/8"	27	.405	0.333	.363	.263	0.18	0.11	5	3
1/4"	18	.540	0.432	.477	.401	0.20	0.16	3 1/2	3
3/8"	18	.675	0.567	.612	.407	0.24	0.16	4	3
1/2"	14	.840	0.701	.758	.533	0.32	0.21	4 1/2	3
3/4"	14	1.050	0.910	.967	.545	0.34	0.21	4 1/2	3
1"	11.5	1.315	1.144	1.213	.682	0.40	0.26	4 1/2	3
1-1/4"	11.5	1.660	1.487	1.557	.706	0.42	0.26	5	3
1-1/2"	11.5	1.900	1.726	1.796	.723	0.42	0.26	5	3
2"	11.5	2.375	2.199	2.269	.756	0.43	0.26	5	3
2-1/2"	8	2.875	2.619	2.719	1.137	0.68	0.25	5 1/2	2
3"	8	3.500	3.240	3.340	1.200	0.76	0.25	6	2
3-1/2"	8	4.000	3.737	3.837	1.250	0.82	0.25	6 1/2	2
4"	8	4.500	4.234	4.334	1.300	0.84	0.25	7	2

*1 Minor Diameter at Small End of Pipe - given as information for use in selecting tap drills

Table 2

SIZE OF TAP	NUMBER OF THREADS PER INCH	DIAM. OF DRILL	SIZE OF TAP	NUMBER OF THREADS PER INCH	DIAM. OF DRILL
1/8	27	11/32	2	11 1/2	2 3/16
1/4	18	7/16	2 1/2	8	2 9/16
3/8	18	37/64	3	8	3 3/16
1/2	14	23/32	3 1/2	8	3 11/16
3/4	14	59/64	4	8	4 3/16
1	11 1/2	1 5/32	4 1/2	8	4 3/4
1 1/4	11 1/2	1 1/2	5	8	5 5/16
1 1/2	11 1/2	1 49/64	6	8	6 5/16

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CORRECTIONS OF NON-CONFORMITIES

SECTION 12

- 12.1 A non-conformity is any condition which does not comply with the applicable Code, drawings and/or customers requirements, includes any deviation from the requirements of the manual. (Exhibit C)
- 12.2 There are normally two types of non-conformity. Those found in material and parts at receiving and final inspection, and those found during fabrication and final inspection.
- 12.3 The Quality Control Manager is responsible for resolution and disposition of all non-conformities and for maintaining Non-Conformance Reports.
- 12.4 When a non-conformity is observed upon receiving or during fabrication, the product shall be flagged with surveyor's ribbon and marked with "Do Not Use" on the material with a paint stick. Piping will be marked every 4 feet or 1.2 meters. All affected material will be segregated.
- 12.5 If the disposition is to be "Repaired by Welding" or "Use As Is" prior concurrence by the Authorized Inspector must be obtained.
- 12.6 The concurrence of the Authorized Inspector must be obtained prior to any weld repairs to base materials.
- 12.7 A copy of the non-conformance report will be filed and reviewed semi-annually by the Quality Control Manager.
- 12.8 All material substitutions are subject to Authorized Inspector concurrence.

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NON DESTRUCTIVE EXAMINATION

SECTION 13

- 13.1 All non destructive examination will meet the requirements of the latest applicable Code and Addenda. All examinations shall be performed in accordance with ASME Section V and other standards referenced therein.
- 13.2 The Owner or Design Engineer is responsible for specifying the types of non destructive examination on drawings as per applicable Code. **NDE Instruction Sheet (Exhibit X) shall be forwarded to NDE Technician prior to start of project.**
- 13.3 All non destructive examinations shall be contracted out to an approved company using personnel qualified to C.G.S.B.
- 13.4** The Quality Control Manager shall ensure that the nondestructive testing agency has the necessary equipment, qualified personnel and written procedures to perform the examinations to the latest and most current code and addenda. Upon request of the AI, any or all of the NDE subcontractors practices and procedures shall be demonstrated to meet the AI's acceptance. **It is the responsibility of the Quality Control Manager to appoint a Level III NDE examiner and ensure that the Letter of Appointment is maintained and kept of file for reference.**
- 13.5 The Quality Control Manager is responsible for checking and approving the following prior to any examinations:
- (a) Contractors site
 - (b) Contractors equipment
 - (c) All personnel performing RT will be qualified and their qualifications documented to the requirements of C.G.S.B. and only Level II will interpret film (latest ASME Code accepted edition and minimum Level II Certificate). The training and certification of NDE personnel as well as the development and approval of NDE procedures shall be conducted by a Level III examiner.
 - (d) Personnel qualifications are appropriately filed and current qualifications kept for reference.
 - (e) Review and acceptance of NDE reports.
- 13.6 All non destructive examination reports shall be retained in the job file for the Owner/Authorized Inspector's review for a minimum of five years.
- 13.7 The Quality Control Representative shall establish a weld map system and review that system with the N.D.E. subcontractor. The N.D.E. report shall be traceable to the weld map system.

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HEAT TREATMENT

SECTION 14

- 14.1 Postweld heat treatment is performed by subcontracted firms in conformance to Code requirements and design specifications.
- 14.2 Postweld heat treatment is subcontracted to companies who are qualified with the necessary, competent personnel, facilities, procedures and equipment to perform the work. All items sent out-of-shop or off-site shall be identified by the Quality Control Manager and given a job name, part number, or spool number marked on the item with low stress stamps or metal tagging identification.
- 14.3 The Quality Control Manager shall prepare and issue Heat Treatment Instruction Forms (Exhibit F) to the heat treatment personnel.
- 14.4 The time-temperature charts shall be signed and dated by the subcontractor in question; the Quality Control Manager shall review these charts for legibility and compliance with the Heat Treatment Instruction Forms (Exhibit F). The Quality Control Manager will sign off on any applicable forms pertaining to the job. All charts shall be identified with the order number/job name and the part numbers, or spool number, and shall be kept in the files for inspection by the Client's Inspector and the Authorized Inspector.
- 14.5 The Quality Control Manager is responsible for verifying that the subcontractor's heat treatment equipment is calibrated, by reviewing the subcontractor's latest Calibration Reports, reviewing heat treatment procedures and the subcontractor's facilities for compliance. **Thermocouple placement shall be specified as per the applicable Code of Construction recommended practices and verified by the Quality Control Manager for acceptance.**
- 14.6 The Quality Control Manager or his designate is responsible for marking up all weld numbers, including welder identification and x-ray numbers, on isometric drawings before any stress relieving shall be done.
- 14.7 **The Quality Control Manager/ Representative shall ensure all parts and components returned from the subcontractor are checked for visible damage upon receipt.**

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CALIBRATION

SECTION 15

- 15.1 All hydrostatic test gauges shall be tested by a certified subcontractor to a maximum interval not exceeding 1 year or whenever an error is suspected. The results shall be maintained on a Master Calibration or Test Equipment Log (Exhibit G).
- 15.2 The Quality Control Manager/**Representative** shall ensure that all **analog dial indicating type** pressure gauges used for hydrostatic testing will be graduated to at least 1.5 times the hydro test pressure and in any case no more than 4 times the hydro test pressure. **Digital reading gauges having a wider range of pressure may obtained be used, provided the readings give the same or greater degree of accuracy as with dial pressure gauges.**
- 15.3 The Quality Control Manager will also maintain a record of the calibration results and ensure that all gauges are identified and show the date of the last calibration. Gauges will be calibrated against dead weight testers, traceable to a National Standard, within 12 month intervals using Calibration Record (Exhibit G).
- 15.4 When hydrostatic test gauges are calibrated by subcontracting to a qualified vendor the records will be obtained from the subcontractors showing the gauge numbers. The subcontractors Calibration Report shall become part of the job file if applicable.
- 15.5 When calibrated gauges are required on the field jobsite, the gauges will remain in the custody of the Quality Control Manager or his designate. Prior to any usage, measuring and test equipment, the Quality Control Manager or his designee will inspect the equipment for damage.
- 15.6 The pressure gauge shall be tested throughout its complete operating range. Any deviation from the master gauge will require the test gauge to be calibrated to match the master gauge.
- 15.7 All measuring, testing and pressure test equipment shall be stored as per manufacturer's recommendations and/or in a safe, warm, dry area. **The Quality Control Manager/ Representative shall ensure all Calibrated Equipment is maintained, stored and handle appropriately.**

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HYDROSTATIC TESTING

SECTION 16

- 16.1 All hydrostatic tests performed will be undertaken with maximum regard to personnel safety. All unauthorized personnel will stay clear of the area where the test is being performed.
- 16.2 The Quality Control Manager will be responsible for all aspects of hydrostatic tests, including notification of the Client's Inspector and/or Authorized Inspector, reasonably in advance of any hydrostatic testing.
- 16.3 All air will be vented from the equipment to be tested during filling.
- 16.4 The pressure will be increased gradually to the hydrostatic test pressure as stated on the approved drawings. The test will be held long enough for the Authorized Inspector to complete his visual inspection.
- 16.5 If acceptable by the Authorized Inspector, a visual inspection and Non-Destructive Examination may be performed in lieu of a Hydrostatic Pressure Test.
- 16.6 Upon completion of the test, the pressure will be gradually released through a drain valve and the equipment to be tested will be adequately vented before removing any fittings.
- 16.7 The pressure gauge will be mounted directly on the equipment to be tested. **Analog dial indicating type** pressure gauges shall be graduated to no less than 1 ½ times or more than 4 times the test pressure. **Digital reading pressure gauges having a wider range of pressure may be used provided the readings give the same or greater degree of accuracy as obtained with dial pressure gauges.**
- 16.8 When a hydrostatic test is performed, the test specifics shall be documented on the Hydrostatic Test Report Form (Exhibit E).

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PNEUMATIC TEST PROCEDURE

SECTION 17

- 17.1 All pneumatic tests will be done to a procedure supplied by the customer. The procedure will be submitted to the Authorized Inspector for approval and acceptance sufficiently in advance prior to test. The testing procedure must be accompanied with detailed justifications why a standard hydro test is not feasible.

Due to the large energy storage in compressed gas, and hence the potential hazard of a sudden release of this energy, pneumatic testing should be avoided if at all possible.

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AUTHORIZED INSPECTOR

SECTION 18

- 18.1 The Authorized Inspector is an employee of the Jurisdictional Authority required by the Code (employed by the TSASK).

The Quality Control Manager arranges for the Authorized Inspector and Authorized Inspector's Supervisor to have free access to the shop and field site whenever Code work is being done, and to such parts of the plant that are concerned with the manufacture and supply of materials for manufacture when requested.

When requested by the Authorized Inspector, inspection points will be inserted on the Traveler (Exhibit I, J or K) for those operations he/she may wish to witness or verify before work proceeds.

The Quality Control Manager or Quality Control Representative at the shop or field site will be the liaison between the Company and the Authorized Inspector, and will be responsible for keeping the Authorized Inspector informed of work progress.

The Authorized Inspector has access to and is provided with all drawings, calculations, specifications, procedures, repair records, tests, examination results, inspection records, and any other documents required to perform his/her duties.

All Nonconformance Reports will be submitted to the Authorized Inspector for his/her review.

The Quality Control Manager will notify the Authorized Inspector sufficiently in advance of all tests so he/she may be present to witness them.

A controlled copy of this Quality Control Manual will be available for use by the Authorized Inspector and Authorized Inspector's Supervisor at the shop or field site.

The Authorized Inspector will review and accept changes to the Quality Control Manual before they are issued to Manual Holders.

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RECORD RETENTION

SECTION 19

19.1 Records are to be retained in an environment suitable for minimizing deterioration, damage or loss.

19.2 Until job completion, all records are to be filed by the Quality Control Manager. After job completion, all records are to be retained by Management.

Any NDE interpretation reports shall become part of the applicable job file. Radiograph film may be stored with the job file or turned over to the Client.

19.3 Records to be retained include:

- (a) drawings, specifications, job numbers;
- (b) all applicable forms detailed in the Exhibit Section;
- (c) radiographs and nondestructive examination reports;
- (d) interpretation sheets;
- (e) pressure test reports;
- (f) mill test reports;
- (g) heat treatment charts;
- (h) welder qualifications;
- (i) NDE personnel qualifications;
- (j) Nonconformance Reports.

19.4 All records will be made available to the Client's Inspector and the Authorized Inspector.

19.5 The company will keep these records for a minimum of 5 years.

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WELDER TESTING

SECTION 20

- 20.1 The purpose of this section is to describe the system for controlling Welder and Welding Operator performance qualification testing, and the issuing of Welder Qualification Records according to the **SBPV** Act and Regulations. All the applicable requirements defined in other sections of this Quality Control Manual shall apply to Welder and Welding Operator performance testing except as modified in this section.
- 20.2 The individual who has signed the Statement of Authority in this Quality Control Manual is responsible for designating and appointing the Welding Examiner. The Quality Control Manager's duties relating to designation and appointment include:
- a) Verifying that the Welding Examiner has the necessary experience, ability and education.
 - b) Ensuring that TSASK has accepted the Welding Examiner's qualifications and has a valid Weld Examiner's Licence registered with the TSASK.
 - c) Monitoring the standards employed by the Welding Examiner.
- 20.3 The Welding Examiner is responsible for controlling the weld coupon. His duties include:
- a) Verifying that each weld coupon is identified with an established coded marking to show the material specification and grade.
 - b) Controlling the issue of test coupons to candidates.
 - c) Issuing a unique identification symbol to each candidate- if applicable.
 - d) Ensuring that each weld coupon is marked with his identification symbol.
- 20.4 The Welding Examiner shall not conduct a Welder Performance Qualification test or issue a Welder Qualification Record for himself.
- 20.5 The Welding Examiner will supervise the performance qualification test. His duties include:
- a) Verifying that each applicant has a valid Pressure Welders Licence and retaining a copy on file.
 - b) Reviewing the Welding Procedure Specification requirements and test standards with the candidate.

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- c) Verifying that the qualification test is performed in accordance with the designated Welding Procedure Specification, ASME Section IX requirements and additional TSASK testing requirements. The Welder Performance Qualification Examination and Test Procedure (Exhibit S) specifies the examinations that must be completed and the items to be checked.
 - d) Developing additional test procedures when applicable (i.e., fillet weld tests).
 - e) Preparing and certifying a Welder/Welding Operator Qualification Record (Exhibit T) for each test (certifying if test is passed, documenting if test is failed).
 - f) Issuing a copy of the Welder Qualification Record (Exhibit T) upon satisfactory completion of the test to the TSASK for Welder Licence issuance of certificate.
 - g) Supervising and documenting, on a Welder Qualification Record (Exhibit T).
Note: The initial performance qualification test for Saskatchewan Licenced Pressure Welders is always administered by a TSASK Inspector. The initial performance qualification test is:
 - (1) NPS 6 pipe, schedule 80, 2G and 5G positions, open root – no backing, F3-F4 filler metals.
- 20.6 The Welding Examiner, in addition to supervising the Performance Qualification tests, shall visually examine the test coupons as described in the Welder Performance Qualification Examination and Test Procedure (Exhibit S) and as required by the Code. If NDE is used as part of the performance qualification test then the Welding Examiner must ensure that radiographic film interpretation sheets and NDE reports for Welders or Welding Operators to be qualified by NDE are identified with the candidate's symbol and meet all of the applicable Code requirements. The acceptance standards required for non-destructive examination shall be as specified by ASME Code Section IX. Visual examination standards shall be as required by Section IX along with the additional criteria provided by ASME Code Section VIII, Division 1 (i.e., UW-31, UW-33 and UW-35).

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- 20.7 The Welding Examiner is responsible for all performance qualification test records. He will ensure that:
- a) Performance qualification records, physical test results and NDE reports are identified with the candidate's symbol and are provided to the QCM for retention as long as the performance qualification remains valid. Test coupons and specimens are marked with the candidate's symbol and retained for at least ninety days if the candidate fails and thirty days if the candidate passes.
 - b) If the candidate fails the test and the failure is not the fault of the welder, the Weld Examiner may allow the welder to re test immediately upon his discretion. If the welder candidate fails the test based on his abilities, the candidate must wait 7 days before retesting to allow for adequate practice and any additional training that may be required prior to the retest. If the welder is not able to pass the Qualification Test with 3 separate attempts, the welder must wait a minimum of 60 days before any further retesting or re-qualification will be allowed.
- 20.8 In accordance with the TSASK Act and Regulations, the expiry date of the Welder Performance Qualification Licence shall be no later than 24 months following the date issued.
- 20.9 All welders and applicable welder tickets issued through this process shall be restricted to BRENT GEDAK WELDING LTD only. No production welds will be used to qualify welder's to the applicable weld processes.

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SAMPLE FORMS

SECTION 21

EXHIBIT	DATE	REV
A	Distribution Log for Registered Manual Holders	25/10/16 1
B	General Engineering Requirements for Design Construction of Pressure Piping Systems Construction Data Report for Piping Systems & Completion of Construction	09/08/10 0
C	Non-Conformity Report	09/08/10 0
D	Repair/Alteration Form	25/10/16 1
E	Hydrostatic Test Report	25/10/16 1
F	Heat Treatment Form	09/08/10 0
G	Master Calibration of Test Equipment Log	09/08/10 0
H	Material Identification Color Coding	09/08/10 0
I	Boiler and Pressure Vessel Traveler	25/10/16 1
J	Piping Compliance Plan (ITP)	25/10/16 1
K	Boiler and Pressure Vessel Repair/Alteration Traveler	25/10/16 1
L	Purchase Order	09/08/10 0
M	Manufacturers Data Report/Statutory Declaration	25/10/16 1
N	Material Requisition/Receiving Report	09/08/10 0
O	Welders Log	09/08/10 0
P	Nameplates (a) New Construction (b) Repair/Alteration	09/08/10 0
Q	Application for the Registration of Design	25/10/16 1
R	Drawing Index	09/08/10 0
S	Welder Performance Qualification Examination and Test Procedure	09/08/10 0
T	Report of Pressure Welder's Qualification Test	09/08/10 0
U	Material Substitution Report	09/08/10 0
V	Contract Review	09/08/10 0
W	Pressure Piping Examination Guide	25/10/16 1
X	NDE Instruction Sheet	25/10/16 1

- EXHIBIT B** – **GENERAL ENGINEERING REQUIREMENTS FOR DESIGN & CONSTRUCTION OF PRESSURE PIPING SYSTEMS.**
- **CONSTRUCTION DATA REPORT FOR PIPING SYSTEMS**
 - **COMPLETION OF CONSTRUCTION**

HYPERLINKS

GENERAL ENGINEERING REQUIREMENTS FOR DESIGN & CONSTRUCTION OF PRESSURE PIPING SYSTEMS

<http://www.tsask.ca/uploads/File/PDFs/Forms/Boilers%20&%20Pressure%20Vessels/LIB-1003-General-Engineering-Requirements-for%2520Design-Construction-of-Pressure-Piping-Systems.pdf>

CONSTRUCTION DATA REPORT FOR PIPING SYSTEMS

http://www.tsask.ca/public/pdf/2016%20Pressure%20Piping/TSK-1002_-_Construction_Data_Report_for_Pressure_Piping_Systems.pdf

COMPLETION OF CONSTRUCTION

<http://www.tsask.ca/uploads/File/PDFs/2013%20Fee%20Increase%20Forms%20BPV/TSK1001.pdf>

Exhibit C – Nonconformity Report

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Quality System Nonconformance Report

NCR Log # _____

Location: _____ Date: _____

Quality Program # _____ Job Reference: _____

Description of Item/Equipment: _____

Description of Nonconformance: _____

Proposed disposition: _____

Action to prevent reoccurrence: _____

Acceptance Signatures

NCR Initiator: _____ Date: _____

Inspector: _____ Date: _____

Authorized Inspector: _____ Date: _____

Resolution or Rework:

_____ Date: _____

Resolution/Rework Signatures:

Q.C. Representative: _____ Date: _____

Inspector: _____ Date: _____

Authorized Inspector: _____ Date: _____

Exhibit D – REPAIR/ALTERATION FORM

HYPERLINK

REPAIR AND ALTERATION FORM

[http://www.tsask.ca/public/images/20142015_Forms/TSK1009_Repair-
Alteration.pdf](http://www.tsask.ca/public/images/20142015_Forms/TSK1009_Repair-Alteration.pdf)

EXHIBIT E – HYDROTEST REPORT FORM

BRENT GEDAK WELDING LTD

JOB #:	TEST PRESSURE REQUIRED:
TIME HELD:	AMBIENT TEMP:
PERFORMED/ WITNESSED BY:	DATE:
AUTHORIZED INSPECTOR:	

GAUGE #1:
GAUGE #2:
CHART RECORDER: Test: ACCEPT REJECT
COMMENTS:

TIME	GAUGE 1	GAUGE 2	CHART	REMARKS

QUALITY CONTROL MANAGER: _____ Date: _____

AUTHORIZED INSPECTOR: _____ Date: _____

OWNERS INSPECTOR: _____ Date: _____

EXHIBIT F – HEAT TREATMENT FORM

BRENT GEDAK WELDING LTD

HEAT TREATMENT FORM	
JOB NAME:	CUSTOMER:
PART NUMBER:	
SPOOL NUMBER:	DATE:
COMPONENT DESCRIPTION	
DWG. NO. AND LINE NO. DIAMETER THICKNESS MATERIAL LENGTH WEIGHT	
DESCRIPTION:	
TYPE OF HEAT TREATMENT:	
INSTRUCTIONS: STRESS RELIEVE	
1. Temperature to be raised from 800°F (426°C) to 1150°F (621°C) at a maximum rate of _____°F (_____°C) per hour. NOTE: MUST NOT EXCEED 400°F (222°C) PER HOUR. (Calculated rate = 400°F/h. Divided by governing metal thickness)	
2. Temperature to be held at 1150°F (621°C) plus or minus 25°F (14°C) for _____ minutes.	
3. Temperature to be lowered from 1150°F (621°C) to 800°F (426°C) at a rate of _____°F (_____°C) per hour. NOTE: MUST NOT EXCEED 500°F (278°C) PER HOUR. (Calculated rate = 500°F/h. Divided by governing metal thickness)	
4. Additional requirements: Job number and description required on heat treatment chart.	
5. Furnace Heat Number:	
6. Furnace Operator's Signature:	
7. Q.C. Manager's Signature:	

EXHIBIT H – MATERIAL IDENTIFICATION COLOR CODING

BRENT GEDAK WELDING LTD

MATERIAL IDENTIFICATION COLOR CODING

DESIGNATION	MATERIAL	COLOUR CODE
SA-234-WPB	Carbon Steel Fittings	Lt Blue
SA-106-B	Carbon Steel Pipe	Lt Blue
SA- 105	Carbon Steel Fittings	Lt Blue
SA-420-WPL6	L/T Carbon Steel Fittings	Yellow
SA-333-6	L/T Carbon Steel Pipe	Yellow
SA-350-LF2	L/T Carbon Steel Flanges	Yellow
SA-234-WP11	1-1/4 Chrome Fittings	Orange
SA-335-P11	1-1/4 Chrome Pipe	Orange
SA-234-WP22	2-1/4 Chrome Fittings	Brown
SA-335-P22	2-1/4 Chrome Fittings	Brown
SA-234-WP5	5 Chrome Fittings	Green
SA-335-P5	5 Chrome Pipe	Green
SA-234-WP9	9 Chrome Fittings	Red
SA-335-P9	9 Chrome Pipe	Red
SA-336	Stainless Steel Forgings	Black
SA-182	Stainless Steel Fittings	Black
SA-312	Stainless Steel Pipe	Black

NOTE: All color coded piping, tubing or fittings are identified by a continuous, longitudinal stripe the entire length of the piping, tubing or fitting. All other pressure pipe must be marked by stencil, and the markings transferred at the time the pipe is cut.

EXHIBIT I – BOILER AND PRESSURE VESSEL TRAVELER

BRENT GEDAK WELDING LTD

Vessel Type:	Job No:
Serial No:	CRN:
Drawing No:	Drawing Revision No:
Travel Sheet Revision No:	Travel Sheet Initiation By:

SEQ	ITEM	COMMENTS	Q.C.I.	DATE	A.I. HOLD POINTS	A.I.	DATE	OWNER	DATE
1.	Calculations in File.								
2.	Release of Approved Drawing.								
3.	AI Notified	Date:							
4.	Heat Numbers Recorded.								
5.	MTRs Checked.								
6.	WPS(s) Checked.								
7.	Welder(s) Qualified.								
8.	Thicknesses Verified and Recorded.								
9.	Nozzle & Flange Rating Checked.								
10.	Nozzle Orientation.								
11.	Nozzles & Fittings Fit-Up Inspection								
12.	Shell(s) & Head(s) Fit-Up Inspection.								
13.	Final Internal Inspection	Shell Side: Tube Side:							
14.	Weld Sizes Checked.								
15.	Welder I.D. Checked.								
16.	Final External Inspection.								
17.	Radiography.	_____ %							
18.	Other N.D.E.	<input type="checkbox"/> MT <input type="checkbox"/> UT <input type="checkbox"/> LPI							
19.	Impact Tests.								
20.	Final Ext. Prior to P.W.H.T.								
21.	PWHT Chart Checked.								
22.	Hydrostatic Test.	Gauge #1: Gauge #2:							
23.	CRN Drawing.								
24.	N.C.R.'s Closed.								
25.	Nameplate Stamping.								
26.	Manuf. Data Report Completed, Verified.								
27.	Nameplate Installation.								
28.									

The Authorized Inspector shall be presented with the Travel Sheet prior to construction so that he can designate additional inspection points and/or Hold Points. Any revisions shall be marked with a delta symbol with revision number and described at the bottom of this page.

*Denotes an A.I. Inspection Point ** Denotes an A.I. Hold Point

EXHIBIT J – PIPING COMPLIANCE PLAN

BRENT GEDAK WELDING LTD

Project/Job Name and Description:	
Project/Job Type: New Piping <input type="checkbox"/>	Repair, Alteration or Modification to Existing Piping <input type="checkbox"/>
Job No.:	
Customer's Representative:	

SURVEILLANCE ACTIVITY	REQUIRED		I & TP REQUIREMENTS					BGW LTD.		CUSTOMER SIGN OFF	
	YES	NO	H	W	V	E	A	SIGN	DATE	SIGN	DATE
Tender Contract Reviewed											
Drawings Released											
Drawings Submitted to TSASK for Systems Exceeding 0.5 Cubic Meters.											
I&TP Requirements from Customer											
Welding Procedure Approved											
Welding Personnel Qualified											
Materials & MTRs Checked											
Visual Weld Inspection											
Radiography & Other NDE											
Post Weld Heat Treatment											
NDE & Heat Treatment Recorded											
Non-Conformances Cleared											
Deficiencies Cleared											
Hydrostatic Test Gauges Checked											
Hydrostatic Test Complete											
Construction Data Report Complete											
Completion of Construction to TSASK for System Exceeding .5 Cubic Metres											
Spools Identified											
Special Treatment (Sandblasting)											
Pipe Painting											
“As Build” Drawings Accepted by Owner											

H-Hold W-Witness V-Verify E-Examine A-Acceptance by Customer QA or Engineering

FINAL INSPECTION DECLARATION

I, the undersigned, declare the piping system described in the Piping Compliance Plan complies in all respects with the Regulations for construction, installation, testing and inspection.

Quality Control Manager

Print Name

Date

Quality Control Representative

Print Name

Date

EXHIBIT K – BOILER AND PRESSURE VESSEL REPAIR/ ALTERATION TRAVELER

BRENT GEDAK WELDING LTD

Company:	Location:
Job No:	Vessel Type:
Serial No:	CRN:
Travel Sheet Revision No:	Travel Sheet Initiation By:

SEQ	ITEM	COMMENTS	Q.C.M/ Q.C.R.	DATE	A.I. HOLD POINTS	A.I.	DATE	OWNER	DATE
1.	Repair Procedure approved.								
2.	Release of Approved Drawing/ CRN.								
3.	Manuf. Data Report Verified.								
4.	AI Notified.	Date:							
5.	WPS(s) Checked.								
6.	Welder(s) Qualified.								
7.	Thicknesses Verified and Recorded.								
8.	MTRs Checked.								
9.	Heat Numbers Recorded.								
10.	Hydrogen Bakeout	Temp Time							
11.	Nozzle & Flange Rating Checked.								
12.	Nozzle Orientation.								
13.	Nozzles & Fittings Fit-Up Inspection.								
14.	Shell(s) & Head(s) Fit-Up Inspection.								
15.	Internals Checked.								
16.	Final Internal Inspection	Shell Side: Tube Side:							
17.	Final External Inspection.								
18.	Weld Sizes Checked.								
19.	Radiography.	_____ %							
20.	Other N.D.E.	<input type="checkbox"/> MT <input type="checkbox"/> UT <input type="checkbox"/> LPI							
21.	Impact Tests.								
22.	Final Ext. Prior to P.W.H.T.								
23.	PWHT Chart Checked.								
24.	Hydrostatic Test.	Gauge #1: Gauge #2:							
25.	N.C.R.'S Closed.								
26.	Nameplate Installation.								
27.	Repair/ Alteration Report completed								
28.									

The Authorized Inspector shall be presented with the Travel Sheet prior to repair/ alteration construction so that he can designate additional inspection points and/or Hold Points. Any revisions shall be marked with a delta symbol with revision number and described at the bottom of this page.

*Denotes an A.I. Inspection Point ** Denotes an A.I. Hold Point

EXHIBIT L – PURCHASE ORDER (COPY)

BRENT GEDAK WELDING LTD

PURCHASE ORDER

574851			
THIS NUMBER MUST APPEAR ON ALL INVOICES, PACKAGES, ETC.			
TO			
ADDRESS	REQ. NO. OR DEPT.		
SHIP TO	DATE		
ADDRESS	FOR		
PLEASE NOTIFY US IMMEDIATELY IF YOU ARE UNABLE TO SHIP COMPLETE ORDER BY DATE SPECIFIED			
QUANTITY	PLEASE SUPPLY ITEMS LISTED BELOW	PRICE	AMOUNT
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
DATE REQUIRED	VIA	PLEASE SEND COPY(IES) OF YOUR INVOICE	
TERMS		PURCHASING AGENT	

EXHIBIT M – MANUFACTURERS DATA REPORT/ STATUTORY DECLARATION

MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

HYPERLINK

MANUFACTURERS DATA REPORT

<http://www.tsask.ca/uploads/File/PDFs/Forms/Boilers%20&%20Pressure%20Vessels/NEW%20FORMS/2014/TSK-1005%20Manufacture's%20Data%20Report%20for%20Pressure%20Vessles.pdf>

STATUTORY DECLARATION

HYPERLINK

STATUTORY DECLARATION

<http://www.tsask.ca/uploads/File/PDFs/2013%20Fee%20Increase%20Forms%20BPV/TSK1008%20Statutory%20Declaration-Oct29.pdf>

Exhibit P – NAMEPLATES

**Exhibit P (a) – PRESSURE VESSEL NAMEPLATE
(as per ASME VIII, Div. 1, Fig. UG- 118)**

CERTIFIED BY	
BRENT GEDAK WELDING LTD	
SERIAL NO: _____	CRN: _____
MAWP: _____ p.s.i. at _____ °F	
MDMT: _____ °F at _____ p.s.i.	
DATE: _____	TEST PRES: _____ p.s.i.

**Exhibit P (b) - REPAIR/ ALTERATION NAMEPLATE
(as per ASME VIII, Div. 1, Fig. UG- 118)**

REPAIR/ALTERATION BY	
BRENT GEDAK WELDING LTD	
SERIAL NO: _____	CRN: _____
MDMT: _____ °F at _____ p.s.i.	
MAWP: _____ p.s.i. at _____ °F	
DATE: _____	TEST PRES: _____

EXHIBIT Q – APPLICATION FOR THE REGISTRATION OF DESIGN

APPLICATION FOR THE REGISTRATION OF DESIGN

HYPERLINK

APPLICATION FOR THE REGISTRATION OF DESIGN

http://www.tsask.ca/public/images/TSK-1010_-_2016_BPV_Design_Registration_-_FINAL.pdf

EXHIBIT S- WELDER PERFORMANCE QUALIFICATION EXAMINATION AND TEST PROCEDURE

BRENT GEDAK WELDING LTD

No.	Description	Code Reference	Examiner
1.	Review Welding Procedure Specification and establish Welder Performance Test requirements.		
2.	Verify that test coupon material spec., grade, thickness, diameter, weld joint preparations are correct.	QW-423, QW-452, QW-452.4	
3.	Instruct candidates re test procedure, acceptance standards, time limit and Welding Procedure Specification requirements.		
4.	Mark candidate's unique ID Number/Symbol on test coupons.		
5.*	Examine fit-up and tack welds.	¹ UW-31, UW-33	
6.*	Verify test position.	QW-110, QW-120	
7.*	Examine root (penetration, profile, fusion, reinforcement, reduction in thickness, etc.)	¹ UW-35	
8.*	Examine complete weld surface condition reinforcement, penetration, fusion, contour, etc.	QW-191, QW-302.4, ¹ UW-35	
9.	Outline position of bend test specimens.	QW-302.3, QW-463, QW-160	
10.	Verify that specimen size and thickness are acceptable after preparation. Mark candidate and specimen number on each specimen.	QW-462.2, QW-462.3	
11.	Verify test jig tolerances.	QW-162, QW-466	
12.	Examine specimens after bending	QW-163, QW-302.4	
13.	Review reports of any subcontractor used to perform physical tests (bend tests, etc).		
14.	Review radiographs, film and interpretation sheets	QW-302.2, QW-191	
15.	Prepare and certify Welder/Welding Operator Performance Qualification Record form.		
16.	Prepare and Forward Welder Qualification Record To TSASK.		

a) BRENT GEDAK WELDING LTD is the organization that conducted the employee's performance qualification test on the Welder or Welding Operator who is continuously employed by BRENT GEDAK WELDING LTD

d) Based on the records maintained in the Continuity Log, the Welding Examiner appointed by BRENT GEDAK WELDING LTD makes entries on the employee's Welder Qualification Record to document the confirmation of continuity with respect to the process(es) represented on the Welder Performance Qualification Licence.

¹ Additional visual examination requirements are specified by ASME Section VIII, Division 1.

* Hold point. Welder may not continue without authorization from Weld Examiner.

EXHIBIT T- REPORT OF PRESSURE WELDER'S QUALIFICATION TEST

BRENT GEDAK WELDING LTD

Personal Information:

Welder's Name: _____

Welder's Address: _____

Employer's Name: _____

Employer's Address: _____

Test Material Information:

Test Material: _____ Spec. No.: _____

Thickness: _____ Electrodes: _____

Procedure: _____ Size: _____

Position:

Flat - 1G Horizontal - 2G Vertical - 3G Overhead - 4G

Vertical & Horizontal Axis (Pipe) - 2G-5G Angular Axis 45° - 6G

Type of Test:

Shielded Metal Arc Welding Submerged Arc Flux A.W.S. Rating

Gas Tungsten Arc

Gas Metal Arc

Solid Wire with Gas Shield

Flux Cored Wire with Gas Shield

Flux Cored Wire

Shielding Gas:

Helium Argon Co2 or Combination

Type of Weld:

Single Butt Weld Double Butt Weld Fillet Weld Backing Strip

Method of Testing:

Face and Root Bend Side Bend X-Ray

Test Results:

PASSED

FAILED

Inspector's Remarks:

Cracks Gas Inclusion Slag Inclusion Undercut Marks

Lack Penetration

Welder Name: _____ Signature: _____

Process(es): _____ Material (P. No.): _____

Filler Metal Group (F.No.): _____ Min. Pipe Diameter: _____mm

Max. Deposited Weld Metal Th. _____ mm Position(s) Qualified: _____

Backing Req'd: Yes/ No Yes/ No Uphand / Downhand

Symbol: _____

RESTRICTIONS: _____

INSPECTOR: _____

Test Date: _____ Expiry Date: _____

Exhibit U – MATERIAL SUBSTITUTION REPORT

BRENT GEDAK WELDING LTD

Material Substitution Report

Location: _____ Date: _____

Quality Program # _____ Job Reference: _____

Description of Item/Equipment: _____

Description of parent material: _____

Proposed material change: _____

Reason for material change: _____

Acceptance Signatures

Owner's Representative: _____ Date: _____

QC Manager: _____ Date: _____

Authorized Inspector: _____ Date: _____

Resolution or Rework Criteria:

_____ Date: _____

Exhibit V – CONTRACT REVIEW

BRENT GEDAK WELDING LTD

Job Number: _____ Date: _____

Owner Company: _____

Location: _____

Description of job: _____

RESPONSIBLE FOR QUALITY CONTROL FUNCTIONS	OWNER	CONTRACTOR
Materials Receiving Inspection		
Materials		
Welder Supervision		
Welders Records		
Site Control of NDE		
Witness of Pressure Tests		
Preparing Quality Control Records		
Heat Treatment		
Design Submissions		
<u>Drawings</u>		
<u>As Built</u>		

Under TSASK Design and Construction Regulations, any Owner/Subcontractor who assumes responsibility for any quality control function must have their own Authorized Quality Control Program for performing these functions.

Code of construction: ASME B31.1 _____ B31.3 _____ Fluid service category. _____

Other: _____ CSA Z662 Fabrication: _____

Owner's Representative _____

Date Contracted: _____

QC Manager _____

Date _____

Exhibit W – PRESSURE PIPING EXAMINATION GUIDE

BRENT GEDAK WELDING LTD

Job No.: _____ Line Number: _____

Drawing No.: _____

Description: _____

	Q.C. Insp. √
EXAMINATION PRIOR TO PRESSURE TEST	
1. Pipe Material: Correct schedule and specification match approved for construction drawing.	
2. Flanges: Correct ratings, schedule and material specification match approved for construction drawing.	
3. Fittings: tee's, return bends, reducers, couplings, weld-o-lets, etc. Correct Schedule and Material Specification and match approved for construction drawing.	
4. Valves: Installed correctly, flow directions, accesses, rising stems free from obstructions, clearance for removal adequate.	
5. Bolts, Studs, Nuts: Correct material and length. Studs at least flush with heads (maximum thread exposure beyond nut should be 2 threads).	
6. Gaskets: Correct material, type, size etc.	
7. All welding satisfactory and traceable to Welders Symbol.	
8. Seal Welding Complete. Threads Covered.	
9. All attachment welds satisfactory.	
10. All NDE and Heat Treatment Complete as specified on approved for construction drawings. Records filed.	
11. Guide anchors and shoes required installed correctly. (High temp. lines).	
12. Lines supports adequate. Supports to be checked against drawings.	
13. Spring Hangers – Correct type and installation.	
14. Deficiencies recorded.	
15.	
16.	
17.	
18.	
QCI Signature and Date:	

Exhibit X – NDE INSTRUCTION SHEET

BRENT GEDAK WELDING LTD

Date: _____ Customer: _____ Location: _____
Invoice: _____ AFE: _____
BGW Ltd. Contact: _____ Job Number: _____

Deliver Report and Film To: _____

Inspection Method:

Radiography: _____ Ultrasonic: _____ Magnetic Particle: _____
Liquid Penetrant: _____ Hardness Testing: _____

Minimum Technician Qualification

CGSB Level II _____ ASNT Level II _____

Acceptance Criteria:

ASME B31.3 _____ (Year) ASME B31.1 _____ (Year)
ASME B31.3 Service Category _____ (Normal, Cat. D, Cat. M, High Pressure, Severe Cyclic)

Customer Specification: _____
Maximum Allowable Hardness: _____

Joints to be tested (Attach NDE location drawing showing joints to be tested, welder names and any other information required to be on the test reports)

Quantity	Identification	Size and Schedule	Test Method

Additional Instructions:

NOTE: Radiographic examination to comply with ASME Section V Article 2.
Ultrasonic examination to comply with ASME Section V Article 4
Liquid Penetrant examination to comply with ASME Section V Article 6
Magnetic Particle examination to comply with ASME Section V Article 7
Hardness testing to comply with written procedure _____