

GlobalFlow



Intelligent Production Solutions

Equipment Data

Certificate of Authorization Permit

Quality Management System

Expiry Date: **March 2, 2015**

Reg. No.: **AQP-1464(S)**

This is to certify that:

GLOBAL FLOW INC.
7013 OLD TRANSCANADA HIGHWAY
REDCLIFF, ALBERTA

having complied with the provisions of the SAFETY CODES ACT, is hereby authorized to:

Construct, Repair/Alter ASME Section VIII-1 Pressure Vessels

Construct Miniature Pressure Vessels in accordance with CSA B51

Manufacture, Repair/Alter Category 'A', 'E' & 'H' Fittings in accordance with CSA B51

at the above SHOP address.

Construct, Repair/Alter ASME B31.1 Power Piping and ASME B31.3 Process Piping

Construct, Repair/Alter ASME B31.3 Indirect Fired Heater Coils

at the SHOP and FIELD sites controlled from the above address.

As a condition of this permit, the holder is required to participate in interim audits by a safety codes officer to verify that the quality management system is being maintained in a manner acceptable to a safety codes officer.

Dated at Edmonton, this 24th day of February, 2012



Chief Inspector and Administrator

Certificate No.: 8350



INSPECTION GROUP INC.

PennWest Exploration

2836 Ellwood Dr., Edmonton, AB, Canada, T6X 0A9, Phone: (780) 450-8883 Fax: (780) 450-8884, projects@mtlinspection.com

INSPECTION RELEASE REPORT

MTL Job No. 2363 Release No. 011
PO# PWP-12-027 AFE No. A11100018
Project Waskada Satellite Packages Inventory Location / LSD 16-30-001-25W1
Client Project Engineer Mike Falicinski Phone 403-539-5990 / 403-554-4445
Vendor Globalflow Vendor Job No. 12-052
Vendor Primary Contact Paul Carolan Phone 403-504-0911 paul.carolan@globalflowinc.com
Equipment (20) Separator Packages Tag No.
Carrier Outlaw Trucking Trailer No. No Number
Packing Slip No. 12-052 Waybill No.

Table with 6 columns: Rev #, Inspection, Shipping, Details, Date, Inspector, Vendor. Row 0: (1) 10 Well Test Separator Package, March 28-13.

Description of Material or Equipment

- (1) 10 Well Test Separator Package

Table with 4 columns: Description, Yes, No, N/A. Rows include Shop Release conditions for quality control, documentation, and packaging.

Deficiency Items if Applicable

Attached N/A Comments: ** GENERAL PAINT QUALITY POOR**

Inspector: Ryan Leisen, Signature, Date: March 28, 2013, Phone: 403-652-6651, E-Mail: incentiveinspection@gmail.com
Vendor Quality Representative: Kim Insko, Signature, Date: March 28, 2013, Phone: 403-504-0911, E-Mail: Kim.insko@globalflowinc.com

ADDITIONAL NOTES

Any omission or failure on part of the inspector to disapprove or reject any work or materials shall not be construed as acceptance of any defective work or materials.

D=Document Review, M=Monitor, W=Witness, H=Hold Point

| Step # | Process/ Operation Description | Characteristic | Applicable Procedure | Acceptance Criteria | Verifying documents/ Reference | Freq | Notes | Vendor Inspection Performed by | Customer Inspection Signoff | Comments | Supplier Rep | GF Rep | Customer Rep | |
|--------|---------------------------------------|------------------------|----------------------|---------------------|--------------------------------|------|--|--------------------------------|-----------------------------|----------|--------------|--------|--------------|---|
| 3 | Skid Assembly-Mechanical | P&ID Compliance | | | 12-052-P&ID 1&2 | 100% | PennWest Purchase Order Approved Drawing | W | | | | | W | |
| | | Flange Connections | N/A | ASME B31.3 | 12-052-LAYOUT 1-4 | 100% | Approved Drawing | W | | | W | | | |
| | | Dimensional Checks | | GlobalFlow Standard | 12-052-LAYOUT 1-4 | | PennWest Purchase Order Approved Drawing | W | | | | | | |
| | | Building | | GlobalFlow Standard | 12-052-BUILDING | 100% | PennWest Purchase Order Approved Drawing | W | | | | | | |
| | | | | | | | | | | | | | | |
| 4 | Skid Assembly-Instrument & Electrical | Junction Boxes | GlobalFlow Procedure | N/A | | | | W | | | | | M | |
| | | Components | Supplier Procedure | | 12-052-P&ID 1&2 | 100% | PennWest Purchase Order Approved Drawing | W | | | | | M | |
| | | Wire | GlobalFlow Procedure | | | | | | W | | | | | M |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 5 | Functional Testing | Component Testing | GlobalFlow Procedure | GlobalFlow Standard | 12-052-P&ID 1&2 | 100% | | W | | | | | W | |
| | | System Leak Test | GlobalFlow Procedure | GlobalFlow Standard | ASME B31.3 | 100% | Assembled Hydro | W | | | | | | W |
| | | Fuel Gas Pressure Test | GlobalFlow Procedure | N/A | | | | | | W | | | | |

Global Flow Inc.

CONTRACT REVIEW

Job Number: 12-052

Date: March 23, 2012

Owner Company: PennWest Exploration

Description of Job: 3" Inlet (10-Wells)/4" Header
24" x 60" x 720psi AB Sour Test Separator Package
12-052-1

| RESPONSIBLE FOR QUALITY SYSTEM FUNCTIONS | OWNER | GLOBAL FLOW |
|---|-------|-------------|
| Materials Receiving Inspection, Identification and Traceability | | X |
| Measuring and Test Equipment | | X |
| Witness of Pressure Tests | X | X |
| Document Control and the Preparing and Retention of Quality Control Records | | X |

The Alberta Design, Construction and Installation of Boilers and Pressure Vessels Regulations require the owner to have an authorized Quality System Program if they assume any of the Quality System functions listed above. A piping system over 0.5 cubic metres in capacity must be registered with ABSA.


| RESPONSIBLE FOR SUPPLY | OWNER | GLOBAL FLOW |
|-------------------------------|--------------------|-------------|
| Materials | | X |
| Design Registration with ABSA | Less than 0.5 cu m | |
| Drawing & Specifications | | X |

Owner's Representative: MTL Inspection Services

Date Contracted: March 23, 2012



QC Manager / QC Inspector



Date


Global Flow Inc.

PRESSURE PIPING EXAMINATION CHECKLIST

JOB NUMBER:

| NO. | FUNCTION | Q.C. MANUAL REFERENCE | SIGNATURE OR INITIAL AND DATE | |
|-----|--|-----------------------|-------------------------------|-------------------|
| | | | Q.C. INSPECTOR | OWNER'S INSPECTOR |
| 1 | DRAWINGS: ABSA registration over 0.5 Cu. M. Approved by Owner. Approved for Construction (signed & dated). | 21.3,21.4 | | |
| 2 | ABSA Safety Codes Officer and Owner's Inspector notified. | 21.15, 21.21 | | |
| 3 | Registered Welding Procedure Specifications, Q.C. Manual and Forms available at site, Job File started. | 21.20 | 03/23/12 | |
| 4 | Welders qualified for WPS's and have valid Performance Qualification cards. Welders Log completed. WPS reviewed with Welders. | 11.4, 21.18 | 03/23/12 | |
| 5 | Material checked against P.O., drawings, and specifications. Identification confirmed. Colour coding applied. | 21.12, 21.14 | 09/30/12 | |
| 6 | Sample of each Welder's work examined, including root spacing, alignment, cleaning, joint preparation, preheat and electrode control. | 11.5, 21.21 | 10/05/12 | |
| 7 | Nondestructive Examination completed. Reports and radiographs reviewed, signed by Level II or III, Radiograph I.D. detailed on drawings. | 13.3 | 02/04/13 | |
| 8 | Visual Examination of all completed welds. Welders I.D. stamped and recorded on drawings. | 11.5, 21.21 | 10/05/12 | |
| 9 | Heat Treatment verified and recorded on drawings. | 14.6 | N/A. | |
| 10 | Each system checked against specifications and drawings before test, using Exhibit 21.3 and Exhibit 21.4. | 21.21, 21.23 | 10/30/12 | |
| 11 | All deficiencies recorded and signed off by Q.C.I. and Owner's Inspector before test. | | 10/30/12 | |
| 12 | Pressure Test checked. Gauge calibration verified, gauge #'s recorded. | 21.23 | 10/30/12 | |
| 13 | System checked after test. Deficiencies recorded and corrected. (Exhibit 21.4) | 21.23 | 10/30/12 | |
| 14 | Construction data reports (AB-83) prepared and signed by QCI and Owner's Inspector. | 21.21(g) | 11/20/12 | |
| 15 | Declaration form (AB-81) submitted to ABSA | 21.20(c) | | |
| 16 | As built drawings accepted by Owner. | 21.21(h) | | |

Global Flow Inc.

| PRESSURE PIPING EXAMINATION GUIDE | |
|---|------------------------|
| EXAMINATION PRIOR TO PRESSURE TEST (PUNCHING) | Q.C. INSP. |
| 1. Pipe Material; schedule and specification correct. | X |
| 2. Flanges; ratings, schedule and material specification correct. | X |
| 3. Fittings; tees, return bends, reducers, couplings and weld-o-lets etc. Correct schedule and material specification. | X |
| 4. Valves; identification – Manufacturer's name tag, etc., correct. | X |
| 5. Valves; installed correctly, flow direction, accesses, rising stems free from obstructions, clearance for removal adequate. | X |
| 6. Lubrication fittings, drains, etc., installed as required. | X |
| 7. Bolts, Studs, Nuts; length and material correct. Studs at least flush with heads (max. Thread exposure beyond nut should be about 2 threads) | X |
| 8. Gaskets are correct type, material, size, etc. | X |
| 9. All welding satisfactory and traceable to Welder's symbol. | X |
| 10. Seal welding complete - all threads covered. | |
| 11. All attachment welds satisfactory. | X |
| 12. All N.D.E., heat treatment complete, records filed. | X |
| 13. Guide anchors and shoes required installed correctly. (High temp. lines) | |
| 14. Line supports adequate – supports to be checked against drawings. | X |
| 15. Spring hangers - correct type, correct installation. | |
| 16. Lines have adequate allowance for expansion. | X |
| 17. Bellows type expansion joints - correct type, pressure rating and correct installation. | |
| 18. Required cold spring applied. | |
| 19. Orifice runs have specified straight length of pipe - located correctly etc. | |
| 20. All deficiencies recorded on Punch List. | X |
| Quality Control Inspector Signature:  | Date: <i>Oct-30/12</i> |

Global Flow Inc.

March 20, 2006

Threaded Piping Procedure: GF-1
Revision: 1
Code: ASME B31.3
Fluid Service Categories: Category D and Normal Fluid Services
Maximum Service Temperature: 260°C

This threaded piping procedure is to be followed for all threaded piping assembled by Global Flow. Where the client has specified additional or alternative requirements, these requirements will be specified on the "issued for construction" drawings.

Pipe Threads:

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.

Pipe Sealant:

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 prior to make-up.

Make-Up:

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).

Male & Female Threads:

Components containing female threads (couplings, tees, bushings, elbows, etc.) shall be purchased whenever possible. In the event that Global Flow drills and taps threads, 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 Global Flow using dies in good condition.

Because of the taper, a pipe can only screw into a fitting a certain distance before it jams, unlike threading a nut on a bolt. The standard specifies this distance, 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 (turns) to make by hand and how many with a wrench (provided in the two right columns in the table below).

The table shows the distances and number of turns called for in the standard. A tolerance of plus or minus one turn is allowed. All dimensions are in inches except for columns specifying number of threads.

**TABLE 1
Pipe Thread Assembly Dimensional Requirements**

| Thread Size Nominal Diameter DN | 1/8 6 | 1/4 8 | 3/8 10 | 1/2 15 | 3/4 20 | 1 25 | 1-1/4 32 | 1-1/2 40 | 2 50 | 2-1-2 65 | 3 80 | 4 100 | 5 125 | 6 150 |
|--|------------|------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| Pipe Threads | | | | | | | | | | | | | | |
| Gauge Diameter (mm) (thread external dia. at the gauge plane) | 9.728 | 13.15 7 | 16.66 2 | 20.95 5 | 26.44 1 | 33.24 9 | 41.91 0 | 47.80 3 | 59.61 4 | 75.18 4 | 87.88 4 | 113.03 0 | 138.43 0 | 163.83 0 |
| Pitch | 0.907 | 1.337 | 1.337 | 1.814 | 1.814 | 2.309 | 2.309 | 2.309 | 2.309 | 2.309 | 2.309 | 2.309 | 2.309 | 2.309 |
| Number of Threads/Inch | 28 | 19 | 19 | 14 | 14 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| Gauge Length (turns) (External Thread (mm)) | 4-3/8 4 | 4-1/2 6 | 4-3/4 6.4 | 4-1/2 8.2 | 5-1/4 9.5 | 4-1/2 10.4 | 5-1/2 12.7 | 5-1/2 12.7 | 6-7/8 15.9 | 7-9/16 17.5 | 15/16 20.6 | 11 25.4 | 12-3/8 28.6 | 12-3/8 28.6 |
| Tolerance for Gauge Length (mm) | ±0.9 | ±1.3 | ±1.3 | ±1.8 | ±1.8 | ±2.3 | ±2.3 | ±2.3 | ±2.3 | ±3.5 | ±3.5 | ±3.5 | ±3.5 | ±3.5 |
| Fitting Allowance | 2-3/4 | 2-3/4 | 2-3/4 | 2-3/4 | 2-3/4 | 2-3/4 | 2-3/4 | 2-3/4 | 3-1/4 | 4 | 4 | 4-1/2 | 5 | 5 |
| Useful Thread | 7-1/8 | 7-1/4 | 7-1/2 | 7-1/4 | 8 | 7-1/4 | 8-1/4 | 8-1/4 | 10-1/8 | 9/16 | 15/16 | 15-1/2 | 17-3/8 | 17-3/8 |
| Wrenching Allowance | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 1-1/2 | 2 | 2-1/2 | 2-1/2 | 3 | 3-1/2 | 3-1/2 |
| Threaded Pipes | | | | | | | | | | | | | | |
| Outside Diameter (mm) | 10.20 0 | 13.50 0 | 17.20 0 | 21.30 0 | 26.90 0 | 33.70 0 | 42.40 0 | 48.30 0 | 60.30 0 | 76.10 0 | 88.90 0 | 114.30 0 | 139.70 0 | 165.10 0 |
| Surface Area (m2/m) | 0.032 | 0.042 | 0.054 | 0.067 | 0.085 | 0.106 | 0.133 | 0.152 | 0.189 | 0.239 | 0.279 | 0.359 | 0.439 | 0.519 |
| Medium Duty | | | | | | | | | | | | | | |
| Wall Thickness (mm) | 2.000 | 2.300 | 2.300 12.60 | 2.600 16.10 | 2.600 21.70 | 3.200 27.30 | 3.200 36.00 | 3.200 41.90 | 3.600 53.10 | 3.600 68.90 | 4.000 80.90 | 4.500 105.30 | 5.000 129.70 | 5.000 155.10 |
| Inside Diameter (mm) | 6.200 | 8.900 | 0 | 0 | 0 | 0 | 0 | 10.18 | 13.79 | 22.15 | 37.28 | 51.40 | 132.12 | 188.94 |
| Bore Area (cm2) | 0.300 | 0.620 | 1.250 | 2.040 | 3.700 | 5.850 | 0 | 0 | 0 | 0 | 0 | 87.090 | 0 | 0 |
| Capacity (l/m) | 0.030 | 0.062 | 0.125 | 0.204 | 0.370 | 0.585 | 1.018 | 1.379 | 2.215 | 3.728 | 5.140 | 8.710 | 13.212 | 18.894 |
| Pipe Mass, Plain (kg/) End Black Pipe | 0.400 | 0.640 | 0.840 | 1.210 | 1.560 | 2.410 | 3.100 | 3.560 | 5.030 | 6.420 | 8.360 | 12.200 | 16.600 | 19.800 |
| Heavy Duty | | | | | | | | | | | | | | |
| Wall Thickness (mm) | 2.600 | 2.900 | 2.900 11.40 | 3.200 14.90 | 3.200 20.40 | 4.000 25.70 | 4.000 34.40 | 4.000 40.30 | 4.500 51.30 | 4.500 67.10 | 5.000 78.90 | 5.400 103.50 | 5.400 128.90 | 5.400 154.30 |
| Inside Diameter (mm) | 5.000 | 7.700 | 0 | 0 | 0 | 0 | 0 | 12.76 | 20.66 | 35.36 | 48.89 | 0 | 130.59 | 186.99 |
| Bore Area (cm2) | 0.190 | 0.470 | 1.020 | 1.740 | 3.270 | 5.190 | 9.290 | 0 | 0 | 0 | 0 | 84.130 | 0 | 0 |
| Capacity (l/m) | 0.020 | 0.047 | 0.102 | 0.174 | 0.327 | 0.519 | 0.929 | 1.276 | 2.066 | 3.536 | 4.889 | 8.413 | 13.050 | 18.699 |
| Pipe Mass, Plain (kg/) End Black Pipe | 0.490 | 0.770 | 1.020 | 1.440 | 1.870 | 2.930 | 3.790 | 4.370 | 6.190 | 7.930 | 10.30 0 | 14.500 | 17.900 | 21.300 |

General Allowance for Threading

| Pipe Size (NPS) | Allowance |
|----------------------------|------------------|
| 1/2" (15mm) to 3/4" (20mm) | 0.571" (1.45mm) |
| 1" (25mm) to 2" (50mm) | 0.0696" (1.77mm) |
| 2-1/2" (65mm) and Larger | 0.1000" (2.54mm) |

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 |

WELDING PROCEDURE SPECIFICATION NO.: GF-1N (Rev. 1)

WELDING PROCEDURE QUALIFICATION RECORD NO.(S): GF-1N-1, GF-1N-2,
GF-3N-1, GF-1N-3, GF-1N-4

QUALIFIED FOR

Base Metal (Typical): P1 Groups 1 & 2 to P1 Groups 1 & 2
(SA 333 Gr. 6, SA 350 Gr. LF2, SA 420 WPL6, SA 516 Gr. 70, etc.)
Process(es): SMAW Weld Types: GROOVE & FILLET
Position: ALL POSITIONS Diameter: ALL DIAMETERS
Filler Metal: E6010, E7018-1

BASE METAL CONDITIONS & GROOVE THICKNESS RANGE QUALIFIED:

NOTCH TOUGHNESS APPLICATIONS TO -46°C AS WELDED

BASE METAL THICKNESS RANGE

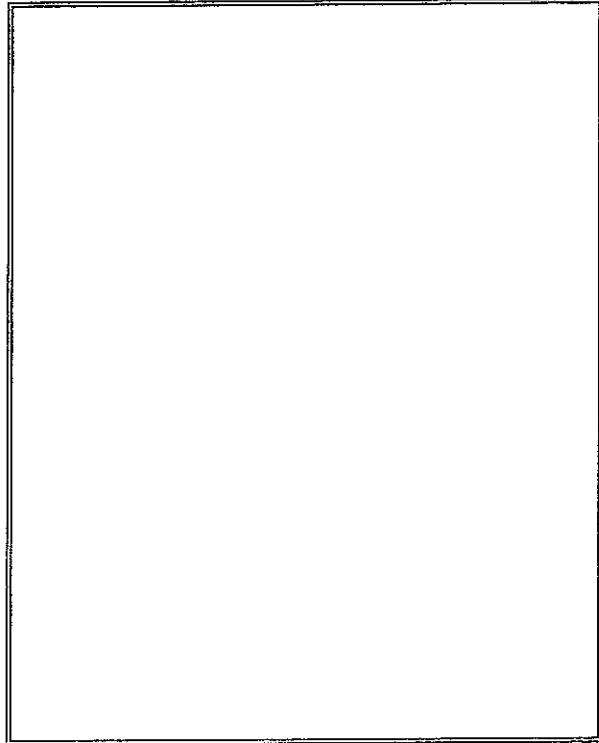
THINNER MATERIAL 3.2 to 44.4 mm (0.125 to 1.75 in.) inclusive
THICKER MATERIAL 3.2 mm (0.125 in.) to unlimited thickness

COMBINED DEPOSITED WELD METAL THICKNESS

ASME B31.1 19.1 mm (0.750 in.) maximum
ASME B31.3 19.1 mm (0.750 in.) maximum
ASME SECT. VIII, DIV 1 38.1 mm (1.50 in.) maximum
CSA Z662 FABRICATION 31.8 mm (1.25 in.) maximum

| | |
|------------------------------------|--|
| ALBERTA BOILERS SAFETY ASSOCIATION | |
| PROVINCE OF ALBERTA | |
| SAFETY CODES ACT | |
| WELDING PROCEDURE | |
| Reg. No. WP | <u>2843.2</u> |
| Spec No. | <u>GF-1N (REV 1)</u> |
| Weld Process | <u>SMAW</u> |
| Matl Gr P No. | <u>1 Gr H2</u> to P No. <u>1 Gr H2</u> |
| Elec Gr F No. | <u>3+4</u> A No. <u>1</u> |
| Th. Qual. For | <u>44 mm (THIN) PWHT</u> <u>NO</u> |
| | <u>UNLIMITED (THICKER)</u> |
| Min. Th. Qual. | <u>3.2 mm, CVN - 46°C</u> |
| Yr. 08 Mo. 03 Day 20 | Signed <u>[Signature]</u> |
| | R. ROSEBERG, P. ENG. |
| | WELDING SPECIALIST |

PROVINCIAL REGISTRATION



QW-482 WELDING PROCEDURE SPECIFICATION (WPS)

Global Flow

Welding Procedure Specification No. GF-1N (Rev. 1) Date February 13, 2008
Revision(s) Rev. 1 (Non-Essential)-add PQR GF-1N-3, GF-1N-4 for Vickers Hardness Test.
Supporting PQR No. (s) GF-1N-1, GF-1N-2, GF-3N-1, GF-1N-3, GF-1N-4
Welding Process(es) SMAW Type(s) Manual

JOINTS (QW-402)

Joint Design All ASME groove & fillet, reference construction drawing for joint details.
Where joint details are not specified, see figures 1 to 15 attached
Root Opening As per attached typical groove designs, see figures 1 to 15 attached
Backing With or without Retainers Not required

BASE METALS (QW-403)

P-Number P1 Groups 1 & 2 To P-Number P1 Groups 1 & 2
Thickness Range: Groove See cover page for thickness qualified by governing code
Fillet All base metal thicknesses
Base Metal Thinner Mat'l.: 3.2 to 44.4 mm (0.125 to 1.75 in.) inclusive
Thicker Mat'l.: 3.2 mm (0.125 in.) to unlimited thickness
Pipe Diameter Ranges: Groove All diameters
Fillet All diameters
Deposited Weld Metal (Per Pass) F3: 4.78 mm (0.188 in.) maximum
F4: 12.7 mm (0.500 in.) maximum
Other Carbon equivalent: 0.45 maximum for CSA Z662 sour service

FILLER METALS (QW-404)

Specification No. (SFA) SFA 5.1 SFA 5.1
AWS No. (Class) E6010 E7018-1
F-No F3 F4
A-No A1 A1
Size 3/32 to 5/32 in. inclusive 3/32 to 1/4 in. inclusive
Deposited Weld Metal Thickness Range:
Groove 4.78 mm (0.188 in.) max.* 38.1 mm (1.50 in.) max.*
Fillet All fillet sizes All fillet sizes
Other *Combined deposited weld metal thickness shall not exceed 19.1 mm (0.750 in.) for
ASME B31.1 & B31.3, 38.1 mm (1.50 in.) for ASME Section VIII, Div. 1 and 31.8 mm
(1.25) in. for CSA Z662.

POSITION (QW-405)

Position of Groove All positions Position of Fillet All positions
Weld Progression F3: Vertical up or down F4: Vertical up

PREHEAT (QW-406)

Preheat Temperature (Minimum) See attached preheat sheet
Interpass Temperature (Maximum) 232°C (450°F)
Preheat Maintenance See attached preheat sheet prior to welding. Preheat maintenance is
not required if welding is interrupted or after the completion of welding
unless required by the code of construction.

WELDING PROCEDURE SPECIFICATION NO.: GF-3N (Rev. 1)

WELDING PROCEDURE QUALIFICATION RECORD NO. (S): GF-3N-1, GF-3N-2,
GF-1N-2, GF-3N-3, GF-3N-4

QUALIFIED FOR

Base Metal (Typical): P1 Groups 1 & 2 to P1 Groups 1 & 2
(SA 333 Gr. 6, SA 350 Gr. LF2, SA 420 WPL6, SA 516 Gr. 70, etc.)
Process(es): GMAW / SMAW Weld Types: GROOVE & FILLET
Position: ALL POSITIONS Diameter: ALL DIAMETERS
Filler Metal: GMAW: ER70S-2 SMAW: E7018-1

BASE METAL CONDITIONS & GROOVE THICKNESS RANGE QUALIFIED:

NOTCH TOUGHNESS APPLICATIONS TO -46°C AS WELDED

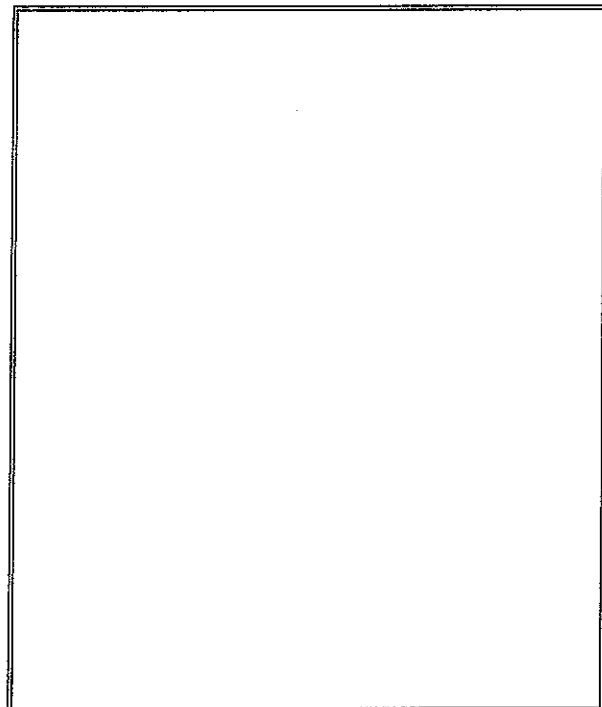
BASE METAL THICKNESS RANGE

THINNER MATERIAL 3.0 to 44.4 mm (0.118 to 1.75 in.) inclusive
THICKER MATERIAL 3.0 mm (0.118 in.) to unlimited thickness

COMBINED DEPOSITED WELD METAL THICKNESS

ASME B31 1 19.1 mm (0.750 in.) maximum
ASME B31.3 19.1 mm (0.750 in.) maximum
ASME SECT. VIII, DIV. 1 38.1 mm (1.50 in.) maximum
CSA Z662 FABRICATION 31.8 mm (1.25 in.) maximum

| | |
|---|---|
| ALBERTA BOILERS SAFETY ASSOCIATION | |
| PROVINCE OF ALBERTA | |
| SAFETY CODES ACT | |
| WELDING PROCEDURE | |
| Reg. No. WP | <u>2843.2</u> |
| Spec No. | <u>GF-3N (REV. 1)</u> |
| Weld Process | <u>GMAW / SMAW</u> |
| Matl. Gr. P No. | <u>1 Gr. 12 to P No. 1 Gr. 12</u> |
| Elec. Gr. F No. | <u>6+4</u> A No. <u>1</u> |
| Th Qual. For. | <u>3 to 44 mm PWHT. NO</u> <u>CVN-46°C</u> |
| Yr. & Mo. | <u>03</u> Day <u>20</u> Signed <u>[Signature]</u> |
| R. ROSEBERG, P.ENG. WELDING SPECIALIST | |
| PROVINCIAL REGISTRATION | |



QW-482 WELDING PROCEDURE SPECIFICATION (WPS)

Global Flow

Welding Procedure Specification No GF-3N (Rev. 1) Date February 13, 2008
Revision(s) Rev. 1 (Non-Essential)-add PQR GF-3N-3, GF-3N-4 for Vickers Hardness Test.
Supporting PQR No. (s) GF-3N-1, GF-3N-2, GF-1N-2, GF-3N-3, GF-3N-4
Welding Process(es) GMAW / SMAW Type(s) Semi-auto / Manual

JOINTS (QW-402)

Joint Design All ASME groove & fillet, reference construction drawing for joint details.
Where joint details are not specified, see figures 1 to 15 attached.
Root Opening As per attached typical groove designs, see figures 1 to 15 attached.
Backing With or without Retainers Not required

BASE METALS (QW-403)

P-Number P1 Groups 1 & 2 To P-Number P1 Groups 1 & 2
Thickness Range: Groove See cover page for thickness qualified by governing code.
Fillet All base metal thicknesses
Base Metal Thinner Mat'l.: 3.0 to 44.4 mm (0.118 to 1.75 in.) inclusive
Thicker Mat'l.: 3.0 mm (0.118 in.) to unlimited thickness
Pipe Diameter Ranges: Groove All diameters
Fillet All diameters
Deposited Weld Metal (Per Pass) GMAW: 2.79 mm (0.110 in.) maximum
SMAW: 12.7 mm (0.500 in.) maximum
Other Carbon equivalent: 0.45 maximum for CSA Z662 sour service

FILLER METALS (QW-404)

| | GMAW | SMAW |
|---------------------------------------|---|----------------------------------|
| Specification No. (SFA) | <u>SFA 5.18</u> | <u>SFA 5.1</u> |
| AWS No. (Class) | <u>ER70S-2</u> | <u>E7018-1</u> |
| F-No | <u>F6</u> | <u>F4</u> |
| A-No. | <u>A1</u> | <u>A1</u> |
| Size | <u>.030 to .045 in. inclusive</u> | <u>3/32 to 1/4 in. inclusive</u> |
| Filler Metal Product Form | <u>Solid wire</u> | <u>---</u> |
| Supplementary Fillers | <u>Without</u> | <u>---</u> |
| Deposited Weld Metal Thickness Range: | | |
| Groove | <u>2.79 mm (0.110 in.) max.*</u> | <u>38.1 mm (1.50 in.) max.*</u> |
| Fillet | <u>All fillet sizes</u> | <u>All fillet sizes</u> |
| Other | <u>*Combined deposited weld metal thickness shall not exceed 19.1 mm (0.750 in.) for ASME B31.1 & B31.3, 38.1 mm (1.50 in.) for ASME Section VIII, Div.1 and 31.8 mm (1.25) in. for CSA Z662.</u> | |

POSITION (QW-405)

| | | |
|--------------------|----------------------------|----------------------------|
| Position of Groove | <u>GMAW: All positions</u> | <u>SMAW: All positions</u> |
| Position of Fillet | <u>GMAW: All positions</u> | <u>SMAW: All positions</u> |
| Weld Progression | <u>GMAW: Vertical down</u> | <u>SMAW: Vertical up</u> |

PREHEAT (QW-406)

Preheat Temperature (Minimum) See attached preheat sheet
Interpass Temperature (Maximum) 232°C (450°F)
Preheat Maintenance See attached preheat sheet prior to welding. Preheat maintenance is not required if welding is interrupted or after the completion of welding unless required by the code of construction.

WELDERS LOG

| WELDERS NAME/FILE NUMBER | SYMBOL | PROCESS/METHOD | BASE METALS | FILLER METAL "F" NUMBERS(S) | BACKING | MINIMUM OD (IN) | DEPOSIT THICKNESS (IN) | POSITIONS | UPHILL/DOWN HILL | CORED/SOLID | INSERT | BACKING GAS | GTAW CURRENT | GMAW X-FER | EXPIRY DATE P.O. DC. | |
|-----------------------------|--------|-------------------|-------------|-----------------------------|----------------------|-----------------|------------------------|----------------------------------|------------------|-------------|--------|-------------|--------------|------------|----------------------|-----------|
| Craig Finke W22206 | F | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 17-May-14 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |
| Bryden Crane W26945 | C | GMAW/SMAW | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill | N/A | N/A | Optional | N/A | N/A | N/A | 13-Jun-13 |
| | | SMAW | P-1 | F3/F4 | With/Without | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 13-Jun-13 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |
| Josh Wells W26980 | W | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 11-Jan-14 |
| | | GMAW(SMAW) | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill/N/A | N/A | N/A | Optional | N/A | N/A | N/A | 24-Aug-12 |
| | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 24-Aug-12 |
| Brett Leismeister W21122 | B | SMAW | P1 | F6/F4 | With or Without/With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 24-Aug-12 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 11-Jan-14 |
| | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 15-Dec-13 |
| Chris Maier W24283 | A | GMAW/SMAW | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill/N/A | N/A | N/A | Optional | N/A | N/A | N/A | 18-Apr-13 |
| | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 13-Jun-13 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 11-Jan-14 |
| Cole Chapman MW-70737 | P | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 11-Jan-14 |
| | | Machine Operator | P1 | F6 | With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 05-Jul-13 |
| | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 15-Dec-13 |
| Mark Rutherford W16171 | Z | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 04-Jul-13 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |
| Jordan Tweten W26988 | 3 | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 25-Jul-13 |
| | | GMAW/SMAW | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill/N/A | N/A | N/A | Optional | N/A | N/A | N/A | 03-Oct-13 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |
| John Pacello W26021 | 4 | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |
| | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 04-Jul-13 |
| | | GMAW/SMAW | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill/N/A | N/A | N/A | Optional | N/A | N/A | N/A | 03-Oct-13 |
| John Pacello W26021 | 4 | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |
| | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 15-Dec-13 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 |

WELDERS LOG

| WELDERS NAME/FILE NUMBER | SYMBOL | PROCESS/METHOD | BASE METALS | FILLER METAL "F" NUMBER(S) | BACKING | MINIMUM OD (IN) | DEPOSIT THICKNESS (IN) | POSITIONS | UPHILL/DOWN HILL | CORED/SOLID | INSERT | BACKING GAS | GTAW CURRENT | GMAW X-FER | EXPIRY DATE P.Q.D.C. |
|--------------------------|--------|---------------------------------------|-------------|----------------------------|----------------------|-----------------|------------------------|----------------------------------|------------------|-------------|--------|-------------|--------------|------------|----------------------|
| Jill Timushka | T | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 17-May-14 |
| W16062 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 17-May-14 |
| Clayton Mellicke | E | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 17-May-14 |
| W17827 | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 31-Aug-12 |
| Dylan Winter MW-70736 | I | GMAW(SC)/GMAW(MC) Machine Operator | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 11-Jan-14 |
| | | | P1 | F6 | With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | 05-Jul-13 |
| Sylvain Leclair | S | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 24-Feb-14 |
| W27000 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 24-Oct-14 |
| Chris Arnal MW-70739 | N | GMAW(SC)/GMAW(MC) Machine Operator | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 24-Oct-14 |
| | | | P1 | F6 | With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | 05-May-14 |
| Iain Blair MW-70740 | R | Machine Operator | P1 | F6 | With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | 28-Jun-14 |
| Daniel Pellerin | D | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 26-Jun-14 |
| W-20311 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 26-Jun-14 |
| Curtis Vandermeulen | U | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 26-Jun-14 |
| W-21840 | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 29-Jun-14 |
| Sheldon Weber W-17556 | G | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 29-Jun-14 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 29-Jun-14 |
| Reginald Zachar | J | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/0.436 | All | Up | N/A | N/A | N/A | N/A | N/A | 27-Apr-14 |
| W-4943 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 12-Oct-14 |
| Jason May | M | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 12-Oct-14 |
| W-29260 | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/Max | All | Up | N/A | N/A | N/A | N/A | N/A | 24-Oct-14 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 24-Oct-14 |

Global Flow Inc.

HYDROSTATIC TEST REPORT

PNEUMATIC TEST REPORT

Date: *October 30/12*

Job Number: 12-052

Customer: PennWest Exploration

Description of Product: 3" Inlet (10-Wells)/4" Header 24" x 60" x 720psi AB Sour Test Separator Package

Tests Conducted By: *Kevin Merritt*

Test Pressure: 1080psi

Test Temperature: Ambient

Test Medium: Water

Holding Time at Test Pressure: 60 minutes

Results: Okay

Owner's Inspector Witnessing Test: MTL Inspection Services

Comments: Testing of Class "BS" & "BSL" Piping

Kevin Merritt

Signature of QCI

[Signature]

Signature of Owner's Inspector

Signature of ABSA Safety Codes Officer (if applicable)

HYDRO TEST REPORT

Hydro Test Pressure 1080 psig

Date Oct 30, 2012

Serial Number 12-052

Start Time 0800

Pressure Gauge #1


SR# GLF-2000-17

| | Reading | Q.C Initials | Witness Initials | Other |
|---|---------|--------------|------------------|-------|
| 1 | 1110 | DM | KM | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Pressure Gauge #2

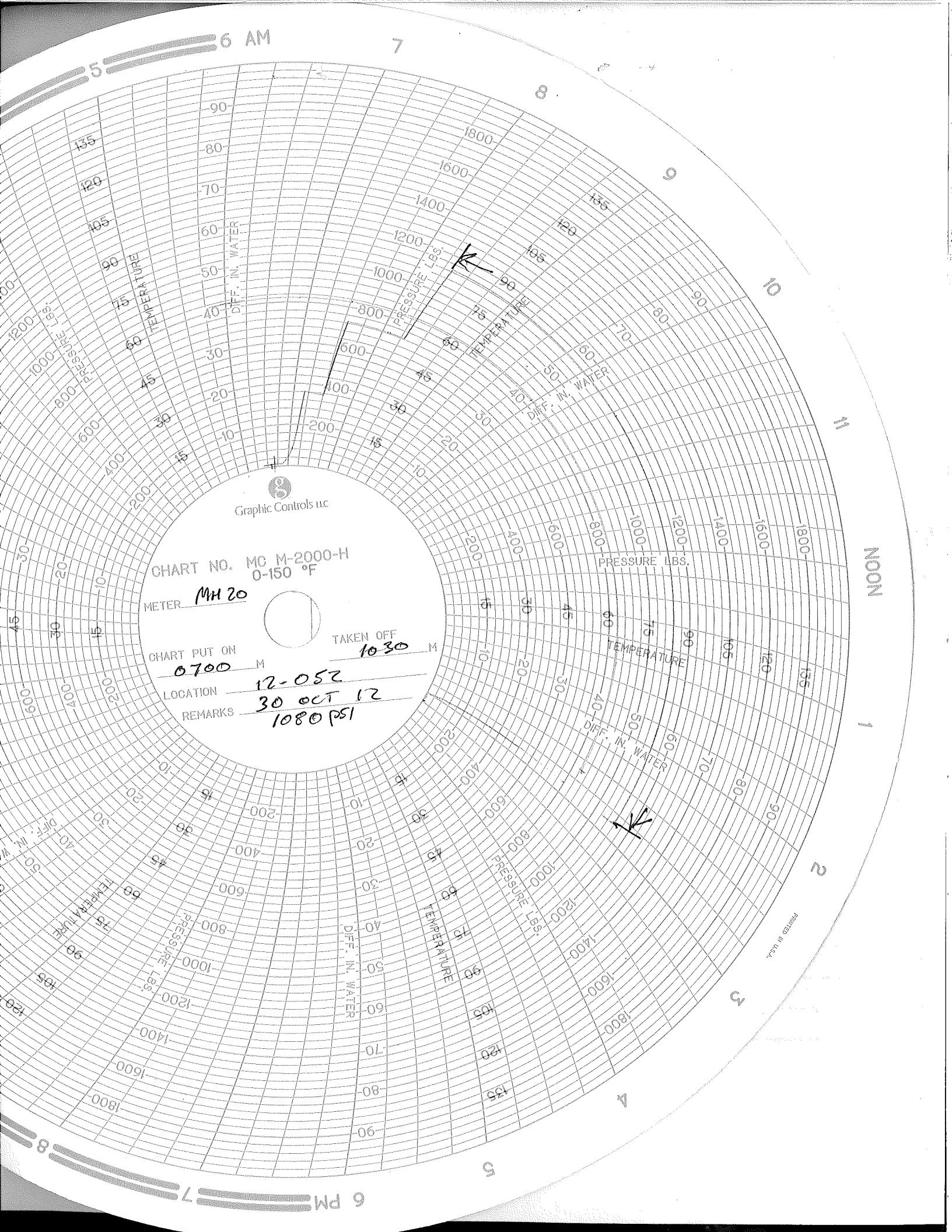
SR# GLF-2000-14

| | Reading | Q.C Initials | Witness Initials | Other |
|---|---------|--------------|------------------|-------|
| 1 | 1100 | DM | KM | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Test Passed 
signature

Time Ended 1030

Test Failed Comments: Rechecked # 20



Graphic Controls inc

CHART NO. MC M-2000-H
0-150 °F

METER MH 20

CHART PUT ON 0700 M

TAKEN OFF 1030 M

LOCATION 12-052

REMARKS 30 OCT 12
1080 PSI

NOON

PRINTED IN U.S.A.

6 AM

1

2

3

4

5

6 PM

7

8

9

10

11

12

1

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4

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7

8

9

10

11

NOON

1

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6 PM

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11

12

1

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3

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5

6

6 AM



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Wika Pressure Gauge*

IDENTIFICATION NO.: *GF-2000-17*

CALIBRATION INTERVAL: *Nearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|------------------------|-----------------------------|-------------------------|-------------------------|
| | <i>* See attached for</i> | <i>Previous Records</i> | |
| <i>Dec. 12/07</i> | <i>[Signature]</i> | <i>*</i> | <i>Dec. /08</i> |
| <i>January 12/09</i> | <i>[Signature]</i> | | <i>Jan. /10</i> |
| <i>January 5/10</i> | <i>[Signature]</i> | | <i>Jan. 5/11</i> |
| <i>JANUARY 18 2011</i> | <i>[Signature]</i> | | <i>JANUARY 18 2012</i> |
| <i>January 16/12</i> | <i>[Signature]</i> | | <i>January 16 /13</i> |
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Calibration Requirements and Instructions:



4137

CALIBRATION REPORT

Date Jan 16 2012

Scheduled P.M. Yes No

Medicine Hat, AB
Phone: (403) 529-6559
Fax: (403) 526-3249

Calgary, AB
Phone (403) 219-0488
Fax: (403) 230-0218

Claresholm, AB
Phone (403) 625-5299
Fax: (403) 625-5220

Swift Current, SK
Phone (306) 773-5555
Fax: (306) 773-5445

Lloydminster, AB
Phone (780) 875-0069
Fax: (780) 875-0677

Location Global Flow

Description of Services Pres gauge verification

Tag # GLF-2000-17

Range 0-2000Psi

Make/Model Wika

Instrument Condition good

Calibration Equipment Used Falcon digital gauge S/N 30240 0-5000Psi

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 995 | 50 | 1000 | 995 |
| 75 | 1500 | 1495 | 75 | 1500 | 1495 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments _____

Calibration Equipment Traceable
to a National Standard
DJ

Dean Fardnick

Hours

Technician



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Mika Pressure Gauge*

IDENTIFICATION NO.: *GLF-2000-14*

CALIBRATION INTERVAL: *Nearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|--------------------|--|-------------------|-------------------------|
| | <i>* see attached for previous records</i> | | |
| <i>Dec. 12/07</i> | <i>Jim Dugan</i> | <i>*</i> | <i>Dec. 108</i> |
| <i>May. 23/08</i> | <i>Jim Dugan</i> | <i>-</i> | <i>May 109.</i> |
| <i>May 5/09</i> | <i>W</i> | <i>-</i> | <i>May 5/10</i> |
| <i>April 16/10</i> | <i>W</i> | <i>-</i> | <i>April 16/11</i> |
| <i>APR. 14/11</i> | <i>CL</i> | <i>-</i> | <i>APRIL/12</i> |
| <i>May 3/12.</i> | <i>Jim</i> | <i>-</i> | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

Automation • Controls • Process Equipment

0358

www.globalflowinc.com

Toll Free: 1.866.219.7373

Scheduled P.M. Yes No

Location REDCLIFF AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEANED / VERIFIED GAGE

Tag # GLF-2000-M

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD (CONNECTION THREAD HAVE SMALL DAMAGE)

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-42372

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED GOOD ✓

Calibration Equipment Traceable to a National Standard

D1

Hours

Technician

D. EDWARDS



CALIBRATION REPORT

Automation • Controls • Process Equipment

www.globalflowinc.com

Toll Free: 1.866.219.7373

CR 1483

CUSTOMER/PRODUCER: GLOBAL FLOW INC. DATE: JULY 31, 2012

LOCATION: PROCESS EQUIPMENT REDCLIFF AB

Form with fields: TUBE & SIZE, UPSTR., DOWNSTR., ORIFICE METER, MAKE, SERIAL NO., ZERO READING, PEN ARC, INKING SYSTEM

Table with columns: DIFFERENTIAL, STATIC, ATMOS. PRESS., TEMPERATURE RECORDER. Includes rows for DWG, METER OUTPUT, and REFERENCE TEMP.

Form with fields: ORIFICE FITTING, CALIBRATION PROCEDURE & REMARKS, MAKE, TYPE, PLATE SIZE, PLATE CONDITION, TYPE CONN.

Table with columns: PARTS INSTALLED, TOTAL PARTS, TOTAL CHARGES

INSPECTOR SIGNATURE, NAME, DATE

COMPANY REP. SIGNATURE, NAME, DATE

Global Flow Inc.

HYDROSTATIC TEST REPORT

PNEUMATIC TEST REPORT

Date: *February 5/13*

Job Number: 12-052

Customer: PennWest Exploration

Description of Product: 3" Inlet (10-Wells)/4" Header 24" x 60" x 720psi AB Sour Test Separator Package

Tests Conducted By: *Lynn Schaufle*

Test Pressure: 1080psi

Test Temperature: Ambient

Test Medium: Water

Holding Time at Test Pressure: 60 minutes

Results: Okay

Owner's Inspector Witnessing Test: MTL Inspection Services

Comments: Testing of Class "BS" Revision Piping

[Signature]

Signature of QCI

[Signature]

Signature of Owner's Inspector

Signature of ABSA Safety Codes Officer (if applicable)

HYDRO TEST REPORT

HYDRO TEST MUST BE SIGNED ON TO BEGIN ONCE AT TEST PRESSURE

Hydro Test Pressure 1080 psi

Date Feb 5 2013

Serial Number 12-050, 12-055

Start Time 10:15 am

Pressure Gauge #1

SR# GLF-2000-14

| | Reading | Q.C Initials | Witness Initials | Owner | Other |
|---|---------|--------------|------------------|-------|-------|
| 1 | 1100 | AM | U | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Pressure Gauge #2

SR# GLF-2000-18

| | Reading | Q.C Initials | Witness Initials | Owner | Other |
|---|---------|--------------|------------------|-------|-------|
| 1 | 1120 | AM | U | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Test Passed Time Ended 1:00 pm
signature

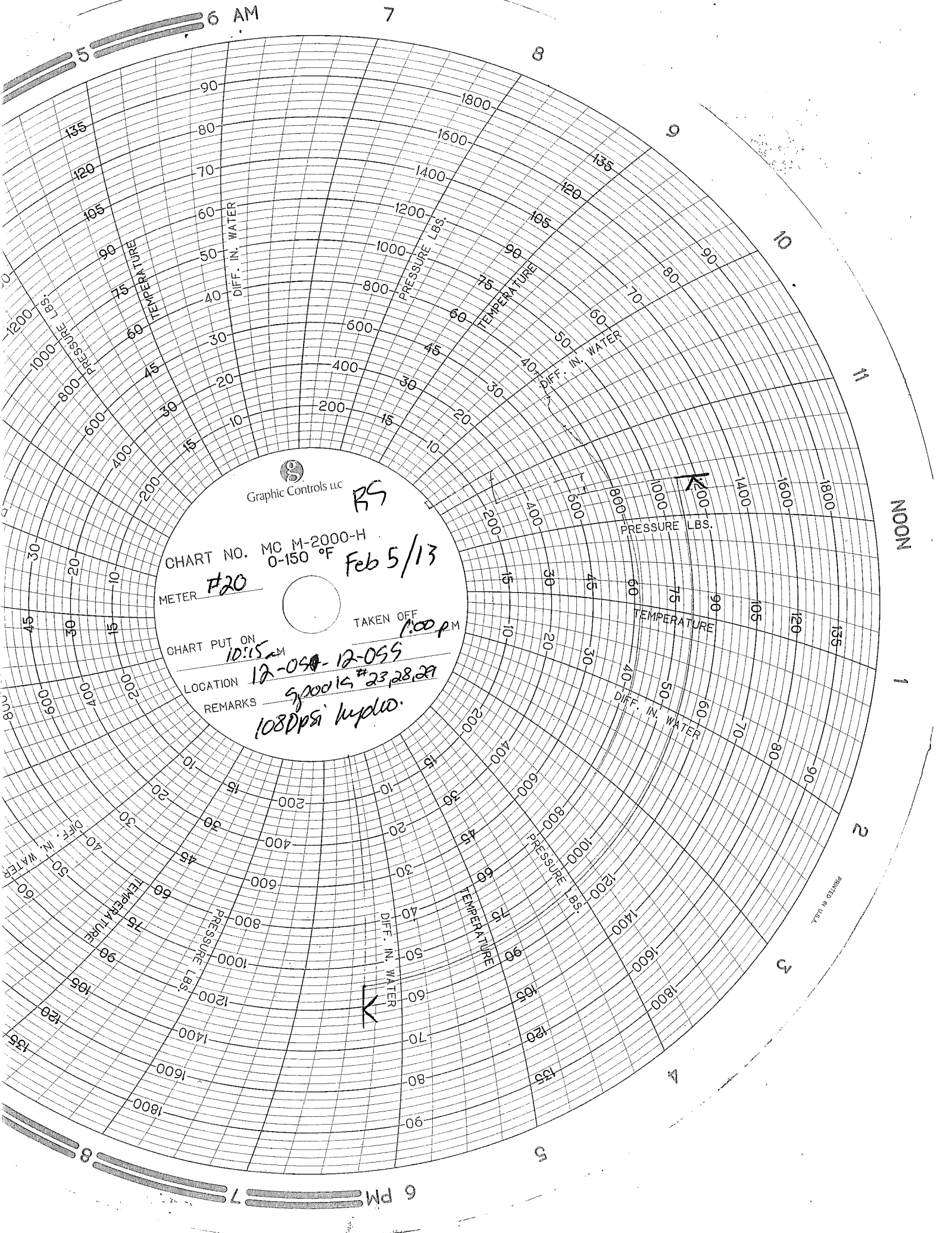
Test Failed Comments: Rec. #20

N/A Yes No

Chart Recorder
 Split hydro
 Gauge Checked

N/A Yes No

Confirm Test Pressure
 Pre-Hydro P&ID Check



5 6 AM

7

8

9

10

11

NOON

1

2

3

4

5

7 6 PM



Graphic Controls Inc

RS

CHART NO. MC M-2000-H
0-150 °F Feb 5/13

METER #20

TAKEN OFF 1:00 P.M.

CHART PUT ON 10:15 AM

LOCATION 12-05A-12-05S

REMARKS 5000 IS #23,28,29
108DPSI hydro.

PRINTED IN U.S.A.



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Mika Pressure Gauge*

IDENTIFICATION NO.: *GIF-2000-14*

CALIBRATION INTERVAL: *Nearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|--------------------|--|-------------------|-------------------------|
| | <i>* see attached for previous records</i> | | |
| <i>Dec. 12/07</i> | <i>Jim Dugan</i> | <i>*</i> | <i>Dec. 108</i> |
| <i>May. 23/08</i> | <i>Jim Dugan</i> | <i>-</i> | <i>May 109.</i> |
| <i>May 5/09</i> | <i>W</i> | <i>-</i> | <i>May 5/10</i> |
| <i>April 16/10</i> | <i>W</i> | <i>-</i> | <i>April 16/11</i> |
| <i>APR. 14/11</i> | <i>CL</i> | <i>-</i> | <i>APRIL/12</i> |
| <i>May 3/12.</i> | <i>Jim</i> | <i>-</i> | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

Automation • Controls • Process Equipment

www.globalflowinc.com

Toll Free: 1.866.219.7373

0358

Scheduled P.M. Yes No

Location REDCLIFF AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEANED / VERIFIED GAGE

Tag # GLF-2000-M

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD (CONNECTION THREAD HAVE SMALL DAMAGE)

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-42372

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED GOOD ✓

Calibration Equipment Traceable to a National Standard

D1

Hours

Technician

D. EDWARDS



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Wika Pressure Gauge*

IDENTIFICATION NO.: *GIF-2000-18*

CALIBRATION INTERVAL: *Yearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|-----------------------|--|-------------------|-------------------------|
| | <i>* see attached for Previous Records</i> | | |
| <i>February 20/08</i> | <i>Jim P...</i> | <i>*</i> | <i>February 20/09</i> |
| <i>March 5/09</i> | <i>hi</i> | | <i>March 5/10</i> |
| <i>April 16/10</i> | <i>ly</i> | | <i>April 16/11</i> |
| <i>APRIL 14/11</i> | <i>[Signature]</i> | | <i>APRIL 14/12</i> |
| <i>May 3/12</i> | <i>Jim</i> | | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

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Toll Free: 1.866.219.7373

0367

Scheduled P.M. Yes No

Location REDCLIFF, AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEAN / VERIFY GAUGE

Tag # GLF-2000-18

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-423322

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED (GOOD)

Calibration Equipment Traceable to a National Standard

D4

1
Hours

D. EMMUNSON
Technician



CALIBRATION REPORT

Automation • Controls • Process Equipment

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Toll Free: 1.866.219.7373

CR 1483

CUSTOMER/PRODUCER: GLOBAL FLOW INC. DATE: JULY 31, 2012

LOCATION: PROCESS EQUIPMENT REDCLIFF AB

Form fields: TUBE & SIZE, UPSTR., DOWNSTR., ORIFICE METER, MAKE: BARTON, RANGE, STATIC, DIFF, FOUND, LINE PRESS, CLOCK SPEED, SERIAL NO.: NH-20, ZERO READING: ADJ, PEN ARC: ADJ, INKING SYSTEM: NEW GRN

Table with columns: DIFFERENTIAL, STATIC, ATMOS. PRESS., TEMPERATURE RECORDER. Includes rows for REFERENCE INPUT, DWG, METER OUTPUT, and TEMPERATURE (REFERENCE, RECORDER).

Form fields: ORIFICE FITTING, CALIBRATION PROCEDURE & REMARKS (CRYSTAL DIGITAL DEADWEIGHT 2262-423322), MAKE, TYPE, PLATE SIZE, PLATE CONDITION, TYPE CONN.

Table with columns: PARTS INSTALLED, TOTAL PARTS, TOTAL CHARGES. Includes handwritten entry: GRN PEN.

INSPECTOR SIGNATURE: [Signature] NAME: DUSTIN EDWARDS DATE: JULY 31, 2012

COMPANY REP. SIGNATURE: _____ NAME: _____ DATE: _____

Global Flow Inc.

HYDROSTATIC TEST REPORT

PNEUMATIC TEST REPORT

Date: *March 21/2013*

Job Number: 12-052

Customer: PennWest Exploration

Description of Product: 3" Inlet (10-Wells)/4" Header 24" x 60" x 720psi AB Sour Test Separator Package

Tests Conducted By: *Mandon Ball*

Test Pressure: 1080psi

Test Temperature: Ambient

Test Medium: Water

Holding Time at Test Pressure: 60 minutes

Results: Okay

Owner's Inspector Witnessing Test: MTL Inspection Services

Comments: Testing of 2" Prover Lines *CLASS BST*

[Signature]

Signature of QCI

[Signature]

Signature of Owner's Inspector

Signature of ABSA Safety Codes Officer (if applicable)

HYDRO TEST REPORT

HYDRO TEST MUST BE SIGNED ON TO BEGIN ONCE AT TEST PRESSURE

Hydro Test Pressure 1080 psig

Date Mar 21/2013

Serial Number 12-052-1

Start Time 7:00am

Pressure Gauge #1

SR# 2000-18

| | Reading | Q.C Initials | Witness Initials | Owner | Other |
|---|---------|--------------|------------------|-------|-------|
| 1 | 1080 | AM | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Pressure Gauge #2

SR# 2000-14

| | Reading | Q.C Initials | Witness Initials | Owner | Other |
|---|---------|--------------|------------------|-------|-------|
| 1 | 1080 | AM | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Test Passed AM
signature

Time Ended 8:30'

Test Failed Comments: _____

N/A Yes No

Chart Recorder

Split hydro

Gauge Checked

N/A Yes No

Confirm Test Pressure

Pre-Hydro P&ID Check

MIDNIGHT

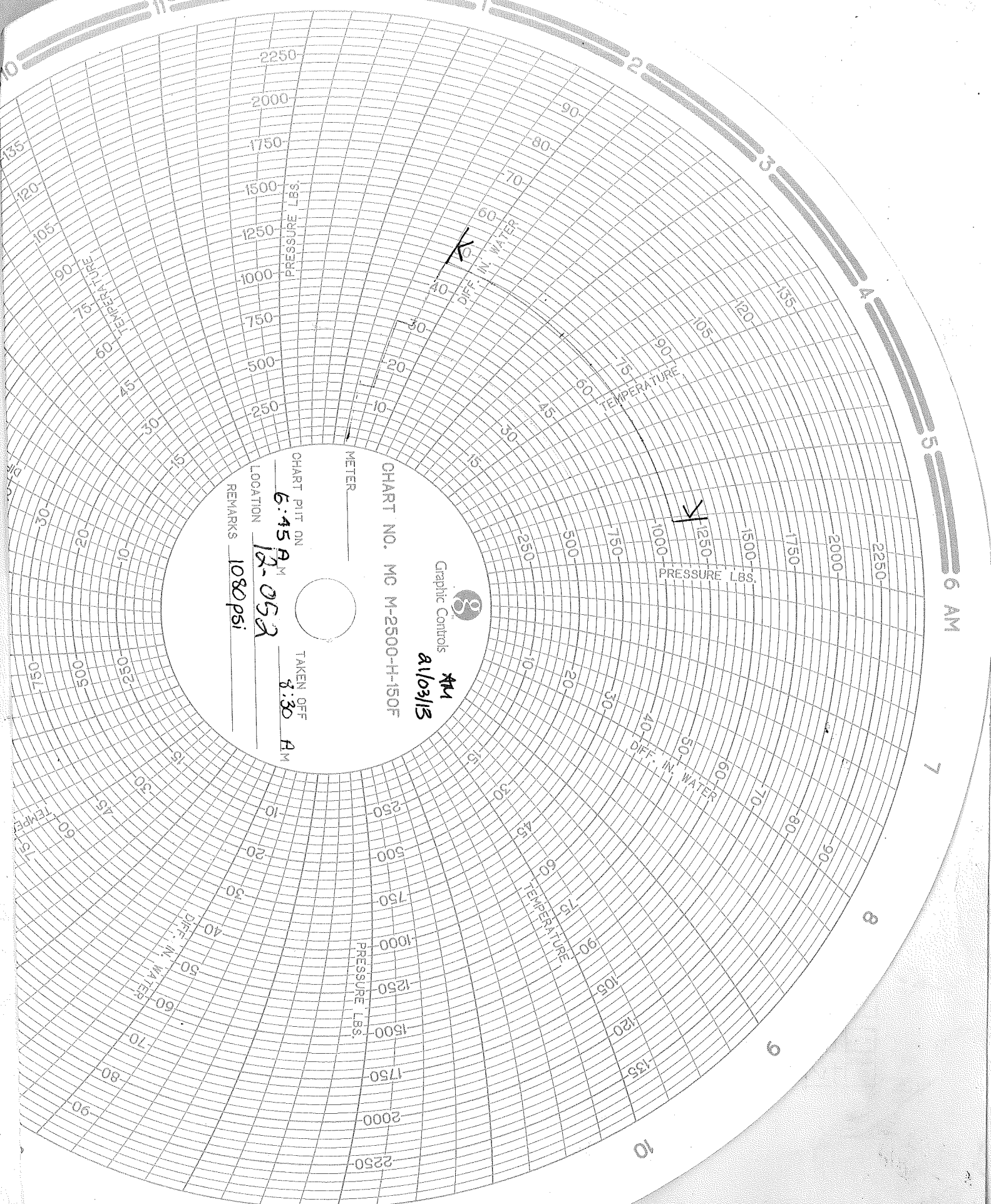


CHART NO. MC M-2500-H-150F

Graphic Controls **GM**

8/10/13

METER _____

CHART PUT ON 6:45 AM

LOCATION 12-052

TAKEN OFF 8:30 AM

REMARKS 1080 psi

DIFF. IN WATER

90

80

70

60

50

40

30

20

10

TEMPERATURE

90

80

70

60

50

40

30

20

10

PRESSURE LBS.

2250

2000

1750

1500

1250

1000

750

500

250

DIFF. IN WATER

90

80

70

60

50

40

30

20

10

TEMPERATURE

90

80

70

60

50

40

30

20

10

PRESSURE LBS.

2250

2000

1750

1500

1250

1000

750

500

250

DIFF. IN WATER

90

80

70

60

50

40

30

20

10

TEMPERATURE

90

80

70

60

50

40

30

20

10

NOON

6 AM

7

8

9

10

11

12



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Mika Pressure Gauge*

IDENTIFICATION NO.: *GIF-2000-14*

CALIBRATION INTERVAL: *Nearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|--------------------|--|-------------------|-------------------------|
| | <i>* see attached for previous records</i> | | |
| <i>Dec. 12/07</i> | <i>Jim Dugan</i> | <i>*</i> | <i>Dec. 108</i> |
| <i>May. 23/08</i> | <i>Jim Dugan</i> | <i>-</i> | <i>May 109.</i> |
| <i>May 5/09</i> | <i>W</i> | <i>-</i> | <i>May 5/10</i> |
| <i>April 16/10</i> | <i>W</i> | <i>-</i> | <i>April 16/11</i> |
| <i>APR. 14/11</i> | <i>CL</i> | <i>-</i> | <i>APRIL/12</i> |
| <i>May 3/12.</i> | <i>Jim</i> | <i>-</i> | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

Automation • Controls • Process Equipment

www.globalflowinc.com

Toll Free: 1.866.219.7373

0358

Scheduled P.M. Yes No

Location REDCLIFF AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEANED / VERIFIED GAGE

Tag # GLF-2000-M

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD (CONNECTION THREAD HAVE SMALL DAMAGE)

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-42372

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED GOOD ✓

Calibration Equipment Traceable to a National Standard

D1

Hours

Technician

D. EDWARDS



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Wika Pressure Gauge*

IDENTIFICATION NO.: *GIF-2000-18*

CALIBRATION INTERVAL: *Yearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|-----------------------|--|-------------------|-------------------------|
| | <i>* see attached for Previous Records</i> | | |
| <i>February 20/08</i> | <i>Jim P. Ho</i> | <i>*</i> | <i>February 20/09</i> |
| <i>March 5/09</i> | <i>hi</i> | | <i>March 5/10</i> |
| <i>April 16/10</i> | <i>ly</i> | | <i>April 16/11</i> |
| <i>APRIL 14/11</i> | <i>[Signature]</i> | | <i>APRIL 14/12</i> |
| <i>May 3/12</i> | <i>Jim</i> | | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



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Toll Free: 1.866.219.7373

0367

Scheduled P.M. Yes No

Location REDCLIFF, AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEAN / VERIFY GAUGE

Tag # GLF-2000-18

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-423322

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED (GOOD)

Calibration Equipment Traceable to a National Standard

D4

1
Hours

D. EMMUNSON
Technician



CALIBRATION REPORT

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Toll Free: 1.866.219.7373

CR 1483

CUSTOMER/PRODUCER: GLOBAL FLOW INC. DATE: JULY 31, 2012

LOCATION: PROCESS EQUIPMENT REDCLIFF AB

| | | | | | | | | |
|-------------------------|-------------------------|--------|--------------------|-------|----------|------------------------------|------------|-------------------------|
| TUBE & SIZE | | UPSTR. | | | DOWNSTR. | | | |
| ORIFICE METER | STATIC | RANGE | DIFF | FOUND | DIFF | LEFT | LINE PRESS | CLOCK SPEED Hr./DAYS |
| MAKE <u>BARTON</u> | <u>7000PSI</u> | | | | | | | |
| SERIAL NO. <u>NH-20</u> | ZERO READING <u>ADJ</u> | | PEN ARC <u>ADJ</u> | | | INKING SYSTEM <u>NEW GRN</u> | | |

| DIFFERENTIAL | | | STATIC | | ATMOS. PRESS. | | TEMPERATURE RECORDER | | |
|-----------------|--------------|------|--------|----------------|---------------|------|-------------------------------------|----------------|-----|
| REFERENCE INPUT | METER OUTPUT | | DWG | FOUND | METER OUTPUT | | MAKE <u>BARTON</u> | SERIAL NO. | |
| | FOUND | LEFT | | | FOUND | LEFT | | | |
| | | | 0 | 990 | 0 | 0 | | | |
| | | | 400 | 990 | 400 | 400 | RECORDER RANGE | <u>0-150°F</u> | |
| | | | 1000 | 990 | 1000 | 1000 | CALIBRATION METHOD <u>TEMP BATH</u> | | |
| | | | 1600 | 990 | 1600 | 1600 | REFERENCE TEMP. | RECORDER | |
| | | | 2000 | 990 | 2000 | 2000 | FOUND | LEFT | |
| | | | | | | | 494F | 49 | 49 |
| | | | | | | | 137F | 137 | 137 |
| | | | | | | | | | |
| | | | | | | | FLOWING TEMPERATURE | | |
| | | | | | | | FOUND | LEFT | |
| | | | | | | | SPECIFIC GRAVITY | | |

| | |
|-----------------|---|
| ORIFICE FITTING | CALIBRATION PROCEDURE & REMARKS |
| MAKE | <u>CRYSTAL DIGITAL DEADWEIGHT 2262-423322</u> |
| TYPE | |
| PLATE SIZE | |
| PLATE CONDITION | |
| TYPE CONN. | |

| PARTS INSTALLED | | | | |
|-----------------|--|--|---------------|--|
| <u>GRN PEN</u> | | | | |
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| | | | | |
| TOTAL PARTS | | | TOTAL CHARGES | |

INSPECTOR
SIGNATURE [Signature]
NAME DISTIN EDWARDS
DATE JULY 31, 2012

COMPANY REP.
SIGNATURE _____
NAME _____
DATE _____

Global Flow Inc.

HYDROSTATIC TEST REPORT

PNEUMATIC TEST REPORT

Date: *November 20/12*

Job Number: 12-052

Customer: PennWest Exploration

Description of Product: 3" Inlet (10-Wells)/4" Header 24" x 60" x 720psi AB Sour Test Separator Package

Tests Conducted By: *Larry Bourque*

Test Pressure: 110psi

Test Temperature: Ambient

Test Medium: Air

Holding Time at Test Pressure: 10 minutes

Results: Okay

Owner's Inspector Witnessing Test: MTL Inspection Services

Comments: Function Test only of Instruments and leak test of tubing.

[Signature]

Signature of QCI

[Signature]

Signature of Owner's Inspector

Signature of ABSA Safety Codes Officer (if applicable)



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *CPW hydro-Poise*

IDENTIFICATION NO.: *GIF-300-31*

CALIBRATION INTERVAL: *Yearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|-------------------|-----------------------------|-------------------|-------------------------|
| <i>Nov. 23/10</i> | <i>li</i> | <i>New</i> | <i>Nov. /11</i> |
| <i>Nov 4/11</i> | <i>Li</i> | | <i>Nov 4/12</i> |
| <i>23 OCT 12</i> | <i>Di</i> | | <i>22 OCT 13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

Automation • Controls • Process Equipment

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Toll Free: 1.866.219.7373

CR 2506

CUSTOMER/PRODUCER: Global Flow Inc. DATE: Oct 23, 2012

LOCATION: Process Equipment Shop Redcliff AB

TUBE & SIZE _____ UPSTR. _____ DOWNSTR. _____

ORIFICE METER HYDRO GAUGE RANGE _____ DIFF _____ FOUND _____ LINE PRESS _____ CLOCK SPEED _____
MAKE CPW HYDRO-POSE STATIC 300PSI DIFF _____ LEFT _____

SERIAL NO. GLF-300-31 ZERO READING AWT PEN-ARC _____ INKING SYSTEM _____

| DIFFERENTIAL | | | STATIC | ATMOS. PRESS. | | | TEMPERATURE RECORDER | | |
|-----------------|--------------------|----------|------------|--------------------|------------|----------|--------------------------------|---------------------|--|
| REFERENCE INPUT | METER OUTPUT FOUND | LEFT | DWG | METER OUTPUT FOUND | LEFT | MAKE | | | |
| <u>/</u> | <u>/</u> | <u>/</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>/</u> | SERIAL NO. | | |
| <u>/</u> | <u>/</u> | <u>/</u> | <u>75</u> | <u>80</u> | <u>75</u> | <u>/</u> | RECORDER RANGE | | |
| <u>/</u> | <u>/</u> | <u>/</u> | <u>150</u> | <u>155</u> | <u>150</u> | <u>/</u> | CALIBRATION METHOD | | |
| <u>/</u> | <u>/</u> | <u>/</u> | <u>225</u> | <u>230</u> | <u>225</u> | <u>/</u> | REFERENCE TEMP. | RECORDER FOUND LEFT | |
| <u>/</u> | <u>/</u> | <u>/</u> | <u>300</u> | <u>305</u> | <u>300</u> | <u>/</u> | | | |
| <u>/</u> | <u>/</u> | <u>/</u> | | | | <u>/</u> | FLOWING TEMPERATURE FOUND LEFT | | |
| <u>/</u> | <u>/</u> | <u>/</u> | | | | <u>/</u> | SPECIFIC GRAVITY | | |

| ORIFICE FITTING | CALIBRATION PROCEDURE & REMARKS |
|-----------------|--|
| MAKE | <u>CLEANED & VERIFIED</u> |
| TYPE | |
| PLATE SIZE | <u>CRYSTAL DIGITAL DEPENDENT 2267-423322</u> |
| PLATE CONDITION | |
| TYPE CONN. | |

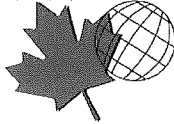
| PARTS INSTALLED | | | TOTAL PARTS | | | TOTAL CHARGES | | |
|-----------------|--|--|-------------|--|--|---------------|--|--|
| 1 | | | | | | | | |

Calibration Equipment Traceable to a National Standard

INSPECTOR SIGNATURE [Signature]
NAME JASON EDWARDS
DATE Oct 23, 2012

COMPANY REP. SIGNATURE _____
NAME _____
DATE _____

GlobalFlow



Intelligent Production Solutions

EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *CPW hydro-Poise*

IDENTIFICATION NO.: *GIF-300-32*

CALIBRATION INTERVAL: *Yearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|-------------------|-----------------------------|-------------------|-------------------------|
| <i>Nov. 23/10</i> | <i>hi</i> | <i>New</i> | <i>Nov. /11</i> |
| <i>Nov 4/11</i> | <i>Jan</i> | | <i>Nov 4/12.</i> |
| <i>23 OCT 12</i> | <i>DW</i> | <i>23 NOV 10</i> | <i>22 OCT 13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

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www.globalflowinc.com
Toll Free: 1.866.219.7373

CR 2507

CUSTOMER/PRODUCER: GLOBAL FLOW INC. DATE: OCT 23, 2012

LOCATION: PROCESS EQUIPMENT SHOP

Table with columns: TUBE & SIZE, UPSTR., DOWNSTR., ORIFICE METER, MAKE, SERIAL NO., ZERO READING, PEN ARC, INKING SYSTEM, RANGE, DIFF, FOUND, LEFT, LINE PRESS, CLOCK SPEED Hr./DAYS.

Main calibration table with columns: DIFFERENTIAL, STATIC, ATMOS. PRESS., TEMPERATURE RECORDER, REFERENCE INPUT, METER OUTPUT, DWG, METER OUTPUT, MAKE, SERIAL NO., RECORDER RANGE, CALIBRATION METHOD, REFERENCE TEMP., RECORDER, FLOWING TEMPERATURE, SPECIFIC GRAVITY.

Table with columns: ORIFICE FITTING, CALIBRATION PROCEDURE & REMARKS. Includes fields for MAKE, TYPE, PLATE SIZE, PLATE CONDITION, TYPE CONN.

Table with columns: PARTS INSTALLED, TOTAL PARTS, TOTAL CHARGES. Includes text: Calibration Equipment Traceable to a National Standard.

INSPECTOR SIGNATURE, NAME, DATE

COMPANY REP. SIGNATURE, NAME, DATE

Global Flow Inc.

HYDROSTATIC TEST REPORT

PNEUMATIC TEST REPORT

Date: *November 20/12*

Job Number: 12-052

Customer: PennWest Exploration

Description of Product: 3" Inlet (10-Wells)/4" Header 24" x 60" x 720psi AB Sour Test Separator Package

Tests Conducted By: *Larry Bourger*

Test Pressure: 165psi

Test Temperature: Ambient

Test Medium: Air

Holding Time at Test Pressure: 10 minutes

Results: Okay

Owner's Inspector Witnessing Test: MTL Inspection Services

Comments:

[Signature]

Signature of QCI

[Signature]

Signature of Owner's Inspector

Signature of ABSA Safety Codes Officer (if applicable)

GlobalFlow



Intelligent Production Solutions

EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *CPW hydro-Poise*

IDENTIFICATION NO.: *GIF-300-31*

CALIBRATION INTERVAL: *Yearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|-------------------|-----------------------------|-------------------|-------------------------|
| <i>Nov. 23/10</i> | <i>hi</i> | <i>New</i> | <i>Nov./11</i> |
| <i>Nov 4/11</i> | <i>Low</i> | | <i>Nov 4/12</i> |
| <i>23 OCT 12</i> | <i>DU</i> | | <i>22 OCT 13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

Automation • Controls • Process Equipment
 www.globalflowinc.com
 Toll Free: 1.866.219.7373

CR 2506

CUSTOMER/PRODUCER: Global Flow Inc. DATE: Oct 23, 2012

LOCATION: Process Equipment Shop Redcliff AB

TUBE & SIZE _____ UPSTR. _____ DOWNSTR. _____

ORIFICE METER HYDRO GAUGE RANGE _____ DIFF _____ FOUND _____ LINE PRESS _____ CLOCK SPEED _____

MAKE CDW HYDRO-POSE STATIC 300PSI DIFF _____ LEFT _____ INKING SYSTEM _____

SERIAL NO. GLF-300-31 ZERO READING ADD PEN-ARC _____

| DIFFERENTIAL | | STATIC | ATMOS. PRESS. | | | TEMPERATURE RECORDER | | |
|-----------------|-------------------------|--------|--------------------|-------------------|------|----------------------|----------------|--------------------|
| REFERENCE INPUT | METER OUTPUT FOUND LEFT | DWG | METER OUTPUT FOUND | METER OUTPUT LEFT | MAKE | | | |
| | | 0 | 0 | 0 | | | | SERIAL NO. |
| | | 75 | 80 | 75 | | | | RECORDER RANGE |
| | | 150 | 155 | 150 | | | | CALIBRATION METHOD |
| | | 225 | 230 | 225 | | REFERENCE TEMP. | RECORDER FOUND | LEFT |
| | | 300 | 305 | 300 | | | | |
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ORIFICE FITTING _____

CALIBRATION PROCEDURE & REMARKS

MAKE (CLEANED & VERIFIED)

TYPE _____

PLATE SIZE CRYSTAL DIGITAL DETACHMENT 2262-423322

PLATE CONDITION _____

TYPE CONN. _____

PARTS INSTALLED _____

Calibration Equipment Traceable
to a National Standard

TOTAL PARTS _____

TOTAL CHARGES _____

INSPECTOR

SIGNATURE [Signature]

NAME DEAN EDWARDS

DATE Oct 23, 2012

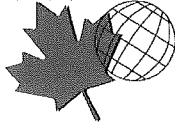
COMPANY REP.

SIGNATURE _____

NAME _____

DATE _____

GlobalFlow



Intelligent Production Solutions

EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: CPW hydro-Poise

IDENTIFICATION NO.: GILF-300-32

CALIBRATION INTERVAL: Yearly Max.

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|------------------|-----------------------------|-------------------|-------------------------|
| Nov. 23/10 | Wi | New | Nov. /11 |
| Nov 4/11 | Sam | | Nov 4/12. |
| 23 OCT 12 | DW | 23 NOV 10 | 22 OCT 13 |
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Calibration Requirements and Instructions:



Automation • Controls • Process Equipment

www.globalflowinc.com

Toll Free: 1.866.219.7373

CALIBRATION REPORT

CR 2507

CUSTOMER/PRODUCER: GLOBAL FLOW INC. DATE: OCT 23, 2012

LOCATION: PROCESS EQUIPMENT SHOP

Form section with fields: TUBE & SIZE, ORIFICE METER (HYDRO-TEST GAUGE), MAKE (CPW HYDRO-POSE), SERIAL NO. (GLF-300-32), ZERO READING (0.00), PEN ARC, INKING SYSTEM.

Table with columns: DIFFERENTIAL (REFERENCE INPUT, METER OUTPUT FOUND/LEFT), STATIC (DWG), ATMOS. PRESS. (METER OUTPUT FOUND/LEFT), TEMPERATURE RECORDER (MAKE, SERIAL NO., RECORDER RANGE, CALIBRATION METHOD, REFERENCE TEMP., RECORDER FOUND/LEFT, FLOWING TEMPERATURE FOUND/LEFT), SPECIFIC GRAVITY.


Form section with fields: ORIFICE FITTING, CALIBRATION PROCEDURE & REMARKS (CLEANED & VERIFIED), MAKE, TYPE, PLATE SIZE (CRYSTAL DIGITAL DEADWEIGHT 2262-425322), PLATE CONDITION, TYPE CONN.

Form section with fields: PARTS INSTALLED, Calibration Equipment Traceable to a National Standard, TOTAL PARTS, TOTAL CHARGES.

INSPECTOR SIGNATURE: [Signature], NAME: DEAN EDWARDS, DATE: OCT 23, 2012

COMPANY REP. SIGNATURE: _____, NAME: _____, DATE: _____

Global Flow Inc.

| PRESSURE TEST EXAMINATION GUIDE | |
|--|----------------------------|
| PRESSURE TEST PREPARATION | Q.C. INSP. |
| 1. All punch list items corrected. | X |
| 2. Test blinds are of correct thickness. | X |
| 3. All items which could be damaged by test isolated or removed (control valves, safety valves, instruments, expansion joints, etc.) | X |
| 4. Equipment with internals (i.e. filters) that could be damaged is isolated as required. | X |
| 5. Vents and drains correctly installed. | X |
| 6. Open and Closed position of all valves verified. | X |
| 7. Shipping bars in place – bellows. | |
| 8. Hanger stops in place. | |
| | |
| | |
| PRESSURE TEST COMPLETION | Q.C. INSP. |
| 1. All temporary blinds (blanks) removed. | X |
| 2. Temporary gaskets changed for correct gaskets. | X |
| 3. Temporary supports removed. | X |
| 4. Shipping bars removed from bellows. | |
| 5. Spring hanger stops removed - cold setting checked. | |
| 6. Pressure Relief Valves – “UV” or “V” symbol as applicable and at correct set pressure and capacity installed. | X |
| 7. Safety valve vents are correct size - adequately supported - drain holes and or weather hoods installed. | X |
| 8. Screens for pumps and compressors installed (initial start-up and permanent screens). | |
| | |
| | |
| Quality Control Inspector Signature:  | Date: <i>October 30/12</i> |



PRESSURE PIPING CONSTRUCTION AND TEST DATA REPORT

In accordance with the provisions of the PESR Section 31(1)

Shop Construction ; Field Construction
 Final Data Report ; Partial Data Report (from one ABSA- authorized Contractor to another ABSA- authorized Contractor).

Complete both sides of this Form

1. Constructed By: Global Flow Inc. Owner's Job No: 12-052
(Name of ABSA authorized primary contractor or subcontractor)
7013 Old TransCanada Highway, PO Box 1120, Redcliff, Alberta T0J 2P0
(Address)

Certificate of Authorization Permit No. AQP-1464 Expiry Date: March 2, 2015

2. Constructed For: PennWest Exploration
(Name of primary contractor if different from above)
Suite 200, 207 - 9th Avenue SW, Calgary, Alberta T2P 1K3
(Address)

Certificate of Authorization Permit No. AQP- [redacted] Expiry Date: _____
(Required when the primary contractor undertakes some/all of the quality functions, e.g., NDE, PWHT, Tie-in, fabrication, hydro test, final assembly etc.)

3. Owner: Same as Above
(Name and address)
07-31-001-25W1
(Location of installation)

Certificate of Authorization Permit No. AQP- [redacted] Expiry Date: _____
(Required when the owner undertakes some/all of the quality functions, e.g., NDE, PWHT, Tie-in, fabrication, hydro test, final assembly etc.)

4. Piping Design Alberta Registration No.: PP-less than 0.5 cu m
(Required if aggregate piping volume is over 0.5m³)

5. Design Responsibility: Owner ; Contractor

6. WP No.: WP-2843.2; Company: Global Flow Inc. Owner's WP No. (If used): WP-
(Alberta Registration No.) (Alberta Registration No.)
 WPS No(s). used: GF-1N Rev.1; Owner's WPS No(s). (If used): _____

7. Code: ASME B31.1 Non Boiler External Piping ; ASME B31.1 Boiler External Piping ;
 B31.5 ; B31.9 ; CSA Z662 Steam Pipelines ;
 ASME B31.3 - Service Category: Normal , D , M , High Pressure ; Severe Cyclic Condition
 High Purity

| Drawing No. Rev. No. Line No. | Fluid (Air/Stm. Etc.) | Des. Press. kPa | Des. Temp. °C (Max. & Min.) | Pressure Test kPa | Test Medium | Pipe Mat'l Spec. & Grade | C.A. mm | Pipe NPS & Schedule | Flange Material & Rating | PWHT/ Preheat Temp. °C | NDE |
|---|-----------------------------|-----------------------|--------------------------------------|-------------------------|----------------|--------------------------------|------------|---|------------------------------------|------------------------------|---|
| 12-052- SPOOLS 1 to 29 Class "BSL", "BS" | Water, Oil, Gas | 4964 | 38/-45 38/-29 | 7447 | Water | SA106B SA333GR6 | 1.6 | 1" S.80 2" S.80 3" S.40 4" S.40 6" S.40 | SA105N SA350LF2 Cls1 300# | Preheat 10 | 100% RT 10% Hardness 100% Visual |
| 12-051 P&ID | Water, Oil, Gas | 1035 | 38/-29 | 1138 | Air | SA106B | 1.6 | 1" S.80 2" S.80 | N/A | N/A | N/A |
| Process/Sensing Tubing | Water, Oil, Gas | 690 | 38/-29 | 759 | Air | 316SS | N/A | 1/2" Tubing | N/A | N/A | N/A |
| Instrument Tubing | Water, Oil, Gas | 690 | 38/-29 | 759 | Air | 304SS | N/A | 3/8" Tubing | N/A | N/A | N/A |
| 12-052-P&ID Class "BST" Threaded Prover Line | Water, Oil, Gas | 4964 | 38/-45 38/-29 | 7447 | Water | SA106B SA333GR6 | 1.6 | 2" S.80 | SA105N SA350LF2 Cls1 300# | N/A | N/A |
| | | | | | | | | | | | |

Partial Data Reports certified by sub-contractors are listed below and attached to this Data Report

| No. | Line No. | Spool No. | Dwg. No. (with Rev. No.) | Sub-contractor (Name) | AQP No. (if from Alberta) | Expiry (if from Alberta) |
|-----|----------|-----------|-----------------------------|--------------------------|------------------------------|-----------------------------|
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Remarks: For partial data report provide information about the code work that was not completed by the subcontractor (e.g., hydrostatic test, PWHT etc.). For final data report provide information about the code work that was not completed by subcontractors and subsequently completed by the primary contractor (e.g., hydrostatic test of entire assembly, PWHT etc.)

SN 12-052-1

Endorse certificate 'A' or 'B'

A. CERTIFICATE OF COMPLIANCE

Signed by the subcontractor when supplying this certificate as a Partial Data Report

We certify that the statements in this Data Report are correct and that materials, construction and workmanship of the piping fabrication conform to the registered quality system and the applicable Piping code(s).

Date: _____
Contractor

Print Authorized Representative's Name Signature

This certificate is not valid unless it forms part of a Final Data Report signed by Primary Contractor

B. CERTIFICATE OF COMPLIANCE

Signed by the primary contractor when supplying this certificate as a Final Data Report

We certify that the statements in this Data Report are correct and that piping job no. 12-052 described in this Data Report was constructed in accordance with the Province of Alberta Safety Codes Act and Regulations, and applicable ASME Piping Code(s).

Date: MAR 21 2013 Global Flow Inc.

Contractor

Kim Insko _____
Print Authorized Representative's Name Signature

CERTIFICATE OF INSPECTION

I, the undersigned, employed by PENN WEST EXPLORATION. have verified that all required examination and testing has been completed, and inspected the piping described in this construction data report to the extent necessary to be satisfied that it conforms to all applicable examination requirements of the Code and of the engineering design, and state that, to the best of my knowledge and belief, the contractor has constructed this piping in accordance with the Alberta Safety Codes Act and Regulations. By signing this certificate neither the inspector nor his or her employer makes any warranty, expressed or implied, concerning the piping described in this construction data report. Furthermore, neither the inspector nor his or her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date: MAR 21 2013 Date: _____

RYAN LEIBER. _____
Owner's Inspector Name (please print) ABSA Safety Codes Officer (please print)
(BOILER EXTERNAL PIPING ONLY)

[Signature] _____
Owner's Inspector Signature: ABSA Safety Codes Officer's Signature

Current version of this Form may be obtained from www.absa.ca



FUNCTION TEST REPORT

CUSTOMER PENNWEST PROJECT ID 12-052
 VESSEL SN 12-052-1 METER RUN SN 30212766V
 PSV - SN & SET POINT 017787-251 640 P81V
 FUEL POT SN N/A

INSTRUMENTS TESTED c/w Model No's

| | |
|--|--|
| FCV 1010 - VALTORE 3WAY VALVE | |
| LL 1010 - NORRISEAL E/S L.C. | |
| LCV 1010 - NORRISEAL 2200 DUMP VALVE | |
| PL 1000 - CVS 4150 PRES. CONTROLLER | |
| PLV 1000 - NORRISEAL 2200 CONTROL VALVE | |
| PSH 1010 - CVS 7970 HIGH PRES. PILOT 2150 | |
| RY 1010 - AMOT 4057 MANUAL WATCH CP | |
| RY 1020 - AMOT 4057 AUTO RESET CG | |
| FY 1010 - ASCO 12ED MAT SOLENOID | |
| LSH 1010 - MURPHY 200 DVO LEVEL SW. | |
| RYELLO TRIP INDICATORS - 3 | |
| PICV 1081, 1082, 1083 - FISHER 67 CFZ 0 TO 35 PSI | |
| PIV 1084 - FISHER 67 CFZ 0 TO 125 PSI | |
| LEAK CHECK INST. TUBING & PIPING @ 165 PSI N ₂ | |

TEST GAUGE #'s 6LF - 300 - 31 + 32.

| | PRINT | SIGNATURE |
|----------------------|---------------------|--------------------|
| P&ID CHECK | <u>LARRY BOWYER</u> | <u>[Signature]</u> |
| PERFORMED BY | <u>LARRY BOWYER</u> | <u>[Signature]</u> |
| WITNESSED BY (GLF) | <u>KIM INSUO</u> | <u>[Signature]</u> |
| WITNESSED BY (OWNER) | <u>RYAN LEISEN</u> | <u>[Signature]</u> |
| DATE OF TEST | <u>Nov. 20/12</u> | |



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 5/2012
Page 1 of 2

R - 40872

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8449
 Location: Redcliff, AB. Client # _____
 Material Carbon steel Source 3.9mm / Ir 192 Screens 0.010"Pb F+B Film AuPa / D5
SIZE TYPE BRAND TYPE

SOD _____ SFD DWC Technique(s) Refer to back Code(s) ASME B31.3 W1

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|-------------|-----|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|-------------------|-----|
| 1 | X-1 4" std. | ✓ | ✓ | ✓ | | | | | | | | | | | | | SW# 12-052 Piping | |
| 2 | 3 | ✓ | ✓ | ✓ | | | | 1 | | 1 | | | | | | | | |
| 3 | 3 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 4 | 4 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 5 | 5 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 6 | 6 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 7 | 7 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 8 | 8 | ✓ | ✓ | ✓ | | | | 2 | | | | | | | | | | |
| 9 | 9 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 10 | 10 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 11 | 11 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 12 | 12 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 13 | 13 | ✓ | ✓ | ✓ | | | | 1 | | | | | | 1 | | | | |
| 14 | 14 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 15 | 15 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 16 | 16 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 17 | 17 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 18 | 18 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 19 | 19 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 20 | 20 | ✓ | ✓ | ✓ | | | | 1 | | | | | | | | | | |
| 21 | 21 | ✓ | ✓ | ✓ | | | | 1 | | | | | | | | | | |
| 22 | 22 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 23 | 23 | ✓ | ✓ | ✓ | | | | 1 | | | | | | | | | | |
| 24 | 24 | ✓ | ✓ | ✓ | | | | 1 | | | | | | | | | | |
| 25 | 25 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-----------------|
| 2" | Other (specify) |
| 3" | 19 |
| 4" | 30 |
| 6" | |

Stamp
Roger Yarjau

CGSB RTII
ASNT RTII MTII
#5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| 5 | | | | |

Client Signature _____
 Client Print DR HYPE
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 5/2012
Page 2 of 2

R - 40873

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # PO.# 8449
 Location: Redcliff, AB. Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010"Pb F+B Film A.P. / D4/05
SIZE TYPE BRAND TYPE

SOD _____ SFD none Technique(s) Refer to back Code(s) ASNT B31.3 WJ

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|----------|--------|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|-----------------|-----|
| 1 | X-36 | 4" id. | ✓ | ✓ | ✓ | | | | | | | | | | | | SN# 12-052 Pipe | |
| 2 | 37 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 3 | 38 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 4 | 39 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 5 | 30 | | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 6 | 31 | 3" id. | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 7 | 32 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 8 | 33 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 9 | 34 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 10 | 35 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 11 | 36 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 12 | 37 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 13 | 38 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 14 | 39 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 15 | 40 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 16 | 41 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 17 | 42 | | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 18 | 43 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 19 | 44 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 20 | 45 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 21 | 46 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 22 | 47 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 23 | 48 | | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 24 | 49 | | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |

Weld or film quantity
 2" _____ Other (specify)
 3" _____
 4" R-40872
 6" _____

Stamp

Roger Yarjau
CGSB RTII
ASNT RTII MTII
#5982

| | | | | |
|-----------|-----------|-------|----------|-----------|
| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
| _____ | _____ | _____ | _____ | _____ |

Client Signature _____
 Client Print D R HOPK
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 9/2012

Page 1 of 3

R - 40876

LAW Job # AM

Radiographic Inspection Report

Client: Global flow Inc. Client # P.O.# 8468
 Location: Redcliff, AB Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010"Pb F+B Film Agfa/D4/05
SIZE TYPE BRAND TYPE
 SOD _____ SFD DW2 Technique(s) Refer to back Code(s) ASME B31.3 W1

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|----------------|-----|----|----|----|---|---|----|----|----|----|----|-----|-----|---|--------------------------|-----|
| 1 | X-50 2" x 1/2" | ✓ | ✓ | ✓ | | | | | | | | | | | | <u>SN# 12-052 Piping</u> | |
| 2 | 51 4" x 1/2" | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 3 | 52 8" x 1/2" | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 4 | 53 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 5 | 54 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 6 | 55 6" std. | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 7 | 56 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 8 | 57 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 9 | 58 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 10 | 59 4" std. | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 11 | 60 3" std. | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 12 | 61 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 13 | 62 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 14 | 63 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 15 | 64 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 16 | 65 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 17 | 66 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 18 | 67 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 19 | 68 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 20 | 69 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 21 | 70 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 22 | 71 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 23 | 72 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 24 | 73 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 25 | 74 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|----|
| 2" | 1 |
| 3" | 49 |
| 4" | 2 |
| 6" | 4 |

Other (specify)

8-3

Stamp
Roger Yarjau
CGSB RTII
ASNT RTII MTII
#5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| 6 | | | | |

Client Signature _____
 Client Print DR HOPK
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 9/2012
Page 2 of 3

R - 40877

LAW Job # Am

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O. # 8468
 Location: Redcliff, AB. Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010" Pb F+B Film Agfa 04
SIZE TYPE BRAND TYPE
 SOD _____ SFD DWC Technique(s) Refer to back Code(s) ASME B31.3 (N1)

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ | |
|--------|--------------|-----|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|------------------|-----|--|
| 1 | X-75 3" std. | ✓ | ✓ | ✓ | | | | | | | | | | | | | 5" 12-052 Piping | | |
| 2 | 76 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 3 | 77 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 4 | 78 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 5 | 79 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 6 | 80 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 7 | 81 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 8 | 82 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 9 | 83 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 10 | 84 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 11 | 85 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 12 | 86 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 13 | 87 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 14 | 88 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 15 | 89 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 16 | 90 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 17 | 91 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 18 | 92 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 19 | 93 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 20 | 94 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 21 | 95 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 22 | 96 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 23 | 97 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 24 | 98 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |
| 25 | 99 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-----------------|
| 2" | Other (specify) |
| 3" | |
| 4" | R-40876 |
| 6" | |

Stamp
Roger Yarjau
CGSB RTII
ASNT RTII MTIII
#5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| | | | | |

Client Signature _____
 Client Print DR HOFFE
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

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Date Oct. 9/2012
Page 3 of 3

R - 40878

LAW Job # AMI

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8468
 Location: Redcliff, AB Client # _____
 Material carbon steel Source 3.9" / Ir 192 Screens 0.010" Pb F+B Film Agfa / D4
SIZE TYPE BRAND TYPE

SOD _____ SFD DWC Technique(s) Refer to back Code(s) ASNT 631.3 (N1)

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|---------------|-----|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|--------------------------|-----|
| 1 | X-100 3" std. | ✓ | ✓ | ✓ | | | | 2 | | | | | | | | | <u>SN# 12-052 Piping</u> | |
| 2 | 101 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 3 | 102 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 4 | 103 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 5 | 104 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 6 | 105 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 7 | 106 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 8 | 107 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 9 | 108 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-----------------|
| 2" | Other (specify) |
| 3" | R-40876 |
| 4" | |
| 6" | |

State of **Roger Yarjou**

CGSB RTII
ASNT RTII MTII
#5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| | | | | |

Client Signature _____
 Client Print _____
 Technician Signature Roger Yarjou



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 10/2010
Page 1 of 3

R - 40880

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8523
 Location: Redcliff, AB Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010" Pb F+B Film A2Pa/04/05
SIZE TYPE BRAND TYPE

SOD _____ SFD DWC Technique(s) Refer to back Code(s) ASME B31.3 (N1)

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|---------------|-----|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|--------------------|-----|
| 1 | X-109 4" sch. | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | sn # 12-052 Piping | |
| 2 | 110 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 3 | 111 | ✓ | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 4 | 112 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 5 | 113 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 6 | 114 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 7 | 115 3" sch. | ✓ | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 8 | 116 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 9 | 117 | ✓ | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 10 | 118 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 11 | 119 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 12 | 120 2" x 1/4" | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 13 | 121 4" sch. | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 14 | 122 | ✓ | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 15 | 123 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 16 | 124 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 17 | 125 | ✓ | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 18 | 126 | ✓ | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 19 | 127 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 20 | 128 3" sch. | ✓ | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 21 | 129 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 22 | 130 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 23 | 131 | ✓ | ✓ | ✓ | ✓ | | | 1 | | | | | | | | | | |
| 24 | 132 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 25 | 133 | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|--------------------|
| 2" | 22 Other (specify) |
| 3" | 28 |
| 4" | 13 |
| 6" | |

Stamp
 Roger Yarjau
 CGSB RTII
 ASNT RTII MTII
 #5982

| | | | | |
|-----------|-----------|-----|----------|-----------|
| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
| 7.5 | | | | |

Client Signature _____
 Client Print DR HOPE
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 10/2013
Page 2 of 3

R - 40881

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8523
 Location: Redcliff, AB. Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010"Pb F+B Film Agfa/04
SIZE TYPE BRAND TYPE
 SOD _____ SFD DWC Technique(s) Refer to back Code(s) ASNT B31.3 (VI)

- T = Technique
- WS = Welder Stamp
- IP = Incomplete Penetration
- P = Porosity
- LF = Lack of Fusion
- S = Slag
- BT = Burn Through
- IC = Internal Concavity
- LC = Low-Cover
- HL = High Low
- CK = Crack
- IUC = Internal Undercut
- EUC = External Undercut
- ACC = Accept
- Rej = Reject
- O = Other
- 1 = Slight
- 2 = Moderate
- 3 = Severe

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|----------------------|-------------------------------------|-------------------------------------|-------------------------------------|----|----|---|----------|----|----------|----|----|----|----------|-----|---|---------------------------|-----|
| 1 | <u>R-134 3" sid.</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | <u>SN # 12-052 Piping</u> | |
| 2 | <u>135</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 3 | <u>136</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 4 | <u>137</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 5 | <u>138</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | <u>1</u> | | | | | | | | | | |
| 6 | <u>139</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 7 | <u>140</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 8 | <u>141</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | <u>1</u> | | | | | | | | | | |
| 9 | <u>142</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | <u>1</u> | | | | | | | | | | |
| 10 | <u>143</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | <u>1</u> | | | | |
| 11 | <u>144</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | <u>1</u> | | | | | | | | | | |
| 12 | <u>145</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 13 | <u>146</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 14 | <u>147 2" x 11</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 15 | <u>148</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | <u>1</u> | | | | | | | | | | |
| 16 | <u>149</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 17 | <u>150</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | <u>1</u> | | | | | | | | |
| 18 | <u>151</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | <u>1</u> | | | | | | | | | | |
| 19 | <u>152</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 20 | <u>153</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 21 | <u>154</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 22 | <u>155</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | <u>1</u> | | | | | | | | | | |
| 23 | <u>156</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 24 | <u>157</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |
| 25 | <u>158</u> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-----------------|
| 2" | Other (specify) |
| 3" | |
| 4" | <u>R-40820</u> |
| 6" | |

Stamp

Roger Yarjau
CGSB RTII
ASNT RTII MTII
#5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| | | | | |

Client Signature _____
 Client Print D.R. HOPE
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 10/2012
Page 3 of 3

R - 40882

LAW Job # DM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8523
 Location: Redcliff, AB. Client # _____
 Material Carbon steel Source 3.9mm / Ir 192 Screens 0.010"Pb F+B Film A4B / D4
SIZE TYPE BRAND TYPE
 SOD _____ SFD DWC Technique(s) Refer to back Code(s) ASnc B31.3 W1

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|----------|--------|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|--------------------------|-----|
| 1 | X-159 | 2" x H | ✓ | ✓ | U | | | | | | | | | | | | <u>SN# 12-052 Piping</u> | |
| 2 | 160 | | ✓ | ✓ | | | | | | | | | | | | | | |
| 3 | 161 | | ✓ | ✓ | | | | | | | | | | | | | | |
| 4 | 162 | | ✓ | ✓ | | | | 1 | | | | | | | | | | |
| 5 | 163 | | ✓ | ✓ | J | | | | | | | | | | | | | |
| 6 | 164 | | ✓ | ✓ | | | | 2 | | | | | | | | | | |
| 7 | 165 | | ✓ | ✓ | | | | | | | | | | | | | | |
| 8 | 166 | | ✓ | ✓ | | | | | | | | | | | | | | |
| 9 | 167 | | ✓ | ✓ | | | | | | | | | | | | | | |
| 10 | 168 | 3" x H | ✓ | ✓ | | | | | | | | | | | | | | |
| 11 | 169 | | ✓ | ✓ | | | | | | | | | | | | | | |
| 12 | 170 | | ✓ | ✓ | | | | | | | | | | | | | | |
| 13 | 171 | | ✓ | ✓ | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-----------------|
| 2" | Other (specify) |
| 3" | |
| 4" | <u>R-40880</u> |
| 6" | |

Stamp
Roger Yareau
CGSB RTII
ASNT RTII MTII
#5982

| Reg. hrs. | O.T. Hrs. | kms | Sub.days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| | | | | |

Client Signature _____
 Client Print DR Yareau
 Technician Signature Roger Yareau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 11/2012
Page 1 of 2

R - 40885

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8533
 Location: Redcl. PL, NB Client # _____
 Material carbon steel Source 3.9" / Ir 192 Screens 0.010" Pb F+B Film Agfa 04
SIZE TYPE BRAND TYPE

SOD _____ SFD DWC Technique(s) Refer to back Code(s) ASme B31.3 W1

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|----------|-----------|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|--------------------|-----|
| 1 | X-172 | 2" x 1/4" | ✓ | ✓ | ✓ | | | | | 2 | | | | | | | sw # 12-052 Piping | |
| 2 | 173 | | ✓ | ✓ | ✓ | | | | | 1 | | | | | | | | |
| 3 | 174 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 4 | 175 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 5 | 176 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 6 | 177 | | ✓ | ✓ | ✓ | | | | | 1 | | | | | | | | |
| 7 | 178 | | ✓ | ✓ | ✓ | | | | 1 | | | | | | | | | |
| 8 | 179 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 9 | 180 | 3" x 1/4" | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 10 | 181 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 11 | 182 | | ✓ | ✓ | ✓ | | | | | 1 | | | | | | | | |
| 12 | 183 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 13 | 184 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 14 | 185 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 15 | 186 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 16 | 187 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 17 | 188 | | ✓ | ✓ | ✓ | | | | | 2 | | | | | | | | |
| 18 | 189 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 19 | 190 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 20 | 191 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 21 | 192 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 22 | 193 | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 23 | 194 | | ✓ | ✓ | ✓ | | | | | 1 | | | 1 | | | | | |
| 24 | 195 | | ✓ | ✓ | ✓ | | | | | 1 | | | | | | | | |
| 25 | 196 | | ✓ | ✓ | ✓ | | | | | 1 | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-----------------|
| 2" | Other (specify) |
| 3" | |
| 4" | |
| 6" | |

Roger Yarjau
 ST-REP
 CGSB RTII
 ASNT RTII MTII
 #5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| | | | | |

Client Signature _____
 Client Print DR 110815
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 11/2012
Page 2 of 2

R - 40886

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8533
 Location: Redhill, AB. Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010" Pb F+B Film Agfa/04
SIZE TYPE BRAND TYPE

SOD _____ SFD DWC Technique(s) Refer to back Code(s) ASME B31.3 (VI)

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|---------------|-----|----|----|----|---|---|----|----|----|----|----|-----|-----|---|------------------------------|-----|
| 1 | X-197 3" std. | ✓ | ✓ | ✓ | | | | | | | | | | | | SN # 12-052 Piping | |
| 2 | 198 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 3 | 199 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 4 | 200 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 5 | 201 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 6 | 202 | ✓ | ✓ | ✓ | | | | 33 | | | | | | | | Por. 14" LF 20-22", 25-27" Ⓟ | |
| 7 | 203 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 8 | 204 | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| 9 | 205 | ✓ | ✓ | ✓ | | | | | 1 | | | 1 | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | |
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| 22 | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | |

| | |
|-----------------------|-----------------|
| Weld or film quantity | |
| 2" | Other (specify) |
| 3" | |
| 4" | R-40885 |
| 6" | |

SI **Roger Yareau**

CGSB RTII
ASNT RTII MTII
#5982

| | | | | |
|-----------|-----------|-----|----------|-----------|
| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
| | | | | |

Client Signature _____
 Client Print DR NORIS
 Technician Signature Roger Yareau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 12/2012
Page 1 of 1

R - 40888

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 2559
 Location: Redcliff, AB. Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010"Pb F+B Film Agfa / 04/05
SIZE TYPE BRAND TYPE

SOD _____ SFD DUC Technique(s) Refer to back Code(s) ASME B31.3 (N)

- T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
- WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
- IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
- P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|----------------|-----|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|-------------------|-----|
| 1 | X-206 4" std. | ✓ | | | B | | | | | | | | | | | | SN# 12-053 Piping | |
| 2 | 207 | ✓ | | | | | | | | | | | | | | | | |
| 3 | 208 | ✓ | | | | | | | | | | | | | | | | |
| 4 | 209 | ✓ | | | | | | | | | | | | | | | | |
| 5 | 210 | ✓ | | | | | | | | | | | | | | | | |
| 6 | 211 | ✓ | | | | | | | | | | | | | | | | |
| 7 | 212 | ✓ | | | | | | | | | | | | | | | | |
| 8 | 213 3" std. | ✓ | | | | | | | | | | | | | | | | |
| 9 | 214 | ✓ | | | | | | | | | | | | | | | | |
| 10 | 215 | ✓ | | | | | | | | | | | | | | | | |
| 11 | 216 | ✓ | | | | | | | | | | | | | | | | |
| 12 | 217 | ✓ | | | | | | | | | | | | | | | | |
| 13 | 218 | ✓ | | | | | | | | | | | | | | | | |
| 14 | 219 | ✓ | | | | | | | | | | | | | | | | |
| 15 | 220 | ✓ | | | | | | | | | | | | | | | | |
| 16 | 221 | ✓ | | | | | | | | | | | | | | | | |
| 17 | 222 | ✓ | | | | | | | | | | | | | | | | |
| 18 | 223 | ✓ | | | | | | | | | | | | | | | | |
| 19 | 224 | ✓ | | | | | | | | | | | | | | | | |
| 20 | 225 | ✓ | | | | | | | | | | | | | | | | |
| 21 | 226 | ✓ | | | | | | | | | | | | | | | | |
| 22 | 227 | ✓ | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | |
| 24 | X-207A 3" std. | ✓ | | | J | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-----------------|
| 2" | Other (specify) |
| 3" | 15 |
| 4" | 7 |
| 6" | |

Stamp
 Roger Yarjau
 CGSB RTII
 ASNT RTII MTII
 #5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| 2 | | | | |

Client Signature _____
 Client Print DR Hope
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

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Date Feb. 4/13
Page 1 of 2

R - 42488
H - 2857
LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 9427
 Location: Redcliff, AB Client # _____
 Material carbon steel Source 3.7mm / Ir 192 Screens 0.010"Pb F+B Film Agfa/04
SIZE TYPE BRAND TYPE

SOD _____ SFD Dwc Technique(s) Refer to back Code(s) ASME B31.3 (NI)

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|--------------|------------------|----------|----------|----------|----------|----------|---|----|----|----|----|----|-----|-----|---|-------------------------|-----|
| 1 | | | | | | | | | | | | | | | | | <u>Pipings Revision</u> | |
| 2 | | | | | | | | | | | | | | | | | <u>ser# 12-052</u> | |
| 3 | <u>X 228</u> | <u>2" x 1/4"</u> | <u>✓</u> | <u>✓</u> | <u>✓</u> | <u>✓</u> | | | | | | | | | | | | |
| 4 | <u>229</u> | | <u>✓</u> | <u>✓</u> | <u>✓</u> | | <u>1</u> | | | | | | | | | | | |
| 5 | <u>230</u> | | <u>✓</u> | <u>✓</u> | <u>✓</u> | | | | | | | | | | | | | |
| 6 | <u>231</u> | | <u>✓</u> | <u>✓</u> | <u>✓</u> | | | | | | | | | | | | | |
| 7 | <u>232</u> | | <u>✓</u> | <u>✓</u> | <u>✓</u> | | | | | | | | | | | | | |
| 8 | <u>233</u> | | <u>✓</u> | <u>✓</u> | <u>✓</u> | | | | | | | | | | | | | |
| 9 | <u>234</u> | | <u>✓</u> | <u>✓</u> | <u>✓</u> | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |
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| 24 | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|--------------------------|
| 2" | <u>7</u> Other (specify) |
| 3" | <u>hardness</u> |
| 4" | <u>5 Hits</u> |
| 6" | |

Stroger Yarjau
CGSB RTII
ASNT RTII MTII
#5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| <u>1</u> | | | | |

Client Signature A. Martin
 Client Print A. Martin
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
 T1J 4K5 Ph. (403) 380-3555
 Fax. (403) 394-0498

Date Oct. 23/2012
 Page 1 of 2
 H 2195
 LAW # AM

Hardness Test Report

Client Global Flow Inc. Client No. P.O.# 8672
 Location Redcliff, AB. Client No. _____
 Items Examined Piping SW# 12-052
 Hardness Scale Vickers Maximum Tolerance 210HV
 Equipment Used Dynapocket SW# 35159-

TEST RESULTS

| | Weld # | DIA | W.T. | P.M. | H.A.Z. | Weld | H.A.Z. | P.M. |
|----|--------|-----|------|------|--------|------|--------|------|
| 1 | X-173 | 2" | X# | 139 | 114 | 146 | 137 | 121 |
| 2 | X-108 | 3" | Sld | 105 | 141 | 117 | 130 | 130 |
| 3 | 49 | " | " | 156 | 119 | 151 | 112 | 101 |
| 4 | 196 | " | " | 157 | 127 | 140 | 124 | 119 |
| 5 | 190 | " | " | 145 | 142 | 153 | 117 | 111 |
| 6 | 191 | " | " | 129 | 139 | 129 | 123 | 123 |
| 7 | 204 | " | " | 117 | 112 | 126 | 121 | 129 |
| 8 | 224 | " | " | 159 | 144 | 136 | 116 | 139 |
| 9 | 214 | " | " | 116 | 120 | 103 | 152 | 118 |
| 10 | 77 | " | " | 126 | 123 | 106 | 114 | 109 |
| 11 | 36 | " | " | 118 | 124 | 154 | 104 | 124 |
| 12 | 85 | " | " | 135 | 128 | 118 | 123 | 135 |
| 13 | 66 | " | " | 150 | 152 | 105 | 117 | 127 |
| 14 | 71 | " | " | 134 | 123 | 149 | 117 | 114 |
| 15 | 74 | " | " | 139 | 153 | 104 | 112 | 124 |
| 16 | 126 | 4" | " | 126 | 114 | 115 | 103 | 122 |
| 17 | 2 | " | " | 123 | 126 | 121 | 113 | 144 |
| 18 | 16 | " | " | 126 | 125 | 112 | 142 | 124 |
| 19 | 3 | " | " | 120 | 107 | 143 | 103 | 102 |
| 20 | 6 | " | " | 115 | 142 | 138 | 100 | 105 |
| 21 | 113 | " | " | 108 | 115 | 135 | 125 | 104 |

Consumables 125 hits
 Reg Hours 1
 Overtime Hours _____
 Kilometers _____

Roger Yarijau
 Scribe
 CGSB RTII
 ASNT RTII MTII
 #5982

Client Signature _____
 Client Print DA 110013
 Technician Signature Roger Yarijau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
 T1J 4K5 Ph. (403) 380-3555
 Fax. (403) 394-0498


Date Oct. 23/2010
 Page 2 of 2
 H 2196
 LAW # AM

Hardness Test Report

Client Global Flow Inc. Client No. P.O.# 8678
 Location Redcliff, AB Client No. _____
 Items Examined Piping SW# 12-052
 Hardness Scale Vickers Maximum Tolerance 210HV
 Equipment Used Dynapocket SW# 35154-

TEST RESULTS

| | Weld # | DIA | W.T. | P.M. | H.A.Z. | Weld | H.A.Z. | P.M. |
|----|--------|-----|------|------|--------|------|--------|------|
| 1 | X-11 | 4" | std | 143 | 121 | 121 | 110 | 120 |
| 2 | 29 | " | " | 129 | 133 | 144 | 105 | 116 |
| 3 | 59 | " | " | 159 | 152 | 146 | 117 | 103 |
| 4 | 55 | 6" | " | 117 | 107 | 114 | 103 | 115 |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
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| | | | |
|----------------|---------------|---|--|
| Consumables | |  Roger Yarjau CGSB RTII ASNT RTII MTII #5982 | Client Signature <u>[Signature]</u> |
| Reg Hours | <u>H-2195</u> | | Client Print <u>DR HOFF</u> |
| Overtime Hours | | | Technician Signature <u>Roger Yarjau</u> |
| Kilometers | | | |



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J 4K5 Ph. (403) 380-3555
Fax. (403) 394-0498

Date Feb. 4/13
Page 2 of 2
H 2857
LAW # AM

Hardness Test Report

Client Global Flow Inc Client No. P.O.# 9427
Location Redcliff, AB Client No. _____
Items Examined Piping Revision SN# 12-052
Hardness Scale Vickers Maximum Tolerance 210 HV
Equipment Used Dynapocket SN# 35159-1821

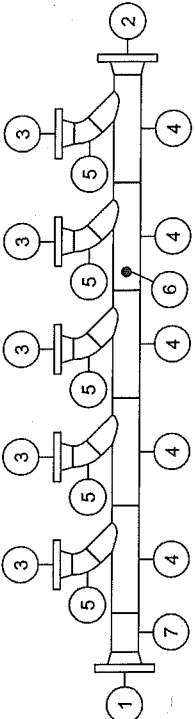
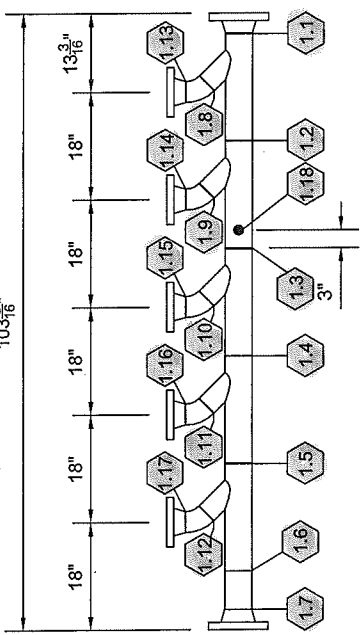
TEST RESULTS

| | Weld # | DIA | W.T. | P.M. | H.A.Z. | Weld | H.A.Z. | P.M. |
|----|--------|-----|------|------|--------|------|--------|------|
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | X-234 | 2" | XH | 123 | 108 | 120 | 145 | 108 |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
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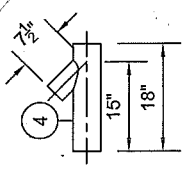
| | | | |
|----------------|----------------|---|-----------------------------------|
| Consumables | | Roger Yarijau CGSB RTII ASNT RTII MTII #5982 | Client Signature _____ |
| Reg Hours | <u>R-42488</u> | | Client Print _____ |
| Overtime Hours | | | Technician Signature <u>Ry 70</u> |
| Kilometers | | | |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---|---------------------|---------------|------|-------------|
| 1 | RFWN, 4" 300 ANSI SCH. 40 | SA-350 GR LFP2 CL.1 | | 1 | |
| 2 | RFWN, 4" 300 ANSI SCH. 40 | SA-105N | | 1 | |
| 3 | RFWN, 3" 300 ANSI SCH. 40 | SA-105N | | 5 | |
| 4 | WELD YLAT, 4" SCH. 40 X 3" SCH. 40, 0.0625" CA, 100% X-RAY, 10% HARDNESS TESTING | SA-106B | SEE DETAIL | 5 | |
| 5 | 18" OAL RUN, 7-1/2" OAL BRANCH, GOOD FOR 720 PSI WELD 45 ELBOW, 3" SCH. 40 LR | SA-234-WFB | | 5 | |
| 6 | TOL, 1/2" 3M 8'-3" RUN | SA-105N | | 1 | |
| 7 | PIPE, 4" SCH. 40 (0.237") BBE | SA-333 GR.6 | 6'-1/2" | 1 | |



u
1/4" S1 100 112
Issued for Construction



Y-LAT DETAIL

| WELD NUMBER | X-RAY | WELDER SYMBOL | WELDER | WELD DETAIL | HOLE SIZE |
|-------------|-------|---------------|--------|-------------|-----------|
| 1-1 | 206 | B | | 4 | |
| 1-2 | 207 | B | | 4 | |
| 1-3 | 208 | B | | 4 | |
| 1-4 | 209 | B | | 4 | |
| 1-5 | 210 | B | | 4 | |
| 1-6 | 211 | B | | 4 | |
| 1-7 | 212 | B | | 4 | |
| 1-8 | 222 | B | | 4 | |
| 1-9 | 220 | B | | 4 | |
| 1-10 | 218 | B | | 4 | |
| 1-11 | 216 | B | | 4 | |
| 1-12 | 214 | B | | 4 | |
| 1-13 | 211 | B | | 4 | |
| 1-14 | 214 | B | | 4 | |
| 1-15 | 217 | B | | 4 | |
| 1-16 | 213 | B | | 4 | |
| 1-17 | 213 | B | | 4 | |
| 1-18 | 213 | B | | 10 | 13/16 Ø |

GENERAL NOTES

- QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE, IS WP-2843.2
- MTRs ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
- SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
- ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
- GENERAL DEVIATION TOLERANCE IS +/- .18"; OVERALL LENGTH TOLERANCE IS +/- .18"; ANGULAR TOLERANCE IS +/- .1°
-
-

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP, CLASS "BSL"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART
CORROSION ALLOWANCE: 0.0625" (1.6mm)
TESTING MEDIUM: WATER
P.W.H.T.: N/A
HARDNESS TESTING: 10%
MT / PT TESTING: N/A
RADIOGRAPHY: 100%

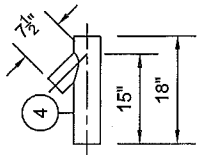


| | | | |
|----------------------|-----------|---|----------------|
| CUSTOMER | | TITLE / PROJECT | |
| PennWest Exploration | | 3" INLET (10 WELLS) / 4" HEADER 24" OD X 60' S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | |
| DRAWING NAME | QUANTITY | PACKAGE SERIAL NO. OR | DATE |
| SPOOL 1 | 1 | 12-052-01 | 09/14/12 |
| JOB NO. | DRAWN BY | SCALE | DRAWING NO. |
| 12-052 | D. BRYAN | 3/8"-1'-0" | 12-052 SPOOL 1 |
| REV. NO. | SHEET NO. | 1 OF 1 | |
| 0 | | | |

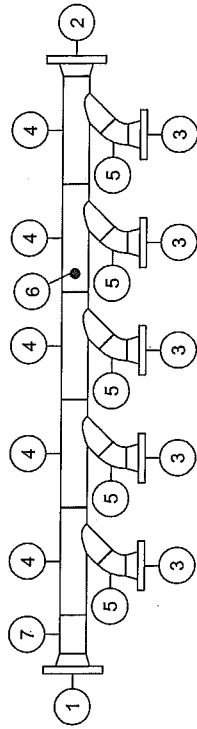
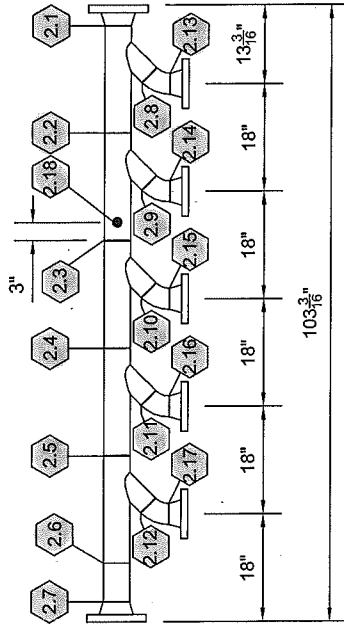
| REV. | DATE | DESCRIPTION | BY | CHK'D | APP'D |
|------|----------|-------------------------|----|-------|-------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | WJ | |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---|--------------------|---------------|------|-------------|
| 1 | REFWN, 4" 300 ANSI SCH. 40 | SA-350 GR.LF2 CL.1 | | 1 | |
| 2 | REFWN, 4" 300 ANSI SCH. 40 | SA-105N | | 1 | |
| 3 | REFWN, 3" 300 ANSI SCH. 40 | SA-105N | | 5 | |
| 4 | WELD YLAT, 4" SCH. 40 X 3" SCH. 40, 0.0625" CA, 100% X-RAY, 10% HARDNESS TESTING 18" OAL RUN, 7-1/2" OAL BRANCH, GOOD FOR 720 PSI | SA-106B | SEE DETAIL | 5 | |
| 5 | WELD 45 ELBOW, 3" SCH. 40 LR | SA-234-WPB | | 5 | |
| 6 | TOL, 1/2" 3M 8"-3" RUN | SA-105N | | 1 | |
| 7 | PIPE, 4" SCH. 40 (0.237") BBE | SA-333 GR.6 | 6-1/2" | 1 | |



Y-LAT DETAIL



Issued for Construction
1/4/11 10/10/12

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTRS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8"; OVERALL LENGTH TOLERANCE IS +/- 1/8"; ANGULAR TOLERANCE IS +/- 1°
- 6.
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP, CLASS "BSL"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART
 CORROSION ALLOWANCE: 0.0625" (1.6mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | 1/4 | |

GlobalFlow

CUSTOMER: PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
24"OD X 60" SIS X 720 PSI
AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 2 QUANTITY: 1 PACKAGE SERIAL NO. 012-052-01

JOB NO.: 12-052 DRAWN BY: D. BRYAN DATE: 09/14/12

REV. NO.: 0 SHEET NO.: 1 OF 1 SCALE: 3/8"=1'-0" DRAWING NO.: 12-052 SPOOL 2

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | SOLE |
|-------------|--------------|---------------|-------------|----------|---------|
| 2.1 | 1.21 | B | 4 | . | . |
| 2.2 | 1.22 | B | 4 | . | . |
| 2.3 | 1.23 | B | 4 | . | . |
| 2.4 | 1.24 | B | 4 | . | . |
| 2.5 | 1.25 | B | 4 | . | . |
| 2.6 | 1.26 | B | 4 | . | . |
| 2.7 | 1.27 | B | 4 | . | . |
| 2.8 | 1.27 | B | 4 | . | . |
| 2.9 | 1.35 | B | 4 | . | . |
| 2.10 | 1.33 | B | 4 | . | . |
| 2.11 | 1.31 | B | 4 | . | . |
| 2.12 | 1.24 | B | 4 | . | . |
| 2.13 | 1.36 | B | 4 | . | . |
| 2.14 | 1.34 | B | 4 | . | . |
| 2.15 | 1.32 | B | 4 | . | . |
| 2.16 | 1.30 | B | 4 | . | . |
| 2.17 | 1.29 | B | 4 | . | . |
| 2.18 | 1 | B | 10 | . | 13/16"Ø |

WELD DETAIL 4 WELD DETAIL 10

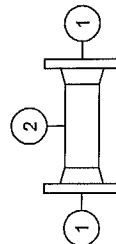
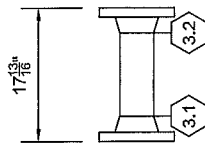
ROOT: GF-IN RT ROOT: GF-IN RT
 FAC: GF-IN RT FAC: GF-IN RT

R=1/16" (1/16") a=75° (45°) h=1/16" (1/16")
 R=1/16" (1/16") a=MIN. 30° h=1/16" (1/16")

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|----------|-----------|------|-------------|
| 1 | RFWN, 4" 300 ANSI SCH. 40 | SA-105N | | 2 | |
| 2 | PIPE, 4" SCH. 40 (0.237") BBE | SA-106B | 11'-1/16" | 1 | |

*QUANTITY OF TWO SPOOLS REQUIRED



Issued for Construction
1/45/10/10/12

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS ACP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°
- 6.
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "B5"
 M.A.W.P.: 720 PSIG (4864 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 MT / PT TESTING: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 3.1a | 1 | U | 4 | - | - |
| 3.2a | 2 | U | 4 | - | - |
| 3.1b | 3 | U | 4 | - | - |
| 3.2b | 4 | U | 4 | - | - |

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | | |

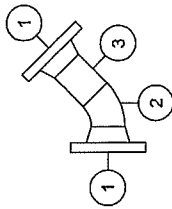
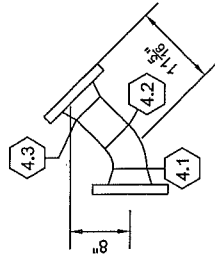
GlobalFlow

CUSTOMER: PennWest Exploration
 TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 3
 QUANTITY: 2
 PACKAGE SERIAL NO. (P): 12-052-01
 JOB NO.: 12-052
 DRAWN BY: D. BRYAN
 DATE: 09/14/12
 SHEET NO.: 0
 SCALE: 1/2"=1'-0"
 DRAWING NO.: 12-052 SPOOL 3

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|------------|--------|------|-------------|
| 1 | RFWN, 4" 300 ANSI SCH. 40 | SA-108N | | 2 | |
| 2 | WELD 45 ELBOW, 4" SCH. 40 LR | SA-234-WPB | | 1 | |
| 3 | PIPE, 4" SCH. 40 (0.237") BBE | SA-108B | 57/16" | 1 | |



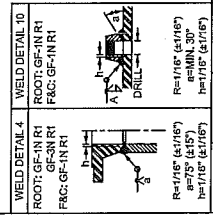
Issued for Construction
w/ 1/451 1010112

| GENERAL NOTES | |
|--|--|
| 1. | QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE, IS WP-2843.2 |
| 2. | MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS) |
| 3. | SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER |
| 4. | ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED |
| 5. | GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1° |
| 6. | |
| 7. | |
| ASME B31.3 2010.ED. | |
| RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS" | |
| M.A.W.P.: 720 PSIG (4864 kPa) AT +100°F (+38°C) / -20°F (-29°C) | |
| TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART | |
| CORROSION ALLOWANCE: | 0.0625" (1.6 mm) |
| TESTING MEDIUM: | WATER |
| MT / PT TESTING: | N/A |
| HARDNESS TESTING: | 10% |
| RADIOGRAPHY: | 100% |

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | | |

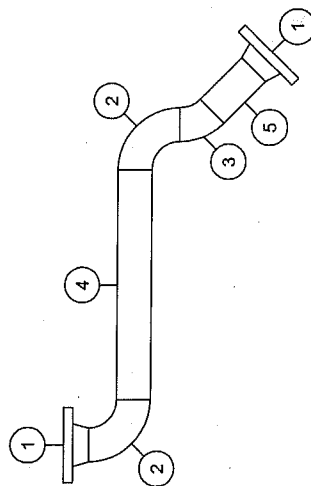
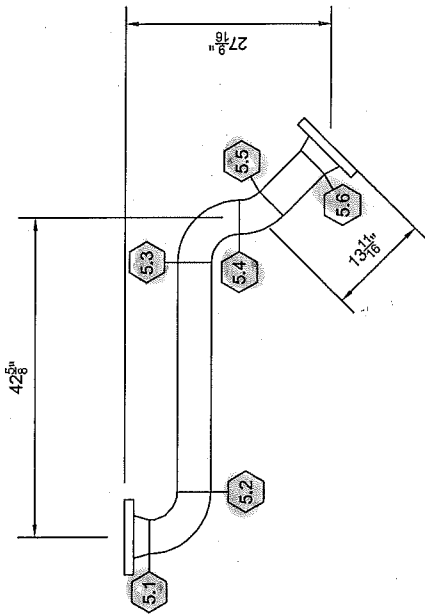
| | |
|-------------------------|--|
| GlobalFlow | |
| CUSTOMER: | PennWest Exploration |
| TITLE PROJECT: | 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG |
| DRAWING NAME: | SPOOL 4 |
| QUANTITY: | 1 |
| PACKAGE SERIAL NO. (S): | 12-052-01 |
| JOB NO.: | 12-052 |
| DRAWN BY: | D. BRYAN |
| DATE: | 09/14/12 |
| REV. NO.: | 0 |
| SHEET NO.: | 1 OF 1 |
| DRAWING NO.: | 12-052 SPOOL 4 |

| WELD NUMBER | X-RAY | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|-------|---------------|-------------|----------|-----------|
| 4.1 | 5 | | 4 | | |
| 4.2 | 6 | | 4 | | |
| 4.3 | 7 | | 4 | | |



BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|------------|-----------|------|-------------|
| 1 | R/WIN, 4" 300 ANSI SCH. 40 | SA-106B | | 2 | |
| 2 | WELD 90 ELBOW, 4" SCH. 40 LR | SA-234-WPB | | 2 | |
| 3 | WELD 45 ELBOW, 4" SCH. 40 LR | SA-234-WPB | | 1 | |
| 4 | PIPE, 4" SCH. 40 (0.237") BBE | SA-106B | 30'-5/8" | 1 | |
| 5 | PIPE, 4" SCH. 40 (0.237") BBE | SA-106B | 7'-13/16" | 1 | |



Issued for Construction
W
AS 10/11/12

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
- 6.
- 7.

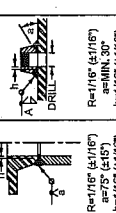
ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 80 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 P.W.H.T.: N/A
 TESTING MEDIUM: WATER
 HARDNESS TESTING: 10%
 MT / PT TESTING: N/A
 RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 5.1 | 17 | A | 4 | | |
| 5.2 | 16 | A | 4 | | |
| 5.3 | 13 | A | 4 | | |
| 5.4 | 14 | A | 4 | | |
| 5.5 | 15 | A | 4 | | |
| 5.6 | 12 | A | 4 | | |

| WELD DETAIL 4 | WELD DETAIL 10 |
|---------------------------------|---------------------------------|
| ROOT: GF-IN R1 FAC: GF-IN R1 | ROOT: GF-IN R1 FAC: GF-IN R1 |



| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | WJ | S |

GlobalFlow

CUSTOMER: PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" SIS X 720 PSI
 AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 5

JOB NO.: 12-052

DRAWN BY: D. BRYAN

DATE: 09/14/12

REV. NO.: 0

SHEET NO.: 1 OF 1

SCALE: 1/2"=1'-0"

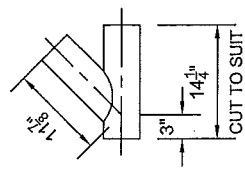
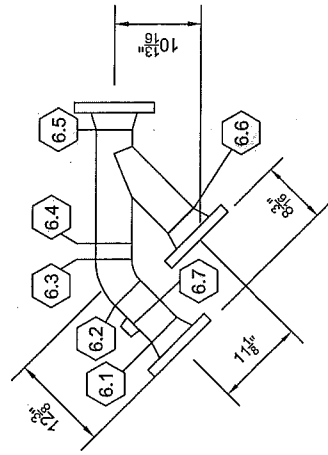
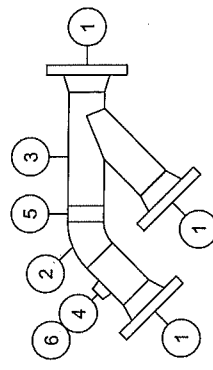
DRAWING NO.: 12-052 SPOOL 5

PACKAGE SERIAL NO./QTY: 12-052-01

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|--|------------|------------|------|-------------|
| 1 | RFWN, 4" 300 ANSI SCH. 40 | SA-105N | | 3 | |
| 2 | WELD 45 ELBOW, 4" SCH. 40 LR | SA-234-WPB | | 1 | |
| 3 | WELD YLAT, 4" SCH. 80 X 4" SCH. 80, 0.0625" CA, 100% X-RAY, 10% HARDNESS TESTING | SA-106B | SEE DETAIL | 1 | |
| 4 | 14-1/4" OAL RUN, 11-7/8" OAL BRANCH, GOOD FOR 720 PSI | SA-106B | 6-1/2" | 1 | |
| 5 | PIPE, 4" SCH. 40 (0.237") BBE | SA-106B | 2" | 1 | |
| 6 | TOL, 1" 3M 5" - 4" RUN | SA-105N | | 1 | |

Issued for Construction
1/4/12 10:01:12



Y-LAT DETAIL

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°
- 6.
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "B"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES. (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELDER SYMBOL | WELD DETAIL | HOLE SIZE |
|---|--------------|---------------|---------------|-------------|-----------|
| WELD DETAIL 4 ROOT: GF-IN R1 F&C: GF-IN R1 | | | | | |
| WELD DETAIL 10 ROOT: GF-IN R1 F&C: GF-IN R1 | | | | | |

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELDER SYMBOL | WELD DETAIL | HOLE SIZE |
|-------------|--------------|---------------|---------------|-------------|-----------|
| 6.1 | 114 | U | U | 4 | |
| 6.2 | 113 | U | U | 4 | |
| 6.3 | 112 | U | U | 4 | |
| 6.4 | 111 | U | U | 4 | |
| 6.5 | 109 | U | U | 4 | |
| 6.6 | 110 | U | U | 4 | |
| 6.7 | | | | 10 | 1-1/8" |



CUSTOMER: PennWest Exploration
 TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" SIS X 720 PSI
 AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 6
 QUANTITY: 1
 PACKAGE SERIAL NO. 06: 12-052-01

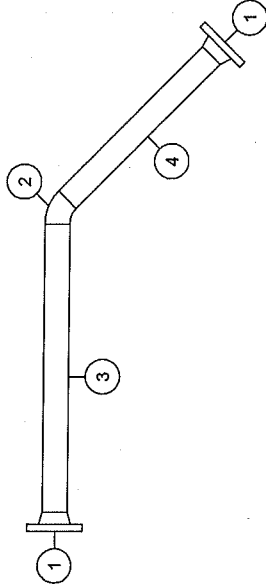
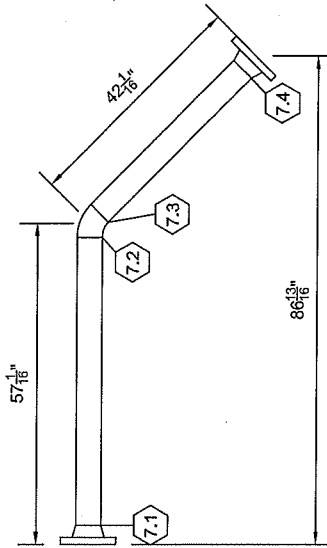
JOB NO.: 12-052
 DRAWN BY: D. BRYAN
 DATE: 09/14/12

REV. NO.: 0
 SHEET NO.: 1 OF 1
 SCALE: 1/2"=1'-0"
 DRAWINGS NO.: 12-052 SPOOL 6

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | 11 | 11 |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|----------|----------|------|-------------|
| 1 | REWN, 4" 300 ANSI SCH. 40 | SA-105N | | 2 | |
| 2 | WELD 45 ELBOW, 4" SCH. 40 LR | SA-105N | | 1 | |
| 3 | PIPE, 4" SCH. 40 (0.237") BBE | SA-105B | 51-3/16" | 1 | |
| 4 | PIPE, 4" SCH. 40 (0.237") BBE | SA-105B | 36-3/16" | 1 | |



Issued for Construction
W 1/31/12
1/4/10/12

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. FITTINGS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
6.
7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4984 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.5mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| REV. | DATE | DESCRIPTION | BY | CHKD / APPD |
|------|----------|-------------------------|----|-------------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | W |

GlobalFlow

PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

CUSTOMER: PennWest Exploration

DRAWING NAME: SPOOL 7

QUANTITY: 1

PACKAGE SERIAL NO. OF: 12-052-01

JOB NO.: 12-052

DRAWN BY: D. BRYAN

DATE: 09/14/12

REV. NO.: 0

SHEET NO.: 1 OF 1

SCALE: 3/8"=1'-0"

DRAWING NO.: 12-052 SPOOL 7

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 7.1 | 1 | | 4 | | |
| 7.2 | 1 | | 4 | | |
| 7.3 | 1 | | 4 | | |
| 7.4 | 1 | | 4 | | |

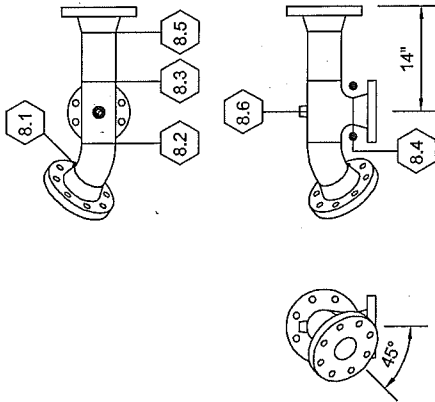
WELD DETAIL 4
 ROOT: GF-IN RT
 FAC: GF-IN RT

DRILL: 1/8"

Re: 1/16" (41/16")
 a: 7/16" (41/16")
 Re: 1/16" (41/16")
 a: 7/16" (41/16")

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|--------------------|---------|------|-------------|
| 1 | RFWN, 4" 300 ANSI SCH. 40 | SA-350 GR.LF2 CL.1 | - | 1 | - |
| 2 | RFWN, 4" 300 ANSI SCH. 40 | SA-105N | - | 1 | - |
| 3 | RFWN, 3" 300 ANSI SCH. 40 | SA-105N | - | 1 | - |
| 4 | WELD 45 ELBOW, 4" SCH. 40 LR | SA-234-WPB | - | 1 | - |
| 5 | REDUCING TEE, 4" X 3" SCH. 40 | SA-234-WPB | - | 1 | - |
| 6 | TOL, 1/2" 3M 8"-3" RUN | SA-105N | - | 1 | - |
| 7 | PIPE, 4" SCH. 40 (0.237") BBE | SA-333 GR.6 | 6'-1/2" | 1 | - |



Issued for Construction
w/ 4/4 5/1 10/11/12

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS ACP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT; FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°
6. ● INDICATES PIG BARS
7. . . .

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP, CLASS "BSL"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART
CORROSION ALLOWANCE: 0.0625" (1.6 mm)
P.W.H.T.: N/A
HARDNESS TESTING: 10%
RADIOGRAPHY: 100%

| WELD DETAIL 4 | WELD DETAIL 10 | WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|---------------------------------|---------------------------------|-------------|--------------|---------------|-------------|----------|-----------|
| ROOT: GF-IN R1 FAC: GF-IN R1 | ROOT: GF-IN R1 FAC: GF-IN R1 | 8.1 | 27 | 5 | 4 | - | - |
| | | 8.2 | 28 | 5 | 4 | - | - |
| | | 8.3 | 29 | 5 | 4 | - | - |
| | | 8.4 | 30 | 5 | 4 | - | - |
| | | 8.5 | 31 | 5 | 4 | - | - |
| | | 8.6 | 32 | 5 | 10 | - | 11/16"Ø |

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | WJ | WJ |



CUSTOMER: PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
24"OD X 60" S/S X 720 PSI
AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 8

QUANTITY: 1

PACKAGE SERIAL NO. (PK): 12-052-01

JOB NO.: 12-052

DRAWN BY: D. BRYAN

DATE: 09/14/12

REV. NO.: 0

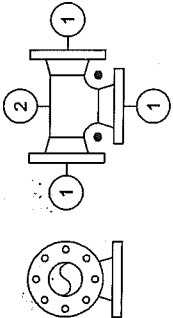
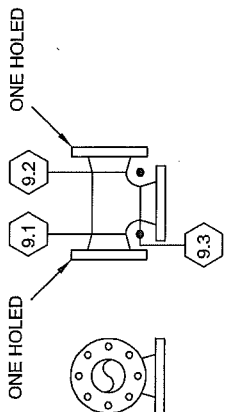
SHEET NO.: 1 OF 1

SCALE: 1/2" = 1'-0"

DRAWING NO.: 12-052 SPOOL 8

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---------------------------|--------------------|--------|------|-------------|
| 1 | RFWN, 4" 300 ANSI SCH. 40 | SA-350 GR.LF2 CL.1 | | 3 | |
| 2 | WELD TEE, 4" SCH. 40 | SA-420-WPL6 | | 1 | |



Issued for Construction
W 1/4 10/01/12

GENERAL NOTES

- QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE, IS WP-2843.2
- MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
- SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
- ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
- GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°
- INDICATES PIG BARS
-

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP. CLASS "BSL"
 M.A.W.P.: 720 PSIG (4984 kPa) AT +100°F (+38°C) / -50°F (-45°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

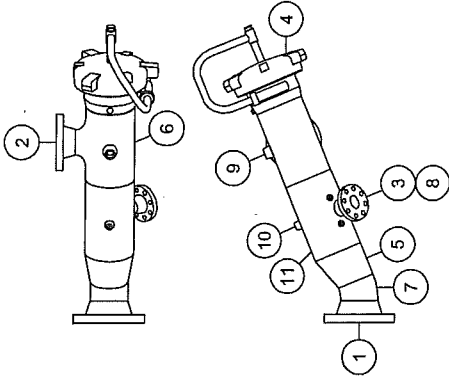
| | |
|--|-------------------------------------|
| | |
| TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | |
| CUSTOMER: PennWest Exploration | PACKAGE SERIAL NO. OF: 12-052-01 |
| DRAWING NAME: SPOOL 9 | QUANTITY: 1 |
| JOB NO: 12-052 | DRAWN BY: D. BRYAN |
| REV. NO.: 0 | DATE: 09/14/12 |
| SHEET NO.: 1 OF 1 | DRAWING NO.: 12-052 SPOOL 9 |
| REV. DATE: 09/27/12 | ISSUED FOR CONSTRUCTION DB |
| DESCRIPTION: ISSUED FOR CONSTRUCTION | BY: (Signature) |

| WELD DETAILED | WELD DETAILED | WELD DETAILED | WELD DETAILED | HOLE SIZE |
|---|---|---|---|-----------|
| ROOT: GF-IN RT | ROOT: GF-IN RT | ROOT: GF-IN RT | ROOT: GF-IN RT | |
| F&C: GF-IN RT | F&C: GF-IN RT | F&C: GF-IN RT | F&C: GF-IN RT | |
| | | | | |
| R=1/16" (41167) a=75° (415) h=1/16" (41167) | R=1/16" (41167) a=75° (415) h=1/16" (41167) | R=1/16" (41167) a=75° (415) h=1/16" (41167) | R=1/16" (41167) a=75° (415) h=1/16" (41167) | |
| WELD NUMBER: 25 | WELD NUMBER: 26 | WELD NUMBER: 27 | WELD NUMBER: 28 | |
| WELDER SYMBOL: (Symbol) | WELDER SYMBOL: (Symbol) | WELDER SYMBOL: (Symbol) | WELDER SYMBOL: (Symbol) | |
| WELD DETAIL: 4 | WELD DETAIL: 4 | WELD DETAIL: 4 | WELD DETAIL: 4 | |
| HARDNESS: . | HARDNESS: . | HARDNESS: . | HARDNESS: . | |
| PIG BARS: . | PIG BARS: . | PIG BARS: . | PIG BARS: . | |

ISSUED FOR CONSTRUCTION

N 1/AS
10/6/12

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---|---------------------|----------|------|-------------|
| 1 | RFWN, 6" 300 ANSI SCH. 40 | SA-350 GR LFPZ CL.1 | | 1 | |
| 2 | RFWN, 4" 300 ANSI SCH. 40 | SA-350 GR LFPZ CL.1 | | 1 | |
| 3 | RFWN, 2" 300 ANSI SCH. 80 | SA-350 GR LFPZ CL.1 | | 1 | |
| 4 | CLOSURE, 8" 300 ANSI SCH. 40, H-HINGED, NACE, CW SAFETY INTERLOCK | SA-350 GR LFPZ CL.1 | | 1 | |
| 5 | ECCENTRIC REDUCER, 8" X 6" SCH. 40 | SA-420-WPL6 | | 1 | |
| 6 | REDUCING TEE, 8" X 4" SCH. 40 | SA-420-WPL6 | | 1 | |
| 7 | WELD 22.5 ELBOW, 6" SCH. 40 LR | SA-350 GR LFPZ CL.1 | | 1 | |
| 8 | WOL, 2" 80 36"-2-1/2" RUN SIZE | SA-350 GR LFPZ CL.1 | | 1 | |
| 9 | TOL, 1" 3M 10"-6" RUN | SA-350 GR LFPZ CL.1 | | 1 | |
| 10 | TOL, 1/2" 3M 8"-3" RUN | SA-350 GR LFPZ CL.1 | | 1 | |
| 11 | PIPE, 8" SCH. 40 (0.322") BBE | SA-333 GR.6 | 14'-1/8" | 1 | |



GENERAL NOTES

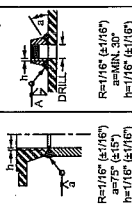
1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTRS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
6. ● INDICATES PIG BARS
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP. CLASS "BSL"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6mm)
 TESTING MEDIUM: WATER
 MT / PT TESTING: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD DETAIL 4 | WELD DETAIL 10 |
|---------------------------------|---------------------------------|
| ROOT: GF-IN RT FAC: GF-IN RT | ROOT: GF-IN RT FAC: GF-IN RT |



| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 10.1 | 32 | (Symbol) | 4 | | |
| 10.2 | 33 | (Symbol) | 4 | | |
| 10.3 | 34 | (Symbol) | 4 | | |
| 10.4 | 35 | (Symbol) | 4 | | |
| 10.5 | 36 | (Symbol) | 4 | | |
| 10.6 | 37 | (Symbol) | 10 | | 2-1/4"Ø |
| 10.7 | 38 | (Symbol) | 4 | | |
| 10.8 | 39 | (Symbol) | 4 | | |
| 10.9 | 40 | (Symbol) | 10 | | 1-1/8"Ø |
| 10.10 | 41 | (Symbol) | 10 | | 1-1/8"Ø |
| PIG BARS | | | | | |



CUSTOMER: PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

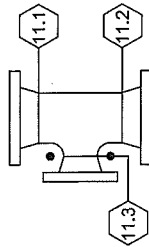
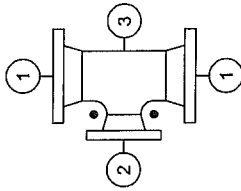
DRAWING NAME: SPOOL 10
 JOB NO.: 12-052
 REV. NO.: 0
 SHEET NO.: 1 OF 1
 SCALE: 3/8"=1'-0"

QUANTITY: 1
 PACKAGE SERIAL NO. (P): 12-052-01
 DRAWN BY: D. BRYAN
 DATE: 09/14/12
 DRAWING NO.: 12-052 SPOOL 10

REV. 0 DATE 09/27/12 ISSUED FOR CONSTRUCTION DB BY [Signature] CHKD / APP'D

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|--------------------|--------|------|-------------|
| 1 | RFWN, 6" 300 ANSI SCH. 40 | SA-350 GR.LF2 CL.1 | | 2 | |
| 2 | RFWN, 4" 300 ANSI SCH. 40 | SA-350 GR.LF2 CL.1 | | 1 | |
| 3 | REDUCING TEE, 6" X 4" SCH. 40 | SA-420-WPL6 | | 1 | |



Issued for Construction
N. 1/4/11
10/10/12

GENERAL NOTES

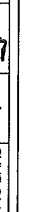
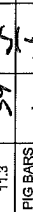
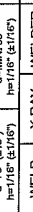
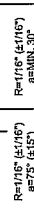
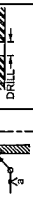
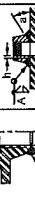
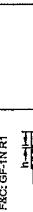
- QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE. IS WF-2843.2
- MTRS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
- SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
- ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
- GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
- INDICATES FIG BARS
-

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP, CLASS "BSL"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
TESTING MEDIUM: WATER
P.W.H.T.: N/A
MT / PT TESTING: N/A
HARDNESS TESTING: 10%
RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 11.1 | 58 | 7 | 4 | | |
| 11.2 | 57 | 7 | 4 | | |
| 11.3 | 59 | 7 | 4 | | |



| REV. | DATE | DESCRIPTION | BY | CHKD / APPD |
|------|----------|-------------------------|----|-------------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | 1/11 |

GlobalFlow

PennWest Exploration

3" INLET (10 WELLS) / 4" HEADER
24" OD X 60" S/S X 720 PSI
AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 11
QUANTITY: 1
PACKAGE SERIAL NO. OF: 12-052-01

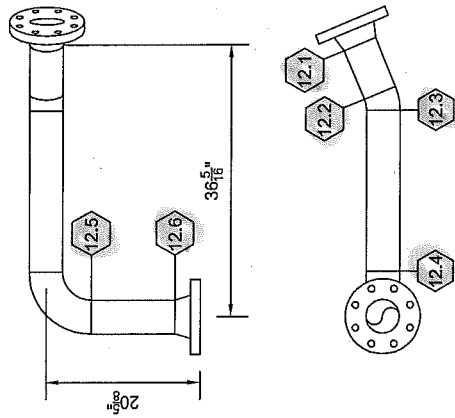
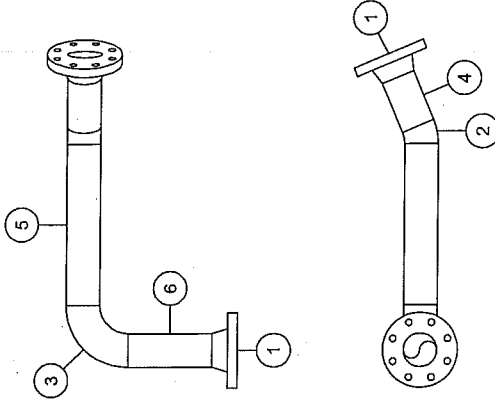
JOB NO: 12-052
DRAWN BY: D. BRYAN
DATE: 09/14/12

REV. NO.: 0
SCALE: 1 OF 1
DRAWING NO.: 12-052 SPOOL 11

Issued for Construction.
 U.S. 10/10/12

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|--------------------------------|--------------------|-----------|------|-------------|
| 1 | REFWN, 4" 300 ANSI SCH. 40 | SA-350 GR.LF2 CL-1 | . | 2 | . |
| 2 | WELD 22.5 ELBOW, 4" SCH. 40 LR | SA-420-WPL6 | . | 1 | . |
| 3 | WELD 90 ELBOW, 4" SCH. 40 LR | SA-420-WPL6 | . | 1 | . |
| 4 | PIPE, 4" SCH. 40 (0.237") BBE | SA-333 GR.6 | 7'-1/16" | 1 | . |
| 5 | PIPE, 4" SCH. 40 (0.237") BBE | SA-333 GR.6 | 2'-1-1/2" | 1 | . |
| 6 | PIPE, 4" SCH. 40 (0.237") BBE | SA-333 GR.6 | 1'-1/4" | 1 | . |



GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTRS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
- 6.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP, CLASS "BSL"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 MT / FT TESTING: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD DETAIL 4 | WELD DETAIL 10 | WELDER SYMBOL | HOLE SIZE |
|---------------------------------|---------------------------------|---------------|-----------|
| ROOT: GF-IN RT F&G: GF-IN RT | ROOT: GF-IN RT F&G: GF-IN RT | | |

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 12.1 | 19 | A | 4 | . | . |
| 12.2 | 19 | A | 4 | . | . |
| 12.4 | 20 | A | 4 | . | . |
| 12.5 | 27 | A | 4 | . | . |
| 12.6 | 23 | A | 4 | . | . |

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | WJ | WJ |

GlobalFlow

CUSTOMER: PennWest Exploration
 TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 12
 QUANTITY: 1
 PACKAGE SERIAL NO. 12-052-01

DRAWING NO.: 12-052
 DRAWN BY: D. BRYAN
 DATE: 09/14/12

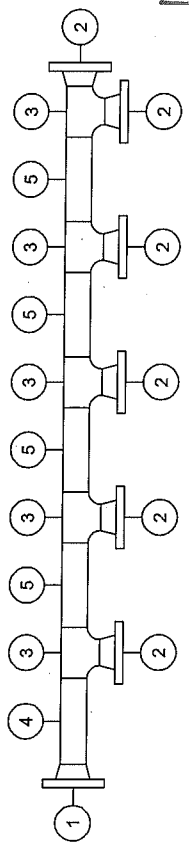
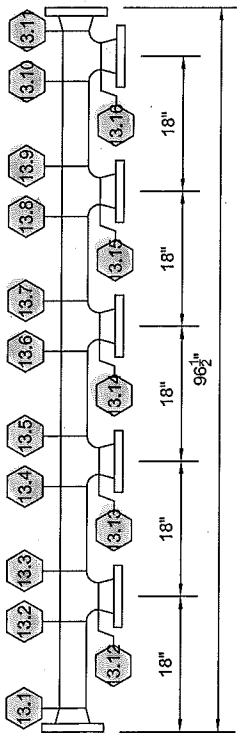
REV. NO.: 0
 SHEET NO.: 1 OF 1
 SCALE: 1/2"=1'-0"
 DRAWING NO.: 12-052 SPOOL 12

Issued for Construction
W
1/4 SI 10/01/12

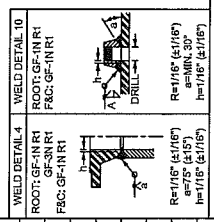
BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|--------------------|---------|------|-------------|
| 1 | RWIN, 3" 300 ANSI SCH. 40 | SA-350 GR.LF2 CL.1 | | 1 | |
| 2 | RWIN, 3" 300 ANSI SCH. 40 | SA-105N | | 6 | |
| 3 | WELD TEE, 3" SCH. 40 | SA-234-WPB | | 5 | |
| 4 | PIPE, 3" SCH. 40 (0.216") BBE | SA-333 GR.6 | 11-1/2" | 1 | |
| 5 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106-B | 11-1/4" | 4 | |

*QUANTITY OF TWO SPOOLS REQUIRED



| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 13.1a | 32 | B | 4 | | |
| 13.2a | 33 | B | 4 | | |
| 13.3a | 33 | B | 4 | | |
| 13.4a | 34 | B | 4 | | |
| 13.5a | 34 | B | 4 | | |
| 13.6a | 34 | B | 4 | | |
| 13.7a | 41 | B | 4 | | |
| 13.8a | 42 | B | 4 | | |
| 13.9a | 44 | B | 4 | | |
| 13.10a | 45 | B | 4 | | |
| 13.11a | 47 | B | 4 | | |
| 13.12a | 32 | B | 4 | | |
| 13.13a | 37 | B | 4 | | |
| 13.14a | 40 | B | 4 | | |
| 13.15a | 43 | B | 4 | | |
| 13.16a | 46 | B | 4 | | |
| 13.1b | 87 | S | 4 | | |
| 13.2b | 88 | S | 4 | | |
| 13.3b | 90 | S | 4 | | |
| 13.4b | 91 | S | 4 | | |
| 13.5b | 93 | S | 4 | | |
| 13.6b | 94 | S | 4 | | |
| 13.7b | 46 | B | 4 | | |
| 13.8b | 97 | B | 4 | | |
| 13.9b | 99 | B | 4 | | |
| 13.10b | 100 | B | 4 | | |
| 13.11b | 102 | B | 4 | | |
| 13.12b | 89 | S | 4 | | |
| 13.13b | 92 | S | 4 | | |
| 13.14b | 95 | S | 4 | | |
| 13.15b | 98 | S | 4 | | |
| 13.16b | 101 | S | 4 | | |



GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE, IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
- 6.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP, CLASS "BSL"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART
CORROSION ALLOWANCE: 0.0625" (1.6 mm)
TESTING MEDIUM: WATER
P.W.H.T.: N/A
HARDNESS TESTING: 10%
RADIOGRAPHY: 100%

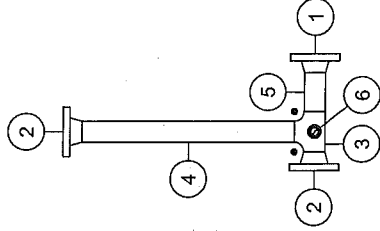
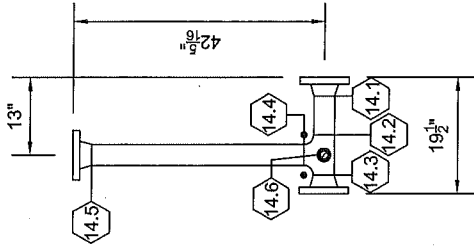


| | | |
|-----------------|---|---------------------------------------|
| CUSTOMER | PennWest Exploration | |
| TITLE / PROJECT | 3" INLET (10 WELLS) / 4" HEADER 24" OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | |
| DRAWING NAME | SPOOL 13 | QUANTITY: 2 |
| JOB NO. | 12-052 | PACKAGE SERIAL NO. OF DATE: 12-052-01 |
| REV. NO. | 0 | DRAWN BY: D. BRYAN |
| SHEET NO. | 1 OF 1 | DATE: 09/14/12 |
| DRAWING NO. | 12-052-01 | DRAWING NO. 12-052 SPOOL 13 |

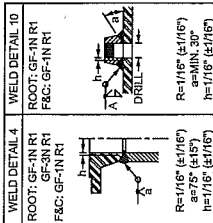
BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|--------------|-----------|------|-------------|
| 1 | RFWN, 3" 300 ANSI SCH. 40 | SA350LF2 CL1 | | 1 | |
| 2 | RFWN, 3" 300 ANSI SCH. 40 | SA105N | | 2 | |
| 3 | WELD TEE, 3" SCH. 40 | SA234WPB | | 1 | |
| 4 | PIPE, 3" SCH. 40 (0.216") BBE | SA106B | 35-13/16" | 1 | |
| 5 | PIPE, 3" SCH. 40 (0.216") BBE | SA333GR6 | 6-1/2" | 1 | |
| 6 | TOL, 1" 3M 3-1/2" TO 3" RUN | SA105N | | 1 | |

***QUANTITY OF FIVE SPOOLS REQUIRED**



Issued for Construction
W.S. 10/11/12



| WELD NUMBER | X-RAY | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|-------|---------------|-------------|----------|-----------|
| 14.1a | 66 | 7 | 4 | . | . |
| 14.2a | 65 | 7 | 4 | . | . |
| 14.3a | 64 | 7 | 4 | . | . |
| 14.4a | 63 | 7 | 4 | . | . |
| 14.5a | 62 | 7 | 4 | . | . |
| 14.6a | 61 | 7 | 10 | . | 1-1/8" |
| 14.1b | 67 | 7 | 4 | . | . |
| 14.2b | 68 | 7 | 4 | . | . |
| 14.3b | 69 | 7 | 4 | . | . |
| 14.4b | 70 | 7 | 4 | . | . |
| 14.5b | 71 | 7 | 4 | . | . |
| 14.6b | 72 | 7 | 10 | . | 1-1/8" |
| PIG BARS | | | | | |
| 14.1c | 74 | 7 | 4 | . | . |
| 14.2c | 73 | 7 | 4 | . | . |
| 14.3c | 72 | 7 | 4 | . | . |
| 14.4c | 75 | 7 | 4 | . | . |
| 14.5c | 76 | 7 | 4 | . | . |
| 14.6c | 77 | 7 | 10 | . | 1-1/8" |
| PIG BARS | | | | | |
| 14.1d | 82 | 7 | 4 | . | . |
| 14.2d | 83 | 7 | 4 | . | . |
| 14.3d | 84 | 7 | 4 | . | . |
| 14.4d | 85 | 7 | 4 | . | . |
| 14.5d | 86 | 7 | 4 | . | . |
| 14.6d | 87 | 7 | 10 | . | 1-1/8" |
| PIG BARS | | | | | |
| 14.1e | 79 | 7 | 4 | . | . |
| 14.2e | 80 | 7 | 4 | . | . |
| 14.3e | 81 | 7 | 4 | . | . |
| 14.4e | 78 | 7 | 4 | . | . |
| 14.5e | 77 | 7 | 4 | . | . |
| 14.6e | 78 | 7 | 10 | . | 1-1/8" |
| PIG BARS | | | | | |

GENERAL NOTES

- QUALITY CONTROL PROGRAM NO. IS ACP-1464; WELDING PROCEDURE IS WP-2843.2
- MTRS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
- SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
- ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
- GENERAL DEVIATION TOLERANCE IS +/- 1/8"; OVERALL LENGTH TOLERANCE IS +/- 1/8"; ANGULAR TOLERANCE IS +/- 1'
- INDICATES PIG BARS
-

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP, CLASS "BSL"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART
CORROSION ALLOWANCE: 0.0625" (1.6mm)
TESTING MEDIUM: WATER
P.W.H.T.: N/A
HARDNESS TESTING: 10%
RADIOGRAPHY: 100%



CUSTOMER: PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
24" OD X 60" SIS X 720 PSI
AB SOUR TEST SEPARATOR PKG

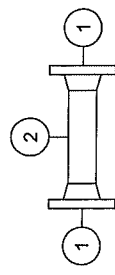
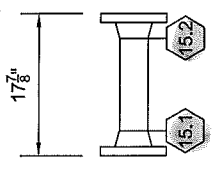
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|------------------------|--------------------|-----------------------------------|
| DRAWING NAME: SPOOL 14 | QUANTITY: 5 | PACKAGE SERIAL NO. (P): 12-052-01 |
| JOB NO.: 12-052 | DRAWN BY: D. BRYAN | DATE: 09/14/12 |
| REV. NO.: 0 | SHEET NO.: 1 OF 1 | DRAWING NO.: 12-052 SPOOL 14 |

| | | | |
|--------|---------------|-------------------------------------|----------------|
| REV. 0 | DATE 09/27/12 | DESCRIPTION ISSUED FOR CONSTRUCTION | DB (signature) |
| BY | DATE | DESCRIPTION | CHKD / APPD |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|----------|---------|------|-------------|
| 1 | RFWN, 3" 300 ANSI SCH. 40 | SA-105N | . | 2 | . |
| 2 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 11-5/8" | 1 | . |

***QUANTITY OF TWO SPOOLS REQUIRED**



Issued for Construction
W S I 10/01/12
C/P 10/01/12

GENERAL NOTES

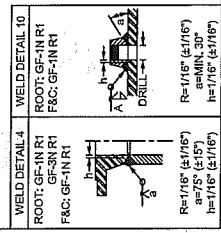
1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
- 6.
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 15.1a | 60 | | 4 | . | . |
| 15.2a | 61 | | 4 | . | . |
| 15.1b | 49 | | 4 | . | . |
| 15.2b | 49 | | 4 | . | . |



PennWest Exploration

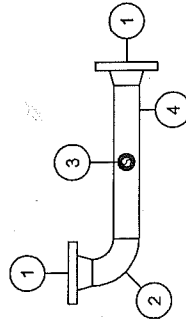
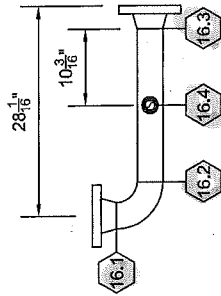
3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

| | | |
|-------------------------|--------------------|----------------------------------|
| DRAWING NAME: SPOOL, 15 | QUANTITY: 2 | PACKAGE SERIAL NO. OR: 12-052-01 |
| JOB NO.: 12-052 | DRAWN BY: D. BRYAN | DATE: 09/14/12 |
| REV. NO.: 0 | SHEET NO.: 1 OF 1 | DRAWING NO.: 12-052 SPOOL, 15 |

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|-------------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | WJ | [Signature] |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|------------|----------|------|-------------|
| 1 | RPWN, 3" 300 ANSI SCH. 40 | SA-105N | | 2 | |
| 2 | WELD 90 ELBOW, 3" SCH. 40 LR | SA-234-WPB | | 1 | |
| 3 | TOL, 1" 3M 8"-3" RUN | SA-105N | | 1 | |
| 4 | PIPE, 3" SCH. 40 (0.216") BBE | SA-105B | 20-7/16" | 1 | |



Issued for Construction
W. S. 10/01/12

GENERAL NOTES

- QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
- MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
- SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
- ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
- GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
-
-

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 P.W.H.T.: N/A
 TESTING MEDIUM: WATER
 HARDNESS TESTING: 10%
 MT / PT TESTING: N/A
 RADIOGRAPHY: 100%

PennWest Exploration

3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

ISSUED FOR CONSTRUCTION

REV. 0 DATE 09/27/12 DESCRIPTION ISSUED FOR CONSTRUCTION BY DB

CHKD / APPD

GlobalFlow

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

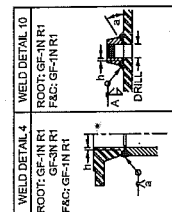
CUSTOMER: PennWest Exploration

DRAWING NAME: SPOOL 16 QUANTITY: 1 PACKAGE SERIAL NO. (P): 12-052-01

JOB NO.: 12-052 DRAWN BY: D. BRYAN DATE: 09/14/12

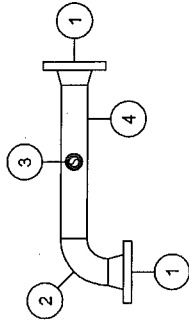
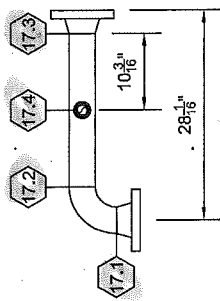
REV. NO.: 0 SHEET NO.: 1 OF 1 SCALE: 1/2"=1'-0" DRAWING NO.: 12-052 SPOOL 16

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 16.1 | 103 | A | 4 | | |
| 16.2 | 107 | A | 4 | | |
| 16.3 | 106 | A | 4 | | |
| 16.4 | | | 10 | | 1-1/8" |



BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|------------|-------------|------|-------------|
| 1 | RFWLN, 3" 300 ANSI SCH. 40 | SA-105N | | 2 | |
| 2 | WELD 90 ELBOW, 3" SCH. 40 LR | SA-234-WPB | | 1 | |
| 3 | TOL, 1" 3M 8"-3" RUN | SA-105N | | 1 | |
| 4 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 20'-7 1/16" | 1 | |



Issued for Construction
1/4/5, 10/10/12

GENERAL NOTES

- QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
- MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
- SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
- ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
- GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1'
-
-

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 P.W.H.T.: N/A
 TESTING MEDIUM: WATER
 MT / FT TESTING: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

PennWest Exploration

3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

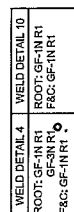
REV. 0 DATE 09/27/12 DESCRIPTION ISSUED FOR CONSTRUCTION BY DB

CHKD / APPD

CUSTOMER: PennWest Exploration
 TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

DRAWING NO.: 12-052
 SHEET NO.: 0
 QUANTITY: 1
 PACKAGE SERIAL NO. OF: 12-052-01
 DRAWN BY: D. BRYAN
 DATE: 09/14/12
 SCALE: 1/2"=1'-0"
 DRAWING NO.: 12-052 SPOOL 17

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 17.1 | 103 | | 4 | | 1-1/8" |
| 17.2 | 104 | | 4 | | |
| 17.3 | 105 | | 4 | | |
| 17.4 | | | 10 | | |

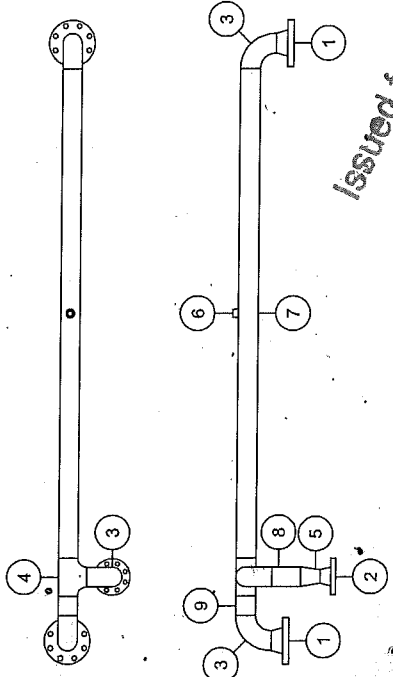
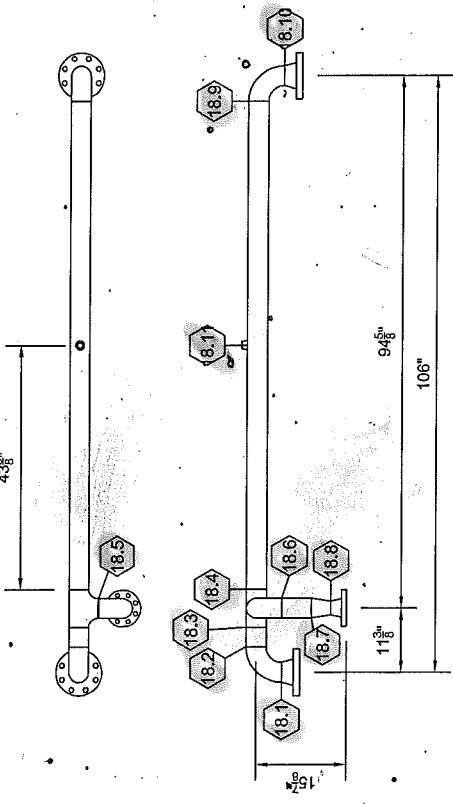


WELD DETAIL 4
 ROOT: GF-IN R1
 FACE: GF-IN R1
 BACK: GF-IN R1

REPAIR SYMBOLS
 R=1/16" (2.1mm) REPAIR
 R=1/8" (3.2mm) REPAIR
 R=3/16" (4.8mm) REPAIR

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---|------------|---------|------|-------------|
| 1 | RFWN, 3" 300 ANSI SCH. 40 | SA-105N | | 2 | |
| 2 | RFWN, 2" 300 ANSI SCH. 80 | SA-105N | | 1 | |
| 3 | WELD 90 ELBOW, 3" SCH. 40 LR | SA-234-WPB | | 3 | |
| 4 | WELD TEE, 3" SCH. 40 | SA-234-WPB | | 1 | |
| 5 | CONCENTRIC REDUCER, 3" SCH. 40 X 2" SCH. 80 | SA-234-WPB | | 1 | |
| 6 | TOL, 1/2" 3M 8"-3" RUN | SA-105N | | 1 | |
| 7 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 86-3/4" | 1 | |
| 8 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 5-1/8" | 1 | |
| 9 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 3-1/2" | 1 | |



Issued for Construction
 W/S 10/20/12

| WELD NUMBER | X-RAY | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|-------|---------------|-------------|----------|-----------|
| 18.1 | 144 | A | 4 | | |
| 18.2 | 143 | A | 4 | | |
| 18.3 | 142 | A | 4 | | |
| 18.4 | 141 | A | 4 | | |
| 18.5 | 140 | A | 4 | | |
| 18.6 | 135 | A | 4 | | |
| 18.7 | 140 | A | 4 | | |
| 18.8 | 139 | A | 4 | | |
| 18.9 | 139 | A | 4 | | |
| 18.10 | 133 | A | 4 | | |
| 18.11 | | | 10 | | 1 1/16" |

GENERAL NOTES

- QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
- MTRS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
- SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
- ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
- GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS 'B'
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 MT / PT TESTING: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | | |

GlobalFlow

Customer: PennWest Exploration

Title / Project: 3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

Quantity: 1

Package Serial No. (A): 12-052-01

Drawn By: D. BRYAN

Date: 09/14/12

Job No.: 12-052

Scale: 3/8" = 1'-0"

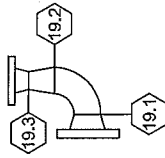
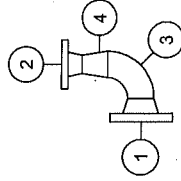
Sheet No.: 0

Drawings No.: 12-052 SPOOL 18

| WELD DETAIL 4 | WELD DETAIL 10 |
|----------------------------------|----------------------------------|
| ROOT: GF-IN R1 FAC: GF-IN R1 | ROOT: GF-IN R1 FAC: GF-IN R1 |
| DRILL 4 | DRILL 4 |
| h=1/16" (1/16") a=7/8" (1/8") | h=1/16" (1/16") a=7/8" (1/8") |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---|------------|--------|------|-------------|
| 1 | RFWN, 3" 300 ANSI SCH. 40 | SA-105N | . | 1 | . |
| 2 | RFWN, 2" 300 ANSI SCH. 80 | SA-105N | . | 1 | . |
| 3 | WELD 90 ELBOW, 3" SCH. 40 LR | SA-234-WPB | . | 1 | . |
| 4 | CONCENTRIC REDUCER, 3" SCH. 40 X 2" SCH. 80 | SA-234-WPB | . | 1 | . |



Issued for Construction
W. 1/21/12

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE, IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4984 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 MT / PT TESTING: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 19.1 | 118 | W | 4 | . | . |
| 19.2 | 119 | W | 4 | . | . |
| 19.3 | 120 | W | 4 | . | . |

GlobalFlow

CUSTOMER: PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 19 QUANTITY: 1 PACKAGE SERIAL NO. DA: 12-052-01

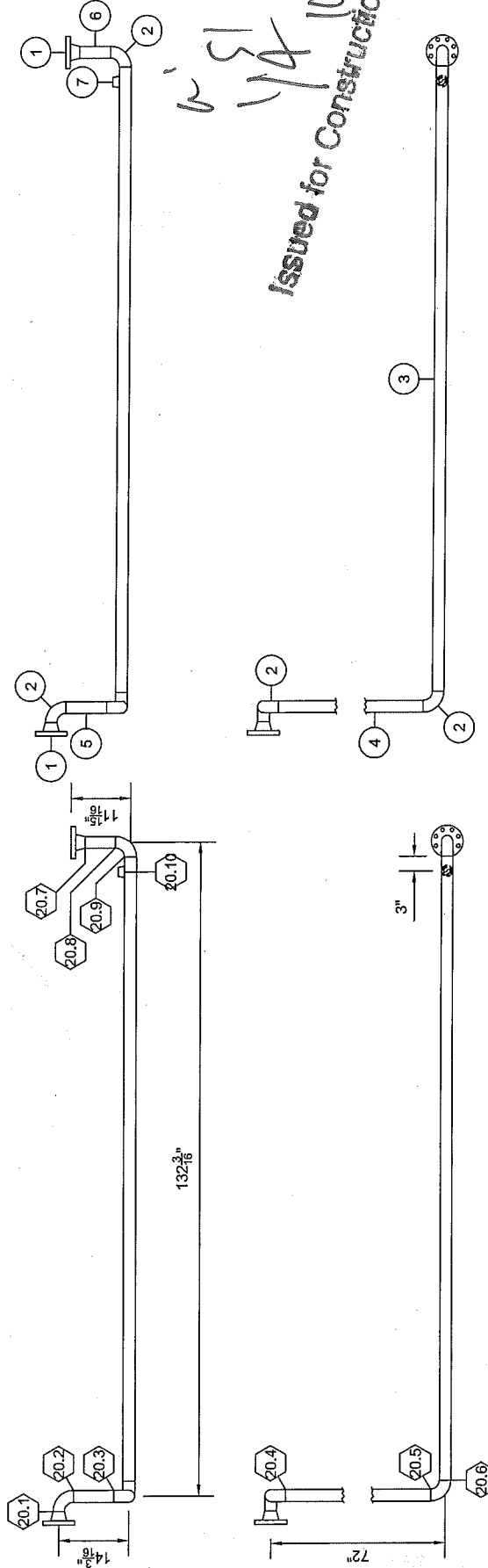
JOB NO.: 12-052 DRAWN BY: D. BRYAN DATE: 09/14/12

REV. NO.: 0 SHEET NO.: 1 OF 1 SCALE: 1/2" = 1'-0" DRAWING NO.: 12-052 SPOOL 19

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | W | |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|----------|-----------|------|-------------|
| 1 | RFVW, 2" 300 ANSI SCH. 80 | SA-105N | . | 2 | . |
| 2 | WELD 90 ELBOW, 2" SCH. 80 LR | SA-105N | . | 4 | . |
| 3 | PIPE, 2" SCH. 80 (0.218") BBE | SA-105B | 126-3/16" | 1 | . |
| 4 | PIPE, 2" SCH. 80 (0.218") BBE | SA-105B | 66" | 1 | . |
| 5 | PIPE, 2" SCH. 80 (0.218") BBE | SA-105B | 8-3/16" | 1 | . |
| 6 | PIPE, 2" SCH. 80 (0.218") BBE | SA-105B | 6-3/16" | 1 | . |
| 7 | TOL, 1" 3M X 2" RUN | SA-105N | . | 1 | . |



W.S. 10/11/12
Issued for Construction

| WELD NUMBER | X-RAY | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|-------|---------------|-------------|----------|-----------|
| 20.1 | 156 | 156 | 4 | . | . |
| 20.2 | 154 | 154 | 4 | . | . |
| 20.3 | 153 | 153 | 4 | . | . |
| 20.4 | 152 | 152 | 4 | . | . |
| 20.5 | 151 | 151 | 4 | . | . |
| 20.6 | 150 | 150 | 4 | . | . |
| 20.7 | 149 | 149 | 4 | . | . |
| 20.8 | 148 | 148 | 4 | . | . |
| 20.9 | 147 | 147 | 4 | . | . |
| 20.10 | 146 | 146 | 10 | . | 1-1/8" |

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE. IS WP-2843.2
2. MTRS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT. FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°
- 6.
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "B"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 MT / FT TESTING: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | | |



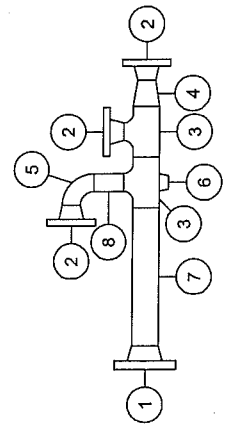
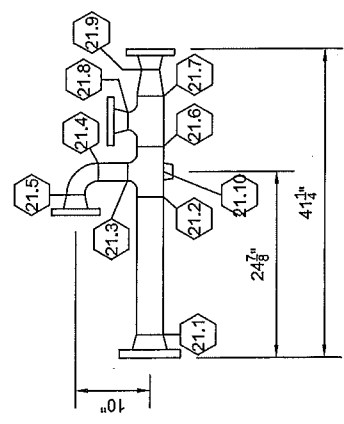
PennWest Exploration

TITLE / PROJECT:
 3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

| | | | | | |
|---------------|----------|--------------|----------|-------------------------|-----------------|
| DRAWING NAME: | SPOOL_20 | QUANTITY: | 1 | PACKAGE SERIAL NO. (P): | 12-052-01 |
| JOB NO.: | 12-052 | DRAWN BY: | D. BRYAN | DATE: | 09/14/12 |
| REV. NO.: | 0 | SHEET NO.: | 1 OF 1 | SCALE: | 3/8"=1'-0" |
| | | DRAWING NO.: | | | 12-052_SPOOL_20 |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---|------------|---------|------|-------------|
| 1 | RFWN, 3" 300 ANSI SCH. 40 | SA-105N | - | 1 | - |
| 2 | RFWN, 2" 300 ANSI SCH. 80 | SA-105N | - | 3 | - |
| 3 | REDUCING TEE, 3" SCH. 40 X 2" SCH. 80 | SA-234-WPB | - | 2 | - |
| 4 | CONCENTRIC REDUCER, 3" SCH. 40 X 2" SCH. 80 | SA-234-WPB | - | 1 | - |
| 5 | WELD 90 ELBOW, 2" SCH. 80 LR | SA-105N | - | 1 | - |
| 6 | TOL. 1" 3M 10"-3" RUN | SA-105N | - | 1 | - |
| 7 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 18-3/8" | 1 | - |
| 8 | PIPE, 2" SCH. 80 (0.218") BBE | SA-106B | 4" | 1 | - |



W.S. 10/10/12
Issued for Construction

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 21.1 | 171 | J | 4 | . | . |
| 21.2 | 170 | J | 4 | . | . |
| 21.3 | 165 | J | 4 | . | . |
| 21.4 | 164 | J | 4 | . | . |
| 21.5 | 163 | J | 4 | . | . |
| 21.6 | 164 | J | 4 | . | . |
| 21.7 | 168 | J | 4 | . | . |
| 21.8 | 166 | J | 4 | . | . |
| 21.9 | 167 | J | 4 | . | . |
| 21.10 | | | 10 | . | 1-1/8" |

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE. IS WF-2643.2
2. MTRS ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°
- 6.
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS 'BS'
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 MT / PT TESTING: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | WUS | |



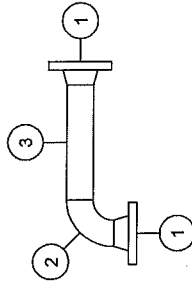
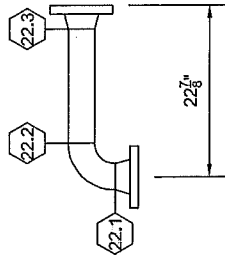
PennWest Exploration

TITLE / PROJECT:
 3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

| | | | | | |
|---------------|----------|------------|----------|------------------------|-----------------|
| DRAWING NAME: | SPOOL 21 | QUANTITY: | 1 | PACKAGE SERIAL NO. OF: | 12-052-01 |
| JOB NO.: | 12-052 | DRAWN BY: | D. BRYAN | DATE: | 09/14/12 |
| REV. NO.: | 0 | SHEET NO.: | 1 OF 1 | DRAWING NO.: | 12-052 SPOOL 21 |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|------------|----------|------|-------------|
| 1 | RPWN, 3" 300 ANSI SCH. 40 | SA-108N | - | 2 | - |
| 2 | WELD 90 ELBOW, 3" SCH. 40 LR | SA-234-WPB | - | 1 | - |
| 3 | PIPE, 3" SCH. 40 (0.216") BBE | SA-108B | 15'-1/4" | 1 | - |



Issued for Construction
1/8" ID 1/2"

GENERAL NOTES

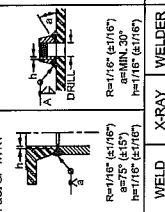
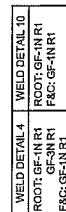
1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTRs ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°
- 6.
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 22.1 | 115 | - | 4 | - | - |
| 22.2 | 116 | - | 4 | - | - |
| 22.3 | 117 | - | 4 | - | - |



| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | 1/11 | 1/11 |

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PennWest Exploration

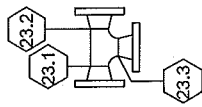
3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

| | | |
|------------------------|--------------------|-----------------------------------|
| DRAWING NAME: SPOOL 22 | QUANTITY: 1 | PACKAGE SERIAL NO. (P): 12-052-01 |
| JOB NO.: 12-052 | DRAWN BY: D. BRYAN | DATE: 09/14/12 |
| REV. NO.: 0 | SHEET NO.: 1 OF 1 | DRAWING NO.: 12-052 SPOOL 22 |

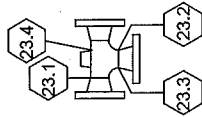
BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---------------------------|------------|--------|------|-------------|
| 1 | RFWN, 2" 300 ANSI SCH. 80 | SA-105N | . | 6 | . |
| 2 | WELD TEE, 2" SCH. 80 | SA-234-WPB | . | 2 | . |
| 3 | TOL, 1" 3M 2" RUN | SA-105N | . | 1 | . |

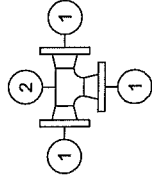
*GRAND TOTAL FOR BOTH SPOOLS



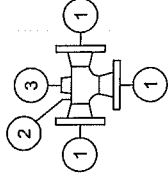
SPOOL 23a



SPOOL 23b



SPOOL 23a



SPOOL 23b

Handwritten: V/S 10/10/12
Issued for Construction

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTRs ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
- 6.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "B3"

M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)

TESTING PRESSURE: 1080 PSIG (7447 kPa), 80 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)

TESTING MEDIUM: WATER

P.W.H.T.: N/A

HARDNESS TESTING: 10%

MT / PT TESTING: N/A

RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 23.1a | 160 | | 4 | . | . |
| 23.2a | 162 | | 4 | . | . |
| 23.3a | 164 | | 4 | . | . |
| 23.1b | 157 | | 4 | . | . |
| 23.2b | 157 | | 4 | . | . |
| 23.3b | 153 | | 4 | . | . |
| 23.4b | | | 10 | . | 1-1/8"Ø |

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | WMS | |

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TITLE / PROJECT:

PennWest Exploration

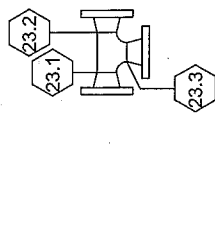
3" INLET (10 WELLS) / 4" HEADER
24"OD X 60" S/S X 720 PSI
AB SOUR TEST SEPARATOR PKG

| | | | | | |
|---------------|----------|------------|----------|-------------------------|-----------------|
| DRAWING NAME: | SPOOL 23 | QUANTITY: | 1 | PACKAGE SERIAL NO. (P): | 12-052-01 |
| JOB NO.: | 12-052 | DRAWN BY: | D. BRYAN | DATE: | 09/14/12 |
| REV./NO.: | 0 | SHEET NO.: | 1 OF 1 | DRAWING NO.: | 12-052 SPOOL 23 |

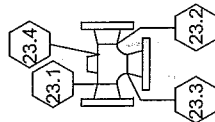
BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---------------------------|----------|--------|------|-------------|
| 1 | RFWN, 2" 300 ANSI SCH. 80 | SA105N | | 9 | |
| 2 | WELD TEE, 2" SCH. 80 | SA234WPB | | 3 | |
| 3 | TOL, 1" 3M 2" RUN | SA105N | | 1 | |

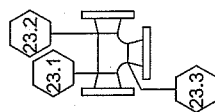
*GRAND TOTAL FOR THREE SPOOLS



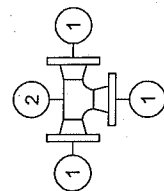
SPOOL 23a



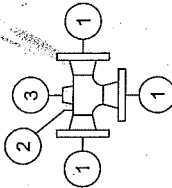
SPOOL 23b



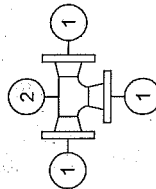
SPOOL 23c



SPOOL 23a



SPOOL 23b



SPOOL 23c

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 23.1a | | | 4 | | |
| 23.2a | | | 4 | | |
| 23.3a | | | 4 | | |
| 23.1b | | | 4 | | |
| 23.2b | | | 4 | | |
| 23.3b | | | 4 | | |
| 23.4b | | | 10 | | 1-1/8"Ø |
| 23.1c | 23a | | 4 | | |
| 23.2c | 23b | | 4 | | |
| 23.3c | 23c | | 4 | | |

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTRs ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8"; OVERALL LENGTH TOLERANCE IS +/- 1/8"; ANGULAR TOLERANCE IS +/- 1°

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
TESTING MEDIUM: WATER
P.W.H.T.: N/A
HARDNESS TESTING: 10%
MT / PT TESTING: N/A
RADIOGRAPHY: 100%

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 1 | 01/29/13 | ADDED SPOOL 23c | ML | W | PC |
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | LW | PC |

GlobalFlow

TITLE / PROJECT:
PennWest Exploration
3" INLET (10 WELLS) / 4" HEADER
24"OD X 60" S/S X 720 PSI
AB SOUR TEST SEPARATOR PKG

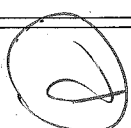
CUSTOMER: **PennWest Exploration**

DRAWING NAME: **SPOOL 23** QUANTITY: 1 PACKAGE SERIAL NO. IS: 12-052-1
JOB NO.: 12-052 DRAWN BY: D. BRYAN DATE: 09/14/12
REV. NO.: 1 SHEET NO.: 1 OF 1 SCALE: 1/2" = 1'-0" DRAWING NO.: 12-052 SPOOL 23

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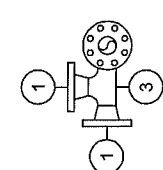
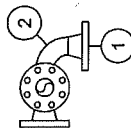
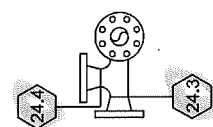
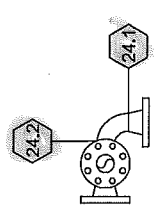
1451

01/30/13



BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|------------------------------|------------|--------|------|-------------|
| 1 | RFWN, 2" 300 ANSI SCH. 80 | SA-105N | | 3 | |
| 2 | WELD 90 ELBOW, 2" SCH. 80 LR | SA-234-WPB | | 1 | |
| 3 | WELD TEE, 2" SCH. 80 | SA-234-WPB | | 1 | |



Issued for Construction
1/8 10/01/12

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°
- 6.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "B5"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 80 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HOLE SIZE |
|-------------|--------------|---------------|-------------|-----------|
| 24.1 | 172 | A | 4 | |
| 24.2 | 173 | A | 4 | |
| 24.3 | 173 | A | 4 | |
| 24.4 | 174 | A | 4 | |



PennWest Exploration

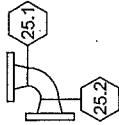
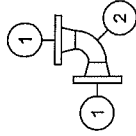
3" INLET (10 WELLS) / 4" HEADER
 24" O.D X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

| | | | | | |
|---------------|----------|------------|----------|-----------------------|-----------------|
| DRAWING NAME: | SPOOL 24 | QUANTITY: | 1 | PACKAGE SERIAL NO./R: | 12-052-01 |
| JCS NO.: | 12-052 | DRAWN BY: | D. BRYAN | DATE: | 09/14/12 |
| REV. NO.: | 0 | SHEET NO.: | 1 OF 1 | DRAWING NO.: | 12-052 SPOOL 24 |

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | (U) | |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|------------------------------|------------|--------|------|-------------|
| 1 | RFINN, 2" 300 ANSI SCH. 80 | SA-105N | | 2 | |
| 2 | WELD 90 ELBOW, 2" SCH. 80 LR | SA-234-WPB | | 1 | |



n
 1/4 S1 10/01/12
 Issued for Construction

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTRs ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS $\pm 1/16"$, OVERALL LENGTH TOLERANCE IS $\pm 1/16"$, ANGULAR TOLERANCE IS $\pm 1'$
- 6.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "B"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%

| WELD DETAIL 4 | WELD DETAIL 10 |
|---|---|
| ROOT: GF-IN R1 F&C: GF-IN R1 | ROOT: GF-IN R1 F&C: GF-IN R1 |
| | |
| Re: 1/16" (5/16") a: 5/16" (5/16") b: 1/16" (5/16") | Re: 1/16" (5/16") a: 5/16" (5/16") b: 1/16" (5/16") |

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 25.1 | 176 | | 4 | | |
| 25.2 | 177 | | 4 | | |



PennWest
Exploration

TITLE / PROJECT:

3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

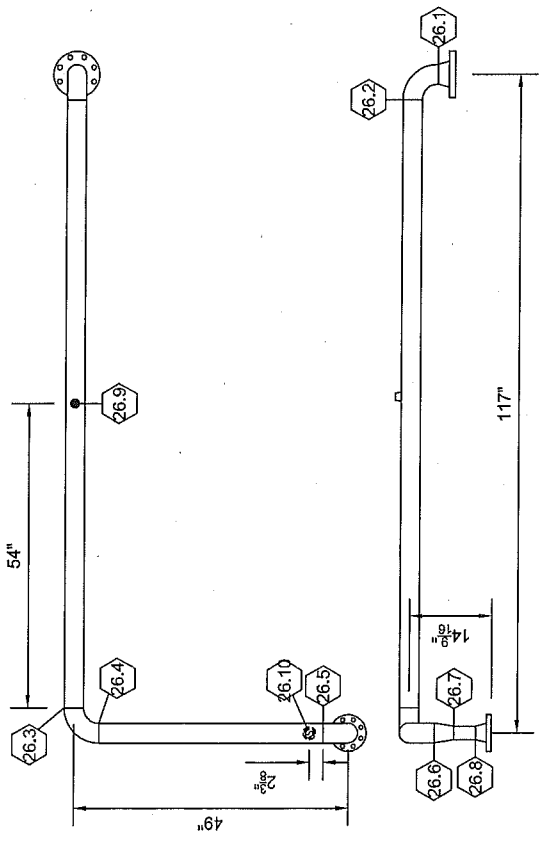
| | | | | | |
|--------------|-----------|------------|----------|-----------------------|-----------------|
| DRAWING NAME | SPPOOL 25 | QUANTITY | 1 | PACKAGE SERIAL NO. OR | 12-052-01 |
| JOB NO. | 12-052 | DRAWN BY: | D. BRYAN | DATE: | 09/14/12 |
| REV. NO. | 0 | SHEET NO.: | 1 OF 1 | DRAWING NO.: | 12-052 SPOOL 25 |

| REV. | DATE | DESCRIPTION | BY | CHKD / APPD |
|------|----------|-------------------------|----|-------------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | |

M/S 10/01/12
Issued for Construction

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---|------------|-----------|------|-------------|
| 1 | RFWN, 3" 300 ANSI SCH. 40 | SA-105N | . | 1 | . |
| 2 | RFWN, 2" 300 ANSI SCH. 80 | SA-105N | . | 1 | . |
| 3 | WELD 90 ELBOW, 3" SCH. 40 LR | SA-234-WPB | . | 3 | . |
| 4 | CONCENTRIC REDUCER, 3" SCH. 40 X 2" SCH. 80 | SA-234-WPB | . | 1 | . |
| 5 | TOL, 1/2" 3M 8'-3" RUN | SA-105N | . | 1 | . |
| 6 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 108" | 1 | . |
| 7 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 40" | 1 | . |
| 8 | PIPE, 2" SCH. 80 (0.218") BBE | SA-106B | 3'-13/16" | 1 | . |
| 9 | TOL, 1" 3M 3'-1/2"-3" RUN | SA-105N | . | 1 | . |



| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | 11/1 | |

GlobalFlow

CUSTOMER: PennWest Exploration

TITLE PROJECT: 3" INLET (10 WELLS) / 4" HEADER
24"OD X 60" S/S X 720 PSI
AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL 26

QUANTITY: 1

PACKAGE SERIAL NO. (A): 12-052-01

JOB NO.: 12-052

DRAWN BY: D. BRYAN

DATE: 09/14/12

SHEET NO.: 0

SCALE: 3/8"=1'-0"

DRAWING NO.: 12-052 SPOOL 26

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1464; WELDING PROCEDURE, IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8". OVERALL LENGTH TOLERANCE IS +/- 1/8". ANGULAR TOLERANCE IS +/- 1°
- 6.
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "B5"

M.A.W.P.: 720 PSIG (4864 kPa) AT +100°F (+38°C) / -20°F (-29°C)

TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6mm)

TESTING MEDIUM: WATER

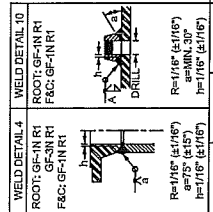
P.W.H.T.: N/A

HARDNESS TESTING: 10%

MT / PT TESTING: N/A

RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 26.1 | 185 | | 4 | . | . |
| 26.2 | 184 | | 4 | . | . |
| 26.3 | 183 | | 4 | . | . |
| 26.4 | 182 | | 4 | . | . |
| 26.5 | 181 | | 4 | . | . |
| 26.6 | 180 | | 4 | . | . |
| 26.7 | 179 | | 4 | . | . |
| 26.8 | 178 | | 4 | . | . |
| 26.9 | | | 10 | . | 1 1/16"Ø |
| 26.10 | | | 10 | . | 1-1/8" |

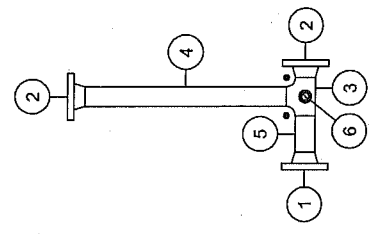
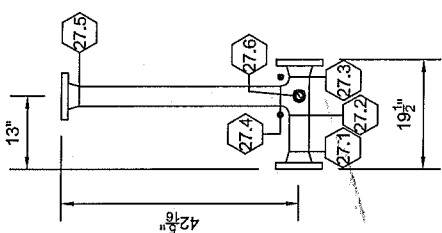


1.538
1.509

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|--------------------|-----------|------|-------------|
| 1 | RFWIN, 3" 300 ANSI SCH. 40 | SA-350 GR.LF2 CL.1 | . | 1 | . |
| 2 | RFWIN, 3" 300 ANSI SCH. 40 | SA-105N | . | 2 | . |
| 3 | WELD TEE, 3" SCH. 40 | SA-234-WPB | . | 1 | . |
| 4 | PIPE, 3" SCH. 40 (0.216") BBE | SA-106B | 35-13/16" | 1 | . |
| 5 | PIPE, 3" SCH. 40 (0.216") BBE | SA-333 GR6 | 6-1/2" | 1 | . |
| 6 | TOL, 1" 3M 3-1/2" 3" RUN | SA-105N | . | 1 | . |

***QUANTITY OF FIVE SPOOLS REQUIRED**



Handwritten: 1/51
1/4 10/01/12
Issued for Construction

WELD DETAIL 4 WELD DETAIL 10
 ROOT: GF-IN RT ROOT: GF-IN RT
 FAC: GF-IN RT FAC: GF-IN RT

Re: 1/16" (4.176")
 2-1/16" (4.157")
 1-1/16" (4.116")

Re: 1/16" (4.176")
 2-1/16" (4.157")
 1-1/16" (4.116")

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELDER DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|---------------|----------|-----------|
| 27.1a | 190 | W | 4 | . | . |
| 27.2a | 189 | W | 4 | . | . |
| 27.3a | 188 | W | 4 | . | . |
| 27.4a | 187 | W | 4 | . | . |
| 27.5a | 186 | W | 4 | . | . |
| 27.6a | - | W | 10 | . | 1-1/8" |
| PIG BARS | - | W | 4 | . | . |
| 27.1b | 205 | W | 4 | . | . |
| 27.2b | 204 | W | 4 | . | . |
| 27.3b | 203 | W | 4 | . | . |
| 27.4b | 202 | W | 4 | . | . |
| 27.5b | 201 | W | 4 | . | . |
| 27.6b | - | W | 10 | . | 1-1/8" |
| PIG BARS | - | W | 4 | . | . |
| 27.1c | 200 | W | 4 | . | . |
| 27.2c | 199 | W | 4 | . | . |
| 27.3c | 198 | W | 4 | . | . |
| 27.4c | 197 | W | 4 | . | . |
| 27.5c | 196 | W | 4 | . | . |
| 27.6c | - | W | 10 | . | 1-1/8" |
| PIG BARS | - | W | 4 | . | . |
| 27.1d | 224 | W | 4 | . | . |
| 27.2d | 223 | W | 4 | . | . |
| 27.3d | 222 | W | 4 | . | . |
| 27.4d | 221 | W | 4 | . | . |
| 27.5d | 220 | W | 4 | . | . |
| 27.6d | - | W | 10 | . | 1-1/8" |
| PIG BARS | - | W | 4 | . | . |
| 27.1e | 195 | W | 4 | . | . |
| 27.2e | 194 | W | 4 | . | . |
| 27.3e | 193 | W | 4 | . | . |
| 27.4e | 192 | W | 4 | . | . |
| 27.5e | 191 | W | 4 | . | . |
| 27.6e | - | W | 10 | . | 1-1/8" |
| PIG BARS | - | W | 4 | . | . |

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS ACP-1464; WELDING PROCEDURE, IS WP-2843.2
2. MTRs ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOLS TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8", OVERALL LENGTH TOLERANCE IS +/- 1/8", ANGULAR TOLERANCE IS +/- 1°
6. ● INDICATES PIG BARS
- 7.

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "B5"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, LOW TEMP, CLASS "B5L"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART
 CORROSION ALLOWANCE: 0.0625" (1.6mm)
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 MT / PT TESTING: N/A
 RADIOGRAPHY: 100%

GlobalFlow

CUSTOMER: PennWest Exploration
 TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

DRAWING NO.: SPOOL 27
 QUANTITY: 5
 PACKAGE SERIAL NO. (P): 12-052-01

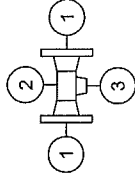
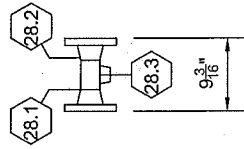
DATE: 09/14/12
 DRAWN BY: D. BRYAN

REV. NO.: 0
 SHEET NO.: 1 OF 1
 SCALE: 3/8"=1'-0"
 DRAWING NO.: 12-052 SPOOL 27

| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |
|------|----------|-------------------------|----|------|------|
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | W | S |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|----------|-----------|------|-------------|
| 1 | RFWN, 2" 300 ANSI SCH. 80 | SA105N | | 2 | |
| 2 | PIPE, 2" SCH. 80 (0.218") BBE | SA105B | 3'-11/16" | 1 | |
| 3 | TOL, 1" 3M 2" RUN | SA105N | | 1 | |



44 W

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS AQP-1484; WELDING PROCEDURE IS WP-2843.2
2. MTRs ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- .1/8", OVERALL LENGTH TOLERANCE IS +/- .1/8", ANGULAR TOLERANCE IS +/- .1°

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 MT / PT TESTING: N/A
 RADIOGRAPHY: 100%

| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 28.1 | 28.1 | | 4 | | |
| 28.2 | 28.2 | | 4 | | |
| 28.3 | 28.3 | | 10 | | 1-7/8" Ø |

WELD DETAIL 4: WELD DETAIL 10
 ROOT: GF-IN RT
 FAC: GF-IN RT

ROOT: GF-IN RT
 FAC: GF-IN RT

DRILL

R=1/16" (51/167)
 a=7/8" (41/57)
 h=1/16" (51/167)

R=1/16" (51/167)
 a=MIN. 30°
 h=1/16" (51/167)

| REV. | DATE | DESCRIPTION | BY | CHK'D | APP'D |
|------|----------|-------------------------|------|-------|-------|
| 0 | 01/29/13 | ISSUED FOR CONSTRUCTION | 44 W | | |

GlobalFlow

PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

CUSTOMER: PennWest Exploration

DRAWING NAME: SPOOL 28
 QUANTITY: 1
 PACKAGE SERIAL NO. (IF): 12-052-1

JOB NO.: 12-052
 DRAWN BY: M. CASH
 DATE: 01/29/2013

REV. NO.: 0
 SHEET NO.: 1 OF 1
 SCALE: 1/2"=1'-0"
 DRAWING NO.: 12-052-SPOOL 28

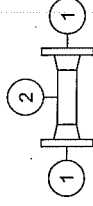
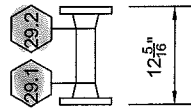
| REV. | DATE | DESCRIPTION | BY | CHK'D | APP'D |
|------|----------|-------------------------|------|-------|-------|
| 0 | 01/29/13 | ISSUED FOR CONSTRUCTION | 44 W | | |

01/30/13

Issued for Construction

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|-------------------------------|----------|----------|------|-------------|
| 1 | RFWN, 2" 300 ANSI SCH. 80 | SA105N | | 2 | |
| 2 | PIPE, 2" SCH. 80 (0.218") BBE | SA106B | 6-13/16" | 1 | |



R

yuw

Issued for Construction

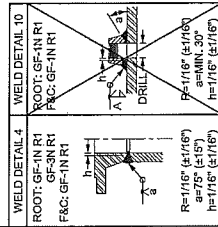
GENERAL NOTES

1. QUALITY CONTROL PROGRAM NO. IS ACP-1464; WELDING PROCEDURE IS WP-2843.2
2. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
3. SPOOL(S) TO BE THOROUGHLY CLEANED INSIDE & OUT, FREE FROM LOOSE SCALE & FOREIGN MATTER
4. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
5. GENERAL DEVIATION TOLERANCE IS +/- 1/8"; OVERALL LENGTH TOLERANCE IS +/- 1/8"; ANGULAR TOLERANCE IS +/- 1°

ASME B31.3 2010.ED.

RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS"
 M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C)
 TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MINUTES, (2) GAUGES & (1) CHART

CORROSION ALLOWANCE: 0.0625" (1.6 mm)
 TESTING MEDIUM: WATER
 P.W.H.T.: N/A
 HARDNESS TESTING: 10%
 RADIOGRAPHY: 100%



| WELD NUMBER | X-RAY NUMBER | WELDER SYMBOL | WELD DETAIL | HARDNESS | HOLE SIZE |
|-------------|--------------|---------------|-------------|----------|-----------|
| 29.1 | A30 | S | 4 | | |
| 29.2 | A31 | S | 4 | | |

| REV. | DATE | DESCRIPTION | BY | CHKD | APP'D |
|------|----------|-------------------------|-----|------|-------|
| 0 | 01/29/13 | ISSUED FOR CONSTRUCTION | yuw | | |

PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24" OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

CUSTOMER: PennWest Exploration

DRAWING NAME: SPOOL_29
 QUANTITY: 1
 PACKAGE SERIAL NO. OR DATE: 12-052-1

JOB NO.: 12-052
 DRAWN BY: M. CASH
 DATE: 01/29/2013

REV. NO.: 0
 SHEET NO.: 1 OF 1
 SCALE: 1/2" = 1'-0"
 DRAWING NO.: 12-052-SPOOL_29

01/29/13

| SPOOL NUMBER | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER | CUT BY | DATE | CLEANED BY | DATE |
|--------------|----------------------|------------|-----------|------|------------------------|--------|----------|------------|------|
| SPOOL 1 | 4" SCH. STD (0.237") | SA333 GR.6 | 6-1/2" | 1 | ✓ ASLV ✓ | Chris | Oct 3/12 | | |
| SPOOL 2 | 4" SCH. STD (0.237") | SA333 GR.6 | 6-1/2" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 3 | 4" SCH. STD (0.237") | SA106B | 11-1/16" | 2 | ✓ ASLV ✓ | | | | |
| SPOOL 4 | 4" SCH. STD (0.237") | SA106B | 5-7/16" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 5 | 4" SCH. STD (0.237") | SA106B | 30-5/8" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 5 | 4" SCH. STD (0.237") | SA106B | 7-13/16" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 6 | 4" SCH. STD (0.237") | SA106B | 6-1/2" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 6 | 4" SCH. STD (0.237") | SA106B | 2" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 7 | 4" SCH. STD (0.237") | SA106B | 51-3/16" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 7 | 4" SCH. STD (0.237") | SA106B | 36-3/16" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 8 | 4" SCH. STD (0.237") | SA333 GR.6 | 6-1/2" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 10 | 8" SCH. 40 (0.322") | SA333 GR.6 | 14-1/8" | 1 | ✓ ARKV ✓ | Chris | Oct 3/12 | | |
| SPOOL 12 | 4" SCH. STD (0.237") | SA333 GR.6 | 7-1/16" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 12 | 4" SCH. STD (0.237") | SA333 GR.6 | 21-1/2" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 12 | 4" SCH. STD (0.237") | SA333 GR.6 | 11-1/4" | 1 | ✓ ASLV ✓ | | | | |
| SPOOL 13 | 3" SCH. STD (0.216") | SA333 GR.6 | 11-1/2" | 2 | ✓ ASX ASW ✓ | | | | |
| SPOOL 13 | 3" SCH. STD (0.216") | SA106B | 11-1/4" | 8 | ✓ ASX ✓ | | | | |
| SPOOL 14 | 3" SCH. STD (0.216") | SA106B | 35-13/16" | 5 | ✓ ASX ✓ | | | | |
| SPOOL 14 | 3" SCH. STD (0.216") | SA333 GR.6 | 6-1/2" | 5 | ✓ ASW ✓ | | | | |
| SPOOL 15 | 3" SCH. STD (0.216") | SA106B | 11-5/8" | 2 | ✓ ASX ✓ | | | | |
| SPOOL 16 | 3" SCH. STD (0.216") | SA106B | 20-7/16" | 1 | ✓ ASX ✓ | | | | |
| SPOOL 17 | 3" SCH. STD (0.216") | SA106B | 20-7/16" | 1 | ✓ ASX ✓ | | | | |
| SPOOL 18 | 3" SCH. STD (0.216") | SA106B | 86-3/4" | 1 | ✓ ASX ✓ | | | | |
| SPOOL 18 | 3" SCH. STD (0.216") | SA106B | 5-1/8" | 1 | ✓ ASX ✓ | | | | |
| SPOOL 18 | 3" SCH. STD (0.216") | SA106B | 3-1/2" | 1 | ✓ ASX ✓ | | | | |
| SPOOL 20 | 2" SCH. 80 (0.218") | SA106B | 126-3/16" | 1 | ✓ ASP ✓ | Cole | Oct 2 | | |
| SPOOL 20 | 2" SCH. 80 (0.218") | SA106B | 66" | 1 | ✓ AQT ✓ | Cole | Oct 2 | | |
| SPOOL 20 | 2" SCH. 80 (0.218") | SA106B | 8-3/16" | 1 | ✓ AQT ✓ | Cole | Oct 2 | | |
| SPOOL 20 | 2" SCH. 80 (0.218") | SA106B | 6-3/16" | 1 | ✓ AQT ✓ | Cole | Oct 2 | | |
| SPOOL 21 | 3" SCH. STD (0.216") | SA106B | 18-3/8" | 1 | ✓ ASX ✓ | Chris | Oct 3 | | |
| SPOOL 21 | 2" SCH. 80 (0.218") | SA106B | 4" | 1 | ✓ AQT ✓ | Cole | Oct 2 | | |
| SPOOL 22 | 3" SCH. STD (0.216") | SA106B | 15-1/4" | 1 | ✓ ASX ✓ | Chris | Oct 3 | | |
| SPOOL 26 | 3" SCH. STD (0.216") | SA106B | 108" | 1 | ✓ ASX ✓ | Chris | | | |
| SPOOL 26 | 3" SCH. STD (0.216") | SA106B | 40" | 1 | ✓ ASX ✓ | Chris | | | |
| SPOOL 26 | 2" SCH. 80 (0.218") | SA106B | 3-13/16" | 1 | ✓ AQT ✓ | Cole | Oct 2 | | |
| SPOOL 27 | 3" SCH. STD (0.216") | SA106B | 35-13/16" | 5 | ✓ ASX ✓ | Chris | Oct 3 | | |
| SPOOL 27 | 3" SCH. STD (0.216") | SA333 GR.6 | 6-1/2" | 5 | ✓ ASW ✓ | Chris | Oct 3 | | |

Issued for Construction

WAS
10/01/12

| | | | | | |
|----------------------|------------|--|------------------------|------|-------|
| REV. | DATE | DESCRIPTION | BY | CHKD | APP'D |
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | WAS | |
| CUSTOMER: | | TITLE / PROJECT: | | | |
| PennWest Exploration | | 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | | | |
| DRAWING NAME: | | QUANTITY: | PACKAGE SERIAL NO. (S) | | |
| SPOOL CUT LIST | | 1 | 12-052-1 | | |
| JOB NO.: | REV. DATE: | DRAWN BY: | DATE: | | |
| 12-052 | 09/14/12 | D. BRYAN | 09/14/12 | | |
| REV. NO.: | REV. DATE: | SCALE: | DRAWING NO.: | | |
| 0 | 09/14/12 | 1:1 | 12-052-SPOOL CUT LIST | | |

| SPOOL NUMBER | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER | CUT BY | DATE | CLEANED BY | DATE |
|--------------|----------------------|------------|-----------|------|-------------|--------|--------|------------|------|
| SPOOL 1 | 4" SCH. STD (0.237") | SA333 GR.6 | 6-1/2" | 1 | | | | | |
| SPOOL 2 | 4" SCH. STD (0.237") | SA333 GR.6 | 6-1/2" | 1 | | | | | |
| SPOOL 3 | 4" SCH. STD (0.237") | SA106B | 11-1/16" | 2 | | | | | |
| SPOOL 4 | 4" SCH. STD (0.237") | SA106B | 5-7/16" | 1 | | | | | |
| SPOOL 5 | 4" SCH. STD (0.237") | SA106B | 30-5/8" | 1 | | | | | |
| SPOOL 5 | 4" SCH. STD (0.237") | SA106B | 7-13/16" | 1 | | | | | |
| SPOOL 6 | 4" SCH. STD (0.237") | SA106B | 6-1/2" | 1 | | | | | |
| SPOOL 6 | 4" SCH. STD (0.237") | SA106B | 2" | 1 | | | | | |
| SPOOL 7 | 4" SCH. STD (0.237") | SA106B | 51-3/16" | 1 | | | | | |
| SPOOL 7 | 4" SCH. STD (0.237") | SA106B | 36-3/16" | 1 | | | | | |
| SPOOL 8 | 4" SCH. STD (0.237") | SA333 GR.6 | 6-1/2" | 1 | | | | | |
| SPOOL 10 | 8" SCH. 40 (0.322") | SA333 GR.6 | 14-1/8" | 1 | | | | | |
| SPOOL 12 | 4" SCH. STD (0.237") | SA333 GR.6 | 7-1/16" | 1 | | | | | |
| SPOOL 12 | 4" SCH. STD (0.237") | SA333 GR.6 | 21-1/2" | 1 | | | | | |
| SPOOL 12 | 4" SCH. STD (0.237") | SA333 GR.6 | 11-1/4" | 1 | | | | | |
| SPOOL 13 | 3" SCH. STD (0.216") | SA333 GR.6 | 11-1/2" | 2 | | | | | |
| SPOOL 13 | 3" SCH. STD (0.216") | SA106B | 11-1/4" | 8 | | | | | |
| SPOOL 14 | 3" SCH. STD (0.216") | SA106B | 35-13/16" | 5 | | | | | |
| SPOOL 14 | 3" SCH. STD (0.216") | SA333 GR.6 | 6-1/2" | 5 | | | | | |
| SPOOL 15 | 3" SCH. STD (0.216") | SA106B | 11-5/8" | 2 | | | | | |
| SPOOL 16 | 3" SCH. STD (0.216") | SA106B | 20-7/16" | 1 | | | | | |
| SPOOL 17 | 3" SCH. STD (0.216") | SA106B | 20-7/16" | 1 | | | | | |
| SPOOL 18 | 3" SCH. STD (0.216") | SA106B | 86-3/4" | 1 | | | | | |
| SPOOL 18 | 3" SCH. STD (0.216") | SA106B | 5-1/8" | 1 | | | | | |
| SPOOL 18 | 3" SCH. STD (0.216") | SA106B | 3-1/2" | 1 | | | | | |
| SPOOL 20 | 2" SCH. 80 (0.218") | SA106B | 126-3/16" | 1 | | | | | |
| SPOOL 20 | 2" SCH. 80 (0.218") | SA106B | 66" | 1 | | | | | |
| SPOOL 20 | 2" SCH. 80 (0.218") | SA106B | 8-3/16" | 1 | | | | | |
| SPOOL 20 | 2" SCH. 80 (0.218") | SA106B | 6-3/16" | 1 | | | | | |
| SPOOL 21 | 3" SCH. STD (0.216") | SA106B | 18-3/8" | 1 | | | | | |
| SPOOL 21 | 2" SCH. 80 (0.218") | SA106B | 4" | 1 | | | | | |
| SPOOL 22 | 3" SCH. STD (0.216") | SA106B | 15-1/4" | 1 | | | | | |
| SPOOL 26 | 3" SCH. STD (0.216") | SA106B | 108" | 1 | | | | | |
| SPOOL 26 | 3" SCH. STD (0.216") | SA106B | 40" | 1 | | | | | |
| SPOOL 26 | 2" SCH. 80 (0.218") | SA106B | 3-13/16" | 1 | | | | | |
| SPOOL 27 | 3" SCH. STD (0.216") | SA106B | 35-13/16" | 5 | | | | | |
| SPOOL 27 | 3" SCH. STD (0.216") | SA333 GR.6 | 6-1/2" | 5 | | | | | |
| SPOOL 28 | 2" SCH. 80 (0.218") | SA106B | 3-11/16" | 1 | ATO ✓ | JS | JAN 30 | | |
| SPOOL 29 | 2" SCH. 80 (0.218") | SA106B | 6-13/16" | 1 | ATO ✓ | JS | JAN 30 | | |

Ⓟ

Issued for Construction
 of 1/4
 01/20/13

| | | | | | |
|------|----------|---------------------------------------|----|------|------|
| 1 | 01/29/13 | ADDED PIPE FOR NEW SPOOLS TO CUT LIST | | | |
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | LW | PC |
| REV. | DATE | DESCRIPTION | BY | CHKD | APPD |

GlobalFlow

CUSTOMER: PennWest Exploration

TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

DRAWING NAME: SPOOL CUT LIST QUANTITY: 1 PACKAGE SERIAL NO. (S): 12-052-1

JOB NO: 12-052 DRAWN BY: D. BRYAN DATE: 09/14/12

REV. NO: 1 REV. DATE: 09/14/12 SCALE: 1:1 DRAWING NO: 12-052-SPOOL CUT LIST

1
1

Rec Sept 19/12gc

ASL 4" SCH 40 (0.337) SA333

VT: 241, 245
ATK 401

P/O # 8242
CEF

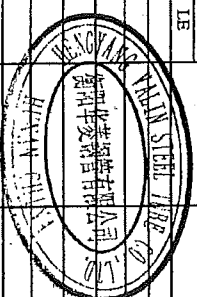
HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang City, Hunan, P.R.China P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hstee@hysteeltube.com
C201205129-1
SA333

| | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|--|------------------------|--|----------------|--|--|--|--------------------|--|---------------------------|--|-----------------|--|--|--|----------------|--|-----------|--|---------------|--|------------|--|
| CUSTOMER | | CE FRANKLIN | | P.O. NO. | | PO 2926709-OR-2100-D (LOT A) | | L/C NO. | | 25FAHDS-00080 | | CERTIFICATE NO. | | C201205129-1 | | DATE: | | 2012-2-15 | | PAGE: | | 1/3 | |
| CONTRACT NO. | | 2111000048 | | PRODUCT | | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | | DELIVERY CONDITION | | N | | SPECIFICATION | | SEE SPECIFICATION NOTE | | HEAT TREATMENT | | | | | | | |
| GRADE | | A333-6, SA333-6, GR280 | | TOTAL BUNDLES: | | 52 | | TOTAL PIECES: | | 359 | | DIMENSIONS(mm) | | 4" x 0.237" x 20' FT | | TOTAL LENGTH: | | 7184.620 | | TOTAL WEIGHT: | | 35.192 | |
| NO. | | LOT No. | | HEAT No. | | BUNDLES | | PIECES | | LENGTH FT | | WEIGHT MT | | SAMPLE TYPE ORIENTATION / SIZE(mm) GAUGE LENGTH(mm) S.U.M.1.2.3.50 | | TENSILE TEST | | ASTM A370 | | | | | |
| 1 | | 921201006 | | 1210139 | | 31 | | 216 | | 4322.780 | | 21.168 | | 63103/63800 | | 49155/47125 | | 34.0/34.5 | | 0.760/0.74 | | ACCEPTABLE | |
| 2 | | 921201007 | | 1210134 | | 21 | | 143 | | 2861.840 | | 14.014 | | 67113/66120 | | 52922/50460 | | 35.5/34.5 | | 0.780/0.76 | | ACCEPTABLE | |
| IMPACT TEST | | | | | | | | | | | | | | | | | | | | | | | |
| NO. | | NOTCH TYPE | | ORIENTATION | | TEMPERATURE | | SIZE (mm) | | NON METALLIC INCLUSION | | GRAIN SIZE | | HARDNESS TEST | | | | | | | | | |
| | | V8/T | | 45/5 | | | | | | | | | | NACE MR0175/ISO 15156- 2(Region 3)/NBS0103 | | HRC < 22 | | | | | | | |
| | | AV (D) | | % SHEAR AREA | | LE | | AV (D) | | % SHEAR AREA | | LE | | | | | | | | | | | |
| 1 | | 90.0/68.0/82.0 | | 80 | | 90/88/89 | | 2.31/2.30/2.28 | | | | | | | | | | | | | | 1/0' | |
| 2 | | 65.0/67.0/85.0 | | 72 | | 85/86/90 | | 2.07/2.12/2.25 | | | | | | | | | | | | | | 1/0' | |
| NOTES: | | | | | | | | | | | | | | | | | | | | | | | |
| W1-THEORETICAL WEIGHT | | | | | | | | | | | | | | | | | | | | | | | |
| W2-ACTUAL WEIGHT | | | | | | | | | | | | | | | | | | | | | | | |
| NR-NORMALIZING ROLLED | | | | | | | | | | | | | | | | | | | | | | | |
| AK1-ABSORB ENERGY FOR THE FIRST SET | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |



Reviewed to 2010 Section II Part A & addenda
MTR reviewed as per requirements in SA-20
Thickness checked as per requirements in SA-20
Heat No. [blank]
Chemicals [blank]
Plate: [blank]

Reviewed to 2010 Section II Part A & addenda
MTR reviewed as per requirements in SA-20
Thickness checked as per requirements in SA-20
Heat No. [blank]
Chemicals [blank]
Plate: [blank]

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

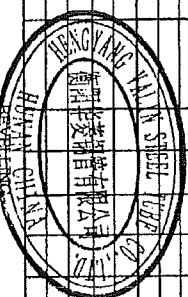
(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, hengyang City, Hunan, P. R. China
P. C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hsteehty@steel.tube.com

C201205129.1

PAGE: 2/3

| CUSTOMER | CE PRANKLIN | | CERTIFICATE NO. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|--|---------------|------------------------------|------------------------|--|----|---------------------|----|----|----|----|----|----|----|----|----|-------|----|---|----|----|----|---|----|----|----|----|------|------|------|----|----|----|--|----|-----|--|--|------|
| CONTRACT NO. | 2111000048 | P.O.NO. | PO.2926709-OR-2100-D (LOT A) | L/C NO.: ZFAHD5-000080 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | | DELIVERY CONDITION | N | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SPECIFICATION | SEE SPECIFICATION NOTE | | HEAT TREATMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GRADE | A333-6, SA333-6, GR290 | | DIMENSIONS(mm) | Φ**0.237**20FT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTAL BUNDLES: | 52 | TOTAL PHICES: | 359 | TOTAL LENGTH: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 7184.620 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | FT | TOTAL WEIGHT: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | 35.182 MT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NO | HEAT No. LOT No. | Type | C | | | | | | | | | | | | | | S | | P | | | | | | | | | | | | | | | | | | | | |
| | | | SI | Mn | Cr | Mg | W | Cu | Ni | P | Al | Sn | As | Pb | Sb | Nb | Ti | Zr | N | Bi | S | V | B | Ca | CP | CP | CP | SUM1 | SUM2 | SUM3 | R1 | R2 | R3 | | | | | | |
| | | | *100 | | | | | | | | | | | | | | *1000 | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1210139 | H | 10 | 25 | 106 | 6 | 1 | 12 | 3 | 13 | | | | | | | | | | | 29 | 26 | | | | | | | | 33 | 29 | 1 | | | 30 | 223 | | | 10.6 |
| | 921201006 | P | 10 | 25 | 106 | 5 | 1 | 10 | 3 | 13 | | | | | | | | | | | 29 | 25 | | | | | | | | 30 | 28 | 1 | | | 30 | 193 | | | 10.6 |
| | 921201006 | P | 11 | 24 | 105 | 5 | 1 | 10 | 3 | 13 | | | | | | | | | | | 29 | 25 | | | | | | | | 30 | 28 | 1 | | | 31 | 193 | | | 9.5 |
| | 1210134 | H | 11 | 26 | 105 | 5 | 1 | 9 | 2 | 12 | | | | | | | | | | | 29 | 27 | | | | | | | | 25 | 28 | 2 | | | 30 | 173 | | | 9.5 |
| 2 | 921201007 | P | 11 | 26 | 104 | 5 | 1 | 9 | 2 | 12 | | | | | | | | | | | 29 | 27 | | | | | | | | 25 | 30 | 2 | | | 30 | 173 | | | 9.5 |
| | 921201007 | H | 10 | 25 | 105 | 5 | 1 | 9 | 2 | 12 | | | | | | | | | | | 29 | 27 | | | | | | | | 25 | 30 | 2 | | | 29 | 173 | | | 10.5 |
| NON-DESTRUCTIVE TEST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| POSITION | | | PIPE BODY | | PIPE END | | END SURFACE(GROOVE) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NDT Type(Level) | | | UT | | MPI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAMINAR | | | ACCEPTABLE | | ACCEPTABLE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEST RESULT | | | ACCEPTABLE | | ACCEPTABLE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RESIDUAL MAGNETISM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| UT THICKNESS MEASUREMENT (50%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HYDROSTATIC TEST | | | Mini(psi/s) | | 2650/6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NOTES: | | | | | H-HEAT ANALYSIS P-PRODUCT ANALYSIS CE-EQUIVALENT CARBON R-RATIO R1=Ca /S R2=Al/N R3=Mn /C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | CE1W=C+Mn/6+(Cr+Mn/5)/(Cu+N)/15 CEPCW=C+S/30+(Mn+Cr+Cu)/20+(Ni/50+Mo/15+V)/10+S*8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | SUM1=C+Cr+Mo+Ni+V SUM2=Nb+V SUM3=Nb+V+Ti | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | L4-ACCEPT LEVEL 1.4 NOTCH DEPTH IS 12.5% THE SPECIFIED WALL THICKNESS. L2-ACCEPT LEVEL 1.2 NOTCH DEPTH IS 5% THE SPECIFIED WALL THICKNESS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Reviewed to MW Section II Part A & 11a addenda
MTR reviewed as per requirements in SA-20
Thickness checked as per requirements UG-90-(b), (6)
Heat No. 0912112 Chemicals W Properties W
Date: 09/12/12 By: W

HENGANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang
City, Hunan, P. R. China P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hsteel@hsteel.tube.com

| | | | |
|----------------|--|--------------------|------------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201205129-1 |
| CONTRACT NO. | 2111000048 | P.O.NO. | PO.2926709-OR-2100-D (LOT A) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO. | 2FAHDS-00080 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | N |
| GRADE | A333-6, SA333-6, GR290 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 52 | TOTAL PAGES: | 339 |
| | | TOTAL LENGTH: | 7184.620 FT |
| | | TOTAL WEIGHT: | 35.182 MT |
| HIC TEST | SEE THE ORIGINAL INSPECTION REPORTS | REMARK: | |
| SSC TEST | | | |

| | |
|--------------------|--|
| SPECIFICATION NOTE | ASTM A333-6-2010, ASME SA333-6-2010, NACE MR-0175-2009/ISO 15156-2-2009(REGION 3)/MR-0103/SS (CSA Z245.1 GRADE 290 CATEGORY II-2007) |
|--------------------|--|

We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

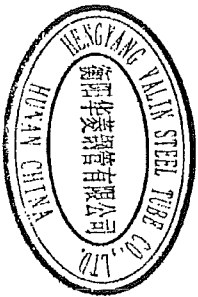
Any alteration and/or falsification will be subject to the law.

If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube CO., LTD. E-mail: hsteel@steel.tube.com

CUSTOMER THIRD PARTY

Quality Manager:

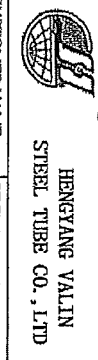
胡双开



Certificate-maker:

唐娅娜

ASV 4" SCH. 40 PIPE SAIBBS
 HT# 291104000
 BT: 0.240 0.238
 0.251 0.251
 BOFT
 PO# 8355 (CF Wilson)
 STOCK.



MILL TEST REPORT

Address: 10 Dalixincun, Hengyang City, Hunan, P.R. China
 P.C.: 421001
 Tel and Fax: +86 734 8373739
 E-mail: hstee@hstee.com

CUSTOMER NAME: CEFRAANKLIN
 CONTRACT NO.: 2110002312-1
 P.O. NO.: PO.2895832-OR-2100-A (LOT A)
 L/C NO.: 3FAHDS-000036
 DATE: 1/24/2012
 PAGE: 1/3

PRODUCT: SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE
 SPECIFICATION: SEE SPECIFICATION NOTE
 DELIVERY CONDITION: HOT-ROLLED (HR)

GRADE: B/X42
 DIMENSIONS: 4" x 0.237" x 20FT

TOTAL BUNDLES: 21
 TOTAL PIECES: 199
 TOTAL LENGTH: 3982.61
 BEET: 19.520
 MT

| NO. | LOT No. | HEAT No. | BUNDLES | PIECES | LENGTH | | WEIGHT | | SAMPLE TYPE/ORIENTATION/TEMPERATURE (°C) / SIZE (mm) | TENSILE TEST ASTM A370 | NON METALLIC INCLUSION | GRAIN SIZE | HARDNESS TEST NACE MR0175 HRC ≤22 |
|-----|------------|-----------|---------|--------|---------|-------|--------|-------|--|------------------------|------------------------|------------|---|
| | | | | | FEET | MT | WT | MT | | | | | |
| 1 | 2111122015 | Z21103981 | 4 | 32 | 640.42 | 3.139 | 77575 | 63075 | 43.0 | | | | ACCEPTABLE |
| 2 | 221121603 | Z21104000 | 8 | 79 | 1581.04 | 7.749 | 76850 | 63075 | 39.5 | | | | ACCEPTABLE |
| 3 | 221121604 | Z21104000 | 9 | 88 | 1761.15 | 8.632 | 77575 | 63075 | 35.0 | | | | ACCEPTABLE |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |

NOTCH TYPE/ORIENTATION/TEMPERATURE (°C) / SIZE (mm):

IMPACT TEST

NOTES:

W1-THEORETICAL WEIGHT
 W2-ACTUAL WEIGHT
 NR-NORMALIZING ROLLED
 AK1-ABSORB ENERGY FOR THE FIRST SET

SAMPLE ORIENTATION: L-LONG/SAMPLE TYPE: S-STRIP C-CUBBED N-NORMALIZING
 SAMPLE TYPE: S-STRIP C-CUBBED F-FULL SECTION
 Q&T-QUENCHING AND TEMPERING
 AK2-ABSORB ENERGY FOR THE SECOND SET

HF-HOT EXPANDED
 HR-HOT ROLLED
 AV-AVERAGE
 N&T-NORMALIZING AND TEMPERING
 IE-SIDE EXPANSION
 MT-METRIC TON

Reviewed to 2010 Section II Part A & 2011 addenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements UG-90-(b), (c)
 Heat No. -
 Chemicals -
 Date: 31 Oct 12 By: DH





HENGYANG VALLIN
STEEL TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 2.1/DIN50049 3.1)

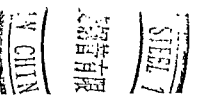
Add: 10 Dalixineun, Hengyang City, Hunan, P. R. China
P. C: 421001
Tel and Fax: +86 734 8873739
E-mail: hsteeb@steel-tube.com

| | | | | | | | | | | | |
|----------------|--|------------------------|------------------------------|--------------------|---------------|-----------------|--------------------|------|---------------|-------|-----------|
| CUSTOMER NAME | CE FRANKLIN | P.O. NO. | PO 2895832-OR-2100-A (LOT A) | L/C NO. | 2FAHDS-00036 | CERTIFICATE NO. | 2011-00039-1 | DATE | 1/24/2012 | PAGE: | 2/3 |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | SEE SPECIFICATION NOTE | | DELIVERY CONDITION | | HOT-ROLLED (HR) | | | | | |
| SPECIFICATION | | | | | DIMENSIONS | | 4" * 0.237" * 20FT | | | | |
| GRADE | B242 | | | | TOTAL LENGTH: | | 3982.61 FEET | | TOTAL WEIGHT: | | 19.520 MT |
| TOTAL BUNDLES: | 21 | TOTAL PIECES: | | 199 | TOTAL LENGTH: | | | | | | |

| NO | HEAT No. LOT No. | Type | CHEMICAL COMPOSITION (%) | | | TOTAL LENGTH | | | | | TOTAL WEIGHT | | | | | | | | | | | | | | | |
|----|---------------------|------|--------------------------|-----|-----|--------------|-----|-----|----|----|--------------|----|---|---|---|----|-------------------|------------------|------|------|------|----|----|----|--|------|
| | | | C | Mn | P | Pb | SI | Nb | Ti | Zr | N | HI | S | V | B | Ca | CE ₁₀₀ | CE ₅₀ | SUMI | SUM2 | SUM3 | R1 | R2 | R3 | | |
| | | | ×100 | | | ×1000 | | | | | ×10000 | | | | | | | | | | | | | | | |
| 1 | Z21103981 | H 14 | 30 | 108 | 5.0 | 0.4 | 7.0 | 3.0 | 14 | 33 | | | | | | | | | | | | | | | | 7.71 |
| | 211122015 | P 15 | 27 | 122 | 6.5 | 0.5 | 6.6 | 3.4 | 21 | 33 | | | | | | | | | | | | | | | | 8.17 |
| | 221104000 | H 14 | 34 | 113 | 4.0 | 0.5 | 7.0 | 3.0 | 13 | 35 | | | | | | | | | | | | | | | | 8.41 |
| 2 | 221121603 | P 15 | 30 | 114 | 3.9 | 0.6 | 6.3 | 2.2 | 13 | 34 | | | | | | | | | | | | | | | | 8.07 |
| | 221104000 | H 14 | 31 | 115 | 3.9 | 0.6 | 6.6 | 2.5 | 14 | 36 | | | | | | | | | | | | | | | | 7.66 |
| | 221121604 | H 14 | 34 | 113 | 4.0 | 0.5 | 7.0 | 3.0 | 13 | 35 | | | | | | | | | | | | | | | | 8.07 |
| | 221121604 | P 14 | 31 | 114 | 3.1 | 0.5 | 6.5 | 1.9 | 14 | 33 | | | | | | | | | | | | | | | | 8.1 |
| | 221121604 | H 14 | 32 | 114 | 3.2 | 0.5 | 6.6 | 2.1 | 13 | 35 | | | | | | | | | | | | | | | | 8.01 |

| POSITION | PIPE BODY | PIPE END |
|--------------------------------|------------|--------------------|
| NDT Type(Level) | EMILU4 | |
| LAMENAR | N/A | VISUAL & DIMENSION |
| TEST RESULT | ACCEPTABLE | ACCEPTABLE |
| RESIDUAL MAGNETISM | N/A | COATING |
| UT THICKNESS MEASUREMENT (30%) | N/A | |
| HYDROSTATIC Test | 2870/5 | ACCEPTABLE |

NOTES: H-HEAT ANALYSIS P-PRODUCT ANALYSIS CE-EQUIVALENT CARBON R-RATIO RI-Cg /S R2=Al/N R3-Mn /C
 CE_{int}=C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/5 CE_{int}=C+Si/30+(Ni+Cr+Cu)/20+(Nb+Mo)/5+V/10+S*8
 SUM1=Cr+Cu+Mo+Ni+V SUM2=Nb+V SUM3=Nb+V+Ti
 L1-ACCEPT LEVEL 14,NOTCH DEPTH IS 12.5% THE SPECIFIED WALL THICKNESS. L2-ACCEPT LEVEL 12,NOTCH DEPTH IS 5% THE SPECIFIED WALL THICKNESS.





HENGYANG VALIN
STEEL TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1/DIN50049 3.1)

Add: 10 Dalixineun, Hengyang
City Hunan, P. R. China P. C.: 421001
Tel and Fax: +86 734 8879739
E-mail: hste@hysteeltube.com

| | | | |
|-------------------|--|--------------------|--|
| CUSTOMER NAME | CE FRANKLIN | CERTIFICATE NO. | 2011-00039-1 |
| CONTRACT NO. | 2110002312-1 | P.O. NO. | PO.2892832-OR-2100-A (LOT A) L/C NO.: 2FAHDS-00036 |
| DATE | 1/24/2012 | PAGE: | 3/3 |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | DELIVERY CONDITION | HOT-ROLLED (HR) |
| SPECIFICATION | SEE SPECIFICATION NOTE | DIMENSIONS | 4" * 0.237" * 20FT |
| GRADE | BOX42 | FEET | TOTAL WEIGHT: 19.520 MT |
| TOTAL BUNDLES: 21 | TOTAL PIECES: 199 | TOTAL LENGTH: | 3982.61 |

REMARK: 1. Origin: MADE IN CHINA; 2. All elements to be listed

| | | | |
|--------------------|--|--|--|
| SPECIFICATION NOTE | ASTM A53B/A106B-2010, ASME SA53B/SA106B-2010, API 5L B/X42, PSJ1-2008, NACE MR-0175-2009 (FOR HARDNESS ONLY) | | |
|--------------------|--|--|--|

We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law.

If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube Co., Ltd., E-mail: hste@hysteeltube.com

CUSTOMER THIRD PARTY

Quality Manager:

胡双开

Auditor:

Certificate-maker:

刘年亚





V & M do BRASIL S.A.
 VALLOUREC & MANNESMANN TUBES
 BARREIRO PLANT - Belo Horizonte - MG - Brazil
 CEP: 30161-970 - PO BOX: 1453



PRK 8" SCH 40 SA33361.6
 HFW 110921
 VT: 0-325
 CEF PO# 8087
 stock
 2011

INSPECTION CERTIFICATE N°.: 0030021722
 (According to DIN EN 10204 3.1) 1/3

Customer: VALLOUREC TUBES CANADA INC
 Customer Order: VM234 / P.O # 4889663-00
 Inspection: V & M do BRASIL S.A.

Country: Canada
 Work Order: 297251 / 000050
 Customer Material Number: 384583
 Material Number: 384583

DIMENSION: 219.10mm X 8.20mm SCHEDULE: 040 # GRADE: GRADE 290 /GR 6 /GR 1
 METALLURGICAL STANDARD: CSA-Z245.1 01.04.2007 # CATEGORY II # DIMENSIONAL STANDARD: CSA-Z245.1 01.04.2007
 IN ACCORDANCE ALSO TO THE STANDARDS: A 333 / 2010 # ASME SA333 / 2010 #
 PRODUCT: SEAMLESS STEEL PIPE, HOT FINISHED, BEVELED ENDS 37.5 DEG. # NORMALIZED # SURFACE PROTECTION: LACQUER #
 TOLERANCES: OUTSIDE DIAMETER: - 0.800mm / + 1.600mm # OD PIPE ENDS: - 0.400mm / + 1.600mm WALL THICKNESS: - 1.025mm / + 1.230mm
 CUT LENGTH: RANDOM 11000.00mm - 11800.00mm #
 STANDARD MARKING: 297251/50 VMB CSA-Z245.1 -07 219.10 X 8.20 290 CAT II MASC S HN ...M ASTM A333 SA 333, 1/6 HF SCH 040 LT -45 C HEAT "HEAT"
 SHIPPING MARKING: MADE IN BRAZIL * VM2651/ P.O # 4889745-00 * NEW WESTMINSTER VIA VANCOUVER B.C. - "NACE MR 01.75"

| Heat N° | Inspection Lot | Pieces |
|---------|----------------|--------|
| 418921 | 039001963639 | 43 |
| Total | | 43 |

THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS/INSPECTIONS: DIMENSIONAL # VISUAL # FLATTENING TEST # ELECTROMAGNETIC TEST ACCORDING TO CSA Z245.1 # HYDROSTATIC TEST: 16.300,0 KPA 5 s # RESIDUAL MAGNETISM MAXIMUM: 30 GAUSS #

| Chemical Composition(%) | CEq according: CSA-Z245.1-CE11 | | | | DI according: | | | | Uutic | | | | FCM: | | | |
|-------------------------|--------------------------------|------|-------|-------|---------------|------|------|------|-------|-------|-------|--------|-------|-------|--|--|
| | C | Mn | P | S | SI | NI | Cr | Mo | Ca | V | Nb | B | TI | CEq | | |
| Required: | Min | 0.40 | | | 0.10 | | | | | | | | | | | |
| | Max | 0.26 | 1.26 | 0.020 | 0.025 | 0.50 | 0.40 | 0.15 | 0.400 | 0.080 | 0.110 | 0.0010 | 0.110 | 0.400 | | |
| Heat N°/Inspection Lot | | | | | | | | | | | | | | | | |
| 110921-039001963639 | 0.11 | 1.03 | 0.010 | 0.003 | 0.17 | 0.23 | 0.03 | 0.01 | 0.000 | 0.004 | 0.032 | 0.0002 | 0.001 | 0.280 | | |
| Checked: | 0.11 | 1.05 | 0.011 | 0.004 | 0.16 | 0.21 | 0.03 | 0.03 | 0.005 | 0.000 | 0.031 | 0.0000 | 0.001 | 0.314 | | |
| Checked: | 0.10 | 1.05 | 0.011 | 0.003 | 0.17 | 0.21 | 0.03 | 0.03 | 0.006 | 0.000 | 0.034 | 0.0000 | 0.002 | 0.302 | | |

| Mechanical Tests | S-Direction: Longitudinal | Temperature: Room Temperature | | Cage Length: L0= 2" |
|--|---------------------------|-------------------------------|---------------|---------------------|
| | | Area(Q&M2) YS(Q&PA) | TS(Q&PA) E(%) | |
| Required: | Min | 290 | 415 | 30 |
| | Max | 495 | 625 | |
| Heat N°/Inspection Lot | | | | |
| H0921-039001963639 | 317.8 | 363 | 481 | 37 |
| YS-Yield Strength : TS-Tensile Strength : E-Elongation | | | | |

Reviewed to 2010 Section II Part A & 11a addenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements UG-90.(b), (e)
 Heat No. 09/21/12 Chemicals W Properties C
 Date: 09/21/12 By: W



VALLOUREC & MANNESMANN TUBES



NOTES: 1. 100% INSPECTION
2. NO HAZARDOUS MATERIALS
3. NO HAZARDOUS WASTE
4. NO HAZARDOUS LIQUIDS
5. NO HAZARDOUS GASES
6. NO HAZARDOUS SOLIDS
7. NO HAZARDOUS PARTICLES
8. NO HAZARDOUS FIBERS
9. NO HAZARDOUS DUSTS
10. NO HAZARDOUS OILS
11. NO HAZARDOUS ACIDS
12. NO HAZARDOUS ALKALIS
13. NO HAZARDOUS METALS
14. NO HAZARDOUS NON-METALS
15. NO HAZARDOUS ORGANICS
16. NO HAZARDOUS INORGANICS
17. NO HAZARDOUS RADIATION
18. NO HAZARDOUS BIOLOGICALS
19. NO HAZARDOUS CHEMICALS
20. NO HAZARDOUS PHYSICALS

INSPECTION CERTIFICATE
(According to DIN EN 10204 3.1)

N°.: 0030021722
Sheet: 2 / 3

Hardness

Required: HV
Min 246
Max 246

Heat N./Inspection Lot
110921 030001963639 144

Impact According: CHARPY 10X55X6.67 V NOTCH Direction: Longitudinal 2 Temperature: -45 °C

AE1 (J) AE2 (J) AE3 (J) AE4ver. (J)

Required: Min 11 11 11 14.0
Max 11 11 11 14.0

Heat N./Inspection Lot
110921 030001963639 244 238 248 243.3

AE-Absorbed Energy

Impact According: CHARPY 10X55X6.67 V NOTCH Direction: Transversal Temperature: -45 °C

AE1 (J) AE2 (J) AE3 (J) AE4ver. (J)

Required: Min 18.0 50 50 50 60
Max 18.0 50 50 50 60

Heat N./Inspection Lot
110921 030001963639 202.7 100 100 100 100

AE-Absorbed Energy : SA-Shear Area

Remarks:

1. MATERIAL IN ACCORDANCE WITH NACE MR 0175 PAR. 3.2/ISO 15156-2, ANNEX A.2.1./NACE MR0103 PAR.2.1. ALL LATEST EDITIONS
2. SKU 2530005
3. MATERIAL SOUR SERVICE ACCORDING § 16 OF CSAZ245.1
4. SÃO REQUERIDAS 3 LETURAS DE DUREZA E AS MESMAS DEVEM CONSTAR NO CERTIFICADO



V&M VALLOUREC & MANRESKANN TUBES



00711 10001 NUMBER 30000
0000011 NUMBER 30772
0000011 NUMBER 01722
0000011 NUMBER 01722

INSPECTION CERTIFICATE N° : 0030021722 Sheet: 3 / 3
(According to DIN EN 10204 3.1)

We hereby certify that this product has been manufactured and examined in accordance with all **QUALITY CONTROL DEPARTMENT** requirements of the standards and specifications and all the results are found to be satisfactory **DATE**

This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Attention or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction. **25.07.2011**

Eco Tubes: The tubes from V&M de BRASILL are manufactured with steel which uses charcoal as a source of energy in its production. This coal comes from more than 100,000 ha of forest planted by V&M Forestal with the acquisition of 21,4 ton(s) of steel tubes from V &M de BRASILL, your company contributed to the reduction of the greenhouse effect, avoiding the accumulation of 38,5 ton(s) of Carbon Dioxide CO2 in the atmosphere. **MARCOS JOSÉ DE AZEVEDO CRISNE - CREAMING MTR30**
TECHNICAL RESPONSIBLE
e-mail: MARCOSCRISNE@VMTUBES.COM.BR

ASWD 3" SCH. 40 PIPE SA333Gr.1b
 HT#1281836
 1604+ PD#B355CEF (NOV WILSON)
 STOCK

VT: 0.245 0.232
 0.245 0.241
 0.233 0.233
 0.233 0.233

HENGYANG VALIN STEEL
 TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

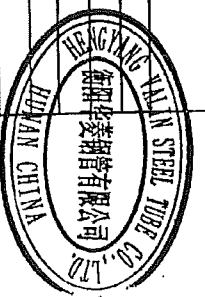
Add: 10 Dalixincun, Hengyang City, Hunan, P. R. China P. O.: 421001
 Tel and Fax: +86 734 8873739
 E-mail: hsteel@hsteeltube.com

| | | | |
|----------------|--|--------------------|-----------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201210321-1 |
| CONTRACT NO. | 2111000093-2 | P.O.NO. | PO2946972-OR-2100-D (LOT B) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO. | 25AHD5-00126 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | N |
| GRADE | A333-G | HEAT TREATMENT | |
| TOTAL BUNDLES: | 39 | TOTAL PIECES: | 743 |
| | | TOTAL LENGTH: | 14869.780 |
| | | FT | FT |
| | | TOTAL WEIGHT: | 51.188 |
| | | MT | MT |

| NO. | LOT No. | HEAT No. | BUNDLES | PIECES | LENGTH | | WEIGHT | | SAMPLE TYPE/ ORIENTATION / SIZE (mm) | GAUGE LENGTH (mm) | SUA12.5/50 | TENSILE TEST | | | ASTM/A370 |
|-----|-----------|----------|---------|--------|-----------|--------|-------------|-------------|--------------------------------------|-------------------|------------|--------------|----------|------|-----------|
| | | | | | FT | MT | FT | MT | | | | TS (ksi) | YS (ksi) | Ro.5 | |
| 1 | 922101109 | 1210749 | 9 | 170 | 3402.240 | 11.712 | 66120/65395 | 49590/48575 | 34.0/35.0 | 0.750/0.74 | ACCEPTABLE | | | | |
| 2 | 922101110 | 1221836 | 29 | 548 | 10967.210 | 37.754 | 64670/66265 | 48575/49300 | 31.5/32.0 | 0.750/0.74 | ACCEPTABLE | | | | |
| 3 | 922101111 | 1116970 | 1 | 25 | 500.330 | 1.722 | 67570/65975 | 50029/47960 | 34.0/31.5 | 0.740/0.72 | ACCEPTABLE | | | | |

| NO. | NOTCH TYPE/ORIENTATION/TEMPERATURE/SIZE (mm): | | | | IMPACT TEST | | | | NON METALLIC INCLUSION | GRAN SIZE | HARDNESS TEST | |
|-----|---|---------|--------------|----------------|-------------|---------|--------------|----|------------------------|-----------|--|---------|
| | AKI (J) | Av. (J) | % SHEAR AREA | LE | AK2 (J) | Av. (J) | % SHEAR AREA | LE | | | NACE MR0175/ISO 15156-2 (Region 3)/NACE MR0103 | HRC <22 |
| 1 | 38.0/32.0/33.0 | 34 | 70/70/71 | 1.31/1.34/1.28 | | | | | 1/0/ | | | |
| 2 | 36.0/36.0/34.0 | 35 | 75/72/71 | 1.40/1.38/1.36 | | | | | 1/0/ | | | |
| 3 | 39.0/31.0/32.0 | 34 | 78/70/72 | 1.40/1.45/1.36 | | | | | 1/0/ | | | |

NOTES:
 W1-THEORETICAL WEIGHT
 W2-ACTUAL WEIGHT
 NR-NORMALIZING ROLLED
 AK1-ABSORB ENERGY FOR THE FIRST SET
 SAMPLE ORIENTATION: 1-LONGITUDINAL 1-T-RANSVERSE
 SAMPLE TYPE: S-STRIP C-CLIBBED F-FULL-SECTION
 Q&T-QUENCHING AND TEMPERING
 AC1-ABSORB ENERGY FOR THE SECOND SET
 N-NORMALIZING
 A-ANNEALING
 AV-AVERAGE
 LE-SIDE EXPANSION
 HE-HOT EXPANDED
 HR-HOT ROLLED
 N&T-NORMALIZING AND TEMPERING



Reviewed by: **2016** Sector: Part A & 20114-000808
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements U.S. 90-(D), (E)
 Heat No. **1** Chemicals **1** Properties **1**
 Date: **01 Nov 12** By: **DA**

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10304 3.1)

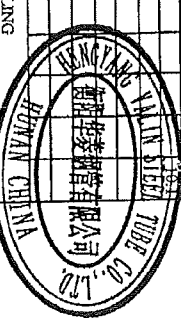
Add: 10 Dalixincun, Hengyang City, Hunan, P. R. China
P. C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hsiesteel@valintube.com

| | | | | |
|----------------|--|--------------------|-------------------------------|-----------------------|
| CUSTOMER | 2111000093-2 | CE FRANKLIN | CERTIFICATE NO. | |
| CONTRACT NO. | 2111000093-2 | P.O.NO. | PO 2946972-OR-21-00-D (LOT B) | L/C NO.: ZFAHDS-00126 |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | DELIVERY CONDITION | | |
| SPECIFICATION | SEE SPECIFICATION NOTE | HEAT TREATMENT | DATE: 2012-3-21 | |
| GRADE | | | PAGE: 2/3 | |
| TOTAL BUNDLES: | 39 | TOTAL PIECES: | 743 | TOTAL LENGTH: |
| | | | 14869.780 | TOTAL WEIGHT: |
| | | | 51.188 | MT |

| NO | HEAT No. LOT No. | Type | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | DIMENSIONS (mm) | | | TOTAL WEIGHT: | | | | | | | | | | | | | | | | | | | | |
|----|----------------------|--------|--------------------------|----|-----|----|----|---|----|----|---|----|----|----|----|-----------------|----|----|---------------|---|----|---|---|---|----|----|----|------|------|------|----|----|----|--|--|--|-----|------|------|
| | | | C | SI | Mn | CR | Mo | W | CU | NI | P | AL | Sn | As | Pb | SH | Nb | TI | Zr | N | BI | S | V | B | CA | CE | RE | SUM1 | SUM2 | SUM3 | R1 | R2 | R3 | | | | | | |
| 1 | 1210749 922101109 | H P | 11 | 21 | 103 | 5 | 1 | 7 | 2 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | 9.4 | 9.1 | 9.1 |
| 2 | 1221836 922101110 | H P | 12 | 26 | 104 | 5 | 1 | 6 | 2 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | 8.7 | 10.1 | 9.1 |
| 3 | 1116370 922101111 | H P | 10 | 24 | 101 | 5 | 1 | 6 | 2 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | 9.3 | 10.9 | 10.9 |

| POSITION | PIPE BODY | PIPE END | END SURFACE (GROOVE) | BEVELLING |
|--------------------------------|--------------|------------|----------------------|------------|
| NDT Type (Level) | UT/IL2 | MPI | | |
| LAMINAR | ACCEPTABLE | ACCEPTABLE | N/A | ACCEPTABLE |
| RESIDUAL MAGNETISM | | | N/A | ACCEPTABLE |
| UT THICKNESS MEASUREMENT (50%) | | | N/A | ACCEPTABLE |
| HYDROSTATIC TEST | Mind (psi/s) | 2500/5 | | ACCEPTABLE |

NOTES:
H- HEAT ANALYSIS P- PRODUCT ANALYSIS CE- EQUIVALENT CARBON
CE1W=C-Mn/6+(C-Mn)/5+(C+Mn)/15 CEPCM=C-Si/30+(Mn+C)/20+(S/Mn/15+V/10+P/8
SUM1=C+Cr+Mo+Ni+V SUM2=Nb+V SUM3=Nb+V+Ti
L1- ACCEPT LEVEL 1.4 NOTCH DEPTH IS 12.5% THE SPECIFIED WALL THICKNESS. L2- ACCEPT LEVEL 1.2 NOTCH DEPTH IS 5% THE SPECIFIED WALL THICKNESS.



Reviewed to 2010 Section II Part A & 2010 addenda
MTR reviewed as per requirements in SA-20
Thickness checked as per requirements UG-90-(b), (6)
Heat No. _____ Chemicals _____ Properties _____
Date: 01 NOV 12 By: DA

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

Addr: 10 Dalixinnu, Hengyang
City, Hunan, P. R. China P. C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hysc@hysteeltube.com

(ACCORDING TO EN10204 3.1)

| | | | |
|----------------|--|--------------------|------------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201210321-1 |
| CONTRACT NO. | 2111000099-2 | P. O. NO. | PO.2946972-OR-2100-D (LOT B) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO.: | 2FAHDS-00126 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | N |
| GRADE | A333-6 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 39 | TOTAL PIECES: | 743 |
| | | TOTAL LENGTH: | 14859.780 |
| | | FT | 3 * 0.216" * 20FT |
| | | TOTAL WEIGHT: | 51.188 |
| | | | MT |
| HIC TEST | SEE THE ORIGINAL INSPECTION REPORTS | REMARK: | |
| SSC TEST | | | |

| | |
|---------------|--|
| SPECIFICATION | ASTM A333-6-2010, ASME SA333-6-2010, NAGE MR-0175-2009/ISO 15156-2 |
| NOTE | 2009 (REGION 3)/MR-0103/SS (CSA Z245.1 GRADE 290 CATEGORY II-2009) |

We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

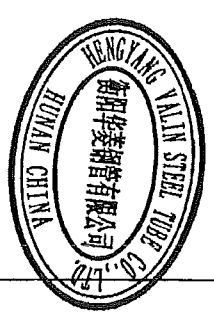
Any alteration and/or falsification will be subject to the law.

If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube Co., Ltd,
E-mail: hysc@hysteeltube.com

CUSTOMER THIRD PARTY

Quality Manager: 胡双开

Certificate-maker: 倪小平





HENGYANG VALIN
STEEL TUBE CO., LTD

(ACCORDING TO EN10204 3.1/DIN50049 3.1)

MILL TEST REPORT

Add: 10 Dalixincun, Hengyang City, Hunan, P.R. China
P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hsteelfhysteel@163.com

ASX 3" Sch.40 pipe 51166B

16041 P0#8355 CFF (POU Wilson)

HT# 1110425612
0.239 0.248 0.249 0.239
0.248 0.243 0.249 0.230

| | | | | | | | | | |
|---------------|------------------------|--------------|--|--------------------|--------------------|-----------------|--------------|------|-----|
| CUSTOMER NAME | CE FRANKLIN | P.O. NO. | PO289832-OR-2100-A (LOT A) | L.C. NO. | 2FAHD05-00036 | CERTIFICATE NO. | 2011-00039-5 | PAGE | 1/3 |
| CONTRACT NO. | 2110002312-1 | PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | DELIVERY CONDITION | HOT-ROLLED (HR) | DATE | 1/24/2012 | | |
| SPECIFICATION | SEE SPECIFICATION NOTE | GRADE | SEE SPECIFICATION NOTE | DIMENSIONS | 3" * 0.216" * 20FT | TOTAL WEIGHT | 24.035 | | |
| TOTAL BUNDLES | 19 | TOTAL PIECES | 349 | TOTAL LENGTH | 6984.58 FEET | TOTAL WEIGHT | 24.035 | | |

| NO. | LOT No. | HEAT No. | BUNDLES | PIECES | LENGTH | | WEIGHT | | TENSILE TEST ASTM A370 | NON METALLIC INCLUSION | GRAIN SIZE | HARDNESS TEST NACE MR0175 | FLATTENING TEST |
|-----|------------|------------|---------|--------|---------|--------|--------|-------|---------------------------|---------------------------|------------|------------------------------|--------------------|
| | | | | | FEET | MT | W1 | W2 | | | | | |
| 1 | 141120201 | 11104256N1 | 9 | 160 | 3202.10 | 11.023 | 71050 | 47830 | 29.5 | | | ACCEPTABLE | |
| 2 | 1311121203 | ZL11112059 | 6 | 110 | 2201.44 | 7.573 | 68875 | 52200 | 26.5 | | | ACCEPTABLE | |
| 3 | 141121201 | ZL11112059 | 4 | 79 | 1581.04 | 5.439 | 69600 | 52925 | 23.0 | | | ACCEPTABLE | |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |

IMPACT TEST

| NO. | NOTCH TYPE/ORIENTATION/TEMPERATURE (C) /SIZE (mm): | | | | | | HARDNESS TEST HRC ≤22 |
|-----|--|--------|--------------|----|---------|--------|--------------------------|
| | AKI (J) | AV (J) | % SHEAR AREA | LE | AK2 (J) | AV (J) | |
| Max | | | | | | | |
| Min | | | | | | | |
| 1 | | | | | | 2.6 | |
| 2 | | | | | | 2.2 | |
| 3 | | | | | | 2.6 | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |

NOTES:
 W1-THEORETICAL WEIGHT
 W2-ACTUAL WEIGHT
 NR-NORMALIZING ROLLED
 AK1-ABSORB ENERGY FOR THE FIRST SET
 AK2-ABSORB ENERGY FOR THE SECOND SET
 SAMPLE ORIENTATION: L-LONG SAMPLE TYPE S-STRIP C-CUBBER-NORMALIZING
 SAMPLE TYPE: S-STRIP C-CUBBED F-FULL SECTION A-ANNEALING
 Q&T-QUENCHING AND TEMPERING
 LE-SIDE EXPANSION
 HR-HOT EXPANDED
 HT-HOT ROLLED
 N&T-NORMALIZING AND TEMPERING
 MT-METRIC TON

Reviewed to 2010 Section II Part A & 2011 addenda
 MTR reviewed as per requirements in SA-20

Thickens checked as per requirements UG-90-1(b), (c)
 Heat No. Chemicals Properties
 Date: 61 Nov 12 By:





HENGYANG VALIN
STEEL TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1/DIN50049 3.1)

Add: 10 Dalixituan, Hengyang City, Hunan, P. R. China
P.C.: 421001
Tel and Fax: +86 734 8878739
E-mail: hsc@hysteel.com

| | | | |
|----------------|--|-----------------|--------------------|
| CUSTOMER NAME | CE FRANKLIN | CERTIFICATE NO. | |
| CONTRACT NO. | 211000312-1 | DATE: | 1/24/2012 |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | PAGE: | 2/3 |
| SPECIFICATION | SEE SPECIFICATION NOTE | HOT-ROLLED (HR) | |
| GRADE | | DIMENSIONS | 3" * 0.216" * 20FT |
| TOTAL BUNDLES: | 19 | TOTAL LENGTH: | 6994.58 FEET |
| | | TOTAL WEIGHT: | 24.035 MT |

| NO | HEAT No. LOT No. | Type | C | | Si | | Mn | Cr | Mo | W | Cu | Ni | P | Al | Sn | As | CHEMICAL COMPOSITION (%) | | | | Zr | N | B | S | V | B | Ca | CE _T | Check | SUM1 | SUM2 | SUM3 | R1 | R2 | R3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|--------------------------|---|----------|------------|------------|------------|----------|----|----|---|----|----|---|----|----|--|--------------------------|---|---|---------|----|---|---|---|---|---|----|-----------------|-------|----------------------|------|------|----|----|--------------|--------------|---|---|---|---|---|---|---|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|--------------|---|--|--|--|--|--|--|--|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | % | % | % | % | | | | | | | | | | | % | % | % | % | | | | | | | | | | | | | | | | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Max | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Min | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1104256N 141120201 | H P | 14 30 | 31 101 | 5.0 0.8 | 8.0 4.0 | 15 39 | | | | | | | | | | | | | 40 1 | | | | | | | | | | | | | | | | 6.73 7.95 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 1311121203 ZL11112059 | H P | 14 30 | 110 106 | 2.0 0.4 | 2.0 1.0 | 12 31 | | | | | | | | | | | | | 36 1 | | | | | | | | | | | | | | | 7.8 7.57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 141121201 141121201 | H P | 14 30 | 106 107 | 1.3 0.6 | 1.3 0.3 | 15 39 | | | | | | | | | | | | | 34 2 | | | | | | | | | | | | | | | 6.75 6.91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | H P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | H P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | H P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| POSITION | | NON-DESTRUCTIVE TEST | | | | | | | | | | | | | | PIPE BODY | | | | | | | | | | | | | | PIPE END | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NDT Type(Level) | | | | | | | | | | | | | | | | E.TL4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAMINAR | | | | | | | | | | | | | | | | N/A | | | | | | | | | | | | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEST RESULT | | | | | | | | | | | | | | | | ACCEPTABLE | | | | | | | | | | | | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RESIDUAL MAGNETISM | | | | | | | | | | | | | | | | N/A | | | | | | | | | | | | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| UT THICKNESS MEASUREMENT (50%) | | | | | | | | | | | | | | | | 2970/5 | | | | | | | | | | | | | | ACCEPTABLE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HYDROSTATIC Test Min(Mpa)(S) | | | | | | | | | | | | | | | | 2970/5 | | | | | | | | | | | | | | ACCEPTABLE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NOTES: | | H-HEAT ANALYSIS | | | | | | | | | | | | | | P-PRODUCT ANALYSIS | | | | | | | | | | | | | | CE-EQUIVALENT CARBON | | | | | | | | | | | | | | R-RATIO | | | | | | | | | | | | | | R1-Ca /S | | | | | | | | | | | | | | R2-Al/N | | | | | | | | | | | | | | R3-Mn/C | | | | | | | | | | | | | |
| | | CE _{req} =C+Mn/6+(Cr+Ni+V)/5+(Cu+Ni)/15 | | | | | | | | | | | | | | CE _{req} =C+Si/30+(Mn+Cr+Cu)/20+(Ni+Mo+Nb)/15+V/10+5*B | | | | | | | | | | | | | | SUM1=C+Cr+Mn+Ni+V | | | | | | | | | | | | | | SUM2=Nb+V | | | | | | | | | | | | | | SUM3=Nb+V+Ti | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1A-ACCEPT LEVEL 1A NOTCH DEPTH IS 12.5% THE SPECIFIED WALL THICKNESS. | | | | | | | | | | | | | | 12-ACCEPT LEVEL 12 NOTCH DEPTH IS 5% THE SPECIFIED WALL THICKNESS. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Reviewed by: **2010** Section 11 Part A 2.101a
Date: **01 Nov 12**
Heat No. **01 Nov 12**
By: **DV**
Thickness checked as per requirements in SA-20





HENGYANG VALIN
STEEL TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1/DIN50049 3.1)

Add: 10 Dalixincun, Hengyang
City, Hunan, P.R. China P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hstee@valinsteeltube.com

| | | | | | | | | | | | |
|---|--|---------------|------------------------------|---------------|--------------|-----------------|--|---------------|-----------|-------|-----------------|
| CUSTOMER NAME | CEFRANKLIN | P.O.NO. | PO.3895832-OR-3100-A (LOT A) | L/C NO.: | 3FAHD5-00036 | CERTIFICATE NO. | | DATE: | 1/24/2012 | PAGE: | 3/3 |
| CONTRACT NO. | 211002312-1 | | | | | | | | | | |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | | | | | | | | | | |
| SPECIFICATION | SSE SPECIFICATION NOTE | | | | | | | | | | HOT-ROLLED (HR) |
| GRADE | BX42 | | | | | | | | | | |
| TOTAL BUNDLES: | 19 | TOTAL PIECES: | 349 | TOTAL LENGTH: | 6984.58 | FEET | | TOTAL WEIGHT: | 24.035 | MT | |
| REMARK : 1. Origin:MADE IN CHINA; 2. All elements to be listed. | | | | | | | | | | | |

| | |
|--------------------|--|
| SPECIFICATION NOTE | ASTM/A33B/A106B-2010 ASME SA33B/A106B-2010 API 5L B X42 PSL1-2008, NACE MR-0175-2009 (FOR HARDNESS ONLY) |
|--------------------|--|

We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law.

If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube Co., Ltd, E-mail: hstee@valinsteeltube.com

CUSTOMER THIRD PARTY

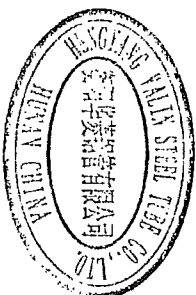
Quality Manager:

胡双开

Auditor:

Certificate-maker:

刘年亚



Ret Sept 19/12 X

ASR 2" SCH 90 (0.218) SA106B
 WT: 0.226, 0.229
 051: 401

P/O # 8212
 CCF

1128305

HENGYANG VALIN STEEL
 TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang City, Hunan, P. R. China P. C.: 421001
 Tel and Fax: +86 734 8873739
 E-mail: hsteel@hsteeltube.com

| | | | |
|----------------|--|--------------------|------------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201134875-1 |
| CONTRACT NO. | 2110002244 | P.O. NO. | PO.2832818-OR-2100-3 (LOT A) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO. | IFAHDS-00664 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | HR |
| GRADE | B3X2 GRADE 290 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 75 | TOTAL PIECES: | 2711 |
| | | TOTAL LENGTH: | 54255.570 |
| | | FEET | 173.681 |
| | | TOTAL WEIGHT: | 123.681 |
| | | MT | |

| NO. | LOT No. | HEAT No. | BUNDLES | PIECES | LENGTH | | WEIGHT | | TENSILE TEST | | | COLD BENDING TEST |
|-----|-----------|----------|---------|--------|-----------|--------|--------|---------|--------------|-------|-------|-------------------|
| | | | | | FEET | MT | WT | TS(MPa) | YS(MPa) | RL0.5 | EL(%) | |
| 1 | 91Y400709 | 1115487V | 18 | 650 | 13008.530 | 29.654 | 505 | 373 | 33 | 0.74 | 0.74 | ACCEPTABLE |
| 2 | 91Y400710 | 1115486V | 21 | 760 | 15209.970 | 34.673 | 486 | 354 | 34 | 0.73 | 0.73 | ACCEPTABLE |
| 3 | 91Y400711 | 1127150V | 10 | 350 | 7004.590 | 15.968 | 499 | 362 | 35.5 | 0.73 | 0.73 | ACCEPTABLE |
| 4 | 91Y400712 | 1127144V | 16 | 590 | 11807.740 | 26.916 | 489 | 363 | 34.5 | 0.74 | 0.74 | ACCEPTABLE |
| 5 | 91Y400713 | 1127173V | 10 | 361 | 7224.740 | 16.470 | 460 | 341 | 32.5 | 0.74 | 0.74 | ACCEPTABLE |

| NO. | NOTCH TYPE/ORIENTATION/TEMPERATURE/SIZE (mm): | | | | | | NON METALLIC INCLUSION | GRAIN SIZE | HARDNESS TEST | | | |
|-----|---|--------|--------------|----|---------|--------|------------------------|------------|---------------|----|---|---------|
| | AK1 (J) | AV (J) | % SHEAR AREA | LE | AK2 (J) | AV (J) | | | % SHEAR AREA | LE | NACE MR0175/SISO 15156-2(Region 3)/MR0103 | HRC 522 |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |

NOTES:
 W1-THEORETICAL WEIGHT
 W2-ACTUAL WEIGHT
 NR-NORMALIZING ROLLED
 AK1-ABSORB ENERGY FOR THE FIRST SET
 AK2-ABSORB ENERGY FOR THE SECOND SET
 SAMPLE ORIENTATION: L-LONGITUDINAL T-TRANSVERSE
 SAMPLE TYPE: S-STRIP C-CLUBBED F-FULL-SECTION
 Q&T-QUENCHING AND TEMPERING
 LE-SIDE EXPANSION
 N-NORMALIZING
 A-ANNEALING
 AV-AVERAGE
 N&T-NORMALIZING AND TEMPERING
 HF-HOT EXPANDED
 HR-HOT ROLLED

Reviewed by: 2010 Spectator II Part A & addenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements in SA-20
 Heat No. 1115487V Chemicals SA Properties W
 Date: 09/21/12 By: W

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang City, Hunan, P.R. China
P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hstee@hysteel.com

| | | | |
|----------------|--|--------------------|-----------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201134873-1 |
| CONTRACT NO. | 2110002244 | P.O. NO. | PO2832818-OR-2100-B (LOT A) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO. | IFAH05-00664 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | HR |
| GRADE | B.X42 GRADE 290 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 75 | TOTAL PIECES: | 2711 |
| | | TOTAL LENGTH: | 54255.570 FEET |
| | | TOTAL WEIGHT: | 123.681 MT |
| | | DIMENSIONS(mm) | 2" * 0.218" * 20FT |

| NO | HEAT No. | LOT No. | Type | CHEMICAL COMPOSITION(%) | | | | | | | | | | | | | | S | V | B | Ca | CUIR | SPW | SUM1 | SUM2 | SUM3 | R1 | R2 | R3 | | | | | | | | | | | |
|----|-----------|---------|------|-------------------------|----|-----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|----|------|-----|------|------|------|----|----|----|----|-----|----|---|----|--|--|--|------|-----|-----|
| | | | | C | Si | Mn | Cr | Mo | W | Cu | Ni | P | Al | Sb | As | Pb | Sn | | | | | | | | | | | | | Nb | Ti | Zr | N | Hf | | | | | | |
| 1 | 91Y400709 | 115487V | P | 11 | 26 | 105 | 5 | 1 | 6 | 3 | 13 | | | | | | | | | | | 10 | 25 | 2 | | | | | | 30 | 153 | | | | | | | | | 9.5 |
| | 91Y400709 | | | 13 | 22 | 102 | 2 | 1 | 3 | 1 | 12 | | | | | | | | | | | 20 | 40 | 3 | | | | | | 31 | 74 | | | | | | | | 7.8 | |
| | 115486V | | | 12 | 23 | 104 | 5 | 1 | 6 | 3 | 14 | | | | | | | | | | | 20 | 40 | 3 | | | | | 30 | 74 | | | | | | | | 8.5 | | |
| 2 | 91Y400710 | | | 11 | 24 | 100 | 2 | 1 | 3 | 3 | 1 | 12 | | | | | | | | | | 11 | 27 | 2 | | | | | | 31 | 153 | | | | | | | | 9.1 | |
| | 91Y400710 | | | 10 | 23 | 100 | 2 | 1 | 3 | 3 | 1 | 12 | | | | | | | | | | 27 | 30 | 3 | | | | | | 29 | 74 | | | | | | | 10.0 | | |
| | 1127150V | | | 13 | 24 | 103 | 4 | 1 | 11 | 2 | 14 | | | | | | | | | | | 27 | 29 | 3 | | | | | | 31 | 153 | | | | | | | 9.2 | | |
| 3 | 91Y400711 | | | 10 | 23 | 109 | 2 | 1 | 3 | 3 | 1 | 13 | | | | | | | | | | 27 | 21 | 3 | | | | | | 29 | 74 | | | | | | | 10.9 | | |
| | 91Y400711 | | | 10 | 23 | 109 | 2 | 1 | 3 | 3 | 1 | 13 | | | | | | | | | | 27 | 21 | 3 | | | | | | 29 | 74 | | | | | | | 10.9 | | |
| | 1127144V | | | 12 | 25 | 104 | 5 | 1 | 11 | 2 | 14 | | | | | | | | | | | 28 | 33 | 2 | | | | | | 31 | 193 | | | | | | | 8.7 | | |
| 4 | 91Y400712 | | | 11 | 28 | 105 | 2 | 1 | 3 | 3 | 1 | 10 | | | | | | | | | | 27 | 25 | 3 | | | | | | 29 | 74 | | | | | | | 9.5 | | |
| | 91Y400712 | | | 11 | 27 | 105 | 2 | 1 | 3 | 3 | 1 | 10 | | | | | | | | | | 27 | 25 | 3 | | | | | | 29 | 74 | | | | | | | 9.5 | | |
| | 1127173V | | | 11 | 25 | 105 | 5 | 1 | 8 | 3 | 12 | | | | | | | | | | | 26 | 22 | 3 | | | | | | 31 | 173 | | | | | | | 9.5 | | |
| 5 | 91Y400713 | | | 10 | 25 | 105 | 3 | 1 | 6 | 2 | 10 | | | | | | | | | | | 25 | 23 | 2 | | | | | | 29 | 125 | | | | | | | 10.5 | | |
| | 91Y400713 | | | 11 | 24 | 104 | 3 | 1 | 6 | 2 | 10 | | | | | | | | | | | 25 | 23 | 2 | | | | | | 30 | 124 | | | | | | | 9.5 | | |

| POSITION | | PIPE BODY | | | | PIPE END | | | | BEVELLING | | | |
|--------------------------------|-----------|-----------|------------|--|--|----------|--|--|--|--|--|--|--|
| NDT Type(Levl) | | ET | | | | MP1 | | | | ACCEPTABLE | | | |
| LAMINAR | | | N/A | | | | | | | ACCEPTABLE <td></td> <td></td> <td></td> | | | |
| TEST RESULT | | | ACCEPTABLE | | | | | | | ACCEPTABLE <td></td> <td></td> <td></td> | | | |
| RESIDUAL MAGNETISM | | | N/A | | | | | | | ACCEPTABLE <td></td> <td></td> <td></td> | | | |
| UT THICKNESS MEASUREMENT (50%) | | | N/A | | | | | | | ACCEPTABLE <td></td> <td></td> <td></td> | | | |
| HYDROSTATIC TEST | Mif(gsis) | | 3000/5 | | | | | | | ACCEPTABLE <td></td> <td></td> <td></td> | | | |

NOTES: H-HEAT ANALYSIS P-PRODUCT ANALYSIS CE-EQUIVALENT CARBON R-RATIO RI-Ca/S R2-Al/N R3-Mn/C
 CEIW=C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/5 CEPCW=C+Si/30+(Mn+Cr+Cu)/20+Ni/60+Mo/15+V/10+5*B
 SUM1=C+Cr+Mo+Ni+V SUM2=Nb+V SUM3=Nb+V+Ti
 L4-ACCEPT LEVEL LA NOTCH DEPTH IS 12.5% THE SPECIFIED WALL THICKNESS. L2-ACCEPT LEVEL L2 NOTCH DEPTH IS 5% THE SPECIFIED WALL THICKNESS.

Reviewed to 2010 Section II Part A & 10-addenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements UG-90-(b) (6)
 Heat No. 2010
 Date: 01/20/10 By: W
 Chemicals Properties

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixineun, Hengyang
City, Hunan, P. R. China P. C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hsteel@hysteel.tube.com

| | | | | | | | | |
|----------------|------------------------|----------------|--|--------------------|--------------|-----------------|---------------|---------|
| CUSTOMER | CE FRANKLIN | P.O. NO. | PO2832818-OR-2100-B (LOT A) | L/C NO.: | IEAHDS-00664 | CERTIFICATE NO. | C201134873-1 | |
| CONTRACT NO. | 2110002244 | PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | DELIVERY CONDITION | HR | DATE: | 2011-11-23 | |
| SPECIFICATION | SEE SPECIFICATION NOTE | HEAT TREATMENT | | | | PAGE: | 3/3 | |
| GRADE | B.X42 GRADE 290 | DIMENSIONS(mm) | 2" * 0.218" * 20FT | | | | | |
| TOTAL BUNDLES: | 75 | TOTAL PIECES: | 2711 | TOTAL LENGTH: | 5425.570 | FEET | TOTAL WEIGHT: | 123.681 |
| | | | | | | | | MT |

| | | | |
|----------|--------------------|---------|--|
| HIC TEST | SEE THE ORIGINAL | REMARK: | |
| SSC TEST | INSPECTION REPORTS | | |

| | |
|--------------------|---|
| SPECIFICATION NOTE | ASME A53B/A106B-2010, ASME SA538B/A106B-2010, API 5L B X42, PS1-2-2008, NACE MR-0175-2009/ISO 15156-2-2005 (REGION 3)/NIR-0103/SS (CSA Z245.1 GRADE 290 CATEGORY 1) |
|--------------------|---|

We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.

Quality Manager: 胡双开

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law.

If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube CO., LTD, E-mail: hsteel@hysteel.tube.com

| | |
|----------------------|------------------------|
| CUSTOMER THIRD PARTY | Certificate-maker: 曾黎明 |
|----------------------|------------------------|

Rec SEPT 19/12/12

ASP 2" SCH 80 (0.218) SA106B
 VT: 0.224
 BY: JD

P/O # 0242

DEF

1128305

HENGYANG VALIN STEEL
 TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Address: 10 Dalixincun, Hengyang City, Hunan, P. R. China P. C.: 421001
 Tel and Fax: +86 734 8873739
 E-mail: hyscdhysteel@tube.com

| | | | |
|----------------|--|--------------------|----------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201134873-1 |
| CONTRACT NO. | 2110002244 | P.O. NO. | PO283218-OR-2100-B (LOT A) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO. | 1FAMHD5-00664 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | HR |
| GRADE | B-X42 GRADE 290 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 75 | TOTAL LENGTH: | 2" * 0.218" * 20FT |
| TOTAL PIECES: | 2711 | TOTAL WEIGHT: | 123.681 MT |

| NO. | LOT No. | HEAT No. | BUNDLES | PIECES | LENGTH | | WEIGHT | TENSILE TEST | | | ASTM A370 | COLD BENDING TEST | |
|-----|-----------|----------|---------|--------|-----------|----|--------|--------------|---------|------|-----------|-------------------|------------|
| | | | | | FEET | WT | | TS(MPa) | YS(MPa) | RD.5 | | | EL(%) |
| 1 | 91Y400709 | 1115487V | 18 | 650 | 13008.530 | | 29.654 | 505 | 373 | | 33 | 0.74 | ACCEPTABLE |
| 2 | 91Y400710 | 1115488V | 21 | 760 | 15209.970 | | 34.673 | 486 | 354 | | 34 | 0.73 | ACCEPTABLE |
| 3 | 91Y400711 | 1127150V | 10 | 350 | 7004.590 | | 15.968 | 499 | 362 | | 35.5 | 0.73 | ACCEPTABLE |
| 4 | 91Y400712 | 1127144V | 16 | 590 | 11807.740 | | 26.916 | 489 | 363 | | 34.5 | 0.74 | ACCEPTABLE |
| 5 | 91Y400713 | 1127173V | 10 | 361 | 7224.740 | | 16.470 | 460 | 341 | | 32.5 | 0.74 | ACCEPTABLE |

| NO. | NOTCH TYPE/ORIENTATION/TEMPERATURE/SIZE (mm): | | | | IMPACT TEST | | NON METALLIC INCLUSION | GRAIN SIZE | HARDNESS TEST | | | | |
|-----|---|--------|--------------|----|-------------|--------|------------------------|------------|---------------|----|----------------|---------|---------|
| | AM1 (J) | AV (J) | % SHEAR AREA | LE | AM2 (J) | AV (J) | | | % SHEAR AREA | LE | NACE MR0175/SO | HRC 522 | |
| 1 | | | | | | | | | | | | | 1.0/1.0 |
| 2 | | | | | | | | | | | | | 1.0/1.0 |
| 3 | | | | | | | | | | | | | 1.0/1.0 |
| 4 | | | | | | | | | | | | | 1.0/1.0 |
| 5 | | | | | | | | | | | | | 1.0/1.0 |

NOTES:
 W1-THEORETICAL WEIGHT SAMPLE ORIENTATION: 1-LONGITUDINAL T-TRANSVERSE
 W2-ACTUAL WEIGHT SAMPLE TYPE: S-STRIP C-CLUBBED F-FULL-SECTION N-NORMALIZING HE-HOT EXPANDED
 NR-NORMALIZING ROLLED Q&T-QUENCHING AND TEMPERING A-A-ANNEALING HR-HOT ROLLED
 AK1-ABSORB ENERGY FOR THE FIRST SET AK2-ABSORB ENERGY FOR THE SECOND SET LE-SIDE EXPANSION N&T-NORMALIZING AND TEMPERING

Reviewed to: 2010 Section II Part A & B agenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements UG-90-(b), (5)
 Heat No. 1128305 Chemicals Properties
 Date: 09/12/12 By: W

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang
City, Hunan, P.R.China P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hsiesteel@steelube.com

| | | | | | | | |
|----------------|-------------------------------------|---------------|--|--------------------|--------------|-----------------|---------------|
| CUSTOMER | CE FRANKLIN | P.O. NO. | PO.2832818-OR-2100-B (LOT A) | L/C NO. | 1FAHD5-00664 | CERTIFICATE NO. | C201134873-1 |
| CONTRACT NO. | 2110002244 | PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | DELIVERY CONDITION | HR | DATE: | 2011-11-23 |
| SPECIFICATION | SEE SPECIFICATION NOTE | GRADE | B.X42, GRADE 290 | HEAT TREATMENT | | PAGE: | 3/3 |
| TOTAL BUNDLES: | 75 | TOTAL PIECES: | 2711 | TOTAL LENGTH: | 54255.570 | HEET | TOTAL WEIGHT: |
| HIC TEST | SEE THE ORIGINAL INSPECTION REPORTS | REMARK: | | | | | |
| SSC TEST | | | | | | | |
| | | | | | | | |

| | |
|--------------------|--|
| SPECIFICATION NOTE | ASTM A53B/A106B-2010, ASME SA53B/A106B-2010, API 5L B X42, PSL 2-2008 NACE MR-0175-2009/ISO 15156-2-2005 (REGION 3)/MR-0103/SS (CSA Z245.1 GRADE 290 CATEGORY 1) |
|--------------------|--|

We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.


Quality Manager: 胡双开

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law.

If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube CO., LTD. E-mail: hsiesteel@steelube.com

CUSTOMER THIRD PARTY

| | |
|--|---|
| | <p>Certificate-maker: 曾黎明</p>  |
|--|---|

Ret SEPT 19/12 R

ASP 2" SCH 80 (0.219) SA106B
 0.223
 RTV: 20

P/B 8242
 CBF

1128305

HENGYANG VALIN STEEL
 TUBE CO., LTD
MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Addr: 10 Dalixincun, Hengyang City, Hunan, P. R. China P. C.: 421001
 Tel and Fax: +86 734 8873739
 E-mail: hysc@hysteeltube.com

| | | | |
|----------------|--|--------------------|------------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201134873-1 |
| CONTRACT NO. | 2110002244 | P.O. NO. | PO:2832818-OR-2100-B (LOT A) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO.: | 1F4HDS-00664 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | HR |
| GRADE | B X42 GRADE 290 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 75 | TOTAL PIECES: | 2711 |
| | | TOTAL LENGTH: | 54255.570 |
| | | BEET | |
| | | TOTAL WEIGHT: | 123.681 |
| | | MT | |

| NO. | LOT No. | HEAT No. | BUNDLES | PIECES | LENGTH | | WEIGHT | TENSILE TEST | | | ASTM A370 | COLD BENDING TEST | |
|-----|-----------|----------|---------|--------|-----------|----|--------|--------------|---------|-------|-----------|-------------------|------------|
| | | | | | FEET | MT | | TS(MPa) | YS(MPa) | RL0.5 | | | EL(%) |
| 1 | 91Y400709 | 1115487V | 18 | 650 | 13008.530 | | 29.654 | 373 | | | 33 | 0.74 | ACCEPTABLE |
| 2 | 91Y400710 | 1115486V | 21 | 760 | 15209.970 | | 34.673 | 486 | | | 34 | 0.73 | ACCEPTABLE |
| 3 | 91Y400711 | 1127150V | 10 | 350 | 7004.590 | | 15.968 | 499 | | | 362 | 0.73 | ACCEPTABLE |
| 4 | 91Y400712 | 1127144V | 16 | 590 | 11807.740 | | 26.916 | 489 | | | 363 | 0.74 | ACCEPTABLE |
| 5 | 91Y400713 | 1127173V | 10 | 361 | 7224.740 | | 16.470 | 460 | | | 341 | 0.74 | ACCEPTABLE |

| NO. | NOTCH TYPE/ORIENTATION/TEMPERATURE/SIZE (mm): | | | | IMPACT TEST |
|-----|---|--------|--------------|----|-------------|
| | AK1 (J) | AV (J) | % SHEAR AREA | LE | |
| 1 | | | | | 1.0/1.0 |
| 2 | | | | | 1.0/1.0 |
| 3 | | | | | 1.0/1.0 |
| 4 | | | | | 1.0/1.0 |
| 5 | | | | | 1.0/1.0 |

NOTES:
 W1-THEORETICAL WEIGHT SAMPLE ORIENTATION: L-LONGITUDINAL T-TRANSVERSE
 W2-ACTUAL WEIGHT SAMPLE TYPE: S-STRIP C-CLUBBED F-FULL-SECTION N-NORMALIZING HE-HOT EXPANDED
 NR-NORMALIZING ROLLED Q&T-QUENCHING AND TEMPERING A-A-ANNEALING HR-HOT ROLLED
 AK1-ABSORB ENERGY FOR THE FIRST SET AK2-ABSORB ENERGY FOR THE SECOND SET LE-SIDE EXPANSION N&T-NORMALIZING AND TEMPERING

Reviewed to 2010 Section II Part A & 11 addenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements UG-90-(b), (6)
 Heat No. 91Y400712 Chemicals W Properties W
 Date: 09/20/12

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang City, Hunan, P. R. China
P.C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hsc@hysteel.com

| | | | |
|----------------|---|-----------------|-----------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201134873-1 |
| CONTRACT NO. | 211002244 | P.O. NO. | PO2832818-0R-2100-B (LOT A) |
| PRODUCT | SEAMLESS CARBON STEEL, PIPE FOR OIL AND GAS USE | L/C NO. | IFAHDS-00664 |
| SPECIFICATION | SEE SPECIFICATION NOTE | HEAT TREATMENT | DELIVERY CONDITION |
| GRADE | B.X32 GRADE 290 | DIMENSIONS(mm) | 2" * 0.218" * 20'-1" |
| TOTAL BUNDLES: | 75 | TOTAL PIECES: | 2711 |
| | | TOTAL LENGTH: | 54255.570 FEET |
| | | TOTAL WEIGHT: | 123.681 MT |
| | | DATE: | 2011-11-23 |
| | | PAGE: | 2/3 |

| NO | HEAT No. | LOT No. | Type | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|-----------|----------|------|--------------------------|----|-----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|---|----|----|----|---|----|----|----|-----|------|------|------|-----|-----|------|-----|
| | | | | C | Si | Mn | Cr | Mo | W | Cu | Ni | P | Al | Sr | As | Pb | Sb | Nb | Ti | Zr | N | Bi | S | V | B | Ca | Ce | CP | CPM | SiMn | SiMg | SiMS | R1 | R2 | R3 | |
| 1 | 91Y400709 | 115487V | | 11 | 26 | 105 | 5 | 1 | 6 | 3 | 13 | | | | | | | | | | | | 10 | 25 | 2 | | | | | | | | 30 | 153 | | 9.5 |
| | 91Y400709 | 1127123V | | 13 | 22 | 102 | 2 | 1 | 3 | 1 | 12 | | | | | | | | | | | | 20 | 40 | 3 | | | | | | | 31 | 74 | | 7.8 | |
| | 91Y400710 | 115486V | | 12 | 22 | 102 | 2 | 1 | 3 | 1 | 12 | | | | | | | | | | | | 27 | 27 | | | | | | | | 30 | 74 | | 8.5 | |
| 2 | 91Y400710 | 1127144V | | 12 | 25 | 104 | 5 | 1 | 6 | 3 | 14 | | | | | | | | | | | | 28 | 33 | 2 | | | | | | | 31 | 153 | | 8.7 | |
| | 91Y400710 | 1127150V | | 10 | 23 | 100 | 2 | 1 | 3 | 1 | 12 | | | | | | | | | | | | 27 | 30 | | | | | | | | 29 | 74 | | 9.1 | |
| | 91Y400711 | 1127150V | | 13 | 24 | 103 | 4 | 1 | 11 | 2 | 14 | | | | | | | | | | | | 27 | 29 | | | | | | | | 28 | 74 | | 10.0 | |
| 3 | 91Y400711 | 1127144V | | 10 | 23 | 109 | 2 | 1 | 3 | 1 | 13 | | | | | | | | | | | | 27 | 21 | | | | | | | | 29 | 74 | | 7.9 | |
| | 91Y400711 | 1127144V | | 10 | 23 | 109 | 2 | 1 | 3 | 1 | 13 | | | | | | | | | | | | 27 | 21 | | | | | | | | 29 | 74 | | 10.9 | |
| | 91Y400712 | 1127144V | | 12 | 25 | 104 | 5 | 1 | 11 | 2 | 14 | | | | | | | | | | | | 28 | 33 | 2 | | | | | | | 31 | 193 | | 8.7 | |
| 4 | 91Y400712 | 1127123V | | 11 | 28 | 105 | 2 | 1 | 3 | 1 | 10 | | | | | | | | | | | | 27 | 25 | | | | | | | | 29 | 74 | | 9.5 | |
| | 91Y400712 | 1127123V | | 11 | 27 | 105 | 2 | 1 | 3 | 1 | 10 | | | | | | | | | | | | 27 | 25 | | | | | | | | 29 | 74 | | 9.5 | |
| | 91Y400713 | 1127123V | | 11 | 25 | 105 | 5 | 1 | 8 | 3 | 12 | | | | | | | | | | | | 26 | 22 | | | | | | | | 31 | 173 | | 9.5 | |
| 5 | 91Y400713 | 1127123V | | 10 | 25 | 105 | 3 | 1 | 6 | 2 | 10 | | | | | | | | | | | | 25 | 23 | | | | | | | | 29 | 123 | | 10.5 | |
| | 91Y400713 | 1127123V | | 11 | 24 | 104 | 3 | 1 | 6 | 2 | 10 | | | | | | | | | | | | 25 | 23 | | | | | | | | 30 | 124 | | 9.5 | |

| | | | |
|--------------------------------|------------|------------|------------|
| NON-DESTRUCTIVE TEST | | | |
| POSITION | PIPE BODY | PIPE END | BEVELLING |
| NDT Type(Level) | ET | MP1 | ACCEPTABLE |
| LAMINAR | | | |
| TEST RESULT | N/A | ACCEPTABLE | ACCEPTABLE |
| RESIDUAL MAGNETISM | | | |
| TEST RESULT | ACCEPTABLE | ACCEPTABLE | ACCEPTABLE |
| UT THICKNESS MEASUREMENT (50%) | | | |
| TEST RESULT | N/A | N/A | ACCEPTABLE |
| HYDROSTATIC TEST | | | |
| Method | 3000/5 | ACCEPTABLE | ACCEPTABLE |

| | | | | | | | |
|--------|---|--|---|---------|---------|---------|---------|
| NOTES: | H-HEAT ANALYSIS | P-PRODUCT ANALYSIS | CE-EQUIVALENT CARBON | R-RATIO | R1-Ca/S | R2-Al/N | R3-Mn/C |
| | CEI=[C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15] | | CE=[C+(Si/30)+(Mn+C+Cu)/20+(Nb+Mo+Ti)/10+0.5*B] | | | | |
| | SUMI=C+(Cr+Mo)/16+Ni*V | SUM2=Nb*V | | | | | |
| | 14-ACCEPT LEVEL 14 NOTCH DEPTH IS 12.5% THE SPECIFIED WALL THICKNESS. | 12-ACCEPT LEVEL 12 NOTCH DEPTH IS 9% THE SPECIFIED WALL THICKNESS. | | | | | |

Reviewed to: 2010 Section II Part A 2 W address
MTR reviewed as per requirements in SA-20
Thickness checked as per requirements UG-90-(b) (5)
Date: 09/21/12 Chemicals W Properties W

HENGANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang
City, Hunan, P. R. China P. C.: 421001
Tel and Fax: +86 734 8873739
E-mail: hsteel@hysteeltube.com

| | | | |
|----------------------|--|--------------------|-----------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201134873-1 |
| CONTRACT NO. | 2110002244 | P.O.NO. | PC2832818-OR-2100-B (LOT A) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO. | 1FAHDS-00664 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | HR |
| GRADE | B-X42, GRADE 290 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 75 | TOTAL PIECES: | 2711 |
| | | TOTAL LENGTH: | 54255.570 |
| | | DIMENSIONS(mm) | 2" * 0.218" * 20FT |
| | | FEET | 123.681 |
| | | TOTAL WEIGHT: | 123.681 MT |
| HIC TEST SSC TEST | SEE THE ORIGINAL INSPECTION REPORTS | REMARK: | |

| | |
|-----------------------|--|
| SPECIFICATION NOTE | ASTM A53B/A106B-2010, ASME SA53B/SA106B-2010, API 5L B/X42, PSL 2-2008, NACE MR-0175-2009/ISO 15156-2-2005/REGION 3/MR-0103/SS (CSA Z245.1 GRADE 290 CATEGORY 1) |
|-----------------------|--|

We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.

Quality Manager: 胡汉升

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law.

If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengang Valin Steel Tube

CO., LTD, E-mail: hsteel@hysteeltube.com

CUSTOMER THIRD PARTY

Certificate-maker: 曾黎明



FOR3171

INSPECTION CERTIFICATE

(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

Number / Número: 652304
 Page / Página: 1 / 7
 Date / Día: March 27, 2012

ASTM A106+CSA Z245.1-07 CAT.1 SSPP0033H+NACE MR0175/0103+IPRO LP-006
 15# 21649
 0303-0783
 UTI: 0.341 0.343
 0.039
 0.048
 APT 21154880 CO 2160 MRC PO#7888
 7641

Customer / Cliente: MRC MIDFIELD
 Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED
 Product Type / Tipo de Producto: CARBON STEEL PIPE-HIGH TEMPERATURE SERV.
 Customer's Order Item / Orden Cliente - Item: S 739 135876-00029
 Customer's Reference / Ref. del Cliente: N/A
 Manufacturer's Works Order N° / Confirmación de Venta: 54898/05

Standard or Specification / Normas o Especificaciones: ASTM/AISME AISA106+CSA Z245.1-07 CAT.1 SSPP0033H+NACE MR0175/0103+IPRO LP-006
 Steel Grade / Grado de acero: B/290 CAT.1 SS
 Dimensions / Dimensiones: 2 3/8 X 0.218 INCH
 Schedule / Cédula: 080
 Length / Longitud: SRL (SP)
 Quantity / Cantidad: 2319 Pcs/lpz
 44055.48 FT
 13428.11 MTS
 223723 LB
 101479 KG
 Ends / Extremos: BEVELLED AT 30 DEG. ASTM
 Nominal Weight / Peso Nominal: 5.02 LB/FT
 7.48 KG/M

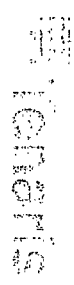
TENSILE TEST / ENSAYO DE TENSION

| Heat N° Calefada N° | Sample N° Muestra N° | Zone Zona | Pipe N° Tubo N° | Specimen condition Condición de la probeta | | | Specimen dimensions Dimensiones de la probeta | | | Test temp. Temp. ensayo | | Y.S. Eul. 0.50 % | U.T.S. Máx. 290 | Y.S./U.T.S. Máx. 0.93 | Elongation / Alargamiento Lo 2" | Min. % | Obl. % |
|------------------------|-------------------------|--------------|--------------------|---|----|------|--|-----------------|----------------|----------------------------|-----|---------------------|--------------------|--------------------------|------------------------------------|-----------|-----------|
| | | | | Ls | Sc | Type | Size Tamaño | Area Sección | Temp. Temp. | Temp. Temp. | mm | | | | | | |
| 20514 | 1769834 | M | 2 | B | AM | L | 18.7 x 5.61 | 107.51 | RT | 374 | 529 | 0.71 | 50.8 | 22.0 | 29.9 | | |
| 21303 | 1811353 | M | 1 | B | AM | L | 19.13 x 5.60 | 109.47 | RT | 472 | 549 | 0.75 | 50.8 | 22.0 | 29.5 | | |
| 21641 | 1811200 | M | 1 | B | AM | L | 19.39 x 5.42 | 107.44 | RT | 382 | 538 | 0.71 | 50.8 | 22.0 | 29.7 | | |
| 21641 | 1811201 | M | 2 | B | AM | L | 19.24 x 5.52 | 108.55 | RT | 387 | 545 | 0.71 | 50.8 | 22.0 | 28.9 | | |
| 21642 | 1811328 | M | 1 | B | AM | L | 19.32 x 5.72 | 112.99 | RT | 383 | 529 | 0.72 | 50.8 | 22.0 | 29.9 | | |
| 21642 | 1811329 | M | 2 | B | AM | L | 19.11 x 5.60 | 109.35 | RT | 403 | 541 | 0.74 | 50.8 | 22.0 | 31.0 | | |

AM: As manufactured / Según proceso de fabricación
 B: Body / Cuerpo
 L: Longitudinal / Longitudinal
 Ls: Location of sample / Ubicación de la muestra
 M: Middle / Medio
 Max: Maximum / Máximo
 Min: Minimum / Mínimo
 Obt: Obtained / Obtenido
 Ori: Orientation / Orientación
 Req. Max: Required maximum / Máximo requerido
 Req. Required / Requerido
 RT: Room temperature / Temperatura ambiente
 Sc: Specimen condition / Condición de la probeta
 Ss: Strip specimen / Muestra rectangular
 U.T.S.: Ultimate tensile strength / Resistencia
 Y.S.: Yield strength / Fluencia

Reviewed to 2010 Section II Part A
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements UG-90(b). (6)
 Heat No. 081649
 Date: 08/08/12
 By: [Signature]

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark green colored "Tensile" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any withdrawal or not allowed use. Any alteration and/or falsification will be subjected to the law.
 Este certificado se emite mediante sistema computarizado y es válido con firma electrónica. El certificado original posee impreso en color "Tensile" en verde. En caso de que el poseedor del certificado, entregue una copia, deberá garantizar la conformidad con el original asumiendo la responsabilidad por cualquier uso no legal o indebido. Cualquier alteración y/o falsificación estará sujeta a la ley.



INSPECTION CERTIFICATE

(BS EN 10204 3.1: 2004 - ISO 10474.3.1B: 1991)

Number / Número: **652304**
 Page / Página: **3 / 7**

Date / Dia: **March 27, 2012**

Customer / Cliente: **MRC MIDFIELD** Customer's Order / Orden Cliente - Item: **S 759 135876-00029** Customer's Reference / Ref. del Cliente: **N/A** Manufacturer's Works Order N° / Confirmación de Venta: **54898/05**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED** Product Type / Tipo de Producto: **CARBON STEEL PIPE-HIGH TEMPERATURE SERV.** Surface / Superficie: **INT BARE NEXT VARNISHED**

Standard or Specification / Normas o Especificaciones: **ASTM/AISME A5A106+CSA Z245.1-07 CAT I SSPSP003731+NACE MR0175103+IPRO LP-006** Steel Grade / Grado de acero: **B/290 CAT I SS** Ends / Extremos: **BEVELLED AT 30 DEG. ASTM**

Dimensions / Dimensiones: **2 3/8 X 0.218 INCH** Schedule / Cédula: **080** Length / Longitud: **SRL (SP)** Quantity / Cantidad: **2319 Pcs/lpz** 44055.48 FT 101479 KG
60.30 X 5.54 MM Nominal Weight / Peso Nominal: **5.02 LB/FT** 7.48 KG/M

CHEMICAL COMPOSITION / COMPOSICION QUIMICA

Ca:1: **C+(Mn/S)+(CR+MO+V)/5+(Ni+CU)/5** (S-B) Max: Maximum / Máximo
 Mn: Minimum / Mínimo
 Fe:1: **CR+CU+MO+NI+V** H: Heat / Calada P: Product / Producto

THROUGH WALL HARDNESS / DUREZA EN EL ESPESOR

| Heat N° | Sample N° | Zone | Individuals / Individuales | | Average / Promedio | | | | Hardness type HV10 | | | | Var. | | | | |
|----------|------------|------|----------------------------|---------|--------------------|------------|----------------|-------|--------------------|-------|-------|-------|-------|-------|-------|-------|-----|
| | | | Min: - | Max: - | Min: - | Max: 248.0 | Tipo de dureza | | | | | | | | | | |
| Chada N° | Muestra N° | Zona | Lot N° | Pipe N° | Specimen condition | Quad. | 1 | 2 | 3 | 4 | Avg. | 1 | 2 | 3 | 4 | Avg. | |
| 20514 | 1769834 | M | 0 | 2 | LS | 1 | 157.0 | 155.0 | 159.0 | 159.0 | 157.5 | 158.0 | 161.0 | 157.0 | 158.5 | 1.0 | |
| 21303 | 1811353 | M | 0 | 1 | B | 1 | 155.0 | 156.0 | 157.0 | 157.0 | 156.3 | 159.0 | 155.0 | 160.0 | 153.0 | 156.8 | 0.5 |
| 21641 | 1811200 | M | 0 | 1 | B | 1 | 151.0 | 152.0 | 152.0 | 149.0 | 151.0 | 150.0 | 154.0 | 146.0 | 150.3 | 0.8 | |
| 21642 | 1811328 | M | 0 | 1 | B | 1 | 158.0 | 159.0 | 159.0 | 155.0 | 157.8 | 157.0 | 155.0 | 157.0 | 157.0 | 156.0 | 1.8 |

Avg: Average / Promedio Lst: Location of sample / Ubicación de la muestra Mtr: Minimum / Mínimo Var: Variation / Variación
 B: Body / Cuerpo M: Middle / Medio OD: Outside diameter / Diámetro externo
 ID: Internal diameter / Diámetro interno Max: Maximum / Máximo Quad: Quadrant / Cuadrante

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FOR03171

FORM 1000

INSPECTION CERTIFICATE

(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

Number / Número: **652304** Page / Página: **4 / 7**

Date / Dia: **March 27, 2012**

| | | | |
|--|--|--|--|
| Customer / Cliente: MRC MIDFIELD | Customer's Order Item / Orden Cliente - Item: S 759 135876-00029 | Customer's Reference / Ref. del Cliente: N/A | Manufacturer's Works Order N° / Confirmación de Venta: 54898/05 |
| Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED | Product Type / Tipo de Producto: CARBON STEEL PIPE-HIGH TEMPERATURE SERV. | Surface / Superficie: INT BARE /EXT VARNISHED | |

Standard or Specification / Normas o Especificaciones: **ASTM/A516+CSA 106+CSA Z245-1-07 CAT I SSPSP003731+NACE MR0175/0103+PRO LP-006** Steel Grade / Grado de acero: **B/290 CAT I SS**

| | | | | |
|---|-------------------------------|------------------------------------|--|--|
| Dimensions / Dimensiones: 2 3/8 X 0.218 INCH 60.30 X 5.54 MM | Schedule / Cédula: 080 | Length / Longitud: SRL (SP) | Quantity / Cantidad: 2319 Pcs/pz | Ends / Extremos: BEVELLED AT 30 DEG. ASTM |
| | | | Weight / Peso: 44055.48 FT 13428.11 MTS | Nominal Weight / Peso Nominal: 5.02 LB/FT 7.48 KG/M |

BENDING / DOBLEZ

| Standard / Norma: | | | Standard / Norma: | | | Standard / Norma: | | |
|---------------------|------------------------|--------|---------------------|------------------------|--------|---------------------|------------------------|--------|
| Heat N° / Colada N° | Sample N° / Muestra N° | Result | Heat N° / Colada N° | Sample N° / Muestra N° | Result | Heat N° / Colada N° | Sample N° / Muestra N° | Result |
| 20514 | 1769834 | B | 21641 | 1811200 | B | 21642 | 1811329 | B |
| 21641 | 1811201 | B | 21303 | 1811353 | B | 21642 | 1811328 | B |

B: Body / Cuerpo **Ls: Location of sample / Ubicación de la muestra**

HYDROSTATIC TEST / PRUEBA HIDRAULICA

| Pressure / Presión | Time / Tiempo | Results / Resultados |
|--------------------|---------------|----------------------|
| Unit / Unidad: | Value / Valor | Seconds / Segundos |
| PSI | 3,000 | 5 |

SPECIAL REQUIREMENTS / REQUERIMIENTOS ESPECIALES

| | |
|--|--|
| Condition / Condición: Pipe residual magnetism / Magnetismo remanente de tubo | Description / Descripción: 30 GAUSS |
| End protectors / Protector de extremo: End protectors / Protector de extremo | Description / Descripción: NON LIFTABLE CLOSED PLASTIC PROTECTOR FOR FLAT / BEVELED PIPE. SUPPLIER METALCENTRO. |

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark green colored "Tennant" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

FOR03171

FORM 100-0115

INSPECTION CERTIFICATE

(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

Number / Numero: **652304**
 Page / Pagina: **6 / 7**

Date / Dia: **March 27, 2012**

Customer / Cliente: **MRC MIDFIELD** Customer's Order Item / Orden Cliente - Item: **S 759 135876-00029** Customer's Reference / Ref. del Cliente: **N/A** Manufacturer's Works Order N° / Confirmación de Venta: **54898/05**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED** Product Type / Tipo de Producto: **CARBON STEEL PIPE-HIGH TEMPERATURE SERV.** Surface / Superficie: **INT BARE /EXT VARNISHED**

Standard or Specification / Normas o Especificaciones: **ASTM/A5106+CSA Z245.1-07 CAT1 SSPSP00373/1+NACE MR0175/0103+1PRO LP-006** Steel Grade / Grado de acero: **B/290 CAT1 SS** Ends / Extremos: **BEVELLED AT 30 DEG. ASTM**

| | | | | | |
|---------------------------------------|---------------------|--------------------|-----------------------------|------------------------|--------------------------------|
| Dimensions / Dimensiones: | Spoolerle / Cédula: | Length / Longitud: | Quantity / Cantidad: | Pcs/lpz | Nominal Weight / Peso Nominal: |
| 2 3/8 X 0.218 INCH 60.30 X 5.54 MM | 080 | SRL (SP) | 44055.48 FT 13428.11 MTS | 223723 LB 101479 KG | 5.02 LB/FT 7.48 KG/M |

SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA

HEAT TREATMENT: AS ROLLED.
 NON DESTRUCTIVE TEST: SATISFACTORY.
 INSPECTION METHODS: E.M.I. LONG. (EXT.) NOTCH 5% (INT.) NOTCH 10% +E.M.I. TRANSV. (EXT./INT.)

Additional Information / Información Adicional: **NOTCH 10% + M.P.L. LONG./TRANSV. (EXT./INT.) ENDS + W.M.P.L. ON BEVELS.
 ONE BLUE BAND ON EACH END.**

MARKING / MARCACION

| | |
|--|--|
| Marking / Marcación | Marking / Marcación |
| - & = Monograma / Monogram SIDERCA - NNNNN = Numero de tubo / Nbr of pipe - LLL = Longitud / length - PPP = Peso / Weight | - @ = Monograma / Monogram API - MM.YY = Mes / Año Month / Year - Y/T = Año / Trimestre Year / Quarter - HNNXXXX = Coleada / Heat |

Stencilling (Pipe) / Estarcido (Tubo): **TEMARIS SD MM.YY ASTM/A5106 60.3 5.54 7.48 2 SCH80 XS B/290 CAT1 SS SEAMLESS 207R-PX-X100 NDE**

Stencilling (Pipe) / Estarcido (Tubo): **CSA Z245.1-07 MRC S 759 135876 MADE IN ARGENTINA HNNXXXX NNNNN LLL PPPP**

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FOR03171

FOR03171

INSPECTION CERTIFICATE

(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)



Number / Número: **652304**
 Page / Página: **7 / 7**

Customer / Cliente: **MRC MIDFIELD**
 Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED**
 Product Type / Tipo de Producto: **CARBON STEEL PIPE-HIGH TEMPERATURE SERV.**
 Customer's Order Item / Orden Cliente - Item: **S 759 135876-00029**
 Customer's Reference / Ref. del Cliente: **N/A**
 Date / Dia: **March 27, 2012**
 Manufacturer's Works Order N° / Confirmación de Venta: **54898/05**

Standard or Specification / Normas o Especificaciones: **ASTM/A516+A516+CSA Z245.1-07 CAT 1 SSPSP003731+NACE MR0175/0103+IPRO LP-006**
 Steel Grade / Grado de acero: **B/290 CAT 1 SS**
 Ends / Extremos: **BEVELLED AT 30 DEG. ASTM**
 Surface / Superficie: **INT BARE /EXT VARNISHED**

Dimensions / Dimensiones: **2 3/8 X 0.218 INCH**
 Schedule / Cédula: **080**
 Length / Longitud: **4405.48 FT**
 Quantity / Cantidad: **223723 LB**
 Nominal Weight / Peso Nominal: **5.02 LB/FT**
60.30 X 5.54 MM
 SRL (SP): **13428.11 MTS**
101479 KG
7.48 KGM

This is to certify that the product described here has been manufactured, sampled, tested, and inspected in accordance with purchaser order requirements. This certificate is not a declaration of origin nor may it be used as a declaration of origin.
 Por el presente certificamos que el material aquí descrito ha sido fabricado, muestreado, ensayado e inspeccionado de acuerdo a los requisitos de su orden de compra. Este certificado no es ni puede ser usado, como una declaración de origen.

| | | |
|--|--|---|
| CUSTOMER - THIRD PARTY INSPECTION COMPANY COMPANIA DE INSPECCION Company Name: N/A Employee Name: N/A | TENARIS QUALITY DEPARTMENT SIGNATURE QUALITY CERTIFICATION DEPT. DEPTO. DE CERTIFICACION DE CALIDAD  GAJO Gahrid | CHIEF OF QUALITY CERTIFICATION DEPT. RESPONSABLE DEL DEPTO. DE CERTIFICACION DE CALIDAD  AYERBE Eduardo |
| | | |

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FOR03171

ATD Pipe 815cm 805A166B PO# 8905 (EEF CDDV Wilson)
 15# 1810750 10011 STOCK
 UT: 0.281 0.287
 0.286 0.288
 0.285

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

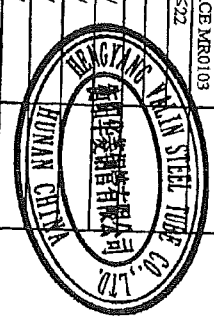
Add: 10 Dalixincun, Hengyang City, Hunan, P. R. China
 P.C.: 421001
 Tel and Fax: +86 734 8873739
 E-mail: hysc@hysteeltube.com

| | | | |
|----------------|--|--------------------|------------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201213129-1 |
| CONTRACT NO. | 2111000087-2 | P.O. NO. | PO 2946972-OR-2100-B (LOT B) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO. | 2FAHDS-00124 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | N |
| GRADE | B-X42, GRADE 290 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 61 | TOTAL PIECES: | 2126 |
| | | TOTAL LENGTH: | 42548.150 FT |
| | | TOTAL WEIGHT: | 96.993 MT |
| | | DATE: | 2012-4-17 |
| | | PAGE: | 1/3 |

| NO. | LOT No. | HEAT No. | BUNDLES | PIECES | LENGTH | | WEIGHT | | SAMPLE TYPE / ORIENTATION / SIZE (mm) | TENSILE TEST ASTM A370 | | | COLD BENDING TEST | | | | | | | | | | | |
|-----|-----------|----------|---------|--------|-----------|--------|--------|----|---------------------------------------|------------------------|----------|------|-------------------|--------|--------|-------|--|--|--|--|--|--|--|--|
| | | | | | FT | MT | MT | WT | | TS (Psi) | YS (Psi) | RO.5 | | EL (%) | RA (%) | YS/TS | | | | | | | | |
| 1 | 922101022 | 1221839 | 10 | 355 | 7104.700 | 16.196 | | | 70760 | | | | | | | | | | | | | | | |
| 2 | 922201001 | 1221839 | 16 | 544 | 10887.200 | 24.819 | | | 70615 | | | | | | | | | | | | | | | |
| 3 | 922201002 | 1210750 | 22 | 782 | 15650.350 | 35.676 | | | 67135 | | | | | | | | | | | | | | | |
| 4 | 922201003 | 1210752 | 13 | 445 | 8905.900 | 20.302 | | | 70470 | | | | | | | | | | | | | | | |

| NO. | NOTCH TYPE/ORIENTATION/TEMPERATURE/PIPE SIZE (mm): | | | | IMPACT TEST | | | | NON METALLIC INCLUSION | GRAIN SIZE | HARDNESS TEST | | | | | | | | | | | | | | |
|-----|--|--------|--------------|----|-------------|--------|--------------|----|------------------------|------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | AKI (J) | AV (J) | % SHEAR AREA | LE | AK2 (J) | AV (J) | % SHEAR AREA | LE | | | NACE MR0175/ISO 15156 2/Region 3/NACE MR0103 HRC <= 22 | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | |

NOTES:
 W1-THEORETICAL WEIGHT
 W2-ACTUAL WEIGHT
 NR-NORMALIZING ROLLED
 AK1-ABSORB ENERGY FOR THE FIRST SET
 AK2-ABSORB ENERGY FOR THE SECOND SET
 SAMPLE ORIENTATION: L-LONGITUDINAL T-TRANSVERSE
 SAMPLE TYPE: S-STRIP C-CLUBBED F-FULL-SECTION
 Q&T-QUENCHING AND TEMPERING
 LE-SIDE EXPANSION
 N-NORMALIZING
 A-ANNEALING
 AV-AVERAGE
 HE-HOT EXPANDED
 HR-HOT ROLLED
 N&T-NORMALIZING AND TEMPERING



Reviewed to: 2010
 Section: Part A & 2012adenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements US-924(b), (6)
 Heat No. 17 Dec 12
 Chemicals
 Properties
 Date: 17 Dec 12
 BY: DT

HENGZANG VALIN STEEL TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Address: 10 Daixincun, Hengzang City, Hunan, P. R. China
P.O.: 421001
Tel and Fax: +86 734 8873739
E-mail: hstechnsteel@tube.com

| | | | | | | | |
|---------------|--|------------------------|-------------------------------|----------------|-------------------------|--------------------|-----|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201213129-1 | DATE: | 2012-4-17 | PAGE: | 2/3 |
| CONTRACT NO. | 2111000087-2 | P.O.NO. | PO.2946972-OR-21003-B (LOT B) | L/C NO. | 2FASHS-00124 | DELIVERY CONDITION | N |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | SEE SPECIFICATION NOTE | | HEAT TREATMENT | | N | |
| SPECIFICATION | B X42 GRADE 290 | | TOTAL LENGTH: 42548.150 | | TOTAL WEIGHT: 96.993 | | NT |
| GRADE | 61 | | TOTAL PICES: 2126 | | TOTAL LENGTH: 42548.150 | | FT |

| NO | HEAT No. | LOT No. | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|-----------|---------|--------------------------|----|-----|----|----|---|----|----|---|----|----|----|----|----|----|----|----|---|----|---|---|---|----|----|------|------|------|----|----|----|--|--|--|--|--|--|
| | | | C | Si | Mn | Cr | Mo | W | Cu | Ni | P | Al | Sr | As | Pb | Sb | Nb | Ti | Zr | N | Bi | S | V | B | Ca | RE | SUM1 | SUM2 | SUM3 | R1 | R2 | R3 | | | | | | |
| 1 | 1221839 | | 11 | 22 | 102 | 5 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 922101022 | | 12 | 22 | 103 | 7 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 1221839 | | 11 | 21 | 102 | 7 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 922201001 | | 11 | 23 | 102 | 5 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| NON-DESTRUCTIVE TEST | | | | | | | | | | | | | |
|--------------------------------|-----------------|-----------|------------|--------|------------|--------|------------|---------------------|------------|--------|-----------|--------|------------|
| POSITION | NDT Type(Level) | PIPE BODY | | | PIPE END | | | END SURFACE(GROOVE) | | | BEVELLING | | |
| | | UT/1.2 | MPT | UT/1.2 | MPT | UT/1.2 | MPT | UT/1.2 | MPT | UT/1.2 | MPT | UT/1.2 | MPT |
| LAMINAR | | | ACCEPTABLE | | ACCEPTABLE | | ACCEPTABLE | | ACCEPTABLE | | N/A | | ACCEPTABLE |
| RESIDUAL MAGNETISM | | | ACCEPTABLE | | ACCEPTABLE | | ACCEPTABLE | | ACCEPTABLE | | N/A | | ACCEPTABLE |
| UT THICKNESS MEASUREMENT (50%) | | | ACCEPTABLE | | ACCEPTABLE | | ACCEPTABLE | | ACCEPTABLE | | N/A | | ACCEPTABLE |
| HYDROSTATIC TEST | | | ACCEPTABLE | | ACCEPTABLE | | ACCEPTABLE | | ACCEPTABLE | | N/A | | ACCEPTABLE |

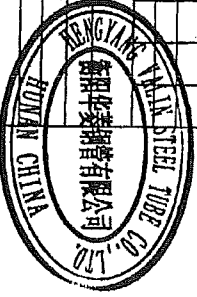
NOTES:

H-HEAT ANALYSIS: P-PRODUCT ANALYSIS: CE-EQUIVALENT CARBON: R-RATIO: R1=Ca/S: R2=Al/N: R3=Mn/C

CE1W-4.4Mn-0.4C+Ni+V/5H(Ca+Ni)/15: CEPCM-C-Si/30Mn-C-Cl/20Ni/S04Mn/154V/10.5F9: SUD3-Nb+V+Ti

SUM1=C+Cr+Mn+Ni+V: SUD2=Nb+V

14-ACCEPT LEVEL 14 NOTCH DEPTH IS 12.5% THE SPECIFIED WALL THICKNESS. 12-ACCEPT LEVEL 12 NOTCH DEPTH IS 5% THE SPECIFIED WALL THICKNESS.



Reviewed to: 2010 *20/10/10*
MTR reviewed as per requirements in SA-20
Thickens checked as per requirements UG-97.1(b) (6)

Heat No. *17*
Date: *2012-12-12*
Chemicals: *[checked]*
Properties: *[checked]*

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang
City, Hunan, P.R. China P.C.: 421001
Tel and Fax: +86 734 8878739
E-mail: hstc@hysteeltube.com

| | | | |
|----------------|--|--------------------|------------------------------|
| CUSTOMER | CE FRANKLIN | CERTIFICATE NO. | C201213129-1 |
| CONTRACT NO. | 2111000087-2 | P.O. NO. | PO 2946972-OR-2100-B (LOT B) |
| PRODUCT | SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE | L/C NO. | ZFAHDS-00124 |
| SPECIFICATION | SEE SPECIFICATION NOTE | DELIVERY CONDITION | N |
| GRADE | B X42, GRADE 290 | HEAT TREATMENT | |
| TOTAL BUNDLES: | 61 | TOTAL PIECES: | 2126 |
| HIC TEST | SEE THE ORIGINAL INSPECTION REPORTS | REMARK: | |
| SSC TEST | | | |
| | | TOTAL LENGTH: | 42548.150 FT |
| | | TOTAL WEIGHT: | 96.993 MT |
| | | DIMENSIONS(mm) | 21" * 0.218" * 20FT |

| | |
|---------------|--|
| SPECIFICATION | ASTM A533B/A106B-2010, ASME SA533B/A106B-2010, API 5L B/X42, PS1-2-2008, NACE MR-0175-2009/ISO 15156-2:2009 (REGION 3)/MR-0103/SS (CSA Z245.1) |
| NOTE | GRADE 290 CATEGORY (E2007) |

We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

Any alteration and/or falsification will be subject to the law.

If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube CO., LTD. E-mail: hstc@hysteeltube.com

CUSTOMER THIRD PARTY

Quality Manager:

胡双开

Certificate-maker:

倪小平



Reviewed to: 2010 Section II Part A & 2010a addenda

MTR reviewed as per requirements in SA-20

Thickness checked as per requirements UG-90-(b) (5)

Heat No.: S Chemicals Properties

Date: 17 Dec 12 By: DH

12-052-01-5



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.
 VIA G. PAVINI, 28
 TEL. +39 031 655441
 FAX +39 031 655149
 quality@metalfar.com

SEDE AMMINISTRATIVA ESTABILIMENTO:
 23861 CESANA BRANCA (CO) - Italy

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

STAMPANDO A CUORE IN ACCIAIO COMUNE - LEGAMI E INNOSSIDABILI
 SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

502-25TH Ave
 THE ONE NISKU, ALBERTA, CA

| CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE | |
|---|---|
| Cardi N. 1410 | Definided 20/03/2012 |
| DDT / Dist Note N. 1102 | Definided 20/03/2012 |
| MRC MIDFIELD SUPPLY ULCC | Destit. F.F.F. do WFFMIDFIELD |
| 502-25TH Ave | MRC MIDFIELD - MILL DIRECT, Midfield Supply Ul... |
| THE ONE NISKU, ALBERTA, CA | THE ONE NISKU, ALBERTA, CA |
| Factory / Invoice N. 839 | Definided 20/03/2012 |
| No. Ord. / Our ref. N. | Definided |

| COD. COL. HEAT | COLATA ITEM | POS. | VS. ORDINE YOUR REFERENCE | Q.TA' D.TY DESCRIPTION | DESCRIZIONE | ASTM | DIM.IN ACC. A DIM. ACCORDANCE TO | VSIVO E DIMENS. VIS. & DIMENS. SATISFACTORY |
|--|-------------|--------------|---------------------------|------------------------|-------------|-------------|----------------------------------|---|
| 1033427 | 021 | 3886/WFF MID | 294,00 | BLIND 300 RF 2" | A105N | ASTM A105 | ASM/EANSI B16.5-2009 | |
| MATERIALE / MATERIAL | | | | | | | | |
| C% 0,185 | | | SI% 0,200 | | | Mn% 1,110 | | |
| S% 0,011 | | | P% 0,190 | | | Ni% 0,030 | | |
| Ti% 0,017 | | | Cu% 0,120 | | | V% 0,000 | | |
| Nb% 0,000 | | | N% 0,000 | | | C.E.% 0,420 | | |
| As% 0,026 | | | C.E.% 0,420 | | | | | |
| 126,69 | 50,80 | 1 | 346,0 | 595,0 | 30,0 | 60,0 | 163,0 - 165,0 | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | |
| ASTM/ASME A 106/SA 106 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | | | |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | | | | |

| COD. COL. HEAT | COLATA ITEM | POS. | VS. ORDINE YOUR REFERENCE | Q.TA' D.TY DESCRIPTION | DESCRIZIONE | ASTM | DIM.IN ACC. A DIM. ACCORDANCE TO | VSIVO E DIMENS. VIS. & DIMENS. SATISFACTORY |
|--|-------------|--------------|---------------------------|------------------------|-------------|-------------|----------------------------------|---|
| 1033427 | 021 | 3886/WFF MID | 294,00 | BLIND 300 RF 2" | A105N | ASTM A105 | ASM/EANSI B16.5-2009 | |
| MATERIALE / MATERIAL | | | | | | | | |
| C% 0,185 | | | SI% 0,200 | | | Mn% 1,110 | | |
| S% 0,011 | | | P% 0,190 | | | Ni% 0,030 | | |
| Ti% 0,017 | | | Cu% 0,120 | | | V% 0,000 | | |
| Nb% 0,000 | | | N% 0,000 | | | C.E.% 0,420 | | |
| As% 0,026 | | | C.E.% 0,420 | | | | | |
| 126,69 | 50,80 | 1 | 346,0 | 595,0 | 30,0 | 60,0 | 163,0 - 165,0 | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | |
| ASTM/ASME A 106/SA 106 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | | | |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | | | | |

| COD. COL. HEAT | COLATA ITEM | POS. | VS. ORDINE YOUR REFERENCE | Q.TA' D.TY DESCRIPTION | DESCRIZIONE | ASTM | DIM.IN ACC. A DIM. ACCORDANCE TO | VSIVO E DIMENS. VIS. & DIMENS. SATISFACTORY |
|--|-------------|--------------|---------------------------|------------------------|-------------|-------------|----------------------------------|---|
| 1179876 | 033 | 3886/WFF MID | 91,00 | BLIND 160 RF 6" | A105N | ASTM A105 | ASM/EANSI B16.5-2009 | |
| MATERIALE / MATERIAL | | | | | | | | |
| C% 0,195 | | | SI% 0,200 | | | Mn% 1,070 | | |
| S% 0,011 | | | P% 0,080 | | | Ni% 0,050 | | |
| Ti% 0,018 | | | Cu% 0,150 | | | V% 0,002 | | |
| Nb% 0,001 | | | N% 0,000 | | | C.E.% 0,405 | | |
| As% 0,025 | | | C.E.% 0,405 | | | | | |
| 126,60 | 50,80 | 1 | 337,0 | 541,0 | 31,0 | 58,0 | 163,0 - 166,0 | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | |
| ASTM/ASME A 106/SA 106 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | | | |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | | | | |

| NOTE | QUALITA' CONTROL DEPARTMENT | ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY | MARCHIO PRODUZIONE MANUFACTURERS SYMBOL |
|--|-----------------------------|---|---|
| MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 15156-2009 | Ufficio Controllo Qualita' | ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY | MARCHIO PRODUZIONE MANUFACTURERS SYMBOL |
| | <i>L. S. Pardi</i> | | |



SAN ENG STEEL FORGING CO LTD
 311, Jen Hsin Road, Jen Wu Hsiang
 Keelung Hsien, Taiwan, R.O.C.
 TEL: 07-5724249; FAX: 07-5712923
 URL: www.saneng.com.tw
 e-mail: saneng@hstss.secd.net.tw

MILL TEST CERTIFICATE

EN10204-3.1(BONUSS0049/3.1B)
 W.F.FITTINGS & FLANGES (CANADA)
 Customer: LTD.
 Order No.: E03263K0MDU

Certificate No.: SE090556
 Date: 12/22/2009
 Page: 3 OF 5

FORGED CARBON STEEL FLANGES

ASTM A350 LF2-07 CL. I / ASME SA350 LF2-07

ASME B16.5-03
 CSA Z245.12

PRODUCT

MATERIAL SPECIFICATIONS

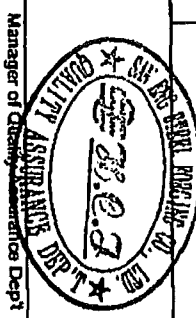
DIMENSIONAL SPECIFICATIONS

| Item No. | CUSTOMER P/N | DESCRIPTION | QUANTITY | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | CET(%) |
|----------|--------------|---------------------------|----------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|---|--------|
| | | | | C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V | Nb | N | | | |
| 21 | | 300 WANRF STD 2" LF2 | 24 PCE | 0.300 | 0.150 | 0.600 | 0.035 | 0.040 | 0.000 | 0.300 | 0.400 | 0.120 | 0.080 | 0.080 | - | - | - | 0.409 |
| 22 | | 300 WANRF STD 2" LF2 | 10 PCE | 0.206 | 0.280 | 1.010 | 0.013 | 0.011 | 0.050 | 0.070 | 0.040 | 0.005 | 0.003 | 0.001 | 0.004 | - | - | 0.382 |
| 23 | | 300 BLRF(1NPT TAP) 2" LF2 | 10 PCE | 0.190 | 0.170 | 1.120 | 0.010 | 0.016 | 0.100 | 0.110 | 0.050 | 0.005 | 0.003 | 0.005 | 0.009 | - | - | 0.410 |
| 24 | | 300 BLRF(1NPT TAP) 2" LF2 | 7 PCE | 0.200 | 0.200 | 1.000 | 0.007 | 0.012 | 0.120 | 0.070 | 0.070 | 0.005 | 0.003 | 0.005 | 0.009 | - | - | 0.394 |
| 25 | | 300 BLRF(1NPT TAP) 2" LF2 | 3 PCE | 0.200 | 0.220 | 1.160 | 0.019 | 0.013 | 0.100 | 0.080 | 0.070 | 0.005 | 0.003 | 0.005 | 0.010 | - | - | 0.422 |
| 26 | | 300 BLRF 3" LF2 | 30 PCE | 0.200 | 0.220 | 1.160 | 0.019 | 0.013 | 0.100 | 0.080 | 0.070 | 0.005 | 0.003 | 0.005 | 0.010 | - | - | 0.427 |
| 27 | | 300 BLRF(2NPT TAP) 3" LF2 | 20 PCE | 0.210 | 0.200 | 1.170 | 0.009 | 0.010 | 0.080 | 0.070 | 0.040 | 0.005 | 0.003 | 0.005 | 0.010 | - | - | 0.385 |
| 28 | | 600 BLRF 1" LF2 | 10 PCE | 0.201 | 0.240 | 0.980 | 0.015 | 0.018 | 0.094 | 0.049 | 0.067 | 0.002 | 0.007 | 0.005 | 0.008 | - | - | 0.409 |
| 29 | | 600 BLRF 2" LF2 | 87 PCE | 0.210 | 0.220 | 1.070 | 0.010 | 0.011 | 0.050 | 0.070 | 0.040 | 0.005 | 0.003 | 0.005 | 0.010 | - | - | 0.409 |
| 30 | | 600 BLRF 2" LF2 | 83 PCE | 0.200 | 0.220 | 1.160 | 0.019 | 0.013 | 0.100 | 0.080 | 0.070 | 0.005 | 0.003 | 0.005 | 0.010 | - | - | 0.422 |

| Item No. | Heat No. | T.S.(*) (MPa) | Y.S.(*) (MPa) | E.L.(*) (%) | Hardness (HRC) | R.A.(*) (%) | Impact Test | | | Material Supplier | REMARKS |
|----------|----------|---------------|---------------|-------------|----------------|-------------|-------------|----------------------|------|-------------------|--|
| | | | | | | | Temp: -46°C | Mininum: 20.0 Joules | 1 | | |
| 21 | 31045 | 517.8 | 348.1 | 35.4 | 153 | 67.7 | 29.0 | 25.0 | 49.0 | OEMK | HEAT TREATMENT(2) EN REMARKS 880°C/3HRS CONFORMS WITH NACE MR0103-07 AND NACE MR0175/ISO15156.2 CONFORMS WITH Z245.12 CAT II GR.246 SOUR SERVICE-05 TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN ORIENTATION: TRANSVERSE IMPACT TEST TEMP.: -46°C |
| 22 | 911054 | 553.1 | 405.0 | 31.4 | 183 | 75.0 | 42.0 | 41.0 | 47.0 | NTMK | |
| 23 | 29572 | 505.0 | 300.1 | 36.0 | 150 | 67.7 | 45.0 | 32.0 | 35.0 | OEMK | |
| 24 | 10939 | 499.2 | 296.2 | 40.0 | 153 | 67.7 | 25.0 | 29.0 | 21.0 | OEMK | |
| 25 | 48960 | 508.0 | 311.9 | 35.4 | 155 | 69.5 | 35.0 | 33.0 | 25.0 | OEMK | |
| 26 | 48960 | 508.0 | 311.9 | 35.4 | 155 | 69.5 | 35.0 | 33.0 | 25.0 | OEMK | |
| 27 | 41369 | 539.4 | 379.5 | 34.0 | 153 | 65.9 | 22.0 | 22.0 | 23.0 | RED OCTOBER | |
| 28 | 738972 | 503.1 | 331.5 | 35.0 | 157 | 69.0 | 63.0 | 36.0 | 58.0 | NTMK | |
| 29 | 31045 | 517.8 | 348.1 | 35.4 | 153 | 67.7 | 29.0 | 25.0 | 49.0 | OEMK | |
| 30 | 48960 | 508.0 | 311.9 | 35.4 | 155 | 69.5 | 35.0 | 33.0 | 25.0 | OEMK | |

*1: T.S. = Tensile Strength, Y.S. = Yield Strength, E.L. = Elongation, R.A. = Reduction of Area.
 *2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S,T=Solution Treated, S,R=Stress Relieved, A,C=Air Cooled, F,C=Furnace Cooled, W,C=Water Cooled, O,C=Oil Cooled.
 *3: C.E. Value = C + (Mn/8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.



Manager of Quality Assurance Dept



SAN ENG STEEL FORGING CO LTD
 311, Jen Hejn Road, Jen Wu District
 Kaohsiung, Taiwan, R.O.C.
 TEL: 07-3724249; FAX: 07-3712923
 URL: www.saneng.com.tw
 e-mail: saneng@stsa.seed.net.tw

MILL TEST CERTIFICATE

EN10204-3-1/B/DIN50049/3 (1.8)
 Customer: WE ELDITINGS & FLANGES (CANADA)
 LTD.
 Order No.: D0002756759117978

Certificate No.: SE102789

Date: 07/19/2012

FORGED CARBON STEEL FLANGES

ASTM A350 LP2-11 CL 1A/SME SA350 LP2-11 CL 1

ASME B16.5-09
 CSA Z245.12

PRODUCT

MATERIAL SPECIFICATIONS

DIMENSIONAL SPECIFICATIONS

| Item No. | Heat No. | DESCRIPTION | QUANTITY | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | REMARKS |
|----------|----------|-------------------------|----------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|---------|
| | | | | C | SI | Mn | P | S | Cu | Cr | Ni | Mo | V | Nb | N | CERT | | |
| 1 | 4522439 | 300 BLRF 2" LP2 | 108 PCE | 0.300 | 0.190 | 0.800 | 0.035 | 0.040 | 0.400 | 0.300 | 0.400 | 0.120 | 0.090 | 0.020 | - | - | 0.410 | |
| 2 | 4390789 | 150 BLRF 4" LP2 | 144 PCE | 0.210 | 0.230 | 1.160 | 0.018 | 0.003 | 0.006 | 0.020 | 0.010 | 0.003 | 0.006 | 0.001 | - | - | 0.410 | |
| 3 | 290115 | 1500 WNR TJ S160 2" LP2 | 93 PCE | 0.200 | 0.210 | 1.180 | 0.014 | 0.004 | 0.006 | 0.020 | 0.010 | 0.003 | 0.003 | 0.002 | 0.006 | - | 0.418 | |
| 4 | 290115 | 1500 WNR F S160 2" LP2 | 108 PCE | 0.200 | 0.210 | 1.100 | 0.011 | 0.011 | 0.080 | 0.110 | 0.040 | 0.020 | 0.001 | 0.002 | 0.007 | - | 0.418 | |

| Item No. | Heat No. | T.S.(¹) (MPa) | Y.S.(¹) (MPa) | EL.(¹) (%) | Hardness (HB) | R.A.(¹) (%) | Impact Test Temp: -49°C Minimum: 20.0 Joule | | | Material Supplier |
|----------|----------|-------------------------------|-------------------------------|----------------------------|------------------|-----------------------------|---|-------|-------|-------------------|
| | | | | | | | 1 | 2 | 3 | |
| 1 | 4522439 | 535.0 | 388.0 | 34.0 | 154/152 | 71.3 | 89.0 | 80.0 | 75.0 | ACOMINAS |
| 2 | 4390789 | 521.7 | 375.6 | 34.6 | 152/154 | 74.6 | 78.0 | 102.0 | 135.0 | ACOMINAS |
| 3 | 290115 | 539.0 | 380.0 | 36.6 | 154/152 | 67.7 | 81.0 | 88.0 | 84.0 | USE STEEL |
| 4 | 290115 | 539.0 | 380.0 | 36.6 | 154/152 | 67.7 | 81.0 | 88.0 | 84.0 | USE STEEL |

*1: T.S. = Tensile Strength, Y.S. = Yield Strength, EL. = Elongation, R.A. = Reduction of Area.
 *2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved,
 A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.
 *3: C.E Value = C + (Mn/8) + (Cr + Mo + V) / 6 + (Ni + Cu) / 16

HEAT TREATMENT(2)
 B N
 REMARKS
 890 CHAIRS
 CONFORMS WITH NACE MR0103-10 AND NACE
 MR0175/ISO 15156-2-08
 CONFORMS WITH Z245.12 CAT II GR 248 SOUR
 SERVICE-09(FOR USE AS WELDING NECK AND
 BLIND FLANGES ONLY)
 TEST SPECIMEN SIZE: 10X10
 TEST SPECIMEN ORIENTATION: TRANSVERSE
 IMPACT TEST TEMP.: -46°C



Manager of Quality Assurance Dept



SAN ENG STEEL FORGING CO LTD
 311, Jen Hsin Road, Jen Wu Distric
 Kaohsiung, Taiwan, R.O.C.
 TEL: 07-3724249 ; FAX: 07-3712923
 URL: www.saneng.com.tw
 e-mail: saneng@kss.secd.melt.tw

MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50004/3.1.B)
 W.F.FITTINGS & FLANGES.(CANADA)
 Customer: LTD.
 Order No.: E000117

Certificate No.: SE101455
 Date: 12/19/2011
 Page: 1 OF 4

FORGED CARBON STEEL FLANGES

ASTM A350 LF2-11 CL.1/ASME SA350 LF2-11 CL.1

ASME B16.5-09

PRODUCT

MATERIAL SPECIFICATIONS

DIMENSIONAL SPECIFICATIONS

| Item No. | CODE NO | DESCRIPTION | QUANTITY | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | |
|----------|---------|----------------------------|----------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|-------|
| | | | | C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V | Nb | N | CE(%) | | |
| 21 | | 150 THRE 2X1/2 A105NLF2N | 50 PCE | 0.300 | 0.150 | 0.600 | 0.035 | 0.040 | 0.400 | 0.300 | 0.400 | 0.120 | 0.080 | 0.080 | - | - | - | 0.415 |
| 22 | | 150 THRE 2X1 1/2 A105NLF2N | 25 PCE | 0.220 | 0.250 | 1.150 | 0.015 | 0.004 | 0.007 | 0.010 | 0.010 | 0.003 | 0.004 | 0.001 | 0.005 | - | - | 0.415 |
| 23 | | 300 THRE 2X1/2 A105NLF2N | 25 PCE | 0.220 | 0.250 | 1.150 | 0.015 | 0.004 | 0.007 | 0.010 | 0.010 | 0.003 | 0.004 | 0.001 | 0.005 | - | - | 0.415 |
| 24 | | 300 THRE 2X1 A105NLF2N | 31 PCE | 0.220 | 0.250 | 1.150 | 0.015 | 0.004 | 0.007 | 0.010 | 0.010 | 0.003 | 0.004 | 0.001 | 0.005 | - | - | 0.415 |
| 25 | | 150 THRE 4X1 A105NLF2N | 25 PCE | 0.210 | 0.220 | 1.150 | 0.019 | 0.006 | 0.008 | 0.010 | 0.010 | 0.002 | 0.004 | 0.001 | 0.007 | - | - | 0.405 |
| 26 | | 150 THRE 4X1 1/2 A105NLF2N | 25 PCE | 0.210 | 0.220 | 1.150 | 0.019 | 0.006 | 0.008 | 0.010 | 0.010 | 0.002 | 0.004 | 0.001 | 0.007 | - | - | 0.405 |
| 27 | | 150 THRE 4X3 A105NLF2N | 10 PCE | 0.210 | 0.220 | 1.150 | 0.019 | 0.006 | 0.008 | 0.010 | 0.010 | 0.002 | 0.004 | 0.001 | 0.007 | - | - | 0.405 |
| 28 | | 150 THRE 4X3 A105NLF2N | 10 PCE | 0.210 | 0.220 | 1.150 | 0.019 | 0.006 | 0.008 | 0.010 | 0.010 | 0.002 | 0.004 | 0.001 | 0.007 | - | - | 0.405 |
| 29 | | 300 THRE 4X1 A105NLF2N | 10 PCE | 0.210 | 0.220 | 1.120 | 0.020 | 0.008 | 0.007 | 0.020 | 0.010 | 0.002 | 0.003 | 0.001 | 0.009 | - | - | 0.402 |
| 30 | | 300 THRE 4X1 1/2 A105NLF2N | 10 PCE | 0.210 | 0.220 | 1.120 | 0.020 | 0.008 | 0.007 | 0.020 | 0.010 | 0.002 | 0.003 | 0.001 | 0.009 | - | - | 0.402 |

| Item No. | Heat No. | T.S.(*) (MPA) | | E.L.(*) (%) | Hardness (HB) | R.A.(*) (%) | Impact Test (Temp: 46°C) | | | Material Supplier | REMARKS |
|----------|----------|---------------|-------|-------------|---------------|-------------|--------------------------|------|------|-------------------|--|
| | | Min | Max | | | | 1 | 2 | 3 | | |
| 21 | 4443573 | 485.0 | 250.0 | 22.0 | 197 | 30.0 | 87.0 | 97.0 | 44.0 | ACOMINAS | 880CXHRS CONFORMS WITH NACE MR0103-07 AND NACE MR0175/ISO 15156-2:03 TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN ORIENTATION: TRANSVERSE IMPACT TEST TEMP.: 46°C |
| 22 | 4443573 | 517.8 | 363.8 | 34.6 | 152/150 | 71.3 | 87.0 | 97.0 | 44.0 | ACOMINAS | |
| 23 | 4443573 | 517.8 | 363.8 | 34.6 | 152/150 | 71.3 | 87.0 | 97.0 | 44.0 | ACOMINAS | |
| 24 | 4443573 | 517.8 | 363.8 | 34.8 | 152/150 | 71.3 | 87.0 | 97.0 | 44.0 | ACOMINAS | |
| 25 | 4443581 | 523.7 | 373.6 | 34.0 | 153/151 | 70.4 | 97.0 | 97.0 | 78.0 | ACOMINAS | |
| 26 | 4443581 | 523.7 | 373.6 | 34.0 | 153/151 | 70.4 | 97.0 | 97.0 | 78.0 | ACOMINAS | |
| 27 | 4443581 | 523.7 | 373.6 | 34.0 | 153/151 | 70.4 | 97.0 | 97.0 | 78.0 | ACOMINAS | |
| 28 | 4443581 | 523.7 | 373.6 | 34.0 | 153/151 | 70.4 | 102.0 | 97.0 | 78.0 | ACOMINAS | |
| 29 | 4401629 | 515.8 | 358.8 | 34.0 | 148/151 | 69.5 | 65.0 | 77.0 | 86.0 | ACOMINAS | |
| 30 | 4401629 | 515.8 | 358.8 | 34.0 | 148/151 | 69.5 | 65.0 | 77.0 | 86.0 | ACOMINAS | |

*1: T.S. = Tensile Strength, Y.S. = Yield Strength, E.L. = Elongation, R.A. = Reduction of Area.
 *2: NonNormalized, AsAnnealed, Q=Quenched, T=Tempered, S=T-Solution Treated, S.R=Stress Relieved,
 A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.
 *3: C.E. Value = C + (Mn / 8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 16

We hereby certify that the material has been treated in accordance with the above specification and also with the requirements called for by the above order.



Manager of Quality Assurance Dept



12-052-01-5

1121171

Phoenix * Capitol * Camco Cap Products

Certified Mill Test Report

Commanding a Higher Standardsm

8/1/2012

Customer
CE FRANKLIN LTD

P.O. 3065640-OR-2100

Heat No 4828G
Heat Code N5Y
Phoenix Order # 871361

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number
15111004

Description
1 X 2" XHSMLS BLK NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| 0.1600 | 0.7700 | 0.0235 | 0.0080 | 0.2750 | 0.1420 | 0.1720 | 0.0620 | 0.3459 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0440 | 0.0040 | | 0.0280 | | | | 0.0125 | | 0.0022 |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|---------------------|
| Cr + Cu + Ni |
| 0.3760 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 63,429 | 43,493 | 52.6% | | 126 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirements of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession

CapProducts. Ltd.
25 Winnipeg St
Vanastra, ON N0M 1L0



Phoenix * Capitol * Camco
Cap Products

Commanding a Higher Standard_{sm}

Certified Mill Test Report

11/15/2011

Customer
CE FRANKLIN LTD

P.O. 2905747-OR-2100

Heat No 112250

Heat Code N6M

Phoenix Order # 807531

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Part Number
15111006

Description
1 X 3" XHSM L BLK NIPL

Chemical Properties

| | | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|----|
| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
| 0.2100 | 0.4700 | 0.0160 | 0.0280 | 0.2300 | 0.0400 | 0.0300 | 0.0200 | 0.2983 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0000 | 0.0000 | | | | | | | | |

Additional Chemical Properties

| | | | | | | |
|--|--|--|--|--|--------------|--|
| | | | | | Cr + Cu + Ni | |
| | | | | | 0.0900 | |

Mechanical Properties

| | | | | | |
|---------------|-------------|-------------------|--------|-----|------|
| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
| 75,500 | 52,000 | 37.0% | | | |

Charpy Minimum Impact - ft/lbs

| | | | |
|--------|--------|--------|---------|
| Test 1 | Test 2 | Test 3 | Average |
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirements of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

CapProducts. Ltd.

25 Winnipeg St

Vanastra, ON NOM 1L0



Phoenix * Capitol * Camco Cap Products

Certified Mill Test Report

Commanding a Higher StandardSM

11/8/2011

Customer
CE FRANKLIN LTD

P.O. 2899765-OR-2100

Heat No 112250
Heat Code N6M
Phoenix Order # 805823

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Part Number
15111007

Description
1 X 3-1/2" XHSM L BLK NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|----|
| 0.2100 | 0.4700 | 0.0160 | 0.0280 | 0.2300 | 0.0400 | 0.0300 | 0.0200 | 0.2983 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0000 | 0.0000 | | | | | | | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|---------------------|
| Cr + Cu + Ni |
| 0.0900 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 75,500 | 52,000 | 37.0% | | | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirements of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

CapProducts. Ltd.

25 Winnipeg St
Vanastra, ON N0M 1L0



Phoenix * Capitol * Camco

1115715

Cap Products

Commanding a Higher Standardsm

Certified Mill Test Report

6/27/2012

Customer
CE FRANKLIN LTD

P.O. 3051691-OR-2100

Heat No 2817G
Heat Code MBH
Phoenix Order # 864727

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Part Number
15111007

Description
1 X 3-1/2" XHSML BLK NIPL

Chemical Properties

| | | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
| 0.1700 | 0.8000 | 0.0140 | 0.0050 | 0.2400 | 0.1800 | 0.0700 | 0.0500 | 0.3372 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0200 | 0.0025 | | 0.0330 | 0.0014 | | | 0.0140 | | 0.0026 |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|--------------|
| Cr + Cu + Ni |
| 0.3000 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 78,353 | 56,521 | 29.4% | | 142 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirments of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession

CapProducts. Ltd.

25 Winnipeg St

Vanastra, ON N0M 1L0

115715



Phoenix * Capitol * Camco

Cap Products

Certified Mill Test Report

Heat Code: N5Y
 Heat Number: 4828G
 Item: 15111007: 1 X 3-1/2" XHSM L BLK NIPL
 Material: ASTM A106-2011 / ASME SA106-2010 Edition

Chemistry Properties

| C | Mn | P | S | Si | Cu | Cr |
|--------|--------|--------|--------|------------|--------|--------|
| 0.1600 | 0.7700 | 0.0240 | 0.0080 | 0.2750 | 0.1420 | 0.1720 |
| Ni | Mo | V | Co | Al | Cb | N |
| 0.0620 | 0.0440 | 0.0040 | | 0.0280 | | |
| Pb | Sn | Ta | Ti | C Eq. Long | | |
| | 0.0130 | | 0.0020 | 0.3460 | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

Mechanical Properties

| Tensile(PSI) | Yield(PSI) | Elong. % in 2 in. | Reduction | HBW | HBW 2 |
|--------------|------------|-------------------|-----------|-----|-------|
| 63429 | 43493 | 52.6% | | 126 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Avg. | Test Temp. |
|--------|--------|--------|------|------------|
| | | | | |

Bend Test Passed
Hydro Test Passed at 2500 psi

This material meets the requirements of the governing specifications. We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and tests conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN 10204 Section 3.1B.

Specification comments:

MEETS HARDNESS REQUIREMENTS OF NACE MRO175 AND NACE MR0103 LATEST EDITIONS
 Meets Hardness Requirments of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Heat Code Remarks:



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Certified Mill Test Report

Commanding a Higher Standardsm

9/14/2011

Customer
CE FRANKLIN LTD

P.O. 2861628-OR-2100

Heat No 2705G
Heat Code MB5
Phoenix Order # 793052

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Part Number
15111009

Description
1 X 4-1/2" XHSML BLK NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| 0.1650 | 0.8000 | 0.0140 | 0.0030 | 0.2500 | 0.1300 | 0.0600 | 0.0500 | 0.3265 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0200 | 0.0010 | | 0.0320 | 0.0010 | | | 0.0120 | | 0.0025 |

Additional Chemical Properties

| | | | | | Cr + Cu + Ni |
|--|--|--|--|--|--------------|
| | | | | | 0.2400 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 71,469 | 47,376 | 32.0% | | 138 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirments of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

CapProducts, Ltd.

25 Winnipeg St

Vanastra, ON N0M 1L0



Phoenix * Capitol * Camco 1122915
Cap Products

Commanding a Higher Standardsm

Certified Mill Test Report

1/26/2012

Customer
 CE FRANKLIN LTD

P.O. 2954116-OP-2100

Heat No E21215
Heat Code LMQ
Phoenix Order # 823358

BOX 6776 STN "D"
 CALGARY, AB T2P2E8

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Part Number
 15111010

Description
 1 X 5" XHSML BLK NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| 0.1700 | 0.8300 | 0.0130 | 0.0060 | 0.2300 | 0.0070 | 0.0300 | 0.0100 | 0.3161 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0020 | 0.0010 | | 0.0310 | | | | 0.0010 | | 0.0020 |

Additional Chemical Properties

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|---------------------|
| | | | | | | | | | |
| | | | | | | | | | Cr + Cu + Ni |
| | | | | | | | | | 0.0470 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 67,414 | 46,589 | 41.0% | | 131 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirements of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

CapProducts. Ltd.

25 Winnipeg St

Vanastra, ON N0M 1L0



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Cap Products**

Commanding a Higher Standardsm

Certified Mill Test Report

10/31/2011

Customer
CE FRANKLIN LTD

P.O. 2889366-OR-2100

Heat No 121711
Heat Code NXO
Phoenix Order # 802692

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Part Number
15111010

Description
1 X 5" XHSML BLK NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|----|
| 0.2000 | 0.5800 | 0.0200 | 0.0120 | 0.2700 | 0.0300 | 0.0200 | 0.0200 | 0.3050 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0030 | 0.0020 | | | | | | | | |

Additional Chemical Properties

| | | | | | Cr + Cu + Ni |
|--|--|--|--|--|--------------|
| | | | | | 0.0700 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 79,500 | 53,500 | 32.0% | | | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirements of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

CapProducts, Ltd.

25 Winnipeg St

Vanastra, ON N0M 1L0



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1118887

Certified Mill Test Report

Commanding a Higher Standardsm

6/27/2012

Customer
CE FRANKLIN LTD

P.O. 3051691-OR-2100

Heat No 121644
Heat Code N6S
Phoenix Order # 864727

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Part Number
15111011

Description
1 X 5-1/2" XHSML BLK NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|----|
| 0.2000 | 0.5400 | 0.0150 | 0.0140 | 0.2600 | 0.0200 | 0.0200 | 0.0200 | 0.2967 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0000 | 0.0000 | | | | | | | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| Cr + Cu + Ni |
|--------------|
| 0.0600 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 79,500 | 58,500 | 32.0% | | 146 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirements of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession

CapProducts. Ltd.
25 Winnipeg St
Vanastra, ON N0M 1L0



Phoenix * Capitol * Camco

1123109

Cap Products

Commanding a Higher Standardsm

Certified Mill Test Report

7/26/2012

Customer
CE FRANKLIN LTD

P.O. 3064070-OR-2100

Heat No E22654
Heat Code HMI
Phoenix Order # 869881

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number
15111012

Description
1 X 6" XHSML BLK NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| 0.1700 | 0.7500 | 0.0090 | 0.0070 | 0.2300 | 0.0180 | 0.0400 | 0.0120 | 0.3058 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0030 | 0.0010 | | 0.0290 | | | | 0.0010 | | 0.0020 |

Additional Chemical Properties

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--------------|
| | | | | | | | | | |
| | | | | | | | | | Cr + Cu + Ni |
| | | | | | | | | | 0.0700 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 80,412 | 64,038 | 42.4% | | 159 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirments of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession

CapProducts. Ltd.

25 Winnipeg St

Vanastra, ON N0M 1L0



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Cap Products

1122991

Certified Mill Test Report

Commanding a Higher Standardsm

4/11/2012

Customer
CE FRANKLIN LTD
BOX 6776 STN "D"
CALGARY, AB T2P2E8
Part Number
15130504

P.O. 3000156-OR-2100

Heat No 2703G
Heat Code IE7
Phoenix Order # 842213

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Description
1/2 X 2" SCH 160 SMLS NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|----|
| 0.1700 | 0.7600 | 0.0150 | 0.0040 | 0.2500 | 0.1300 | 0.0500 | 0.0300 | 0.3206 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0150 | 0.0015 | | 0.0290 | | | | 0.0120 | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| Cr + Cu + Ni |
|--------------|
| 0.2100 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 64,200 | 45,353 | 50.8% | | 126 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirments of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession

CapProducts. Ltd.
25 Winnipeg St
Vanastra, ON N0M 1L0



Phoenix * Capitol * Camco

Cap Products

Certified Mill Test Report

Heat Code: IE7

Heat Number: 2703G

Item: 15130505: 1/2X2-1/2 SCH 160 SMLS NIPL

Material: ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Chemistry Properties

| C | Mn | P | S | Si | Cu | Cr |
|--------|--------|--------|--------|------------|--------|--------|
| 0.1700 | 0.7600 | 0.0150 | 0.0040 | 0.2500 | 0.1300 | 0.0500 |
| Ni | Mo | V | Co | Al | Cb | N |
| 0.0300 | 0.0150 | 0.0020 | | 0.0290 | | |
| Pb | Sn | Ta | Ti | C Eq. Long | | |
| | 0.0120 | | | 0.3210 | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

Mechanical Properties

| Tensile(PSI) | Yield(PSI) | Elong. % in 2 in. | Reduction | HBW | HBW 2 |
|--------------|------------|-------------------|-----------|-----|-------|
| 64200 | 45353 | 50.8% | | 126 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Avg. | Test Temp. |
|--------|--------|--------|------|------------|
| | | | | |

Bend Test Passed

Hydro Test Passed at 2500 psi

This material meets the requirements of the governing specifications. We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and tests conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN 10204 Section 3.1B.

Specification comments:

Meets Hardness Requirements of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Heat Code Remarks:



1124110

Phoenix * Capitol * Camco
Cap Products

Certified Mill Test Report

Commanding a Higher Standardsm

7/11/2012

Customer
CE FRANKLIN LTD

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Part Number
15130505

P.O. 3059431-OR-2100

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Description
1/2 X 2-1/2" SCH 160 SMLS NIPL

Heat No E22715
Heat Code PGP
Phoenix Order # 867998

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| 0.1800 | 0.7600 | 0.0120 | 0.0070 | 0.2420 | 0.0120 | 0.0320 | 0.0120 | 0.3157 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0030 | 0.0020 | | 0.0255 | | | | 0.0030 | | 0.0040 |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|---------------------|
| Cr + Cu + Ni |
| 0.0560 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 64,016 | 44,810 | 49.2% | | 126 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirements of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession

CapProducts, Ltd.
25 Winnipeg St
Vanara, ON NOM 1L0



Phoenix * Capitol * Camco

1124347

Cap Products

Certified Mill Test Report

Commanding a Higher Standard_{sm}

6/13/2012

Customer
CE FRANKLIN LTD

P.O. 3044183-OR-2100

Heat No 3104556
Heat Code UJ3
Phoenix Order # 861456

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number
15130506

Description
1/2 X 3" SCH 160 SMLS NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| 0.1800 | 0.8300 | 0.0180 | 0.0070 | 0.2000 | 0.0050 | 0.0080 | 0.0070 | 0.3212 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0014 | 0.0007 | | 0.0250 | 0.0010 | | | 0.0018 | | 0.0026 |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|--------------|
| Cr + Cu + Ni |
| 0.0200 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 72,721 | 49,993 | 41.2% | | 142 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirments of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

CapProducts. Ltd.

25 Winnipeg St

Vanastra, ON N0M 1L0

1123416



Phoenix * Capitol * Camco

Cap Products

Certified Mill Test Report

Heat Code: NPP
 Heat Number: 110486
 Item: 15130508: 1/2X4 SCH 160 SMLS NIPL
 Material: ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Chemistry Properties

| | | | | | | |
|-----------|-----------|-----------|-----------|-------------------|-----------|-----------|
| C | Mn | P | S | Si | Cu | Cr |
| 0.1900 | 0.5600 | 0.0190 | 0.0150 | 0.2200 | 0.0200 | 0.0300 |
| Ni | Mo | V | Co | Al | Cb | N |
| 0.0100 | 0.0100 | 0.0050 | | | | |
| Pb | Sn | Ta | Ti | C Eq. Long | | |
| | | | | 0.2940 | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

Mechanical Properties

| | | | | | |
|---------------------|-------------------|--------------------------|------------------|------------|--------------|
| Tensile(PSI) | Yield(PSI) | Elong. % in 2 in. | Reduction | HBW | HBW 2 |
| 71000 | 49400 | 38% | | | |

Charpy Minimum Impact - ft/lbs

| | | | | |
|---------------|---------------|---------------|-------------|-------------------|
| Test 1 | Test 2 | Test 3 | Avg. | Test Temp. |
| | | | | |

Bend Test Passed

Hydro Test Passed at 2500 psi

This material meets the requirements of the governing specifications. We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and tests conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN 10204 Section 3.1B.

Specification comments:

Meets Hardness Requirments of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Heat Code Remarks:



1123248

Phoenix * Capitol * Camco

Cap Products

Certified Mill Test Report

Heat Code: PGP
Heat Number: E22715
Item: 15130510: 1/2X5 SCH 160 SMLS NIPL
Material: ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Chemistry Properties

| | | | | | | |
|-----------|-----------|-----------|-----------|-------------------|-----------|-----------|
| C | Mn | P | S | Si | Cu | Cr |
| 0.1800 | 0.7600 | 0.0120 | 0.0070 | 0.2420 | 0.0120 | 0.0320 |
| Ni | Mo | V | Co | Al | Cb | N |
| 0.0120 | 0.0030 | 0.0020 | | 0.0260 | | |
| Pb | Sn | Ta | Ti | C Eq. Long | | |
| | 0.0030 | | 0.0040 | 0.3160 | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

Mechanical Properties

| | | | | | |
|---------------------|-------------------|--------------------------|------------------|------------|--------------|
| Tensile(PSI) | Yield(PSI) | Elong. % in 2 in. | Reduction | HBW | HBW 2 |
| 64016 | 44810 | 49.2% | | 126 | |

Charpy Minimum Impact - ft/lbs

| | | | | |
|---------------|---------------|---------------|-------------|-------------------|
| Test 1 | Test 2 | Test 3 | Avg. | Test Temp. |
| | | | | |

Bend Test Passed

Hydro Test Passed at 2500 psi

This material meets the requirements of the governing specifications. We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and tests conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN 10204 Section 3.1B.

Specification comments:

MEETS HARDNESS REQUIREMENTS OF NACE MRO175 AND NACE MR0103 LATEST EDITIONS
 Meets Hardness Requirements of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Heat Code Remarks:



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.iml@farinagroup.com
 MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N° 23/91/S

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 22827 Dated 07.03.2012

FORGED FLANGES & FITTINGS LTD

CASTLE HOUSE, STATION RD
 NEW BARNET-EN5 1PE - UNITED KINGDOM

GB

Purchase Order Nr 3891
 Item Nr 153
 Packing List Nr 277
 Invoice Nr

| Heat Code | Heat Nr | Quantity | Description |
|-----------|---------|----------|---|
| E5X | 73041 | 1000,00 | FITTING 90 ELB. THRD NPT 3M 1/2" A350/LF2 |

| Element | C | Si | Mn | S | P | Cr | Ni | Mo | Ti | Cu |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ASTM A350 LF2 cl.1 (LADLE) | 0,190 | 0,210 | 1,050 | 0,010 | 0,014 | 0,120 | 0,060 | 0,010 | 0,021 | 0,190 |

| Element | V | Nb | N | AL | C.E. | PRE |
|----------------------------|-------|-------|----|-------|-------|-----|
| ASTM A350 LF2 cl.1 (LADLE) | 0,002 | 0,002 | -- | 0,031 | 0,408 | -- |

| Test specimen Sect. mm2 | Lenght mm | Shape 1=O - 2=□ | Tensile N/mm2 | Yeld Point >0,2% N/mm2 | Yeld Point >1% N/mm2 | Elongation % | Reduction of area % |
|-------------------------|-----------|-----------------|---------------|------------------------|----------------------|--------------|---------------------|
| 122,65 | 50,00 | 1 | 536,0 | 321,0 | -- | 33,0 | 55,0 |

HARDNESS

HBW
 158,0 - 166,0

TYPE
 KV

Test specimen
 10x10mm

IMPACT TEST

°C
 -46

1-Joule
 54

2-Joule
 50

3-Joule
 50

| | | |
|----------------|--------------------------------|------------------|
| Heat treatment | Normalized at 900°C / Air Cool | ELECTRIC FURNACE |
|----------------|--------------------------------|------------------|

| | |
|-------------------------|--|
| Dimension in accordance | ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009 - NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS |
|-------------------------|--|

| | |
|------------------------|-----------------------------------|
| Material In accordance | ASME SA ASTM A350-11 Gr. LF2 cl.1 |
|------------------------|-----------------------------------|

| | | | | | |
|----------------------|--------------|--------|--------|----------|--------|
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | 101283 |
|----------------------|--------------|--------|--------|----------|--------|

Notes ---

| | | |
|---|----------------------|---------------------------------|
| QUALITY CONTROL DEPT. Boris Fizzotti | INSPECTION AUTHORITY | MANUFACTURER'S SYMBOL IML or |
|---|----------------------|---------------------------------|



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.Impl@farinagroup.com
 MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N° 23/91/S

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 22734 Dated 14.02.2012

| | | | |
|--|----|---|---------------------------|
| FORGED FLANGES & FITTINGS LTD CASTLE HOUSE, STATION RD NEW BARNET-EN5 1PE - UNITED KINGDOM | GB | Purchase Order Nr Item Nr Packing List Nr Invoice Nr | 3891 028 153 132 |
|--|----|---|---------------------------|

| Heat Code | Heat Nr | Quantity | Description |
|-----------|---------|----------|--------------------------------------|
| E0T | 74083 | 9330,00 | FITTING 90 ELB. THRD NPT 3M 1" A105N |

| Element | C | Si | Mn | S | P | Cr | Ni | Mo | Ti | Cu |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|----|-------|
| ASTM A105 (LADLE) | 0,185 | 0,210 | 1,120 | 0,010 | 0,014 | 0,100 | 0,060 | 0,010 | -- | 0,180 |

| Element | V | Nb | N | AL | C.E. | PRE |
|-------------------|-------|-------|----|-------|-------|-----|
| ASTM A105 (LADLE) | 0,003 | 0,002 | -- | 0,030 | 0,410 | -- |

| Test specimen Sect. mm2 | Lenght mm | Shape 1=O - 2=□ | Tensile N/mm2 | Yeld Point >0,2% N/mm2 | Yeld Point >1% N/mm2 | Elongation % | Reduction of area % |
|-------------------------|-----------|-----------------|---------------|------------------------|----------------------|--------------|---------------------|
| 122,65 | 50,00 | 1 | 532,0 | 323,0 | -- | 34,0 | 55,0 |

| HARDNESS | | IMPACT TEST | | | | |
|---------------|------|---------------|-----|-------------|-------------|--------------|
| HBW | TYPE | Test specimen | °C | 1-Joule/cm2 | 2-Joule/cm2 | 3-Joule /cm2 |
| 165,0 - 170,0 | KV | 10x10mm | -10 | 65 | 65 | 63 |



| | | |
|----------------|------------------------------------|------------------|
| Heat treatment | Normalized at 880°920°C / Air Cool | ELECTRIC FURNACE |
|----------------|------------------------------------|------------------|

| | |
|-------------------------|---|
| Dimension in accordance | ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS |
|-------------------------|---|

| | |
|------------------------|----------------------|
| Material in accordance | ASME SA ASTM A105-11 |
|------------------------|----------------------|

| | | | | | |
|----------------------|--------------|--------|--------|----------|--------|
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | 101351 |
|----------------------|--------------|--------|--------|----------|--------|

Notes ---

| | | |
|--|----------------------|---|
| QUALITY CONTROL DEPT. Boris Fizzotti  | INSPECTION AUTHORITY | MANUFACTURER'S SYMBOL IML or  |
|--|----------------------|---|

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 :2004 3.1

CUSTOMER : SEIBOLD INTERNATIONAL CORP.

CERT. NO : 121378

ORDER NO : 7004954

INVOICE NO : EWO110010118



柏緯鐵工股份有限公司
高雄市仁武區鳥林里仁心路 303 號

BOTH-WELL STEEL FITTINGS CO., LTD.
NO.303, JEN-HSIN ROAD JEN-WU DISTRICT
KAOSIUNG CITY, TAIWAN R.O.C. (81460)

TEL: 886-7-371-0497, 371-1536, 372-0260
web site : http://www.bothwell.com.tw e-mail: bothwell@www.bothwell.com.tw

An ISO 9001:2008 Registered Manufacturer



ISO 9001
BUREAU VERITAS
Certification
N° TW11029Q
FAX: 886-7-371-3864, 371-3882

| ITEM | RAW MATERIAL HT. CD. | DESCRIPTION | QUANTITY | SPECIFICATION FOR | | INSPECTION | | | | | | | | | | | | |
|---|-------------------------|----------------------------|-------------|-------------------|--------------------|---------------------|-----------------------|-------|-------|----------------|-------|---|---|----|---|----|-------|-------------------|
| | | | | MATERIAL | FITTING | SURFACE | DIM. | | | | | | | | | | | |
| 009 | 324700 | TEE 2" 2000# NPT | 80 PC | ASTM A105N -05 | ASME B16.11 - 2009 | | | | | | | | | | | | | |
| 009 | 325412 | TEE 2" 2000# NPT | 8 PC | | | | | | | | | | | | | | | |
| 010 | 324031 | 45D ELBOW 1-1/2" 3000# NPT | 25 PC | ASME SA105N -A08 | | | | | | | | | | | | | | |
| 011 | AB862 | 90D ELBOW 1" 3000# NPT | 1250 PC | | | GOOD | GOOD | | | | | | | | | | | |
| 012 | AB856 | 90D ELBOW 2" 3000# NPT | 750 PC | | | | | | | | | | | | | | | |
| CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | | | | | |
| ITEM | BW HT. CD. | C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V | Cb(Nb) | N | Al | Ti | Zr | CE | MATERIAL SUPPLIER |
| Min | | 0.350 | 0.100 | 0.600 | - | - | - | 0.300 | 0.400 | 0.120 | 0.080 | - | - | - | - | - | 0.430 | |
| Max | | 0.210 | 0.210 | 0.840 | 0.013 | 0.006 | 0.150 | 0.100 | 0.070 | 0.020 | 0.002 | 0.001 | - | - | - | - | 0.389 | |
| 009 | 3704 | 0.190 | 0.190 | 0.840 | 0.021 | 0.011 | 0.180 | 0.110 | 0.060 | 0.010 | 0.002 | 0.001 | - | - | - | - | 0.370 | |
| 010 | 3646 | 0.190 | 0.210 | 0.830 | 0.016 | 0.006 | 0.140 | 0.070 | 0.050 | 0.020 | 0.002 | 0.001 | - | - | - | - | 0.359 | |
| 011 | AB862 | 0.200 | 0.240 | 0.930 | 0.010 | 0.005 | 0.040 | 0.060 | 0.040 | 0.004 | 0.004 | 0.001 | - | - | - | - | 0.374 | |
| 012 | AB856 | 0.200 | 0.230 | 0.860 | 0.023 | 0.016 | 0.100 | 0.080 | 0.040 | 0.013 | 0.007 | 0.006 | - | - | - | - | 0.373 | |
| MECHANICAL PROPERTIES | | | | | | | | | | | | | | | | | | |
| ITEM | BW HT. CD. | T. S. (KSI) | Y. S. (KSI) | EL. (%) | R of A (%) | Hardness (HB) (AVG) | Charpy Impact °F / °C | | | HEAT TREATMENT | | ADDITIONAL TEST/REMARKS | | | | | | |
| Min | | 70.0 | 36.0 | 22.0 | 30.0 | - | MIN./AVG. / (Jone) | | | NORMALIZED | | CONFORMS TO NACE MR0175-09 / MR0103-10 STEEL MAKING PROCESS : ELECTRIC FURNACE CONFORMS TO NACE ISO15156-3 2009 | | | | | | |
| Max | | - | - | - | - | 187 | 1 | 2 | 3 | 860°C A.C. | | | | | | | | |
| 009 | 3682 | 74.2 | 54.6 | 36.8 | 65.5 | 141 | 141 | 141 | 141 | | | | | | | | | |
| 009 | 3704 | 75.5 | 52.5 | 35.8 | 62.6 | 144 | 143 | 143 | 143 | | | | | | | | | |
| 010 | 3646 | 75.4 | 52.5 | 31.6 | 64.5 | 141 | 141 | 141 | 141 | | | | | | | | | |
| 011 | AB862 | 77.8 | 46.8 | 33.6 | 69.0 | 144 | 140 | 140 | 140 | | | | | | | | | |
| 012 | AB856 | 72.2 | 49.5 | 36.8 | 69.5 | 140 | 140 | 140 | 140 | | | | | | | | | |
| WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT. | | | | | | | | | | | | | <p style="text-align: center;"><i>C.C. Huang</i></p> <p style="text-align: center;">Q.C. MANAGER CHEN CHI HUANG</p> | | <p style="text-align: center;"><i>Y.-Y. Chang</i></p> <p style="text-align: center;">INSPECTOR YUAN YAO CHANG</p> | | | |

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 :2004 3.1

CUSTOMER : SEYBOLD INTERNATIONAL CORP.

CERT. NO : 114203

ORDER NO : 7004333

INVOICE NO : BW01110005080

柏緯鐵工股份有限公司

高雄巿仁武區高林里仁心路 303 號

BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, JEN-HSIN ROAD JEN-WU DISTRICT

KAOSHIUNG CITY, TAIWAN R.O.C. (81460)

TEL: 886-7-871-0497, 871-1586, 872-0260

web site: <http://www.bothwell.com.tw> e-mail: bothwell@www.bothwell.com.tw

An ISO 9001:2008 Registered Manufacturer



TEL: 886-7-371-8864, 871-8882

web site: www.bothwell.com.tw or box@bothwell.com.tw

| ITEM | RAW MATERIAL | | DESCRIPTION | QUANTITY | SPECIFICATION FOR | | INSPECTION |
|------|--------------|----------|----------------------------|----------|-------------------|--------------------|------------|
| | HT. CD. | HEAT NO. | | | MATERIAL | FITTING | |
| 029 | AB804 | 11707461 | 90D ELBOW 1" 3000# NET | 3000 PC | ASTM A105N -05 | ASME B16.11 - 2009 | GOOD |
| 030 | 3507 | 320983 | 90D ELBOW 1-1/4" 3000# NET | 50 PC | ASME SA105N -A08 | | |
| 031 | 3077 | 305704 | 90D ELBOW 1-1/2" 3000# NET | 1 PC | | | |
| 031 | 3565 | 322084 | 90D ELBOW 1-1/2" 3000# NET | 90 PC | | | |
| 031 | 3634 | 323309 | 90D ELBOW 1-1/2" 3000# NET | 109 PC | | | |

| ITEM | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | MATERIAL SUPPLIER | |
|------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|---|----|----|-------------------|-------|
| | C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V | Cb(Nb) | N | Al | Ti | | Zr |
| Min | 0.350 | 0.100 | 0.600 | - | - | - | 0.400 | 0.120 | - | - | - | - | - | - | - | 0.430 |
| Max | 0.200 | 0.240 | 0.950 | 0.012 | 0.006 | 0.080 | 0.040 | 0.005 | 0.004 | 0.002 | - | - | - | - | - | 0.375 |
| 029 | 0.190 | 0.200 | 0.850 | 0.017 | 0.015 | 0.190 | 0.110 | 0.020 | 0.002 | 0.001 | - | - | - | - | - | 0.376 |
| 031 | 0.190 | 0.200 | 0.840 | 0.012 | 0.011 | 0.210 | 0.070 | 0.020 | 0.002 | 0.001 | - | - | - | - | - | 0.375 |
| 031 | 0.190 | 0.180 | 0.810 | 0.018 | 0.015 | 0.200 | 0.090 | 0.020 | 0.002 | 0.001 | - | - | - | - | - | 0.365 |
| 031 | 0.190 | 0.180 | 0.830 | 0.016 | 0.008 | 0.180 | 0.090 | 0.020 | 0.002 | 0.001 | - | - | - | - | - | 0.368 |

| ITEM | MECHANICAL PROPERTIES | | | | | | | | | | HEAT TREATMENT | ADDITIONAL TEST /REMARKS |
|------|-----------------------|-------------|---------|------------|--------------------|-------------------------------------|-----|-----|------------|--|----------------|--------------------------|
| | T. S. (KSI) | Y. S. (KSI) | EL. (%) | R of A (%) | Hardness (HB)(AVG) | Charpy Impact ³ F / 0 °C | | | | | | |
| Min | 70.0 | 36.0 | 22.0 | 30.0 | - | MIN. / AVG. (Joule) | | | NORMALIZED | CONFORMS TO NACE MR0175-09 /MR0103-10 STEEL MAKING PROCESS : ELECTRIC FURNACE | | |
| Max | - | - | - | - | 187 | 1 | 2 | 3 | | | | |
| 029 | 75.9 | 43.6 | 33.2 | 68.1 | 142 | 142 | 143 | 143 | 860°C A.C. | C.C. Huang Q.C. MANAGER CHEN CHI HUANG | | |
| 030 | 76.0 | 50.2 | 34.4 | 65.5 | 143 | 143 | 146 | 146 | | | | |
| 031 | 78.3 | 54.4 | 34.4 | 65.8 | 147 | 146 | 141 | 141 | | | | |
| 031 | 75.6 | 54.56 | 34.6 | 64.5 | 141 | 141 | 141 | 141 | | | | |
| 031 | 75.4 | 51.8 | 34.4 | 64.5 | 141 | 141 | 141 | 141 | | | | |

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.

Y.-Y. Qiang
INSPECTOR
YUAN YAO CHANG

FORMA PRACT. Rev. 0 - 15-05-2000

MEGA

CLIENTE
Customer
Client

CE FRANKLIN LTD.

CERTIFICATO N.
Certificate N.

583388

FOLIO
Sheet
Foglio

1800,635 - 8th AVENUE SW
CALGARY, ALBERTA, CANADA T2P 3m3

DATA / Date

28/12/11

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
CERTIFICAT DE CONTROLE

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001

ORDINE
Purchase order
Commande

2873254-OR-2100

COMMESSA
Job N.

96165

Confirmation de commande

| PROVA Test Epreuve | MATERIALE Material / Matière | COLATA Heat / Couée | C % | SI % | Mn % | S % | P % | Cr % | NI % | Mo % | Ti % | Cu % | V % | Al % | CE % |
|--------------------------|---------------------------------|------------------------|--------------|--------------|-----------------|--------------|----------------|--------------|----------------|-------|-------|-------|-------|-------|-------|
| PARX | ASTM A105/05 | 04/35855 | 0.185 --> | 0.240 Nb% | 0.950 0.000 | 0.015 B % | 0.011 0.000 | 00.10 Sn% | 00.05 0.006 | 0.010 | 0.022 | 0.130 | 0.012 | 0.028 | 0.375 |
| UKCF | ASTM A105/10 | 202148 | 0.156 --> | 0.182 Nb% | 1.049 0.001 | 0.002 As% | 0.009 0.009 | 00.11 Sn% | 00.15 0.009 | 0.030 | 0.000 | 0.182 | 0.001 | 0.031 | 0.381 |
| ULCL | ASTM A105/10 | 09/78749 | 0.200 --> | 0.220 Nb% | 0.890 0.001 | 0.008 B % | 0.019 0.000 | 00.09 Sn% | 00.05 0.008 | 0.010 | 0.020 | 0.160 | 0.018 | 0.022 | 0.385 |
| PWNF | ASTM A105/09 | 0834830/08 | 0.200 --> | 0.280 Nb% | 1.060 0.0024 | 0.007 B % | 0.010 0.000 | 00.13 | 00.02 | 0.015 | 0.000 | 0.040 | 0.004 | 0.042 | 0.411 |
| ULCC | ASTM A105/10 | 4101045604 | 0.180 --> | 0.210 Nb% | 1.070 0.0025 | 0.003 | 0.013 | 00.10 | 00.09 | 0.080 | 0.000 | 0.010 | 0.003 | 0.031 | 0.401 |
| UAUD | ASTM A105/09 | 1T-49672 | 0.160 --> | 0.330 Nb% | 1.010 0.000 | 0.007 | 0.010 | 00.07 | 00.07 | 0.010 | 0.000 | 0.120 | 0.002 | 0.020 | 0.357 |

| PROVA Test Epreuve | PROVETTA Test specimen / Epreuve | | RINFIAMMENTO MPa | POTENZA MPa | ALLUNGAMENTO % | CONTRAZIONE % | DUREZZA HD | PIEGA Bend test | SCHIACC. Flat. test | RESILIENZA Impact test / Résilience | | | |
|--------------------------|-------------------------------------|--------------------------------|---------------------|----------------|-------------------|------------------|---------------|--------------------|------------------------|--|------------------|--------------|--------------------|
| | SEZIONE Section / Sect. | LUNGHEZZA Length / Longueur | | | | | | | | VALORE / Value / Données | UNITÀ MIS. UM | TIPO Type | T. °C Test temp |
| PARX | 1 | 58.2 | 35.0 | 319.2 | 498.5 | 26.1 | 59.1 | 139-143 | | J | KV | 0 | 98-126-130 |
| UKCF | 1 | 30.6 | 25.0 | 301.0 | 523.0 | 32.2 | 68.9 | 143-149 | | J | KV | 0 | 36-48-46 |
| ULCL | 1 | 30.6 | 25.0 | 294.0 | 501.0 | 33.3 | 71.4 | 140-143 | | J | KV | 0 | 34-44-46 |
| PWNF | 1 | 30.6 | 25.0 | 301.0 | 525.0 | 32.3 | 68.9 | 143-146 | | J | KV | 0 | 34-44-42 |
| ULCC | 1 | 30.9 | 25.0 | 299.2 | 497.3 | 35.0 | 63.4 | 142-144 | | J | KV | 0 | 242-264-260 |
| UAUD | 1 | 122.7 | 50.0 | 361.0 | 506.4 | 36.6 | 71.3 | 154-160 | | J | KV | 0 | 180-180-174 |

NOTE / Remarks / Notes: EN10204/3.1

FORMA Shape / Forme: 1 = Ø 2 = □

| | |
|------|--|
| PARX | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.10468.MEGA/I*563680MEGA |
| UKCF | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.11686.MEGA/I*580723MEGA |
| ULCL | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.11408.MEGA/I*577160MEGA |
| PWNF | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.11023.MEGA/I*573340MEGA |
| ULCC | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.11391.MEGA/I*577225MEGA |
| UAUD | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.AS18765/11.LEAL I*575471MEGA* |

| PROVA Test Epreuve | POS. Item Pos. | QUANTITÀ Quantity Quantité | CODICE CLIENTE Customer code Code client | DESCRIZIONE / Description / Description | VISUAL AND DIMENSIONAL |
|--------------------------|----------------------|----------------------------------|--|---|---------------------------|
| PARX | 005 | 75 | 1092390 | 45 DEG. ELBOW S. 2000 NPT A/SA105N 3 | OK |
| UKCF | 008 | 500 | 1096411 | 90 DEG. ELBOW S. 2000 NPT A/SA105N 1/2 | OK |
| ULCL | 016 | 1000 | 1095574 | TEE S. 2000 NPT A/SA105N 1/2 | OK |
| PWNF | 022 | 750 | 1096454 | 90 DEG. ELBOW S. 3000 NPT A/SA105N 1/2 | OK |
| ULCC | 024 | 1250 | 1096331 | 90 DEG. ELBOW S. 3000 NPT A/SA105N 1 | OK |
| UAUD | 032 | 750 | 1095961 | COUPLING S. 3000 NPT A/SA105N 3/4 | OK |

NOTE / Remarks / Notes

ENTE UFFICIALE DI COLLAUDO
Inspection Authority
Service Inspection Official

CAPO COLLAUDO
Chief Inspection DPT
Responsible assurance qualità

MATERIAL ACCORDING TO NACE
MR0175 Ed2003 & MR0103 Ed.2007
AND ASME SA SPECIFICATIONS.

DOC. CERT. M.E.G.A.
Emmanuel Centemeri

FORM P.M.G. REV. 0 15-05-2009

M.E.G.A.

**CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
CERTIFICAT DE CONTROLE**

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
150 9001

CLIENTE
Customer
Client

CE FRANKLIN LTD.

1800,635 - 8th AVENUE SW
CALGARY, ALBERTA, CANADA T2P 3m3

ORDINE
Purchase order
Commande

2873254-OR-2100

CERTIFICATO N.
Certificate N.
Certificat N.

583388 FOLIO
Sheet
Feuille 3

DATA / Date

28/12/11

COMMESA
Job N.

Confirmation de commande

96169

| PROVA Test Epreuve | MATERIALE Material / Matériau | COLATA Heat / Coulée | C % | SI % | Mn % | S % | P % | Cr % | NI % | Mo % | TI % | Cu % | V % | Al % | CF % |
|--------------------------|----------------------------------|-------------------------|-----|------|------|-----|-----|------|------|------|------|------|-----|------|------|
| | | | | | | | | | | | | | | | |

| PROVA Test Epreuve | PROVETTA Test specimen / Eprouvette | | SNERVAMENTO MPa _z | ROTTURA MPa _z | ALLUNGAMENTO % ≥ | CONTRAZIONE % ≥ | DUREZZA HB | PIEGA Bend test | SCHIACC. Flat test | RESILIEZZA Impact test / Résilience | | | |
|--------------------------|--|--------------------------------|---------------------------------------|-----------------------------|---------------------------|--------------------------------|--------------------|--------------------|-----------------------|--|--------------|--------------------|--------------------------|
| | SEZIONE Section / Sect. | LUNGHEZZA Length / Longueur | Yield strength Limite d'élasticité | Tensile strength Rupture | Elongation Allongement | Reduction of area Striction | Hardness Dureté | Plage | Aplattiss. | UNITÀ NIB. UM | TIPO Type | T. °C Test temp | VALORE / Value / Données |
| | | | | | | | | | | | | | |

| PROVA Test Epreuve | NOTE / Remarks / Notes | FORMA Shape / Forme |
|--------------------------|--|--|
| | THIS CERTIFICATE INCLUDES N. 3 SHEETS. | 1 = <input checked="" type="checkbox"/> 2 = <input type="checkbox"/> |

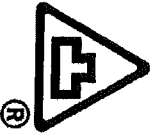
| PROVA Test Epreuve | POS. Item Pos. | QUANTITÀ Quantity Quantité | CODICE CLIENTE Customer code Code client | DESCRIZIONE / Description / Description |
|--------------------------|----------------------|----------------------------------|--|---|
| | | | | <p>Dimensional check for 45 and 90 deg elbows-tees-crosses-full and half couplings-caps-square-hexagonal and round plugs-hexagonal and flush bushings according to ASME B.16.11 (Threads according to ANSI/ASME B1.20.1)</p> <p>Outlets:ASME B.31.1 & B.31.3 & MSS-SP-97 Seamless swage nipples:BS3799-74 or MSS SP95-86</p> <p>Unions: BS 3799 or MSS-SP-83 Seamless pipe nipples : B36.10-95 or 36.19-85</p> <p>Material according to : ASTM last Edition (2010 Books) ASME II 2010 ED.</p> <p>The chemical and mechanical values shown on this record are the values reported on mill certificate or those obtained by laboratory.</p> <p>Material: A182 F304L is according to A182 F304 / A182 F316L is according to A182 F316.</p> <p>Alloy verification on base material.</p> <p>Manufacturer approved with certificate n.75/2002/MUC by TUV (certification BODY N.0036) to issue certificate of specific product control in accordance with "PRESSURE EQUIPMENT DIRECTIVE" 97/23/EC (PED) annex 1, paragraph 4.3.</p> <p>Equipments used: tensile test GALDABINI QUASAR 250 serial VA0G / Impact test CERMAC JB-W500 serial 04031 / Hardness test Wolpert Dia Testor 2RC ser.8900298/0001 / Chemical analysis Spectrometer BAIRD DV4 ser.P017.</p> |

| NOTE / Remarks / Notes | ENTE UFFICIALE DI COLLAUDO Inspection Authority Service Inspection Officiel | CAPIS COLLAUDO Chief Inspection DPT Responsable assurance qualité |
|---|---|---|
| MATERIAL ACCORDING TO NACE MR0175 Ed2003 & MR0103 Ed.2007 AND ASME SA SPECIFICATIONS. | | <p>DOC. CERT. M.E.G.A.</p> <p>Emmanuel Centemeri</p> |

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 : 2004 3.1

CUSTOMER : SERBOLD INTERNATIONAL CORP.
 CERT. NO : 121378 L/C NO :
 ORDER NO : 7004954 DATE : 05/08/2012
 INVOICE NO : BW01110010118 PAGE : 14 ORIGIN : TAIWAN



拾 禮 諾 工 股 份 有 限 公 司
 高雄赤仁武區烏林里仁心路 303 號
BOTHWELL STEEL FITTINGS CO., LTD.
 NO.303, JEN-HSIN ROAD JEN-WU DISTRICT
 KAOSHUNG CITY, TAIWAN R.O.C. (81460)
 TEL: 886-7-371-0497, 371-1536, 372-0260
 Web site: <http://www.bothwell.com.tw> e-mail: bothwell@bothwell.com.tw

An ISO 9001:2008 Registered Manufacturer
 ISO 9001 BUREAU VERITAS Certification
 BUREAU VERITAS
 ANAB CERTIFIED

| ITEM | BW HT. CD. | RAW MATERIAL HEAT NO. | DESCRIPTION | QUANTITY | SPECIFICATION FOR | | INSPECTION SURFACE | DIM. |
|------|------------|-----------------------|---------------------|----------|-------------------|--------------------|--------------------|------|
| | | | | | MATERIAL | FITTING | | |
| 055 | 3264 | 313710 | HEX PLUG 1-1/4" NPT | 100 PC | ASTM A105N -05 | ASME B16.11 - 2009 | GOOD | GOOD |
| 056 | 3123 | 306557 | HEX PLUG 1-1/2" NPT | 200 PC | | | | |
| 057 | 3587 | 322604 | HEX PLUG 2" NPT | 3 PC | ASME SA105N -A08 | | | |
| 057 | 3696 | 325411 | HEX PLUG 2" NPT | 400 PC | | | | |
| 057 | 3698 | 325193 | HEX PLUG 2" NPT | 2597 PC | | | | |

| ITEM | BW HT. CD. | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | N | Al | Ti | Zr | CE |
|------|------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|---|---|---|---|----|----|-------|----|
| | | C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V | Co(Nb) | | | | | | | | |
| 055 | 3264 | 0.200 | 0.190 | 0.840 | 0.015 | 0.012 | 0.190 | 0.110 | 0.070 | 0.020 | 0.002 | 0.001 | - | - | - | - | - | - | 0.384 | |
| 056 | 3123 | 0.200 | 0.190 | 0.830 | 0.010 | 0.012 | 0.190 | 0.070 | 0.070 | 0.020 | 0.002 | 0.001 | - | - | - | - | - | - | 0.374 | |
| 057 | 3587 | 0.200 | 0.180 | 0.820 | 0.021 | 0.012 | 0.150 | 0.110 | 0.070 | 0.020 | 0.002 | 0.001 | - | - | - | - | - | - | 0.378 | |
| 057 | 3696 | 0.200 | 0.190 | 0.810 | 0.021 | 0.010 | 0.140 | 0.080 | 0.060 | 0.010 | 0.002 | 0.001 | - | - | - | - | - | - | 0.367 | |
| 057 | 3698 | 0.190 | 0.180 | 0.820 | 0.014 | 0.008 | 0.200 | 0.070 | 0.050 | 0.010 | 0.002 | 0.001 | - | - | - | - | - | - | 0.360 | |

| ITEM | BW HT. CD. | MECHANICAL PROPERTIES | | | | | | | | | | HEAT TREATMENT | | | ADDITIONAL TEST/REMARKS | | |
|------|------------|-----------------------|-------------|---------|------------|--------------------|-----------------------|---|---|---|------|----------------|------------|--|-------------------------|--|--|
| | | T. S. (KSI) | Y. S. (KSI) | EL. (%) | R of A (%) | Hardness (HB)(AVG) | Charpy Impact (Joule) | 1 | 2 | 3 | AVG. | NORMALIZED | 860°C A.C. | | | | |
| 055 | 3264 | 73.5 | 46.1 | 33.0 | 63.0 | 141 | 140 | 1 | 2 | 3 | 187 | | | | | | |
| 056 | 3123 | 74.0 | 48.1 | 34.0 | 64.0 | 142 | 142 | | | | | | | | | | |
| 057 | 3587 | 75.8 | 56.2 | 34.8 | 64.5 | 141 | 141 | | | | | | | | | | |
| 057 | 3696 | 75.7 | 52.5 | 34.6 | 65.5 | 140 | 141 | | | | | | | | | | |
| 057 | 3698 | 74.8 | 52.5 | 36.0 | 66.4 | 141 | 140 | | | | | | | | | | |

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.

O.C. MANAGER: C.C. Huang
 CHEN CHI HUANG

INSPECTOR: Y.Y. Chang
 YUAN YAO CHANG



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.lml@farinagroup.com
 MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N°23/91/S

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 22546 Dated 30.11.2011

FORGED FLANGES & FITTINGS LTD

CASTLE HOUSE, STATION RD
 NEW BARNET-EN5 1PE - UNITED KINGDOM

GB

Purchase Order Nr 3767
 Item Nr 180
 Packing List Nr 1425
 Invoice Nr 1253

| Heat Code | Heat Nr | Quantity | Description |
|-----------|---------|----------|--------------------------------------|
| K149 | 50818 | 795,00 | FITTING HEX.H.PLUG THRD NPT 2" A105N |

| Element | C | Si | Mn | S | P | Cr | Ni | Mo | Ti | Cu |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|----|-------|
| ASTM A105 (LADLE) | 0,150 | 0,330 | 1,210 | 0,009 | 0,014 | 0,050 | 0,090 | 0,010 | -- | 0,300 |

| Element | V | Nb | N | AL | C.E. | PRE |
|-------------------|-------|----|-------|-------|-------|-----|
| ASTM A105 (LADLE) | 0,001 | -- | 0,009 | 0,030 | 0,390 | -- |

| Test specimen Sect. mm2 | Lenght mm | Shape 1=O - 2=□ | Tensile N/mm2 | Yeld Point >0,2% N/mm2 | Yeld Point >1% N/mm2 | Elongation % | Reduction of area % |
|-------------------------|-----------|-----------------|---------------|------------------------|----------------------|--------------|---------------------|
| 122,65 | 50,00 | 1 | 509,0 | 358,0 | -- | 33,0 | 56,0 |

HARDNESS

HBW
 155,0 - 160,0

TYPE
 KV

Test specimen
 10x10mm

IMPACT TEST

°C
 -10

1-Joule/cm2
 65

2-Joule/cm2
 65

3-Joule/cm2
 60

| | | |
|----------------|-------------------------------------|------------------|
| Heat treatment | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE |
|----------------|-------------------------------------|------------------|

| | |
|-------------------------|---|
| Dimension in accordance | ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS |
|-------------------------|---|

| | |
|------------------------|----------------------|
| Material in accordance | ASME SA ASTM A105-10 |
|------------------------|----------------------|

| | | | | | |
|----------------------|--------------|--------|--------|----------|--------|
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | 111073 |
|----------------------|--------------|--------|--------|----------|--------|

Notes ---

| | | |
|--|----------------------|---------------------------------|
| QUALITY CONTROL DEPT. <i>Boris Fizzotti</i> | INSPECTION AUTHORITY | MANUFACTURER'S SYMBOL IML or |
|--|----------------------|---------------------------------|



INDUSTRIA MECCANICA LIGURE SPA

16930 CASARZA LIGURE - Genova - Italy - Via Giancarlo Farina 25 - Tel.0195.467661 - Fax 0195.466510 / MATERIAL TEST DEPARTMENT

INSPECTION CERTIFICATE EN 10204:2004 / 3.1
COMPANY WITH QUALITY SYSTEM ISO 9001:2000
CERTIFIED BY RINA

GLOBAL GAEL SERVICE LIMITED
Unit 1E, Block 71, The Plaza
Park West Business Park - Nangor Road - DUBLIN 12

Certificate Nr. 21606
Invoice Nr.
Dell. Note Nr. 180

Dated 25/02/2011
Dated 24/02/2011

| HEAT CODE | HEAT | ITEM | YOUR P.O. | OUR REFERENCE | Q.TY | DESCRIPTION | DIM. ACC. TO | VISUAL & DIMENS. |
|-----------|----------|------|-----------|-------------------------|---------|--|--------------|--------------------------|
| 56A | 09/75755 | 186 | 689 | 2010-2E201-0001249-0185 | 26,00 | FITTING 90 ELB. THRD NPT 3M 1" A350LF2 | 1097481 | SEE NOTE SATISFACTORY |
| H74 | 75348 | 186 | 689 | 2010-2E201-0001249-0185 | 14,00 | FITTING 90 ELB. THRD NPT 3M 1" A350LF2 | 1097481 | SEE NOTE SATISFACTORY |
| K82 | 78995 | 014 | 689 | 2010-2E201-0001249-0014 | 6500,00 | FITTING HEX.H PLUG THRD NPT 1" A105N 1090811 | | SEE NOTE SATISFACTORY |
| MRF | 10/73687 | 130 | 689 | 2010-2E201-0001249-0129 | 250,00 | FITTING TEE THRD NPT 2M 3" A105N 1090811 | | SEE NOTE SATISFACTORY |
| MLZ | 10/72681 | 003 | 689 | 2010-2E201-0001249-0003 | 8,00 | FITTING TEE THRD NPT 6M 2" A105N 1090811 | | SEE NOTE SATISFACTORY |
| MRC | 10/72715 | 088 | 689 | 2010-2E201-0001249-0088 | 300,00 | FITTING 90 ELB. SW 3M 1.1/2" A105N 1090811 | | SEE NOTE SATISFACTORY |
| MRF | 10/73687 | 130 | 689 | 2010-2E201-0001249-0129 | 84,00 | FITTING TEE THRD NPT 2M 3" A105N 1090811 | | SEE NOTE SATISFACTORY |
| IRP | 09/36780 | 130 | 689 | 2010-2E201-0001249-0129 | 6,00 | FITTING TEE THRD NPT 2M 3" A105N 1090811 | | SEE NOTE SATISFACTORY |
| K115 | 72147 | 133 | 689 | 2010-2E201-0001249-0132 | 18,00 | FITTING HEX BUSHING M/F THRD NPT 2.1/2"x2" A105N 1090811 | | SEE NOTE SATISFACTORY |
| 3H6 | 10/30203 | 134 | 689 | 2010-2E201-0001249-0133 | 15,00 | FITTING TEE THRD NPT 3M 3" A105N 1090811 | | SEE NOTE SATISFACTORY |

| HEAT CODE | HEAT | ITEM | MATERIAL | YIELD POINT | TENSILE STRENGTH | ELONGATION | REDUCTION OF AREA | HARDNESS | BEND TEST | FLATTENING TEST | IMPACT TEST | YIELD POINT |
|-----------|----------|-----------|-------------------|-------------|------------------|------------|-------------------|---------------|-----------|-----------------|-------------|-------------|
| | | SECT. mm2 | LENGTH mm | N/mm2 | N/mm2 | % | % | HV | 180° | 10x10mm | 10x10mm | N/mm2 |
| 56A | 09/75755 | 186 | ASTM A350 LF2 d.1 | 382,0 | 570,0 | 30,0 | 58,0 | 170,0 - 174,0 | 0,0 | 0,0 | -48 | 52 |
| H74 | 75348 | 186 | ASTM A350 LF2 d.1 | 308,0 | 536,0 | 35,0 | 58,0 | 166,0 - 170,0 | 0,0 | 0,0 | -46 | 54 |
| K82 | 78995 | 014 | ASTM A105 | 315,0 | 537,0 | 33,0 | 58,2 | 167,0 - 174,0 | 0,0 | 0,0 | -10 | 72 |
| MRF | 10/73687 | 130 | ASTM A105 | 343,0 | 550,0 | 31,0 | 58,0 | 166,0 - 168,0 | 0,0 | 0,0 | -10 | 83 |
| MLZ | 10/72681 | 003 | ASTM A105 | 328,0 | 532,0 | 30,8 | 54,0 | 163,0 - 170,0 | 0,0 | 0,0 | -10 | 65 |
| MRC | 10/72715 | 088 | ASTM A105 | 336,0 | 544,0 | 31,0 | 58,0 | 164,0 - 166,0 | 0,0 | 0,0 | -10 | 66 |
| MRF | 10/73687 | 130 | ASTM A105 | 343,0 | 550,0 | 31,0 | 58,0 | 166,0 - 168,0 | 0,0 | 0,0 | -10 | 63 |
| IRP | 09/36780 | 130 | ASTM A105 | 342,0 | 516,0 | 32,0 | 60,0 | 159,0 - 159,0 | 0,0 | 0,0 | -10 | 73 |
| K115 | 72147 | 133 | ASTM A105 | 352,0 | 544,0 | 32,3 | 55,0 | 167,0 - 173,0 | 0,0 | 0,0 | -10 | 68 |
| 3H6 | 10/30203 | 134 | ASTM A105 | 344,0 | 538,0 | 31,5 | 58,0 | 161,0 - 170,0 | 0,0 | 0,0 | -10 | 62 |

| HEAT CODE | HEAT | ITEM | MATERIAL IN ACCORDANCE TO | HEAT TREATMENT | FURNACE | ORIGIN | OUR Ref. |
|-----------|----------|------|---------------------------|-------------------------------------|------------------|--------|----------|
| 56A | 09/75755 | 186 | ASTM A350-07 Gr. LF2 d.1 | Normalized at 900°C / Air Cool | ELECTRIC FURNACE | EUROPE | 082069 |
| H74 | 75348 | 186 | ASTM A350-07 Gr. LF2 d.1 | Normalized at 900°C / Air Cool | ELECTRIC FURNACE | EUROPE | 051213 |
| K82 | 78995 | 014 | ASTM A105-09 | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE | EUROPE | N10137 |
| MRF | 10/73687 | 130 | ASTM A105-09 | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE | EUROPE | 112001 |
| MLZ | 10/72681 | 003 | ASTM A105-09 | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE | EUROPE | 112003 |
| MRC | 10/72715 | 088 | ASTM A105-09 | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE | EUROPE | 102129 |
| MRF | 10/73687 | 130 | ASTM A105-09 | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE | EUROPE | 112001 |
| IRP | 09/36780 | 130 | ASTM A105-09 | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE | EUROPE | 102121 |
| K115 | 72147 | 133 | ASTM A105-09 | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE | EUROPE | 101152 |
| 3H6 | 10/30203 | 134 | ASTM A105-09 | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE | EUROPE | 102111 |

NOTES: ASME B16.1/09 - ANSI B31.1/B31.3 - IML STD. - ANSI B1.1-B18.2.2 - NACE MR0175 ISO 15156/1 - NACE MR0103 - MSS SP 83 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS

INSPECTION AUTHORITY: *B. Fizzotti*

QUALITY CONTROL DEPARTMENT: *Bon's*

MANUFACTURER'S SYMBOL: **IML**

MANUFACTURER'S SYMBOL: **STUDBOLTS**



MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 : 2004 3.1
 CUSTOMER : SEYBOLD INTERNATIONAL CORP.
 CERT. NO : 111924 L/C NO :
 ORDER NO : 7003779 DATE : 05/23/2011
 INVOICE NO : BWO1110001130 PAGE : 3 ORIGIN : TAIWAN



怡興鋼工股份有限公司
 高雄縣仁武鄉高林村仁心路 303 號
BOTH-WELL STEEL FITTINGS CO., LTD.
 NO.303, JEN-HSIN ROAD, JEN-WU, HSIAANG
 KAOSHUNG HSIEN, TAIWAN R.O.C.(81480)
 TEL: 886-7-371-0497, 371-1536, 372-0260
 web site: <http://www.bothwell.com.tw> e-mail: bothwell@bothwell.com.tw



An ISO 9001:2008 Registered Manufacturer

| ITEM | BW HT. CD. | RAW MATERIAL HEAT NO. | DESCRIPTION | QUANTITY | SPECIFICATION FOR | | INSPECTION SURFACE | DIM. |
|------|------------|-----------------------|------------------------|----------|-------------------|--------------------|--------------------|------|
| | | | | | MATERIAL | FITTING | | |
| 001 | 3379 | 317340 | FULL CEJG 1" 3000# NPT | 2597 PC | ASTM A105N-09 | ASME B16.11 - 2009 | GOOD | GOOD |
| 004 | 3383 | 317553 | CAP 1" 6000# NPT | 695 PC | ASME SA105N | | | |
| 005 | 3405 | 317341 | CAP 3/4" 6000# NPT | 297 PC | | | | |
| 006 | 3456 | 319597 | CAP 3/4" 6000# S/W | 345 PC | | | | |
| 007 | 3374 | 316851 | HEX PLUG 1" NPT | 4099 PC | | | | |

| ITEM | BW HT. CD. | CHEMICAL COMPOSITION (%) | | | | | | | | | | | N | Al | Ti | Zr | CB | | |
|------|------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|---|----|----|----|----|---|-------|
| | | C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V | Co(Nb) | | | | | | | |
| 001 | 3379 | 0.200 | 0.100 | 0.600 | 0.035 | 0.040 | 0.400 | 0.500 | 0.400 | 0.120 | 0.080 | - | - | - | - | - | - | - | 0.430 |
| 004 | 3383 | 0.200 | 0.350 | 1.050 | 0.015 | 0.011 | 0.130 | 0.080 | 0.050 | 0.010 | 0.002 | 0.001 | - | - | - | - | - | - | 0.377 |
| 005 | 3405 | 0.210 | 0.190 | 0.830 | 0.012 | 0.015 | 0.130 | 0.080 | 0.040 | 0.010 | 0.002 | 0.001 | - | - | - | - | - | - | 0.369 |
| 006 | 3456 | 0.200 | 0.190 | 0.850 | 0.015 | 0.010 | 0.160 | 0.130 | 0.080 | 0.030 | 0.002 | 0.001 | - | - | - | - | - | - | 0.378 |
| 007 | 3374 | 0.200 | 0.200 | 0.840 | 0.016 | 0.011 | 0.160 | 0.120 | 0.120 | 0.020 | 0.002 | 0.001 | - | - | - | - | - | - | 0.390 |

| ITEM | BW HT. CD. | MECHANICAL PROPERTIES | | | | | | | | | | | HEAT TREATMENT | ADDITIONAL TEST/REMARKS |
|------|------------|-----------------------|-------------|---------|------------|--------------------|------------------|-----|---|-----------------------|---|------|----------------|---|
| | | T. S. (KSI) | Y. S. (KSI) | EL. (%) | R of A (%) | Hardness (HB)(AVG) | Charpy Impact °C | | | MECHANICAL PROPERTIES | | | | |
| 001 | 3379 | 73.3 | 47.2 | 36.6 | 62.6 | 141 | 142 | 187 | 1 | 2 | 3 | AVG. | NORMALIZED | CONFORMS TO NACE MR0175-09 /MR0103-10 |
| 004 | 3383 | 73.5 | 52.2 | 35.0 | 64.5 | 141 | 141 | 187 | 1 | 2 | 3 | AVG. | 860°C A.C. | STEEL MAKING PROCESS : ELECTRIC FURNACE |
| 005 | 3405 | 74.3 | 53.4 | 38.6 | 64.5 | 145 | 145 | 143 | 1 | 2 | 3 | AVG. | | |
| 006 | 3456 | 74.7 | 49.4 | 35.6 | 66.4 | 145 | 143 | 141 | 1 | 2 | 3 | AVG. | | |
| 007 | 3374 | 72.6 | 49.2 | 36.8 | 64.5 | 141 | 141 | 141 | 1 | 2 | 3 | AVG. | | |

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.

C.C. Huang O.C. MANAGER
 CHEN CHI HUANG
T.Y. Chang INSPECTOR
 YUAN YAO CHANG



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax. +39 0185 466510 - E-mail quality.iml@farmas.com
 MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N° 23/91/S

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 22342 Dated 03.10.2011

FORGED FLANGES & FITTINGS LTD

CASTLE HOUSE, STATION RD
 NEW BARNET-EN6 1PE - UNITED KINGDOM

GB

Purchase Order Nr 3767
 Item Nr 081
 IML Packing List Nr 1157
 IML Invoice Nr 1013

| Heat Code | Heat Nr | Quantity | Description |
|-----------|----------|----------|---|
| MY9 | 10/74122 | 1669,00 | FITTING COUPLING THRD NPT 3M 1/2" A105N |

| Element | C | Si | Mn | S | P | Cr | Ni | Mo | Ti | Cu |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ASTM A105 (LADLE) | 0,185 | 0,240 | 1,090 | 0,006 | 0,013 | 0,120 | 0,050 | 0,010 | 0,023 | 0,180 |

| Element | V | Nb | N | AL | C.E. | PRE |
|-------------------|-------|-------|----|-------|-------|-----|
| ASTM A105 (LADLE) | 0,003 | 0,002 | -- | 0,031 | 0,409 | -- |

| Test specimen | Shape | Tensile | Yeld Point >0,2% | Yeld Point >1% | Elongation | Reduction of area |
|---------------|-----------|---------|------------------|----------------|------------|-------------------|
| Sect. mm2 | Lenght mm | N/mm2 | N/mm2 | N/mm2 | % | % |
| 122,65 | 50,00 | 1 | 522,0 | 347,0 | -- | 31,0 |

HARDNESS

HBW
 156,0 - 162,0

TYPE
 KV

Test specimen
 10x10mm

°C
 -10

IMPACT TEST

1-Joule/cm2
 54

2-Joule/cm2
 56

3-Joule/cm2
 54

| | | |
|----------------|-------------------------------------|------------------|
| Heat treatment | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE |
|----------------|-------------------------------------|------------------|

| | |
|-------------------------|---|
| Dimension in accordance | ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS.SP25 Ed.2008 - NACE MR 0175 ISO 15158 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS |
|-------------------------|---|

| | |
|------------------------|----------------------|
| Material in accordance | ASME SA ASTM A105-10 |
|------------------------|----------------------|

| | | | | | |
|----------------------|--------------|--------|--------|----------|--|
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | |
|----------------------|--------------|--------|--------|----------|--|

QUALITY CONTROL DEPT.

Boris Fizzotti

Boris Fizzotti

INSPECTION AUTHORITY

MANUFACTURER'S SYMBOL

IML

or



1155012



**ALBERTA
OIL TOOL**
A **DOVER** COMPANY

9530 - 60 Ave.
Edmonton, AB T6E 0C1
Canada
Ph. (780) 434-8566
Fax (780) 436-4329

AMIB

MATERIAL REPORT

AOT HEAT CODE AMIB

General Information

Source: Hengyang Valin Steel Tube Co. LTD Date: 29/06/2012

Description: 2" XH Seamless Steel Pipe Heat No: 1115964

Specification: ASTM/ASME A/SA106-08 NACE MR0175

Chemical Properties

| C | Mn | P | S | Si | Cu | Ni | Cr | Mo | V | Cb/Nb | Al |
|------|------|-------|-------|------|------|------|------|------|------|-------|-------|
| 0.12 | 1.00 | 0.012 | 0.003 | 0.27 | 0.05 | 0.02 | 0.05 | 0.01 | 0.00 | 0.028 | 0.038 |

Mechanical Properties

Tensile: 62205 PSI Elongation (%): 33

Yield: 44660 PSI

Hardness: 1 HRC

Hydrostatic Test: 3000PSI/65

Other Tests: BEND TEST

Notes: USED FOR 331537A631
2" x 1" XH Smls Swage Nipple
Meets: MEETS ASTM A234-02/ASME SA234-01 GR.WPB558
MEETS NACE MR0175/ISO 15156

| | |
|-----------------|--------------------|
| Commodity Code: | 135600A013 |
| Commodity Code: | 135600A013 |
| Checked By: | <i>[Signature]</i> |

WE CERTIFY THAT THIS DOCUMENT IS DIRECTLY TRACEABLE TO THE SUPPLIERS' ORIGINAL DOCUMENT AND THAT SAID DOCUMENT CAN BE SUPPLIED UPON REQUEST.

APPROVED BY: *[Signature]* Date: August 22 2012

Maintained By Quality Department

Page 1 of 1

MTR.mdb

Approved By: Director of Quality

Rev D

Date: 9-May-07



Phoenix * Capitol * Camco Cap Products

1118861

Certified Mill Test Report

Commanding a Higher Standardsm

11/25/2010

Customer
CE FRANKLIN LTD

P.O. 2651918-OR-2100

Heat No 803
Heat Code QWP
Phoenix Order # 724800

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Part Number
15112005

Description
2 X 2-1/2" XHSML BK STL NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|----|
| 0.2200 | 0.7200 | 0.0100 | 0.0150 | 0.2600 | 0.2300 | 0.0600 | 0.0740 | 0.3749 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0100 | 0.0030 | | | 0.0010 | | | | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|---------------------|
| Cr + Cu + Ni |
| 0.3640 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 81,930 | 66,120 | 26.6% | | | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 3000 psi.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

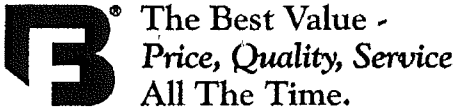
Comments:

Meets Hardness Requirements of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

CapProducts. Ltd.

25 Winnipeg St
Vanastra, ON NOM 1L0

CERTIFIED MILL TEST REPORT



LOG NO. F00000000031000 Page 6 of 11
BONNEY FORGE CORPORATION
 P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
 (814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
 www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 06/28/2012

CUSTOMER ORDER NO.: 4891484-00

BONNEY ORDER NO. B000122738

SHIP TO: CCTF CORPORATION (EDMONTON)
 5407 - 53RD AVE.
 EDMONTON AB T6B 3G2
 Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. | CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|---------------|----------|---------|---------------------------------------|--|
| 18 7524382 | | 58740 | 3 2M A105N 90EL T SA/A105N | Al 0.025 C 0.170 Cb 0.001 Co 0.006 Cr 0.120 Cu 0.210 Mn 1.010 Mo 0.040 N 0.010 Ni 0.100 P 0.010 S 0.017 Si 0.260 V 0.022 CE(Long Formula) = 0.40 T/S(PSI) 75,527 Y/S(PSI) 52,831 EL(%) 33.20 RA(%) 67.02 Brinell 132 BHN 132 BHN |
| 18 7524382 | 180 | 58698 | 3 2M A105N 90EL T SA/A105N | Al 0.030 C 0.150 Cb 0.002 Co 0.007 Cr 0.130 Cu 0.250 Mn 1.030 Mo 0.040 N 0.009 Ni 0.100 P 0.010 S 0.018 Si 0.270 V 0.020 CE(Long Formula) = 0.38 T/S(PSI) 72,529 Y/S(PSI) 49,828 EL(%) 35.05 RA(%) 66.34 Brinell 130 BHN 130 BHN |
| 19 7526083 | 50 | 5001 | 1 X 3/4 3000 A105N REDU S SA/A105N | Al 0.018 C 0.220 Co 0.003 Cr 0.030 Cu 0.140 Mn 1.010 Mo 0.010 N 0.005 Nb 0.014 Ni 0.060 P 0.007 S 0.017 Si 0.200 V 0.003 CE(Long Formula) = 0.41 T/S(PSI) 75,000 Y/S(PSI) 52,500 EL(%) 31.30 RA(%) 62.05 Brinell 139 BHN 137 BHN |
| 20 7523173 | 500 | 58711 | 1/2 3000 A105N TEE T SA/A105N | Al 0.021 C 0.207 Co 0.003 Cr 0.030 Cu 0.070 Mn 1.010 Mo 0.004 N 0.004 Nb 0.014 Ni 0.020 P 0.006 S 0.020 Si 0.200 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 74,556 Y/S(PSI) 49,567 EL(%) 34.90 RA(%) 62.56 Brinell 130 BHN 132 BHN |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht
 Meloney Specht
 QUALITY PROCESS MANAGER

CERTIFIED MILL TEST REPORT



The Best Value -
Price, Quality, Service
All The Time.

LOG NO. F0000000031000

Page 11 of 11

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 06/28/2012

CUSTOMER

BONNEY ORDER NO. B000122738

ORDER NO.: 4891484-00

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
3. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
7. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
8. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht

Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2

MILL TEST & INSPECTION CERTIFICATE

ACCORDING TO EN 10204 : 2004 3.1

CUSTOMER : SEYBOLD INTERNATIONAL CORP.

CERT. NO : 114203

ORDER NO : 7004333

INVOICE NO : BRW01110005080

L/C NO :

DATE : 12/01/2011

PAGE : 28 ORIGIN : TAIWAN

柏緯鐵工股份有限公司

高雄市仁武區烏林里仁心路 303 號

BOTH-WELL STEEL FITTINGS CO., LTD.

NO.303, JEN-HSIN ROAD JEN-WU DISTRICT

KAOHSIUNG CITY, TAIWAN R.O.C. (81460)

TEL: 886-7-871-0497, 871-1536, 872-0260

web site: <http://www.bothwell.com.tw> e-mail: bothwell.com.tw

An ISO 9001:2008 Registered Manufacturer



FAX: 886-7-871-8864, 871-3882

| ITEM | BW HT. CD. | RAW MATERIAL HEAT NO. | DESCRIPTION | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | SPECIFICATION FOR | | | INSPECTION SURFACE DIM. | | | | | | | | | | | |
|------|------------|-----------------------|-------------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------------------|-------|---------|-------------------------|--------------------|----------|---------|------|------|------|------|------|------|------|--|
| | | | | C | Si | Mn | P | S | Cu | Cr | Ni | Mo | V | Cb(Nb) | N | Al | Ti | Zr | | CE | MATERIAL | FITTING | | | | | | | | |
| 109 | 3547 | 321652 | HEX PLUG 1/4" NPT | - | 0.100 | 0.600 | - | - | - | - | 0.400 | 0.120 | 0.080 | - | - | - | - | 1500 PC | ASTM A105N -05 | ASME B16.11 - 2009 | - | - | - | - | - | - | - | - | GOOD | |
| 110 | 3455 | 319011 | HEX PLUG 3/8" NPT | 0.350 | 0.350 | 1.050 | 0.035 | 0.040 | 0.400 | 0.300 | 0.400 | 0.120 | 0.080 | - | - | - | - | 600 PC | ASTM A105N -05 | ASME B16.11 - 2009 | GOOD | GOOD | GOOD | GOOD | GOOD | GOOD | GOOD | GOOD | | |
| 111 | 3595 | 320977 | HEX PLUG 1/2" NPT | 0.200 | 0.210 | 0.850 | 0.018 | 0.013 | 0.070 | 0.060 | 0.070 | 0.020 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 6500 PC | ASME SA105N -A08 | | | | | | | | | | | |
| 112 | 3531 | 320367 | HEX PLUG 3/4" NPT | 0.200 | 0.200 | 0.820 | 0.017 | 0.013 | 0.090 | 0.090 | 0.060 | 0.020 | 0.002 | 0.002 | 0.002 | 0.001 | 0.001 | 3000 PC | | | | | | | | | | | | |
| 113 | 3522 | 320061 | HEX PLUG 1" NPT | 0.200 | 0.200 | 0.830 | 0.017 | 0.011 | 0.090 | 0.090 | 0.060 | 0.020 | 0.002 | 0.002 | 0.001 | 0.001 | 0.001 | 4271 PC | | | | | | | | | | | | |

| ITEM | BW HT. CD. | MECHANICAL PROPERTIES | | | | | | | | | | HEAT TREATMENT | ADDITIONAL TEST/REMARKS | |
|------|------------|-----------------------|-------------|---------|------------|--------------------|-------------------------|---|---|---|------|----------------|-------------------------|--|
| | | T. S. (KSI) | Y. S. (KSI) | EL. (%) | R of A (%) | Hardness (HB)(AVG) | Charpy Impact °F / 0 °C | | | | | | | |
| | | | | | | | MIN./AVG. | 1 | 2 | 3 | AVG. | | | |
| Min | 70.0 | 36.0 | 22.0 | 30.0 | - | 187 | | | | | | | | |
| Max | - | - | - | - | - | - | | | | | | | | |
| 109 | 3547 | 75.5 | 51.3 | 33.6 | 64.5 | 144 | 143 | | | | | | | |
| 110 | 3455 | 75.5 | 53.2 | 35.2 | 65.5 | 141 | 142 | | | | | | | |
| 111 | 3595 | 82.9 | 54.4 | 26.0 | 69.0 | 153 | 153 | | | | | | | |
| 112 | 3531 | 76.1 | 47.2 | 31.0 | 68.0 | 141 | 142 | | | | | 860°C A.C. | | |
| 113 | 3522 | 75.2 | 49.5 | 34.0 | 68.0 | 141 | 142 | | | | | | | |

WE HEREBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.

Q.C.MANAGER
CHEN CHI HUANG

INSPECTOR
YUAN YAO CHANG



Phoenix * Capitol * Camco 1121234
Cap Products

Certified Mill Test Report

Commanding a Higher Standardsm

8/14/2012

Customer
 CE FRANKLIN LTD

P.O. 3073879-OR-2100

Heat No 268694
 Heat Code JIW
 Phoenix Order # 875213

BOX 6776 STN "D"
 CALGARY, AB T2P2E8

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number
 15110503

Description
 1/2 X 1-1/2" XHSML BK STL NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| 0.1960 | 0.7300 | 0.0160 | 0.0050 | 0.2320 | 0.0250 | 0.0900 | 0.0670 | 0.3456 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0160 | 0.0030 | | 0.0300 | 0.0020 | | | | | 0.0030 |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|--------------|
| Cr + Cu + Ni |
| 0.1820 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 78,608 | 59,173 | 41.5% | | 147 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 3000 psi.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Flattening test passed.

Meets Hardness Requirements of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

CapProducts. Ltd.
 25 Winnipeg St
 Vanastra, ON N0M 1L0

1802267

Current Date: Wed, 08 Dec 2010 18:11:22 +0000

Material Test Report

Report Number: 21289

Date: Thu, Oct 7th 2010

Description: 1" HEX SWAGES & BULL PLUGS

Heat Treatment: NORM

Specification: A234-WPB/SA234-WPB

Material: A105

CRN: OA7470.5C

Year of Revision:

Comment: NACE MR0103-07 MR0175/ISO 15156-2-03

Additional Comment:

Chemical Analysis

Heat Code: **W15985 ZZ**

Heat Number: AC730

| | | | | | |
|----|-------|-------|-------|----|-------|
| C | 0.190 | Cu | 0.010 | Al | 0.000 |
| Mn | 0.810 | Ni | 0.010 | Ti | 0.000 |
| P | 0.012 | Cr | 0.140 | | 0.000 |
| S | 0.009 | Mo | 0.005 | | 0.000 |
| Si | 0.240 | V | 0.005 | | 0.000 |
| N | 0.000 | Cb/Nb | 0.007 | | 0.000 |

Carbon Equivalency Formula Used:
C+(Mn/6)+(Cr+Mo+V)/5+(Ni+Cu)/15
CE= 0.36

Mechanical Tests

Yield PSI: 50038

Tensile PSI: 71068

Elongation: 33.5 % @ 2"

Reduction of 61.5 Area %

Size: 1-3/8" HEX

Brinell Hardness: 143

Charpy Impact Test

Individual Values:

(V1) ft/lbs (V2) ft/lbs (V3) ft/lbs

This Material Test Report meets DIN 50 049/EN 10 204 3.1,B Standard 1995

We hereby Certify that the material described has been tested in accordance with the specifications, and the results are correct as contained in the records of the Company.

Ian Skoldis
Q.A. Manager and Customer Service



Sarnia
Toll Free: 1-866-511-1381
By regular telephone at: 519-336-2960
By fax at 519-344-3181

Mailing Address:
PO Box 999,
645 Kedco St.
Sarnia, ON
N7T 7K6

Edmonton
Toll Free: 1-800-661-3809
By regular telephone at: 780-438-4944
By fax at 780-435-3917

Mailing Address:
4120 - 78 Av.
Edmonton, AB
T6B 3M8

M.E.G.A.

CLIENTE
Customer
Client **CE FRANKLIN LTD.**

CERTIFICATO N. 576344 **FOGLIO**
Certificate N. **Sheet** 11
Certificat N. **Feuille**

1900 - 300 - 5th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 3C4

DATA / Date **08/03/11**

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
CERTIFICAT DE CONTROLE

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001

ORDINE
Purchase order
Commande **2574486-OR-2100**

COMMESSA
Job N. **92500**
Confirmation de commande

| PROVA Test Epreuve | MATERIALE Material / Matière | COLATA Heat / Coulée | C % | Si % | Mn % | S % | P % | Cr % | Ni % | Mo % | Ti % | Cu % | V % | Al % | CE % |
|--------------------------|---------------------------------|-------------------------|---------------|-----------------------|----------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| LBTX | ASTM A105/05 | 84498 | 0.180 ---> | 0.200 Nb% = 0.001 | 0.832 0.001 | 0.011 B % = 0.0001 | 0.013 | 00.11 | 00.09 | 0.021 | 0.000 | 0.143 | 0.002 | 0.020 | 0.362 |
| PURC | ASTM A105/05 | 09/79536 | 0.195 ---> | 0.210 Nb% = 0.002 | 0.890 | 0.006 Sn% = 0.008 | 0.009 | 00.11 | 00.06 | 0.010 | 0.021 | 0.160 | 0.018 | 0.027 | 0.385 |
| RULF | ASTM A105/05 | 07/79132 | 0.190 ---> | 0.170 Nb% = 0.001 | 0.890 | 0.008 B % = 0.000 | 0.011 | 00.10 | 00.04 | 0.010 | 0.022 | 0.170 | 0.018 | 0.021 | 0.377 |
| FBNA | ASTM A105N/01 | 74640 | 0.190 ---> | 0.223 B % = 0.0001 | 0.862 | 0.006 Nb% = 0.002 | 0.007 | 00.14 | 00.10 | 0.021 | 0.000 | 0.252 | 0.003 | 0.022 | 0.392 |
| FBNC | ASTM A105/02 | 65926 | 0.198 ---> | 0.226 Nb% = 0.001 | 0.866 | 0.016 B % = 0.000 | 0.014 | 00.16 | 00.13 | 0.036 | 0.000 | 0.258 | 0.004 | 0.027 | 0.408 |
| LBTB | ASTM A105N/01 | AL2227 | 0.190 ---> | 0.260 B % = 0.000 | 0.920 | 0.028 Nb% = 0.002 | 0.016 | 00.20 | 00.10 | 0.040 | 0.000 | 0.150 | 0.001 | 0.020 | 0.408 |

| PROVA Test Epreuve | PROVETTA Test specimen / Eprauvette | | SNERVAMENTO MPa ≥ Yield strength Limite d'élasticité | ROTTURA MPa ≥ Tensile strength Rupture | ALLUNGAMENTO % ≥ Elongation Allongement | CONTRAZIONE % ≥ Reduction of area Striction | DUREZZA HB Hardness Dureté | PIEGA Bend test Pliage | SCHIACC. Flatt. test Aplattiss. | RESILIENZA Impact test / Résilience | | | |
|--------------------------|--|--------------------------------|---|---|--|--|-------------------------------------|------------------------------|---------------------------------------|--|--------------------|--------------|--------------------------|
| | SEZIONE Section / Sect. | LUNGHEZZA Length / Longueur | | | | | | | | UNITA MIS. UM | T. °C Test temp | TIPO Type | VALORE / Value / Données |
| LBTX | 1 | 122.6 | 50.0 | 397.0 | 548.0 | 26.6 | 60.0 | 178-185 | | J | KV | 0 | 34-36-32 |
| PURC | 1 | 30.6 | 25.0 | 301.0 | 522.0 | 32.3 | 69.4 | 143-146 | | J | KV | 0 | 40-46-44 |
| RULF | 1 | 122.6 | 50.0 | 354.3 | 533.2 | 30.4 | 62.1 | 160-165 | | J | KV | -10 | 98-104-116 |
| FBNA | 1 | 30.1 | 25.0 | 359.0 | 539.0 | 52.4 | 62.2 | 156-163 | | J | KV | 0 | 54-46-60 |
| FBNC | 1 | 30.1 | 25.0 | 338.0 | 541.0 | 27.5 | 64.4 | 163-165 | | J | KV | 0 | 62-52-60 |
| LBTB | 1 | 122.6 | 50.0 | 392.0 | 564.0 | 23.1 | 64.4 | 175-182 | | J | KV | 0 | 52-54-48 |

PROVA Test Epreuve NOTE / Remarks / Notes **EN10204/3.1** FORMA Shape / Forme : 1 = 2 =

| | | | |
|------|--|--|--|
| LBTX | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | /CERT.05869/1.96 RODACCIAI*247613MEGA* |
| PURC | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | /CERT.49.EVASI*568596MEGA* |
| RULF | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | /CERT.43557.RIVA*545435MEGA* |
| FBNA | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | /05656.95 TRAF.S.PAOLO*531511 MEGA |
| FBNC | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | /CERT.2531.94SAN PAOLO*247493 MEGA* |
| LBTB | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. | | /CERT.12666.01 RODACCIAI*532938 MEGA |

| PROVA Test Epreuve | POS. Item Pos. | QUANTITA Quantity Quantité | CODICE CLIENTE Customer code Code client | DESCRIZIONE / Description / Description | VISUAL AND DIMENSIONAL |
|--------------------------|----------------------|----------------------------------|--|---|---------------------------|
| LBTX | 074 | 6500 | 1090811 | HEX. HEAD PLUG NPT A/SA105N 1 | OK |
| PURC | 075 | 2500 | 1096041 | HEX. HEAD PLUG NPT A/SA105N 2 | OK |
| RULF | 076 | 300 | 1092963 | R. HEAD PLUG NPT A/SA105N 1/2 | OK |
| FBNA | 077 | 240 | 1094352 | BUSHING M/F NPT A/SA105N 1/4x1/8 | OK |
| FBNC | 078 | 296 | 1092525 | BUSHING M/F NPT A/SA105N 1/2x1/4 | OK |
| LBTB | 078 | 904 | 1092525 | BUSHING M/F NPT A/SA105N 1/2x1/4 | OK |

NOTE / Remarks / Notes

ENTE UFFICIALE DI COLLAUDO
Inspection Authority
Service Inspection Officiel

CAPO COLLAUDO
Chief Inspection DPT
Responsable Assurance qualité

MATERIAL ACCORDING TO NACE
MR0175/Ed2003 & MR0103 Ed.2007
AND ASME SA SPECIFICATIONS.

DOC. CERT. M.E.G.A.
Emmanuel Certemer



Phoenix * Capitol * Camco
Cap Products

1123547

Commanding a Higher Standardsm

Certified Mill Test Report

8/15/2012

Customer
CE FRANKLIN LTD

P.O. 3078803-OR-2100

Heat No P115843
Heat Code HLI

Phoenix Order # 876669

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number
15112008

Description
2 X 4" XHSML BK STL NIPL

Chemical Properties

| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|----|
| 0.2100 | 0.4400 | 0.0220 | 0.0110 | 0.2300 | 0.0400 | 0.0400 | 0.0200 | 0.2983 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0100 | 0.0050 | | | | | | | | |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|--------------|
| Cr + Cu + Ni |
| 0.1000 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 80,000 | 51,000 | 32.5% | | | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirments of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our posession

CapProducts. Ltd.

25 Winnipeg St

Vanastra, ON N0M 1L0

FORMA P.100 Rev. 0 15-05-2003

M.E.G.A.

CLIENTE
Customer
Client

W.F.F. FITTINGS & FLANGES
(CANADA) LTD.
7004K-5TH. STREET S.E.
CALGARY, ALBERTA T2H 2G3

CERTIFICATO N. 565221 Foglio 3
Certificate N. Sheet
Certificat N. Feuille
DATA / Date 15/10/09

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
CERTIFICAT DE CONTROLE

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001

ORDINE
Purchase order
Commande

E05255KD - ADD1

COMMESSA
Job #.
Confirmation de commande 89218

| PROVA Test Epreuve | MATERIALE Material / Matériau | COLATA Heat / Coudle | C% | SI% | Mn% | S% | P% | Cr% | NI% | Mo% | TI% | Cu% | V% | Al% | CE% |
|--------------------------|----------------------------------|-------------------------|--------------|-----------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| NRUF | ASTM A105/05 | EMN*77966 | 0.210 --> | 0.270 Nb% = 0.001 | 0.940 N % = 0.000 | 0.018 S % = 0.000 | 0.011 P % = 0.000 | 00.10 B % = 0.000 | 00.07 B % = 0.000 | 0.010 O % = 0.000 | 0.012 O % = 0.000 | 0.190 O % = 0.000 | 0.002 O % = 0.000 | 0.005 O % = 0.000 | 0.406 O % = 0.000 |
| KCWS | ASTM A105/05 | 186126 | 0.173 --> | 0.253 Nb% = 0.003 | 1.030 Sn% = 0.007 | 0.002 S % = 0.000 | 0.009 P % = 0.000 | 00.07 B % = 0.0003 | 00.12 O % = 0.0018 | 0.026 O % = 0.000 | 0.000 O % = 0.000 | 0.161 O % = 0.000 | 0.001 O % = 0.000 | 0.036 O % = 0.000 | 0.382 O % = 0.000 |
| KTCF | ASTM A105/05 | 183353 | 0.163 --> | 0.237 Nb% = 0.003 | 1.042 Sn% = 0.010 | 0.005 S % = 0.000 | 0.014 P % = 0.000 | 00.10 B % = 0.000 | 00.23 O % = 0.0005 | 0.044 O % = 0.000 | 0.000 O % = 0.000 | 0.210 O % = 0.000 | 0.001 O % = 0.000 | 0.036 O % = 0.000 | 0.396 O % = 0.000 |
| KUSX | ASTM A105/05 | 183353 | 0.163 --> | 0.237 Nb% = 0.003 | 1.042 Sn% = 0.010 | 0.005 S % = 0.000 | 0.014 P % = 0.000 | 00.10 B % = 0.0004 | 00.23 O % = 0.000 | 0.044 O % = 0.000 | 0.000 O % = 0.000 | 0.210 O % = 0.000 | 0.001 O % = 0.000 | 0.036 O % = 0.000 | 0.396 O % = 0.000 |
| KTXC | ASTM A105/05 | 0745421/07 | 0.180 --> | 0.230 Nb% = 0.0022 | 1.050 Sn% = 0.0001 | 0.002 S % = 0.000 | 0.020 P % = 0.000 | 00.12 B % = 0.000 | 00.02 O % = 0.000 | 0.014 O % = 0.000 | 0.000 O % = 0.000 | 0.027 O % = 0.000 | 0.003 O % = 0.000 | 0.030 O % = 0.000 | 0.385 O % = 0.000 |
| RXXD | ASTM A105/05 | 8006-07 | 0.191 --> | 0.217 Nb% = 0.0003 | 0.997 N % = 0.010 | 0.007 S % = 0.000 | 0.002 P % = 0.000 | 00.08 Sn% = 0.0181 | 00.29 O % = 0.000 | 0.050 O % = 0.000 | 0.000 O % = 0.000 | 0.201 O % = 0.000 | 0.000 O % = 0.000 | 0.029 O % = 0.000 | 0.415 O % = 0.000 |

| PROVA Test Epreuve | PROVETTA Test specimen / Eproovetta | | SOLLECAMENTO MPa/z Yield strength Limite d'élasticité | ROTTURA MPa/z Tensile strength Rupture | ALLUNGAMENTO % z Elongation Allongement | CONTRAZIONE % z Reduction of area Striction | DUREZZA HB Hardness Dureté | FLEGA Bend test Pliage | SCHIACC. Flat. test Aplattiss. | RESILLENZA Impact test / Résilience | | |
|--------------------------|--|--------------------------------|--|---|--|--|-------------------------------------|------------------------------|--------------------------------------|--|-------------|-------------------|
| | SEZIONE Section / Sect. | LUNGHEZZA Length / Longueur | | | | | | | | UNITÀ SING. Unit | TPO Type | T °C Test temp |
| NRUF | 126.6 | 50.0 | 315.0 | 519.0 | 35.0 | 67.0 | 149-163 | | J | KV | 0 | 48-52-58 |
| KCWS | 30.6 | 25.0 | 321.0 | 542.0 | 29.5 | 67.8 | 149-163 | | J | KV | 0 | 48-52-60 |
| KTCF | 30.6 | 25.0 | 314.0 | 538.0 | 29.6 | 67.4 | 149-156 | | J | KV | -10 | 46-48-40 |
| KUSX | 30.6 | 25.0 | 321.0 | 541.0 | 29.4 | 67.2 | 156-163 | | J | KV | 0 | 56-60-62 |
| KTXC | 122.6 | 50.0 | 302.0 | 524.0 | 31.2 | 69.6 | 146-156 | | J | KV | 0 | 44-52-56 |
| RXXD | 60.1 | 35.0 | 302.2 | 518.4 | 31.7 | 68.4 | 143-149 | | J | KV | 0 | 58-54-50 |

NOTE / Remarks / Notes EN10204/3.1

FORMA Shape / Forma : 1 = Ø 2 = □

| | |
|------|--|
| NRUF | ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR. /CERT.3183.06 METALFAR* |
| KCWS | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.395/1.EVASI*555415 MEGA |
| KTCF | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.260.EVASI*551906 MEGA* |
| KUSX | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.361.EVASI*553808 MEGA |
| KTXC | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.10116.MEGA/I*553998MEGA |
| RXXD | ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.9581.MEGA/I*545433MEGA* |

| PROVA Test Epreuve | POS. Item Pos. | QUANTITÀ Quantity Quantité | CODICE CLIENTE Customer code Code client | DESCRIZIONE / Description / Description | VISUAL AND DIMENSIONAL |
|--------------------------|----------------------|----------------------------------|--|---|---------------------------|
| NRUF | 012 | 5 | PO E05255KD | UNION S. 6000 NPT A/SA105N 2 | OK |
| KCWS | 013 | 50 | PO E05255KD | MEGALET S. 3000 NPT A/SA105N 1x3-5 | OK |
| KTCF | 014 | 50 | PO E05255KD | MEGALET S. 3000 NPT A/SA105N 1x6-36 | OK |
| KUSX | 014 | 100 | PO E05255KD | MEGALET S. 3000 NPT A/SA105N 1x6-36 | OK |
| KTXC | 015 | 300 | PO E05255KD | TEE S. 3000 NPT A/SA105N 2x1 | OK |
| RXXD | 017 | 300 | PO E05255KD | TEE S. 2000 NPT A/SA105N 3 | OK |

1095259
HT# KTXC

NOTE / Remarks / Notes

ENTE UFFICIALE DI COLLAUDO
Inspection Authority
Service Inspection Official

CAPO COLLAUDO
Chief Inspector / PT
Responsible assistance qualità

MATERIAL ACCORDING TO NACE NRO175/ 2003.

DOC. CERT. M.E.G.A.
Luigi Masetti



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.iml@farlnagroup.com
 MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N°23/91/S

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 22387 Dated 18.10.2011

FORGED FLANGES & FITTINGS LTD

Purchase Order Nr 3767
 Item Nr 051
 Packing List Nr 1218
 Invoice Nr 1070

CASTLE HOUSE, STATION RD
 NEW BARNET-EN5 1PE - UNITED KINGDOM GB

| Heat Code | Heat Nr | Quantity | Description |
|-----------|----------|----------|--|
| OUL | 11/76979 | 505,00 | FITTING 90 ELB. THRD NPT 3M 2" A105N 1092411 |

| Element | C | SI | Mn | S | P | Cr | NI | Mo | TI | Cu |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|----|-------|
| ASTM A105 (LADLE) | 0,180 | 0,220 | 1,080 | 0,010 | 0,013 | 0,120 | 0,060 | 0,020 | -- | 0,200 |

| Element | V | Nb | N | AL | C.E. | PRE |
|-------------------|-------|-------|----|-------|-------|-----|
| ASTM A105 (LADLE) | 0,002 | 0,002 | -- | 0,027 | 0,406 | -- |

| Test specimen Sect. mm2 | Length mm | Shape 1=O - 2=□ | Tensile N/mm2 | Yeld Point >0,2% N/mm2 | Yeld Point >1% N/mm2 | Elongation % | Reduction of area % |
|-------------------------|-----------|-----------------|---------------|------------------------|----------------------|--------------|---------------------|
| 122,65 | 50,00 | 1 | 548,0 | 331,0 | -- | 32,5 | 58,8 |

HARDNESS

HBW
 170,0 - 177,0

TYPE KV
 Test specimen 10x10mm

IMPACT TEST

°C -10
 1-Joule/cm2 63
 2-Joule/cm2 63
 3-Joule/cm2 60

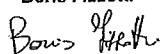

| | | |
|----------------|-------------------------------------|------------------|
| Heat treatment | Normalized at 880°-920°C / Air-Cool | ELECTRIC-FURNACE |
|----------------|-------------------------------------|------------------|

| | |
|-------------------------|---|
| Dimension in accordance | ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS |
|-------------------------|---|

| | |
|------------------------|----------------------|
| Material in accordance | ASME SA ASTM A105-10 |
|------------------------|----------------------|

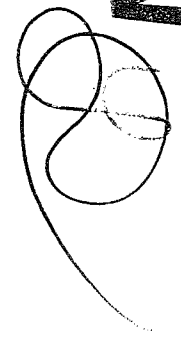
| | | | | | |
|----------------------|--------------|--------|--------|----------|--------|
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | 112122 |
|----------------------|--------------|--------|--------|----------|--------|

Notes ---

| | | |
|--|----------------------|---|
| QUALITY CONTROL DEPT. Boris Fizzotti  | INSPECTION AUTHORITY | MANUFACTURER'S SYMBOL IML or  |
|--|----------------------|---|

3" O.D. Pipe SA106B
 HTF# 48121
 12-052-01-6

QMW



(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

INSPECTION CERTIFICATE

Number / Número: **620174**
 Date / Día: **September 21, 2011**

Page / Página: **1 / 6**
 Síntesis S.A.I.C.
 Dr. Jorge A. Simoni 250
 (2280) (MHA) Campana
 Buenos Aires, Argentina
 (54) 3489 433 100 int.

Customer / Cliente: **VAN LEIJNEN PIPE & TUBE (CANADA) IN**
 Product Type / Tipo de Producto: **CARBON STEEL PIPE-HIGH TEMPERATURE SERV.**
 Customer's Order Item / Orden Cliente - Item: **49001412-00913**
 Customer's Reference / Ref. del Cliente: **N/A**
 Manufacturer's Works Order N° / Orden Fabricación: **51825/12**
 Surfaces / Superficie: **INT BARE EXT VARNISHED**

Standard or Specification / Normas o Especificaciones: **ASTM/A516/A516+CSA Z245.1-07 CATTI SSP-90373/+NACE MR0175/0103+PRO L.P.-006**
 Steel Grade / Grado de acero: **B/250 CATT 1 SS**
 Ends / Extremos: **BEVELLED AT 30 DEG. ASTM**

Dimensions / Dimensiones: **3 1/2 X 0.216 INCH**
 Schedule / Cédula: **040**
 Length / Longitud: **1251.41 MTS**
 Quantity / Cantidad: **217 Pcs/ps**
 Weight / Peso: **14337 KG**
 Nominal Weight / Peso Nominal: **7.58 LBS/FT**
11.29 KGM

| Heat N° Código N° | Sample N° Muestra N° | Zone | Pipe N° Tubo N° | Specimen condition Condición de la probeta | | Specimen dimensions Dimensiones de la probeta | | Test Temp. Temp. ensayo | Y.S. EII (0.50 %) | U.T.S. Req. 415 | Y.S./U.T.S. | Elongation / Alargamiento | | OK |
|----------------------|-------------------------|------|--------------------|---|-------|--|-----------------|----------------------------|----------------------|--------------------|-------------|---------------------------|------|------|
| | | | | So | Tipos | Size Tamaño | Area Sección | | | | | Lo 2" | Min. | |
| 48121 | 1668900 | M | 1 | B | AM | 18.81 x 5.37 | 107.89 | RT | 368 | 521 | 0.70 | 60.8 | 22.0 | 28.8 |
| 48120 | 1668938 | M | 1 | B | AM | 18.12 x 5.58 | 107.85 | RT | 368 | 518 | 0.69 | 50.8 | 22.0 | 29.4 |
| 48121 | 1668900 | M | 1 | B | AM | 18.12 x 5.22 | 100.70 | RT | 368 | 532 | 0.69 | 50.8 | 22.0 | 29.1 |

Mat: As manufactured / Según proceso de fabricación
 N: Middle / Medio
 Req. Max: Required maximum / Máximo requerido
 U.T.S: Ultimate tensile strength / Resistencia
 B: Body / Cuerpo
 Mac: Maximum / Máximo
 Req: Required / Requerido
 Y.S: Yield strength / Fluencia
 L: Longitudinal / Longitudinal
 Min: Minimum / Mínimo
 RT: Room temperature / Temperatura ambiente
 Lot: Initial length / Longitud Inicial
 Obs: Observed / Observado
 Spec: Specimen condition / Condición de la probeta
 Ori: Orientation / Orientación
 Sst: Strip specimen / Muestra rectangular

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APPROVED BY

 FOR03171



(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

INSPECTION CERTIFICATE

Number / Número: **6201774**

Page / Página: **2 / 6**

Date / Día: **September 21, 2011**

Siderca S.A.C.
 Dr. Jorge A. Smith 250
 (B2804MVA) Campana
 Buenos Aires, Argentina
 (54) 3459 433100 141

Customer / Cliente: **YAN LEUWEN PIPE & TUBE (CANADA) INC** Customer's Order Item / Orden Cliente - Item: **49001412-20913** Customer's Reference / Ref. del Cliente: **N/A** Manufacturer's Works Order N° / Confirmación del Vendor: **51925/12**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED** Product Type / Tipo de Producto: **CARBON STEEL PIPE-HIGH TEMPERATURE SERV.** Surface / Superficie: **INT BARE /EXT VARNISHED**

Standard or Specification / Normas o Especificaciones: **ASTM/A516+CSA Z245.1-D7 CAT.1 S9PSP00373/1+NACE MR0175/103+HPRO LP-006** Steel Grade / Grado de acero: **B/290 CAT 1 SS** End / Extremos: **BEVELLED AT 30 DEG. ASTM**

Dimensions / Dimensiones: **3 1/2 X 0.216 INCH** Schedule / Cédula: **040** Length / Longitud: **4106.68 FT** Quantity / Cantidad: **217 Pcs/Pz** Nominal Weight / Peso Nominal: **7.88 LB/FT**

98.90 X 5.49 MM SRL (9P) **1281.41 MTS** **14337 KG** **11.29 KG/M**

CHEMICAL COMPOSITION / COMPOSICIÓN QUÍMICA

| Heat N° Colada N° | Sample N° Muestra N° | Lot N° Lote N° | Pipe N° Tubo N° | H | | Composition % / Composición % | | | | | | | | | | C ₁ | C ₂ | F ₁ | | | | | | | | | | | | | | | | |
|----------------------|-------------------------|-------------------|--------------------|-----|-----|-------------------------------|----|----|----|----|--------|----|----|----|----|----------------|----------------|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|------|
| | | | | Max | Min | C | Mn | Si | Cr | Mo | Al sol | S | P | NI | V | | | | Cu | Al | Sn | As | Nb | Ti | Pb | Sb | Co | Zr | Bi | Ca | B | N | Mg | W |
| 47774 | 1865904 | 0 | 1 | 18 | 109 | 28 | 26 | 4 | 2 | 3 | 1 | 11 | 28 | 30 | 59 | 28 | 8 | 3 | 1 | 4 | 4 | 1 | 1 | 20 | 22 | 18 | 2 | 2 | 83 | 4 | 20 | 37 | 38 | 17.7 |
| 47774 | 1865905 | 0 | 2 | 18 | 109 | 26 | 4 | 2 | 2 | 1 | 11 | 29 | 30 | 53 | 27 | 8 | 3 | 2 | 4 | 4 | 1 | 2 | 7 | 20 | 22 | 14 | 2 | 2 | 88 | 4 | 10 | 37 | 36 | 17.2 |
| 48120 | 1865898 | 0 | 1 | 18 | 111 | 26 | 4 | 4 | 3 | 2 | 11 | 22 | 27 | 36 | 30 | 3 | 2 | 1 | 3 | 1 | 1 | 7 | 20 | 22 | 18 | 2 | 2 | 86 | 3 | 20 | 37 | 36 | 15.5 | |
| 48120 | 1865898 | 0 | 2 | 18 | 111 | 26 | 4 | 4 | 4 | 2 | 11 | 23 | 27 | 33 | 30 | 4 | 2 | 2 | 4 | 4 | 1 | 2 | 7 | 20 | 22 | 18 | 2 | 2 | 90 | 4 | 10 | 37 | 36 | 16.3 |
| 48121 | 1865900 | 0 | 1 | 18 | 108 | 26 | 5 | 4 | 3 | 2 | 10 | 28 | 28 | 52 | 30 | 3 | 2 | 1 | 1 | 1 | 1 | 7 | 20 | 22 | 15 | 2 | 2 | 80 | 2 | 20 | 37 | 38 | 19.7 | |
| 48121 | 1865901 | 0 | 2 | 18 | 109 | 26 | 5 | 4 | 4 | 2 | 10 | 28 | 28 | 53 | 30 | 5 | 3 | 2 | 2 | 2 | 2 | 7 | 20 | 22 | 15 | 2 | 2 | 80 | 2 | 10 | 37 | 38 | 19.5 | |

Ca.1: C+(Mn)0.5+(Cr+Ni)0.5+(V)0.5+(Ni+Cu)0.15 (E/B1)
 Ca.2: F.1: CR+CU+MO+NI+V Marc Maximum / Máximo
 H: Heat / Colada Mfc: Minimum / Mínimo
 P: Product / Producto

This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark from national standard is stamped. In case the owner of the original certificate would release a copy of it, the most strict liability to the original one taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

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FOR03171



Tenaris

(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

INSPECTION CERTIFICATE

| | | | |
|------------------|--------------------|----------------|-------|
| Number / Número: | 620174 | Page / Página: | 3 / 6 |
| Date / Día: | September 21, 2011 | | |

Siderca S.A.I.C
 Dr. Jorge A. Sireni 250
 (B3604MHA) Campana
 Buenos Aires, Argentina
 (54) 3489 437100 tel

| | | |
|---|--|---|
| Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) INC | Customer's Order Item / Orden Cliente - Item: 45001412-00913 | Customer's Reference / Ref. del Cliente: N/A |
| Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED | Product Type / Tipo de Producto: CARBON STEEL PIPE-HIGH TEMPERATURE SERV. | Manufacturer's Works Order N° / Orden Fabricación de la Planta: 51825412 |
| Standard or Specification / Normas o Especificaciones: ASTM/A536M AISA106+CSA Z245.1-07 CAT.1 SFRSP003731+NAACE MR0175/103+HPRO LP-006 | Steel Grade / Grado de acero: B1280 CAT 1 SS | Surface / Superficie: INT BARE /EXT VARNISHED |
| Dimensions / Dimensiones: 3 1/2 X 0.216 INCH 88.90 X 5.49 MM | Schedule / Códula: 040 | Ends / Extremos: BEVELLED AT 30 DEG. ASTM |
| | Length / Longitud: SRL (SP) | Nominal Weight / Peso Nominal: 7.58 LB/FT 11.29 KG/M |
| | | Quantity / Cantidad: 217 Pcs/pz 4105.68 FT 1251.41 MTS 31608 LB 14337 KG |

THROUGH WALL PENETRATION TEST / DURAZÓN EN EL TUBO

| Heat N° / Sample N° / Zona / Coleada N° | Mtr. - | Max. - | Average / Promedio | | Hardness type HV10 | | | | Var. | | | | |
|---|---------|--------|--------------------|--------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | Min. - | Max. - | Tipo de dureza | | | | | | | | |
| 47774 | 1885804 | M | 0 | 1 | 143.0 | 149.0 | 143.0 | 150.0 | 148.0 | 148.0 | 148.0 | 148.0 | 1.8 |
| 48120 | 1665898 | M | 0 | 1 | 147.0 | 144.0 | 133.0 | 142.0 | 141.5 | 148.0 | 144.0 | 144.0 | 4.3 |
| 48121 | 1685900 | M | 0 | 1 | 144.0 | 141.0 | 147.0 | 142.0 | 143.6 | 144.0 | 142.0 | 147.0 | 144.8 |

Avg: Average / Promedio
 B: Body / Cuerpo
 ID: Internal diameter / Diámetro Interno
 L: Location of sample / Ubicación de la muestra
 M: Middle / Medio
 Max: Maximum / Máximo
 Min: Minimum / Mínimo
 OD: Outside diameter / Diámetro externo
 Quant: Quantity / Cantidad
 Var: Variation / Variación

THROUGH WALL PENETRATION TEST / DURAZÓN EN EL TUBO

| Standard / Norma: | | Standard / Norma: | | Standard / Norma: | |
|----------------------|------------------------|--------------------|----------------------|------------------------|--------------------|
| Heat N° / Coleada N° | Sample N° / Muestra N° | Result / Resultado | Heat N° / Coleada N° | Sample N° / Muestra N° | Result / Resultado |
| 47774 | 1665904 | B | 48120 | 1655988 | B |
| | | Good / Bueno | | | Good / Bueno |
| | | | 48121 | 1685900 | B |
| | | | | | Good / Bueno |

L: Location of sample / Ubicación de la muestra

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(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

INSPECTION CERTIFICATE

Number / Número: 620174 Page / Página: 4 / 6

Sidense S.A.U.C. Dr Jorge A. Simini 250 (B2004MRY) Campanile Buenos Aires, Argentina (54) 3498 433100 Int

Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) INC Product Type / Tipo de Producto: CARBON STEEL PIPE-HIGH TEMPERATURE SERV.

Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED Customer's Order Item / Orden Cliente - Item: 459001412-00973 Customer's Reference / Ref. del Cliente: N/A

Standard or Specification / Normas o Especificaciones: ASTM/A516+C5A Z246-1-07 CAT I SSP-00373/+NACE MR0175/103+HPRO LP-008 Steel Grade / Grado de acero: B1290 CAT I 95

Dimensions / Dimensiones: 3 1/2 X 0.216 INCH Schedule / Cédula: 040 Length / Longitud: 1257.41 MTS Quantity / Cantidad: 217 Pcs/lpz 31808 LB 14337 KG

Ends / Extremos: BEVELLED AT 30 DEG. ASTM Surface / Superficie: INT BARE / EXT VARNISHED

Nonnal Weight / Peso Nominal: 11.29 KG/M

Table with 4 columns: Pressure / Presión, Time / Tiempo, Residue / Resaca, Satisfactory / Satisfactorio

CONDICION / CONDICION: Para residual magnetism / Magnetismo remanente de tubo End protectors / Protector de extremo: NON LIFTABLE CLOSED PLASTIC PROTECTOR FOR FLAT / BEVELLED PIPE SUPPLIER METALCENTRO.

MANUFACTURED BY TENARIS SIDERCA* ACIERAGE PROCESS* STEEL MAKING PROCESS: E.A.F.A.F. AND CONTINUOUS CASTING - FULL ALUMINUM KILLED AND FINE GRAIN PRACTICE

This certificate is issued by a computerized system and it is valid with automatic signature. On the original certificate the trade mark green colored Tenaris is stamped. In case the owner of the original certificate would release a copy of it, he must attach its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

FOR03177



(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

INSPECTION CERTIFICATE

Number / Número: **620174**
 Page / Página: **5 / 6**
 Date / Día: September 21, 2011

Siderca S.A.I.C.
 Dr. Jorge A. Simóni 250
 (B2904)C.A. Campana
 Buenos Aires, Argentina
 (54) 3488 433100 tel

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) INC**
 Manufacturing Process / Proceso de Manufactura: **BEAMLESS HOT ROLLED**
 Product Type / Tipo de Producto: **CARBON STEEL PIPE-HIGH TEMPERATURE SERV.**
 Customer's Order Item / Orden Cliente - Item: **45001412-00913**
 Customer's Reference / Ref. del Cliente: **N/A**
 Manufacturer's Works Order N° / Confirmación de Venta: **5182512**

| | | |
|---|--|--|
| Standard or Specification / Normas o Especificaciones: ASTM/A516+CSA Z245.1-07 CAT. I SSPSP003731+NAACE MR0175103+IPRO LP-008 | Steel Grade / Grado de acero: B/280 CAT 1 SS | Ends / Extremos: BEVELLED AT 30 DEG. ASTM |
| Dimensions / Dimensiones: 3 1/2 X 0.216 INCH 88.90 X 5.49 MM | Schedule / Cédula: 040 | Surface / Superficie: INT BARE /EXT VARNISHED |
| Length / Longitud: SRL (SP) | Quantity / Cantidad: 217 Pcs/pcs | Weight / Peso Nominal: 7.58 LB/FT 11.29 KG/M |
| | Weight / Peso Real: 4105.68 FT 1251.41 MTS | |

SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA

Supplementary Information / Información Suplementaria

CONTROLS
 VISUAL AND DIMENSIONAL INSPECTION : SATISFACTORY.
 MATERIAL CONDITIONS:
 NOT REPAIRED BY WELDING.
 STANDARDS*
 -EDITION OF REGULATION: ASTM A 108/A 108M-2010
 -EDITION OF REGULATION: ASME SA 106/ 2010
 -EDITION OF REGULATION: NACE MR-01-03 EDITION 2010
 -EDITION OF REGULATION: NACE MR 01-75 - ISO 15156-2 : 2009
 -EDITION OF REGULATION : CSA Z245 : 2007

Additional Information / Información Adicional

CONTROLS
 CONTROL VISUAL Y DIMENSIONAL: SATISFACTORIO.
 CONDICIONES DEL MATERIAL:
 NO REPARADO POR SOLDADURA.
 NORMAS*
 -EDICION DE LA NORMA: ASTM A 108/A 108M-2010
 -EDICION DE LA NORMA: ASME SA 106/ 2010
 -EDICION DE LA NORMA: NACE MR-01-03 EDICION 2010
 -EDICION DE LA NORMA: NACE MR 01-75 - ISO 15156-2 : 2009
 EDICION DE LA NORMA : CSAZ245: 2007

HEAT TREATMENT: AS ROLLED.
 NON DESTRUCTIVE TEST: SATISFACTORY.
 INSPECTION METHODS: E.M.I, LONG/TRANSV. (EXT./INT.), NOTCH 10 % + M.P.L, LONG/TRANSV. (EXT./INT.)

Additional Information / Información Adicional

ENDS + WARPION BEVELS.
 ONE BLUE BAND ON EACH END.

Marking / Marcación
 MENCION

Marking / Marcación
 MENCION

Marking / Marcación
 MENCION

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Este certificado es emitido mediante sistema automatizado y es válido con firma electrónica. El certificado original posee Impreso el logo Tenaris color verde. En caso de que el poseedor del certificado entregue una copia, deberá garantizar la conformidad con el original añadiendo sobre sí mismo la responsabilidad por cualquier uso ilegal o no autorizado. Cualquier alteración y/o falsificación estará sujeta a la ley.

FOR03171



Tenaris

(BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991)

INSPECTION CERTIFICATE

| | |
|------------------|---------|
| Number / Número: | 6201774 |
| Page / Página: | 6 / 6 |

Siderca S.A.I.C.
 Dr. Jorge A. Birnhi 250
 (B2804)HHA) Campana
 Buenos Aires, Argentina
 (+54) 3489 433-100 1el

| | | | |
|--|--|--|--|
| Customer / Cliente: VAN LEUWEN PIPE & TUBE (CANADA) IN | Customer's Order Item / Orden Cliente - Item: 45001412-00913 | Customer's Reference / Ref. del Cliente: N/A | Manufacturer's Works Order N° / Certificado de Venta: 9182gr12 |
|--|--|--|--|

| | | | |
|---|---|---|---|
| Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED | Product Type / Tipo de Producto: CARBON STEEL PIPE-HIGH TEMPERATURE SERV. | Surface / Superficie: INT BARE /EXT VARNISHED | Ends / Extremos: BEVELLED AT 30 DEG. A97M |
|---|---|---|---|

| | | |
|--|--|---|
| Standard or Specification / Normas o Especificaciones: ASTMASME A5A108+CSA Z245.1-07 CAT.1 89SP00373/+NACE MR01750+3+IPRO LP-006 | Steel Grade / Grado de acero: B1290 CAT 1 SS | Ends / Extremos: BEVELLED AT 30 DEG. A97M |
|--|--|---|

| | | | | | |
|--|-------------------------|-----------------------------|--|-------------------------------------|---|
| Dimensions / Dimensiones: 3" 1/2 X 0.216 INCH 88.90 X 5.49 MM | Schedule / Cédula: 4040 | Length / Longitud: SRL (9P) | Quantity / Cantidad: 217 Pcs/pz 4105.68 FT 1281.41 MTS | Weight / Peso: 31608 LB 14337 KG | Nominal Weight / Peso Nominal: 7.58 LB/FT 11.29 KG/M |
|--|-------------------------|-----------------------------|--|-------------------------------------|---|

MARKING / MARCACION

| | |
|---|---|
| Marking / Marcación: - @ = Monograma / Monogram AJP - MM.YY = Mes / Año Month / Year | Marking / Marcación: - V/T = Año / Trimestre Year / Quarter - HINXXXXX = Colada / Heat |
|---|---|

| | |
|---|---|
| Stamelling (Pipe) / Estampado (Tubo): TENARIS SIDERCA S.A. I.C. ARGENTINA | Stamelling (Pipe) / Estampado (Tubo): N/A |
|---|---|

This is to certify that the product described here has been manufactured, sampled, tested, and inspected in accordance with purchaser order requirements. This certificate is not a declaration of origin nor may it be used as a declaration of origin.

Por el presente certificamos que el material aquí descrito ha sido fabricado, muestreado, ensayado e inspeccionado de acuerdo a los requisitos de su orden de compra. Este certificado no es, ni puede ser usado, como una declaración de origen.

| | | |
|--------------------------------------|---|--|
| CUSTOMER / THIRD PARTY | INSPECTION COMPANY COMPAÑIA DE INSPECCION | TENARIS QUALITY DEPARTMENT SIGNATURE |
| | Company Name: N/A Employee Name: N/A | |
| TENARIS QUALITY DEPARTMENT SIGNATURE | QUALITY CERTIFICATION DEPT. DEPTO. DE CERTIFICACION DE CALIDAD | CHIEF OF QUALITY CERTIFICATION DEPT. RESPONSABLE DEL DEPTO. DE CERTIFICACION DE CALIDAD |
| | PAOLINA Saldad | |

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FOR03171

4" STD. SAILOR HTH 30895



MILL TEST CERTIFICATE
CERTIFICADO DE PRUEBAS EN FABRICA

Number / Número: **00032516**
 Page / Página: **1 / 7**
 Date / Dia: **June 22, 2011**

Alpina Tube Inc.
 547 Yellama Terrace
 Seattle, WA, CN CANADA
 P.O. Box 110
 (206) 445-4130 tel
 (206) 445-4131 fax

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) INC.** Customer's Order Item / Orden Cliente - Item: **45001396 ITEM 919** Customer's References / Ref. del Cliente: **N/A** Manufacturer's Works Order N° / Continuación de Venta: **007871/01**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED** Product Type / Tipo de Producto: **LINE PIPE SEAMLESS** Surface / Superficie: **VARNISHED**

Standard or Specification / Normas o Especificaciones: **LAMINADO EN CALIENTE SIN COSTURA** CONDUCCION SIN COSTURA Steel Grade / Grado de acero: **B1290 SS** BARNIZADO

ASTM/AISI/EN/ISO/ASME/BS/SA/CSA/ZZ45

Dimensions / Dimensiones: **4.5 X 0.237 INCH** Schedule / Cédula: **040** Length / Longitud: **18.01 / 21.88 FT** Quantity / Cantidad: **308 Pcs/Pz** **71703,205 LB** **32624,000 KG**

114.3 X 6.02 MM End Use / Uso Final: **10.80 LBS/FT** **16.07 KG/M**

TENSILE TEST / ENSAYO DE TENSION

| Heat N° Cadena N° | Sample N° Muestra N° | Zone Zona | Pipe N° Tubo N° | Specimen condition Condición de la probeta | | Specimen dimensions Dimensiones de la probeta | | Test Temp. Temp. | Y.S. Min: 42 000 Max: 80 488 | U.T.S. Req. Min: 610 000 Max: 80 488 | Y.S./U.T.S. Req. Max. | Elongation / Alargamiento Lo In | Min. % | Oht. % |
|----------------------|-------------------------|--------------|--------------------|---|----|--|--------------|------------------------|------------------------------------|---|--------------------------|---------------------------------------|-----------|-----------|
| | | | | As | Sc | Type Tipo | OH | | | | | | | |
| 30885 | 21920 | E1 | 00002 | B | AM | L | 25.60 x 6.00 | 154.25 | 57 859 | 76 591 | 0.78 | 2 | 23.5 | 36.0 |
| 30886 | 21921 | E1 | 00005 | B | AM | L | 25.60 x 6.00 | 157.80 | 57 832 | 76 335 | 0.75 | 2 | 23.6 | 36.0 |
| 30887 | 21918 | E1 | 00038 | B | AM | L | 25.57 x 6.20 | 160.06 | 59 071 | 77 816 | 0.78 | 2 | 23.7 | 33.0 |
| 30887 | 21919 | E1 | 00082 | B | AM | L | 25.60 x 6.94 | 153.61 | 56 380 | 79 591 | 0.74 | 2 | 23.5 | 33.0 |
| 30888 | 21922 | E1 | 00036 | B | AM | L | 25.60 x 6.10 | 157.54 | 59 837 | 79 037 | 0.75 | 2 | 23.6 | 33.0 |
| 30898 | 21923 | E1 | 00038 | B | AM | L | 25.57 x 6.02 | 162.83 | 57 680 | 78 932 | 0.75 | 2 | 23.5 | 36.0 |

AM: As manufactured / Según proceso de fabricación Le: Location of sample / Ubicación de la muestra Req. Max: Required maximum / Máximo requerido U.T.S: Ultimate tensile strength / Resistencia

B: Body / Cuerpo Mec: Maximum / Máximo Req: Required / Requerido Y.S: Yield strength / Fluencia

E1 / E2: Ends of Sampling / Extremos de Muestra Min: Minimum / Mínimo RT: Room temperature / Temperatura ambiente

L: Longitudinal / Longitudinal Ori: Orientation / Orientación Sc: Specimen condition / Condición de la probeta

Lo: Inlet length / Longitud Inlet Ss: Strip specimen / Muestra rectangular

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APPROVED BY

 FOR03171



MILL TEST CERTIFICATE
CERTIFICADO DE PRUEBAS EN FABRICA

Number / Numero: **00032516** Page / Pagina: **2 / 7**

Algonia Tubes Inc.
647 Millies Terrace
Sault Ste. Marie, ON CANADA
P6C 1L9
(709) 946-4120 ext
(709) 946-8131 fax

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) INC.** Customer's Order Item / Orden Cliente - Item: **45001396 ITEM 919** Customer's Reference / Ref. del Cliente: **N/A** Manufacturer's Works Order No / Confirmación de Venta: **00787101**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED** Product Type / Tipo de Producto: **LINE PIPE SEAMLESS** Surface / Superficie: **VARNISHED**

Standard or Specification / Normas o Especificaciones: **ASTM/A516/CSA 108/CSA Z245** Steel Grade / Grado de acero: **B1290 SS** Ends / Extremos: **BARNIZADO**

Dimensions / Dimensiones: **4.5 X 6.237 INCH** Schedule / Códigos: **040** Length / Longitud: **18.01 / 21.98 FT** Quantity / Cantidad: **308 Pcs/Pz** **NORMAL BEVEL 30 DEG.**

114.3 X 6.02 MM Weight / Peso: **5.49 / 6.70 MTS** **1994.924 MTS** **71703.205 LB** **NORMAL BEVEL 30 DEG.**

18.07 / 21.98 FT **1994.924 MTS** **32524.000 KG** **16.07 KG/M**

CHEMICAL COMPOSITION / COMPOSICION QUIMICA

| Heat No / Colada N° | Sample No / Muestra N° | H | Composition % / Composición % | | | | | | | | | | | | | | | | | | |
|---------------------|------------------------|---|-------------------------------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|------|------|
| | | | C | Mn | Si | Cr | Mo | S | P | Ni | V | Cu | Al | Sn | As | Nb | Ti | Ga | B | N | Co.2 |
| 30895 | 00001 | H | 16 | 107 | 23 | 4 | 1 | 10 | 28 | 30 | 87 | 32 | 8 | 4 | 1 | 4 | 15 | 2 | 88 | 36 | — |
| 30895 | 21920 | P | 15 | 110 | 25 | 7 | 2 | 8 | 31 | 31 | 79 | 28 | 8 | 3 | 1 | 3 | 14 | 1 | 89 | 36.4 | — |
| 30895 | 21921 | P | 15 | 109 | 23 | 4 | 1 | 2 | 8 | 28 | 30 | 29 | 8 | 4 | 1 | 3 | 11 | 1 | 89 | 36.4 | — |
| 30897 | 00001 | H | 17 | 110 | 27 | 4 | 1 | 10 | 32 | 34 | 81 | 30 | 9 | 4 | 4 | 14 | 2 | 81 | 37.6 | — | |
| 30897 | 21918 | P | 15 | 114 | 26 | 4 | 1 | 2 | 8 | 27 | 34 | 49 | 29 | 7 | 3 | 12 | 1 | 60 | 36.1 | — | |
| 30897 | 21919 | P | 16 | 113 | 27 | 4 | 1 | 1 | 7 | 31 | 34 | 80 | 28 | 9 | 4 | 11 | 2 | 66 | 37.1 | — | |
| 30898 | 00001 | H | 18 | 109 | 24 | 4 | 1 | 1 | 11 | 24 | 43 | 32 | 6 | 3 | 1 | 3 | 17 | 85 | 36.2 | — | |
| 30898 | 21922 | P | 15 | 112 | 25 | 3 | 1 | 2 | 8 | 24 | 33 | 43 | 28 | 6 | 3 | 12 | 1 | 81 | 35.5 | — | |
| 30898 | 21923 | P | 15 | 114 | 25 | 4 | 1 | 2 | 8 | 27 | 33 | 49 | 29 | 7 | 3 | 11 | 2 | 88 | 36.1 | — | |

Ca. 2: Carbon equivalent / Carbono equivalente **0.001** Marc: Meximum / Máximo **0.001**
H: Heat / Colada **21920** Mar: Minimum / Mínimo **0.001** P: Product / Producto **00001**

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FOR03171



MILL TEST CERTIFICATE
CERTIFICADO DE PRUEBAS EN FABRICA

Number / Número: **00032516**
Page / Página: **3 / 7**

Agencia Tenaris Inc.
8477 Wellbush Trail
Saskatoon, Saskatchewan, S0N 0A0 CANADA
Tel: (780) 546-8130
Fax: (780) 546-0131

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) INC.**

Customer's Order Item / Orden Cliente - Item: **45001398 ITEM 819**

Customer's Reference / Ref. del Cliente: **N/A**

Manufacturer's Works Order N° / Confirmación de Venta: **00787101**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED**

Product Type / Tipo de Producto: **LINE PIPE SEAMLESS**

Surface / Superficie: **VARNISHED**

Ends / Extremos: **BARNIZADO**

Laminado en caliente sin costura

CONDUCCION SIN COSTURA

Normal Bevel 30 Deg.

Normal Bevel 30 Deg.

Standard or Specification / Normas o Especificaciones: **ASTM/A536/CSA 106/CSA Z245**

Steel Grade / Grado de acero: **B1290 SS**

Quantity / Cantidad: **308 Pes/Bz**

Normal Bevel 30 Deg.

Dimensions / Dimensiones: **4.5 X 0.237 INCH**

Schedule / Cálcula: **040**

Length / Longitud: **18.01 / 21.98 FT**

Quantity / Cantidad: **6545.026 FT**

Weight / Peso Nominal: **1994.924 MTS**

Nominal Weight / Peso Nominal: **16.07 KGM**

4.5 X 0.237 INCH

040

18.01 / 21.98 FT

6545.026 FT

1994.924 MTS

16.07 KGM

SUPERFICIAL HARDNESS / DUREZA SUPERFICIAL

| Heat N° | Sample N° | Zone | External / Exterior | Scale / Escala: HBW | Req. Min. - Req. Max: 237 |
|---------|-----------|------|---------------------|---------------------|---------------------------|
| 30885 | 21920 | E1 | B | 143 | |
| 30885 | 21921 | E1 | B | 143 | |

| Heat N° | Sample N° | Zone | External / Exterior | Scale / Escala: HBW | Req. Min. - Req. Max: 237 |
|---------|-----------|------|---------------------|---------------------|---------------------------|
| 30887 | 21918 | E1 | B | 148 | |
| 30887 | 21919 | E1 | B | 137 | |

| Heat N° | Sample N° | Zone | External / Exterior | Scale / Escala: HBW | Req. Min. - Req. Max: 237 |
|---------|-----------|------|---------------------|---------------------|---------------------------|
| 30898 | 21922 | E1 | B | 137 | |
| 30898 | 21923 | E1 | B | 137 | |

B: Body / Cuerpo

E1 / E2: Ends of Sampling / Extremos de Muestra

Loc. Location of sample / Ubicación de la muestra

THROUGH WALL HARDNESS / DUREZA EN EL ESPESOR

| Heat N° | Sample N° | Zone | Individuals / Individuales | | Average / Promedio | | Hardness type HRC | | | | | | | |
|---------|-----------|------|----------------------------|-----------|--------------------|--------|-------------------|--------|------|------|-----|------|------|--|
| | | | Min. - | Max. 22.0 | Var. - | Min. - | Max. - | Var. - | 1 | 2 | 3 | Avg. | Var. | |
| 30885 | 21920 | E1 | 00002 | B | AM | 1 | 81.9 | 81.7 | 81.5 | 81.7 | 0.0 | | | |
| 30885 | 21921 | E1 | 00005 | B | AM | 1 | 82.7 | 82.0 | 81.0 | 81.9 | 0.0 | | | |
| 30887 | 21918 | E1 | 00038 | B | AM | 1 | 83.2 | 83.5 | 82.9 | 83.2 | 0.0 | | | |
| 30887 | 21919 | E1 | 00082 | B | AM | 1 | 82.6 | 81.2 | 81.0 | 81.6 | 0.0 | | | |
| 30898 | 21922 | E1 | 00035 | B | AM | 1 | 83.2 | 83.4 | 82.7 | 83.1 | 0.0 | | | |
| 30898 | 21923 | E1 | 00038 | B | AM | 1 | 83.1 | 80.3 | 80.4 | 81.3 | 0.0 | | | |

Amt. As manufactured / Según proceso de fabricación

E1 / E2: Ends of Sampling / Extremos de Muestra

Loc. Location of sample / Ubicación de la muestra

Avg. Average / Promedio

Min. Minimum / Mínimo

MW: Middle wall / Centro

Spec. Specimen condition / Condición de la probeta

B: Body / Cuerpo

Max. Maximum / Máximo

Quat. Quadrant / Cuadrante

Var. Variación / Variación

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MILL TEST CERTIFICATE
CERTIFICADO DE PRUEBAS EN FABRICA

Number / Número: **00032516** Page / Página: **4 / 7**
Date / Día: **June 22, 2014**

Algonia Tubes Inc.
547 Valrose Terrace
Sault Ste. Marie, ON CANADA
P6C 1L9
(705) 948-8130 tel
(705) 948-8131 fax

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) INC.** Customer's Order Item / Orden Cliente - Item: **45001386 ITEM 919** Customer's Reference / Ref. del Cliente: **N/A** Manufacturer's Works Order N° / Continuación de Venta: **007871/01**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED** Product Type / Tipo de Producto: **LINE PIPE SEAMLESS** Surface / Superficie: **VARNISHED**

Standard or Specification / Norma o Especificación: **ASTM/A53/C53A, 108/C53A 2245** CONDUCCION SIN COSTURA Steel Grade / Grado de acero: **B1290 95** BARNIZADO

Dimensions / Dimensiones: **4.5 X 0.237 INCH** Schedule / Cedula: **040** Length / Longitud: **18.07 / 21.98 FT** Quantity / Cantidad: **308 Pcs/Pz** **71703.205 LB** **32524.000 KG** Ends / Extremos: **NORMAL BEVEL 30 DEG.**

114.3 X 6.02 MM Nominal Weight / Peso Nominal: **10.80 LB/FT** **16.07 KG/M**

FLATTENING TEST / ENSAYO DE APLASTAMIENTO

| Standard / Norma: | | | |
|----------------------|------------------------|-------------------|-------------|
| Heat N° / Coleada N° | Sample N° / Muestra N° | Pipe N° / Tubo N° | Zone / Zona |
| 30893 | 21920 | 00002 | E1 |
| 30895 | 21921 | 00005 | E1 |

| Standard / Norma: | | | |
|----------------------|------------------------|-------------------|-------------|
| Heat N° / Coleada N° | Sample N° / Muestra N° | Pipe N° / Tubo N° | Zone / Zona |
| 30897 | 21918 | 00038 | E1 |
| 30897 | 21919 | 00032 | E1 |

| Standard / Norma: | | | |
|----------------------|------------------------|-------------------|-------------|
| Heat N° / Coleada N° | Sample N° / Muestra N° | Pipe N° / Tubo N° | Zone / Zona |
| 30898 | 21922 | 00035 | E1 |
| 30898 | 21923 | 00036 | E1 |

E1 / E2: Ends of Sampling / Extremos de Muestra

HYDROSTATIC TEST / PRUEBA HIDRAULICA

| Pressure / Presión | | Time / Tiempo | |
|--------------------|---------------|--------------------|------------------------------|
| Unit / Unidad | Value / Valor | Seconds / Segundos | Results / Resultados |
| psi | 2,655 | 5 | Satisfactory / Satisfactorio |

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MILL TEST CERTIFICATE
CERTIFICADO DE PRUEBAS EN FABRICA

Number / Número: **00032516** Page / Página: **5 / 7**
 Date / Día: **June 24, 2011**

Algonia Tubes Inc.
 647 Valencia Terrace
 Suite 510, Markham, ON CANADA
 P3C 1L8
 (705) 946-4130 tel
 (705) 946-4131 fax

| | | | |
|---|--|---|---|
| Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) INC. | Customer's Order Item / Orden Cliente - Item: 45001596 ITEM 919 | Customer's Reference / Ref. del Cliente: N/A | Manufacturer's Works Order N° / Confirmación de Venta: 007871/01 |
| Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED | Product Type / Tipo de Producto: LINE PIPE SEAMLESS | | Surface / Superficie: BARNISHED |
| LAMINADO EN CALIENTE SIN COSTURA | CONDUCCION SIN COSTURA | | BARNIZADO |
| Standard or Specification / Norma o Especificaciones: ASTM/A536/CSA 108/CSA Z245 | | | Ends / Extremos: NORMAL BEVEL 30 DEG. |
| Dimensions / Dimensiones: | Schedule / Cálculo: | Length / Longitud: | Quantity / Cantidad: 308 Pcs/Rz |
| 4.5 X 0.237 INCH | 040 | 18.01 / 21.98 FT | 71703.205 LB |
| 114.3 X 6.02 MM | | 5.48 / 6.70 MTS | 1994.824 KGS |
| | | | Weight / Peso Nominal: NORMAL BEVEL 30 DEG. |
| | | | 10.80 LB/FT |
| | | | 16.07 KGM |

HEAT TREATMENT / TRATAMIENTO TERMICO

| | |
|---|-----------------------|
| Heat treatment / Tratamiento térmico: Pipe / Tubo | Type: annealed |
| Quench media or heat treatment process / Medio de enfriamiento del tratamiento térmico: na | |
| Temperature Scale / Escala de Temperatura: celcius | |

SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA

| | |
|---|--|
| <p>Manufactured by ALGONIA TUBES</p> <p>Seal making process: Elastic Arc Furnace-Continuous Casting Machine.</p> <p>Fully Killed Steel</p> <p>Material free from Mercury contamination</p> <p>Not repaired by welding</p> <p>Non destructive test: Satisfactory</p> <p>Inspection method EMI - WALL - FLV - MPI -</p> <p>Inspection Description EMI NOTCH 5% OD L&T - 10% ID L&T</p> <p>MATERIAL MEETS REQUIREMENTS OF NACE MR103-2010, NRC0175-2009, CAT 1SS, EN 10204 2.1 2.2 3.1 Oct/2004.</p> | <p>Supplementary Information / Información Suplementaria</p> <p>Fabricado por ALGONIA TUBES</p> <p>Fabricación del acero: Horno de Arco Eléctrico-Horno de Afundición-Máquina de Colada Continua.</p> <p>Acero oxigenado con aluminio</p> <p>Material libre de contaminación de Mercurio</p> <p>No reparado por soldadura</p> <p>Control no destructivo: Satisfactorio</p> <p>Método de inspección EMI - WALL - FLV - MPI -</p> <p>Descripción de inspección EMI NOTCH 5% OD L&T - 10% ID L&T</p> <p>MATERIAL MEETS REQUIREMENTS OF NACE MR103-2010, NRC0175-2009, CAT 1SS, EN 10204 2.1 2.2 3.1 Oct/2004.</p> |
|---|--|

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Este certificado es emitido por un sistema automatizado y es válido con firma electrónica. El certificado original posee impreso el logo "Tenaris" en color verde. En caso de que el poseedor del certificado entregara una copia, deberá garantizar la conformidad con el original, haciéndose responsable por cualquier uso no permitido o indebido. Cualquier alteración o uso no autorizado será sujeta a la ley.



MILL TEST CERTIFICATE
CERTIFICADO DE PRUEBAS EN FABRICA

Agema Tubos Inc.
 647 Wallace Terrace
 Sault Ste. Marie, ON CANADA
 P5C 1L8
 (709) 946-9130 tel
 (709) 946-8131 fax

Number / Numero: **00032516**
 Page / Pagina: **6 / 7**
 Date / Dia: **June 22, 2011**

| | | | |
|--|--|---|--|
| Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) INC. | Customer's Order Item / Orden Cliente - Item: 45001386 ITEM 919 | Customer's Reference / Ref. del Cliente: N/A | Manufacturer's Works Order N° / Confirmación de Venta: 00787101 |
| Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED | Product Type / Tipo de Producto: LINE PIPE SEAMLESS | | Surface / Superficie: VARNISHED |
| LAMINADO EN CALIENTE SIN COSTURA | CONDUCCION SIN COSTURA | | BARNIZADO |
| Standard or Specification / Normas o Especificaciones: ASTM/A516/CSA.108/CSA.2245 | | Steel Grade / Grado de acero: B1290 SS | Ends / Extremos: NORMAL BEVEL, 30 DEG. |
| Dimensions / Dimensiones: 4.5 X 0.237 INCH | Schedule / Cédula: 040 | Quantity / Cantidad: 308 Pcs/Pz | NORMAL BEVEL, 30 DEG. |
| 114.3 X 6.02 MM | Length / Longitud: 18.01 / 21.98 FT | 6545.026 FT | Nominal Weight / Peso Nominal: 10.80 LBS/FT |
| | 5.49 / 6.70 MTS | 1894.924 MTS | 16.07 KG/M |

SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA

| | |
|--|--|
| Supplementary Information / Información Suplementaria | |
| CSA 2245.1 April/2007 ASTM A106 B12910 ASME SA 108 B2070 | CSA 2245.1 April/2007 ASTM A106 B12910 ASME SA 108 B2070 |
| CARRIER - CN138620 | CARRIER - CN138620 |
| ALGOMA Ref: 042314 | ALGOMA Ref: 042314 |

MARKING / MARCACION

| | |
|---|--|
| MARKING / MARCACION | MARKING / MARCACION |
| PIPE STENCIL: TENARIS AT #FE3 ASTM A106 ASME SA106 CSA 2245.1-07 GR B1290CAT 1 SS 114.3 6.02 S 18.3 INDE HEAT | MASCARILLA DE TUBO ESTARCIDO: TENARIS AT #FE3 ASTM A106 ASME SA106 CSA 2245.1-07 GR B1290CAT 1 SS 114.3 6.02 S 18.3 INDE HEAT |
| WHERE: #M# #N# #K# #R# #S# #T# #U# #V# #W# #X# #Y# #Z# #AA# #AB# #AC# #AD# #AE# #AF# #AG# #AH# #AI# #AJ# #AK# #AL# #AM# #AN# #AO# #AP# #AQ# #AR# #AS# #AT# #AU# #AV# #AW# #AX# #AY# #AZ# #BA# #BB# #BC# #BD# #BE# #BF# #BG# #BH# #BI# #BJ# #BK# #BL# #BM# #BN# #BO# #BP# #BQ# #BR# #BS# #BT# #BU# #BV# #BW# #BX# #BY# #BZ# #CA# #CB# #CC# #CD# #CE# #CF# #CG# #CH# #CI# #CJ# #CK# #CL# #CM# #CN# #CO# #CP# #CQ# #CR# #CS# #CT# #CU# #CV# #CW# #CX# #CY# #CZ# #DA# #DB# #DC# #DD# #DE# #DF# #DG# #DH# #DI# #DJ# #DK# #DL# #DM# #DN# #DO# #DP# #DQ# #DR# #DS# #DT# #DU# #DV# #DW# #DX# #DY# #DZ# #EA# #EB# #EC# #ED# #EE# #EF# #EG# #EH# #EI# #EJ# #EK# #EL# #EM# #EN# #EO# #EP# #EQ# #ER# #ES# #ET# #EU# #EV# #EW# #EX# #EY# #EZ# #FA# #FB# #FC# #FD# #FE# #FF# #FG# #FH# #FI# #FJ# #FK# #FL# #FM# #FN# #FO# #FP# #FQ# #FR# #FS# #FT# #FU# #FV# #FW# #FX# #FY# #FZ# #GA# #GB# #GC# #GD# #GE# #GF# #GG# #GH# #GI# #GJ# #GK# #GL# #GM# #GN# #GO# #GP# #GQ# #GR# #GS# #GT# #GU# #GV# #GW# #GX# #GY# #GZ# #HA# #HB# #HC# #HD# #HE# #HF# #HG# #HH# #HI# #HJ# #HK# #HL# #HM# #HN# #HO# #HP# #HQ# #HR# #HS# #HT# #HU# #HV# #HW# #HX# #HY# #HZ# #IA# #IB# #IC# #ID# #IE# #IF# #IG# #IH# #II# #IJ# #IK# #IL# #IM# #IN# #IO# #IP# #IQ# #IR# #IS# #IT# #IU# #IV# #IW# #IX# #IY# #IZ# #JA# #JB# #JC# #JD# #JE# #JF# #JG# #JH# #JI# #JJ# #JK# #JL# #JM# #JN# #JO# #JP# #JQ# #JR# #JS# #JT# #JU# #JV# #JW# #JX# #JY# #JZ# #KA# #KB# #KC# #KD# #KE# #KF# #KG# #KH# #KI# #KJ# #KK# #KL# #KM# #KN# #KO# #KP# #KQ# #KR# #KS# #KT# #KU# #KV# #KW# #KX# #KY# #KZ# #LA# #LB# #LC# #LD# #LE# #LF# #LG# #LH# #LI# #LJ# #LK# #LL# #LM# #LN# #LO# #LP# #LQ# #LR# #LS# #LT# #LU# #LV# #LW# #LX# #LY# #LZ# #MA# #MB# #MC# #MD# #ME# #MF# #MG# #MH# #MI# #MJ# #MK# #ML# #MM# #MN# #MO# #MP# #MQ# #MR# #MS# #MT# #MU# #MV# #MW# #MX# #MY# #MZ# #NA# #NB# #NC# #ND# #NE# #NF# #NG# #NH# #NI# #NJ# #NK# #NL# #NM# #NN# #NO# #NP# #NQ# #NR# #NS# #NT# #NU# #NV# #NW# #NX# #NY# #NZ# #OA# #OB# #OC# #OD# #OE# #OF# #OG# #OH# #OI# #OJ# #OK# #OL# #OM# #ON# #OO# #OP# #OQ# #OR# #OS# #OT# #OU# #OV# #OW# #OX# #OY# #OZ# #PA# #PB# #PC# #PD# #PE# #PF# #PG# #PH# #PI# #PJ# #PK# #PL# #PM# #PN# #PO# #PP# #PQ# #PR# #PS# #PT# #PU# #PV# #PW# #PX# #PY# #PZ# #QA# #QB# #QC# #QD# #QE# #QF# #QG# #QH# #QI# #QJ# #QK# #QL# #QM# #QN# #QO# #QP# #QQ# #QR# #QS# #QT# #QU# #QV# #QW# #QX# #QY# #QZ# #RA# #RB# #RC# #RD# #RE# #RF# #RG# #RH# #RI# #RJ# #RK# #RL# #RM# #RN# #RO# #RP# #RQ# #RR# #RS# #RT# #RU# #RV# #RW# #RX# #RY# #RZ# #SA# #SB# #SC# #SD# #SE# #SF# #SG# #SH# #SI# #SJ# #SK# #SL# #SM# #SN# #SO# #SP# #SQ# #SR# #SS# #ST# #SU# #SV# #SW# #SX# #SY# #SZ# #TA# #TB# #TC# #TD# #TE# #TF# #TG# #TH# #TI# #TJ# #TK# #TL# #TM# #TN# #TO# #TP# #TQ# #TR# #TS# #TT# #TU# #TV# #TW# #TX# #TY# #TZ# #UA# #UB# #UC# #UD# #UE# #UF# #UG# #UH# #UI# #UJ# #UK# #UL# #UM# #UN# #UO# #UP# #UQ# #UR# #US# #UT# #UU# #UV# #UW# #UX# #UY# #UZ# #VA# #VB# #VC# #VD# #VE# #VF# #VG# #VH# #VI# #VJ# #VK# #VL# #VM# #VN# #VO# #VP# #VQ# #VR# #VS# #VT# #VU# #VV# #VW# #VX# #VY# #VZ# #WA# #WB# #WC# #WD# #WE# #WF# #WG# #WH# #WI# #WJ# #WK# #WL# #WM# #WN# #WO# #WP# #WQ# #WR# #WS# #WT# #WU# #WV# #WW# #WX# #WY# #WZ# #XA# #XB# #XC# #XD# #XE# #XF# #XG# #XH# #XI# #XJ# #XK# #XL# #XM# #XN# #XO# #XP# #XQ# #XR# #XS# #XT# #XU# #XV# #XW# #XX# #XY# #XZ# #YA# #YB# #YC# #YD# #YE# #YF# #YG# #YH# #YI# #YJ# #YK# #YL# #YM# #YN# #YO# #YP# #YQ# #YR# #YS# #YT# #YU# #YV# #YW# #YX# #YY# #YZ# #ZA# #ZB# #ZC# #ZD# #ZE# #ZF# #ZG# #ZH# #ZI# #ZJ# #ZK# #ZL# #ZM# #ZN# #ZO# #ZP# #ZQ# #ZR# #ZS# #ZT# #ZU# #ZV# #ZW# #ZX# #ZY# #ZZ | |

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FOR03171



MILL TEST CERTIFICATE
CERTIFICADO DE PRUEBAS EN FABRICA

Number / Número: **00032516**
 Page / Página: **7 / 7**

Algrima Tubos Inc.
 547 ViaJagua Tenaris
 Suite 515, Marie, ON CANADA
 P.O. Box
 (709) 942-8130 tel
 (709) 942-8131 fax

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) INC.** Customer's Order Item / Orden Cliente - Item: **49001398 ITEM 919** Customer's Reference / Ref. del Cliente: **N/A** Manufacturer's Works Order N° / Confirmación de Venta: **007871/01**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED** Product Type / Tipo de Producto: **LINE PIPE SEAMLESS** Surface / Superficie: **VARNISHED**

Standard or Specification / Normas o Especificaciones: **ASTM A53 B 100** Condition / Condición: **CONDICION SIN COSTURA** Steel Grade / Grado de acero: **B1290 SS** Ends / Extremos: **NORMAL BEVEL 30 DEG.**

Dimensions / Dimensiones: **4.5 X 0.237 INCH** Schedule / Códigos: **040** Length / Longitud: **18.01 / 21.98 FT** Quantity / Cantidad: **388** Weight / Peso: **71703.205 LB**

114.3 X 6.02 MM Length / Longitud: **5.49 / 6.70 MTS** Weight / Peso: **1984.924 MTS** Normal Weight / Peso Nominal: **10.80 LB/FT**

16.07 KG/M

SUMMARY REPORT / REPORTE RESUMEN

| Heat N° / Colada N° | Quantity / Cantidad (Pieces) | Length / Longitud (m) | Weight / Peso (Tons) |
|---------------------|------------------------------|-----------------------|----------------------|
| 30898 | 137 | 2,824.73 | 891.459 |
| 30897 | 97 | 2,051.5 | 625.288 |

| Average length per pipe / Longitud promedio por tubo (ft) | Nominal weight per pipe / Peso nominal por tubo (kg/m) |
|---|--|
| 21.25 | 16.303 |

This is to certify that the product described here has been manufactured, sampled, tested, and inspected in accordance with purchaser order requirements. This certificate is not a declaration of origin nor may it be used as a declaration of origin.

CUSTOMER, THIRD PARTY TENARIS QUALITY DEPARTMENT SIGNATURE

INSPECTION COMPANY: **COMPANIA DE INSPECCION**
 NOT APPLY
 Employee Name: **N/A**

QUALITY CERTIFICATION DEPT.
GARINISS Dept.

CHIEF OF QUALITY CERTIFICATION DEPT.
PEI DUDGRO

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(A04)

CFM

Heat # 69843, Heat # 28879
Heat # 69849
4 XH A106



V & M FRANCE
Tuberie de St Seulve

rue du Galibot ZI n°4 - BP 2
59880 Saint-Saulve FRANCE

tel.: 03.27.23.13.01
 fax: 03.27.23.15.63

MATERIAL TEST REPORT

INSPECTION CERTIFICATE EN 10204 3.1.B

ISO 9001

(A03) Ref: 26-04-356089 1/3
(A08) N° V&M: LA0929/13
856/3394 5

(A06) Purchaser : CCTF CORPORATION

(A07) Order n° : VM1292 / 4871442-00

(B01) SEAMLESS STEEL PIPE HOT FINISHED (KILLED STEEL)

(B04) HOT FINISHED NORMALIZED CONDITION 920°C (1668 F) min/air

ENDS BEVELLED 30° ANTI-RUST COATING DRY VARNISH

(B02) Specification : API 5L (03.2004) + ASTM A 106 (10/03/99) + ASME SA 106 (01/07/01) + GRADE B + CSA Z245-1 (01/03/98) + GRADE 290 CAT1 + NACE MR0175 (01/04/02) + CECS-3 Rev.D + ASTM A 530 (02) + ASME SA 530

(B06-B07)

Stencil marking: V & M FRANCE 5L 0061 API DATE OF MARKING A/SA106 Z245-1 4 1/2 14.98 B + 290 CAT 1 PSL 1 S 3000 PSI HT HEAT NUMBER SCH 80 4 1/2 X 0.337 VM1292 / 4871442-00

QUANTITY PER ITEM

| Y/R | O/R | (B11-B12) Size | (B13) single length | (B10) Quantity | length ft | (B14) Weight lb | (B09) SKU No | (B08) Heat |
|-----|-----|---------------------------------------|------------------------|-------------------|--------------|-----------------------|-----------------|---------------|
| 13 | | NPS 4 Schedule 80 114.30 X 8.56 MM | 06096MM 240.01in | 677 | 13664.67 | 204454 | SKU No 2520427 | |
| | | | | 5 | 100.89 | 1505 | | 28879 |
| | | | | 238 | 4804.82 | 71850 | | 69843 |
| | | | | 434 | 8758.96 | 131098 | | 69849 |

(C71-C92)

TABLE ANALYSIS

CE = C + F (MN/6 + SI/24 + CU/15 + NI/20 + (CR + MO + V + NB) / 5 + 5 B) < 0.40% : HEAT 28879 = 0.35% + HEAT 69843 = 0.35% + HEAT 69849 = 0.34%

| 022: MIN/C | (B08) Process | Heat | C | SI | Mn | P | S | Cr | Mo | NI | Cu | TI | Nb | V | B | 022 |
|------------|------------------|-------|------|------|------|-------|-------|-------|------|------|------|------|------|------|-------|-------|
| MIN. | Heat | | 0.30 | 0.10 | 0.29 | 1.06 | 0.030 | 0.035 | 0.40 | 0.15 | 0.40 | 0.40 | 0.11 | 0.11 | 0.08 | 0.001 |
| MAX. | | | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| E | | 28879 | 0.16 | 0.19 | 0.80 | 0.015 | 0.004 | 0.17 | 0.04 | 0.10 | 0.23 | 0.02 | 0.00 | 0.00 | 0.000 | 5 |
| L | | 69843 | 0.17 | 0.20 | 1.02 | 0.013 | 0.004 | 0.07 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.000 | 6 |
| L | | 69849 | 0.16 | 0.21 | 1.06 | 0.014 | 0.005 | 0.06 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.000 | 7 |



(A01) VALLOUREC & MANNESMANN TUBES
 Y & M FRANCE
 Tuberie de St Saulve
 rue du Gailhorzi n°4 - BP 2
 59880 Saint-Saulve FRANCE

tel.: 03.27.23.13.01
 fax: 03.27.23.13.63

(A02) MATERIAL TEST REPORT
 INSPECTION CERTIFICATE EN 10204 3.1.B

ISO 9001

(A03) Ref: 26-04-356089 2 / 3
 (A08) N° V&M: LA0929/13
 856/3394 5

(C71-C92) PRODUCT ANALYSIS

CE = C + F (MN/6 + SI/24 + CU/15 + NI/20 + CR+MO+V+NB)/5 + SB } < 0.40% ; Tests ICN304 = 0.35% and 2CN304 = 0.34%
 Tests ICN305 = 0.36% and 2CN305 = 0.36% + Tests ICN306 = 0.33% and 2CN306 = 0.31%

| 022: MN/C | | | | | | | | | | | | | | | |
|-----------|-------|------|------|------|-------|-------|------|------|------|------|------|------|------|------|-----|
| (C00) | (B08) | C | Si | Mn | P | S | Cr | Mo | Ni | Cu | Ti | Nb | V | B | 022 |
| Test | Heat | | | | | | | | | | | | | | |
| MIN. | | 0.30 | 0.10 | 0.29 | | | | | | | | | | | 3 |
| MAX. | | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| ICN304 | 69849 | 0.17 | 0.22 | 1.03 | 0.011 | 0.004 | 0.07 | 0.02 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 6 |
| ICN305 | 69843 | 0.18 | 0.20 | 1.00 | 0.011 | 0.004 | 0.06 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 6 |
| ICN306 | 28879 | 0.15 | 0.18 | 0.80 | 0.014 | 0.003 | 0.17 | 0.04 | 0.10 | 0.22 | 0.01 | 0.00 | 0.00 | 0.00 | 5 |
| 2CN304 | 69849 | 0.16 | 0.22 | 1.04 | 0.011 | 0.004 | 0.07 | 0.02 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 6 |
| 2CN305 | 69843 | 0.18 | 0.20 | 1.00 | 0.011 | 0.003 | 0.06 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 6 |
| 2CN306 | 28879 | 0.14 | 0.18 | 0.79 | 0.013 | 0.002 | 0.17 | 0.04 | 0.10 | 0.22 | 0.01 | 0.00 | 0.00 | 0.00 | 5 |

(C10-C02-C03) RECTANGULAR SPECIMEN LONGITUDINAL TENSILE TEST AT ROOM TEMPERATURE

| (C00) | (B08) | width | thick. | sect. | (C11) | (C12) | (C13) |
|---------|-------|-------|--------|--------|-------|-------|-----------|
| Test | Heat | | | | Y.S. | T.S. | Elong. 2" |
| MIN. | | | | | 42000 | 60000 | |
| MAX. | | | | | | | |
| 01CN304 | 69849 | 26.40 | 8.50 | 226.81 | 45555 | 72975 | 38 |
| 01CN305 | 69843 | 26.00 | 8.20 | 215.40 | 46571 | 75442 | 37 |
| 01CN306 | 28879 | 26.30 | 8.20 | 217.94 | 45265 | 71089 | 38 |

ROCKWELL C HARDNESS < OR = 22 GUARANTEED
 (D01-D99)

NON DESTRUCTIVE TESTS

| test | test rate | specification | pressure | hold time | result |
|-------------------------|-----------|---------------|----------|-----------|--------|
| | | | psi | sec | |
| APPEARANCE & DIMENSIONS | 100% LOT | | | | OK |
| EDDY CURRENT TEST | 100% LOT | CSA Z245-1 | | | OK |
| HYDROSTATIC TEST | 100% LOT | | 3000 | 5 | OK |

(A04)



V & M FRANCE
Tuberie de St Sauve

me du Galibot ZI n°4 - BP 2
59880 Saint-Sauve FRANCE

tel : 03 27 23 13 01
fax: 03 27 23 15 63

VALLOUREC & MANNESMANN TUBES

MATERIAL TEST REPORT

INSPECTION CERTIFICATE EN 10204 3.1.B

ISO 9001

(A03)Réf: 26-04-356089 3 / 3
(A08)N°V&M: LA0929/13
856/3394 5

(G50-C69)
TECHNOLOGICAL TESTS

| test | result |
|-----------------|--------|
| FLATTENING TEST | OK |

(Z01)21/12/2004

(Z02)
Original computer copy - authenticity is guaranteed by the V&M logo.
All the pipes/tubes conform to the requirements of the order and standard regarding the grade, quality and heat treatment throughout their whole length.

(A05)
The authorized expert in Quality Control Section
Mr SKORUPKA

12-052-01-b

Purchaser: CCTF CORPORATION

INSPECTION CERTIFICATE

Thai Benkan Co., Ltd.

58 Soi Watkrum, Bangrak, Prapokkeng,
Samutprakan, 10130 Thailand.



TO EN10204 3.1

E-No.

MC-778

Purchase Order No.

4891189

Job No.

D M Y Certificate No.

01/09/2012 T-2012200689

| No. | MFG. No. | Specification for Material Made from Seamless Pipe | Specification for Inspection | | Visual Examination | Dimensional Inspection |
|-----|------------|---|------------------------------|----------------------------|--------------------|------------------------|
| | | | Quantity | Heat Treatment (Note 1) | | |
| 1 | 12G10818 | T WPB 10 S40 | 1/40 | N | Good | Good |
| 2 | 12D10813 | T WPB 4 X 2 S40 | 16/60 | N | Good | Good |
| 3 | 12G10820 | T WPB 10 X 6 S40 | 9/20 | N | Good | Good |
| 4 | 55C10214-1 | T WPB 3 X 2 STDXS | 49/300 | N | Good | Good |
| 5 | | | | | | |

| Specification | Chemical Composition % | | | | | | | | | | | Tension Test #2 | | | |
|-------------------|------------------------|-------|-------|--------|--------|-------|-------|-------|-------|--------|--------|-----------------|-----|-----|----|
| | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | C.E. | YS | TS | E |
| Min. | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | | | |
| Max. | | 10 | 29 | | | | | | | | | | 240 | 415 | 30 |
| Material Heat No. | 30 | | 108 | 50 | 58 | 40 | 40 | 40 | 15 | 80 | 20 | | | | |
| 1 | 81291 | 16 | 24 | 85 | 11 | 1 | 9 | 3 | 4 | 1 | 2 | 1 | 322 | 472 | 41 |
| 2 | J1KA246 | 19 | 19 | 77 | 13 | 5 | 2 | 2 | 4 | 1 | 0 | 1 | 33 | 476 | 40 |
| 3 | 2-80323 | 19 | 25 | 84 | 13 | 3 | <1 | 1 | 3 | 1 | 1 | <1 | 34 | 501 | 43 |
| 4 | J1KA246 | 19 | 19 | 77 | 13 | 5 | 2 | 2 | 4 | 1 | 0 | 1 | 33 | 488 | 39 |
| 5 | | | | | | | | | | | | | | | |

(Note 1) A: Hot formed with final temperature between 620°C-980°C, Air Cooling N: Normalizing 910°Cx0.5 HR, Air Cooling *N: Normalizing 910°Cx0.5 HR, Air Cooling (Specification for material made from plate) S: Stress Relieving 675°Cx0.5 HR, Air Cooling

The range was manufactured, sampled, tested and inspected in accordance with the specification, and was found to meet the requirements
 C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
 MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY:
 We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned
 and also with the purchaser's requirements and that the test results shown herein are correct.

GOOD

Quality Assurance Manager
 Thai Benkan Co., Ltd.



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Pardi, 28
 Tel. +39 031.655441
 Fax +39 031.655149
 quality.mff@metalfar.com

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

| | |
|---|--------------------------|
| CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE | |
| Cartif. N. 2189 | Del/Dated 04/05/2012 |
| DOT / Dot Note N. 1751 | Del/Dated 04/05/2012 |
| Fattura / Invoice N. 1512 Del/Dated 04/05/2012 | |
| Dest.: F.F.F. 616 TRANS AM PIPING PRODUCTS LTD | |
| 9335 ENDEAVOR DRIVE S.E. | 9335 Endeavor Drive S.E. |
| T3S 0A1 CALGARY, ALBERTA | T3S 0A1 CALGARY, ALBERTA |

Page 1 - 8

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA | DESCRIZIONE | Q.TA | DESCRIZIONE | DIM./IN ACC. A | ORIGINE / ORIGIN | | | | | | | | | |
|--|----------|---------------|----------------|------------------|-------------|-----------------------|---------------|--------------------|--------------------------|-------------|-------------|--------|---------|--------------|-------------|---------|--------------------------|--|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | Q.TY | DESCRIPTION | DIM. ACCORDANCE TO | VISIVO E DIMENS. | | | | | | | | | |
| 10/33022 | 008 | 3755/TRANS AM | 729,00 | W/N 150 RF 2" XS | LF2CL1 | ASME/ANSI B16.5 -2009 | SATISFACTORY | | | | | | | | | | | |
| MATERIALE / MATERIAL | | | | | | | | | | | | | | | | | | |
| ASTM A350 LF2 CL.1/2 (LADLE) | | | 0,190 | 0,210 | 1,160 | 0,007 | 0,010 | 0,070 | 0,040 | 0,010 | 0,015 | 0,100 | 0,000 | 0,000 | 0,000 | 0,029 | 0,409 | |
| PROVETTA / TEST SPECIMEN | FORMA | SVERNAMENTO | YIELD POINT | TEMBLE | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | RESILLENZA / IMPACT TEST | SVERNAMENTO | YIELD POINT | TEMBLE | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | RESILLENZA / IMPACT TEST | |
| SEZ. mm2 | LUNG. mm | 1-O "2-D | N/mm2 | N/mm2 | N/mm2 | % | % | HBV | °C | N/mm2 | % | % | % | % | % | % | % | |
| 126,60 | 50,80 | 1 | 362,0 | 541,0 | 30,0 | 60,0 | 163,0 - 165,0 | -50 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 0,0 | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | | | | | | | | | | | |
| ASTM/A350 A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | | | | | | | | | | | |
| CSA Z245.12 GRADE 248 CAT.II | | | | | | | | | | | | | | | | | | |

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA | DESCRIZIONE | Q.TA | DESCRIZIONE | DIM./IN ACC. A | ORIGINE / ORIGIN | | | | | | | | | |
|--|----------|---------------|----------------|-------------------|-------------|-----------------------|---------------|--------------------|--------------------------|-------------|-------------|--------|---------|--------------|-------------|---------|--------------------------|--|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | Q.TY | DESCRIPTION | DIM. ACCORDANCE TO | VISIVO E DIMENS. | | | | | | | | | |
| 11/38641 | 016 | 3755/TRANS AM | 58,00 | W/N 300 RF 6" STD | LF2CL1 | ASME/ANSI B16.5 -2009 | SATISFACTORY | | | | | | | | | | | |
| MATERIALE / MATERIAL | | | | | | | | | | | | | | | | | | |
| ASTM A350 LF2 CL.1/2 (LADLE) | | | 0,195 | 0,230 | 1,120 | 0,009 | 0,009 | 0,080 | 0,050 | 0,010 | 0,018 | 0,110 | 0,002 | 0,001 | 0,000 | 0,027 | 0,411 | |
| PROVETTA / TEST SPECIMEN | FORMA | SVERNAMENTO | YIELD POINT | TEMBLE | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | RESILLENZA / IMPACT TEST | SVERNAMENTO | YIELD POINT | TEMBLE | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | RESILLENZA / IMPACT TEST | |
| SEZ. mm2 | LUNG. mm | 1-O "2-D | N/mm2 | N/mm2 | N/mm2 | % | % | HBV | °C | N/mm2 | % | % | % | % | % | % | % | |
| 126,60 | 50,80 | 1 | 341,0 | 538,0 | 30,0 | 60,0 | 163,0 - 165,0 | -50 | 69 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 0,0 | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | | | | | | | | | | | |
| ASTM/A350 A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | | | | | | | | | | | |
| CSA Z245.12 GRADE 248 CAT.II | | | | | | | | | | | | | | | | | | |

| | | | | | | | |
|--|--|----------------------------|--|----------------------------|--|-----------------------|--|
| NOTE: MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION | | UFFICIO CONTROLLO QUALITA' | | ENTE UFFICIALE DI COLLAUDO | | MARCHIO PRODUZIONE | |
| MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 15165-2009 | | QUALITY CONTROL DEPARTMENT | | INSPECTION AUTHORITY | | MANUFACTURER'S SYMBOL | |
| MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 | | <i>Luigi Corti</i> | | <i>Luigi Corti</i> | | | |

P.O. # 31178950575000
 Heat Trans. NUMB. 1111111111
 Shipping ment / 6666666666
 Item# 1
 U.C.T.s 14211
 Rev'd By: SB

Purchaser :

INSPECTION CERTIFICATE

TO EN10204-3.1



Thai Benkan Co., Ltd.
58 Soi Waiwanai, Bangkok, Prapatsang,
Samutprakarn, 10130 Thailand.

Purchase Order No. D000210

Job No.

D M Y Certificate No.
06/03/2012 T - 2012020235

| E.No. | Specification for Material Made from Seamless Pipe | | | | | | | | | | Specification for Inspection | | Visual Examination | | Dimensional Inspection | | |
|------------------------------------|---|---|-----|----------------------|----|----|----|----|----|----|------------------------------|-----------------------------|----------------------------|---------|------------------------|---------|----------------------------|
| | MC-309 | ASTM A420-10B/SAME SM420-10 WPLs CSA Z46.1-05 Gr.241 CAT II Med. Surt. Service | | | | | | | | | | ASME B16.9-2007/B16.25-2007 | | G o o d | | G o o d | |
| MFG. No. (Heat Identification No.) | Product & Size | | | | | | | | | | | | Quantity | | ITEM NO. | | |
| 11E01023 | 22.5 EL. WPL 6.4 S40 | | | | | | | | | | (1*1) | | 50/75 | | 420400B2 | | |
| Material Manufacturer | | Material Heat No | | Hardness Actual Data | | | | | | | | | | | | | |
| | | J1K2521 | | HB:125-145 | | | | | | | | | | | | | |
| Specifi- cation | Chemical Composition, % | | | | | | | | | | Tension Test | | Hardness Max 197 HB : GOOD | | | | |
| | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | Al | V | Nb | C.H. | Y.S | T.S | E | Impact Test (J) |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | MPa | | % | 10 X 5.0 X 2V AT -45 °C |
| Min. | 15 | 50 | | | | | | | | | | | | 240 | 415 | 30 | 107 |
| Max. | 30 | 40 | 135 | 35 | 40 | 40 | 40 | 30 | 12 | | | | | 585 | 585 | 108 | AVE 106 |
| | 11 | 27 | 134 | 11 | 1 | 2 | 2 | 12 | 1 | | | | | 310 | 483 | 42 | 103 |

NORMALIZING 910 C X 0.5 HR. AIR COOLING
Material according to ANSIVACE MR0175/ISO 15156-2-2009/MR0103-2010
The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

CE = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
MAGNETIC PARTICLE EXAMINATION FOR THE ONLY.
We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "r" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
Form 1Z 6C/2

Quality Assurance Manager
Thai Benkan Co., Ltd.

Friday, 28-Sep-2012

From:

482 CCTF-EDMONTON
 5407 53 AVENUE
 EDMONTON, AB
 T6B 3G2
 Phone : 7804638700
 Fax : 7804637433
 Email : helpdesk@cctf.com
 Web Site : www.cctf.com

To:

CE FRANKLIN REDCLIFF AB
 AGENT:LOCAL ADVANTAGE
 BAY 4, 125 LOCKWOOD STREET NE
 REDCLIFF, AB
 T0J 2P0
 Phone : 4035488161
 Fax : 14035482781
 Email : helpdesk@cctf.com

CCTF MTRs for order: 2007492-00

Customer No: 36200015 PO: 3063120-SP-7500

| # | Heat | Sku | Description | Branch Name | ?? -- ctrColumnID | ?? -- ctrColumnID | ?? -- ctrCol |
|---|-------|---------|--------------------------|----------------|----------------------------|----------------------|---------------------|
| 1 | 58580 | 7690113 | 2X8-10 XH WOL A350LF2 | Edmonton | CE FRANKLIN REDCLIFF AB | 2007492- 00 | 3063120-SP- 7500 |

CERTIFIED MILL TEST REPORT



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LOG NO. F00000000033455

Page 5 of 5

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 08/29/2012

CUSTOMER

BONNEY ORDER NO. B000127382

ORDER NO.: 4891747-00

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. CERTIFYING TO ASTM A350 LF2 07 REVISION.
3. THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
4. THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
5. THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
6. THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
7. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
8. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
9. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Kylee Ruiz

Kylee Ruiz
QUALITY PROCESS MANAGER

CMTR: REV2

CERTIFIED MILL TEST REPORT

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LOG NO. F0000000022956 Page 1 of 3

BONNEY FORGE CORPORATION
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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 12/20/2011

CUSTOMER ORDER NO.: 4890814-00

BONNEY ORDER NO. B000111184

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. | CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS. |
|---------|----------|---------|----------------------------|--|
| 7551657 | 1 | 224 | 58490 | 31/2-3 X 1 3000 A105N THRD T SA/A105N Al 0.027 C 0.200 Co 0.002 Cr 0.040 Cu 0.070 Mn 1.040 Mo 0.000 N 0.003 Nb 0.015 Ni 0.020 P 0.008 S 0.021 Si 0.200 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 71,875 Y/S(PSI) 48,750 EL(%) 34.30 RA(%) 64.45 Brinell 132 BHN 132 BHN |
| 7551657 | 1 | 776 | 58422 | 31/2-3 X 1 3000 A105N THRD T SA/A105N C 0.190 Cb 0.000 Co 0.004 Cr 0.050 Cu 0.120 Mn 1.070 Mo 0.010 Ni 0.040 P 0.009 S 0.020 Si 0.190 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 74,495 Y/S(PSI) 52,399 EL(%) 37.45 RA(%) 62.88 Brinell 135 BHN 135 BHN |
| 7551673 | 2 | 1,000 | 58487 | 10-6X1 3M A105N THRD T SA/A105N Al 0.026 C 0.200 Co 0.002 Cr 0.040 Cu 0.070 Mn 1.020 Mo 0.010 N 0.003 Nb 0.015 Ni 0.020 P 0.007 S 0.021 Si 0.220 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 72,500 Y/S(PSI) 50,000 EL(%) 30.85 RA(%) 61.55 Brinell 135 BHN 135 BHN |
| 7551812 | 3 | 75 | 57920 | 6-5X1 1/2 3M A105N THRD T SA/A105N Al 0.024 C 0.210 Co 0.002 Cr 0.040 Cu 0.060 Mn 1.010 Mo 0.010 Nb 0.013 Ni 0.030 P 0.009 S 0.024 Si 0.210 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 71,608 Y/S(PSI) 47,739 EL(%) 32.85 RA(%) 63.77 Brinell 132 BHN 132 BHN |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

CMTR: REV2



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkok, Prapadaeng,
Samutprakarn, 10130 Thailand.

INSPECTION CERTIFICATE

Purchaser: COTF CORPORATION

TO EN10204 3.1

E-No. MC-731 Purchase Order No. 4891018 Job No.

D M Y Certificate No. 14082012 T-2012200634

| No. | MFG. No. | Specification for Material Made from Seamless Pipe ASTM A234-11/ASME SA234-10 GR. WPB CSA Z245.11-09 Gr.241 CAT 1 SB NACE MR0175/ISO 15156-2:09/AFR0103-10 | Product & Size (T-t) | Quantity | Heat Treatment (Note 1) | Visual Examination | Dimensional Inspection | | | | | | | | | |
|------------------------|----------|---|-------------------------|----------|----------------------------|--------------------|------------------------|---|----------------------|----------|--------|--------|-------|-----|-----|----|
| | | | | | | | | Specification for Inspection ASME B16.9-2007 B16.25-2007 | Hardness Actual Data | Item No. | | | | | | |
| 1 | 12A10808 | T WPB 3 S40 | | 73/560 | N | Good | 7511779 | | | | | | | | | |
| 2 | 12E10809 | T WPB 3 S40 | | 137/560 | N | HB : 118 - 145 | 7511778 | | | | | | | | | |
| 3 | 12F10886 | T WPB 4 S40 | | 125 | N | HB : 118 - 145 | 7511817 | | | | | | | | | |
| 4 | 12D10815 | T WPB 6 S40 | | 85 | N | HB : 120 - 150 | 7511850 | | | | | | | | | |
| 5 | 12D10813 | T WPB 4 X 2 S40 | | 31/80 | N | HB : 120 - 135 | 7512791 | | | | | | | | | |
| Chemical Composition % | | | | | | | | | | | | | | | | |
| Specification | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | C.E. | YS | TS | E | |
| | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 1000 | X 100 | MPa | % | |
| Min. | | 10 | 29 | | | | | | | | | | | 240 | 415 | 30 |
| Max. | | | | | | | | | | | | | | | | |
| Material Heat No. | 30 | | 106 | 50 | 58 | 40 | 40 | 40 | 15 | 80 | 20 | | | | | |
| 1 | 971186 | 15 | 19 | 75 | 14 | 4 | 17 | 11 | 19 | 6 | 0 | 35 | 324 | 471 | 39 | |
| 2 | 20783 | 16 | 23 | 84 | 10 | 1 | 7 | 2 | 4 | 1 | 1 | 32 | 322 | 466 | 36 | |
| 3 | 21062 | 16 | 23 | 84 | 13 | 1 | 3 | 18 | 4 | 1 | 2 | 33 | 312 | 466 | 37 | |
| 4 | J1L4C76 | 18 | 19 | 84 | 11 | 6 | 3 | 2 | 5 | 2 | 0 | 34 | 322 | 486 | 42 | |
| 5 | J1KA246 | 19 | 19 | 77 | 13 | 5 | 2 | 2 | 4 | 1 | 0 | 33 | 320 | 476 | 40 | |

(Note 1) A : Hot formed with final temperature between 620°C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR. Air Cooling *N : Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plate) S : Stress-Relieving 675°Cx0.5 HR. Air Cooling

The fittings were manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Form ITZ-6A/3

Rungtapa Kamphanon

Quality Assurance Manager
Thai Benkan Co., Ltd.



Material Test Report

Heat Code: SVB

An Ameri-Forge Group Company
13770 Industrial Rd. Houston, TX 77015

ISO 9001:2008 Certified

Sales: (713) 868-4421 Fax: (713) 455-8366

| | | | |
|---|------------------------------------|------------------------|---------|
| R&M ENERGY SYSTEMS 10586 US HIGHWAY 75 N WILLIS, TX 77378 | PO: 7208751 | Sales Order: 107270 | Line: 4 |
| | Item Code: 9999H60023-0031R | Qty Shipped: 200 | |
| | Item Desc: 08.00 150-600 CAP - R&M | | |
| | Supplier: STEEL DYNAMICS | Supplier Heat: A116233 | |
| Spec: ASME SA350 (11) ASME SA350 (10) / M-01E LF2 CL1 & RMES 61-0072 rev 4 (Caps) | | | |

| Element | (%wt) | Ladle | Product | EPCRA | CAS# | Element | (%wt) | Ladle | Product | EPCRA | CAS# |
|---------|-------------|-------|---------|-------|-----------|----------|------------|-------|---------|-------|-----------|
| C | Carbon | 0.18 | | | | Cr | Chromium | 0.10 | | ✓ | 7440-47-3 |
| Mn | Manganese | 1.06 | | ✓ | 7439-96-5 | Mo | Molybdenum | 0.03 | | | |
| P | Phosphorous | 0.006 | | | | V | Vanadium | 0.038 | | | |
| S | Sulphur | 0.004 | | | | Cb | Columbium | 0.001 | | | |
| Si | Silicon | 0.21 | | | | Al | Aluminum | 0.027 | | | |
| Cu | Copper | 0.19 | | ✓ | 7440-50-8 | CuNiCrMo | | 0.39 | | | |
| Ni | Nickel | 0.07 | | ✓ | 7440-02-0 | | | | | | |

| Mechanical Testing | | | | Heat Treat | | | |
|---------------------------------|--|--------------------|--|-------------------------|--|------|------------------|
| Test Lab | | AFG | | Norm. Temp. (F) | | 1675 | |
| Test Bar Size | | Sacrificial Piece | | Norm. (Hrs) | | 4 | |
| HBW | | 146 - 146 | | Norm. Cooling Type | | Air | |
| Elg (%) | | 30 | | | | | Other |
| RA (%) | | 67 | | | | | STEEL DYNAMICS |
| Tensile Specimen Size (in) | | .250 | | MILL | | | A116233 |
| Tensile (ksi) | | 74.1 | | MHC | | | Y |
| Yield (ksi) | | 47.5 | | VD | | | 5.8:1 (RAW MTL) |
| Gauge Length | | 1 | | Gr. Sz | | | 7.3:1 (RAW MATL) |
| Charpy Temp (F) | | -50 | | Reduction Ratio (Parts) | | | |
| Charpy (ft lbs) | | 79 - 88 - 84 | | | | | |
| Avg Energy 3 Specimens (ft-lbs) | | 84 | | | | | |
| Min Energy 1 Specimens (ft-lbs) | | 79 | | | | | |
| % Shear | | 40 - 50 - 50 | | | | | |
| Lat. Exp. | | .059 - .062 - .064 | | | | | |

Product compliant with NACE MR0175, Region 3 latest edition
 Chemical Analysis results shown are actual. Forgings are capable of passing hydrostatic test compatible with the appropriate rating. Elongation taken from a round specimen. All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing. Yield strength was determined using the 0.2% offset method.
 Tensile Testing Per ASTM E8; Brinell Hardness Per ASTM E10; Charpy Testing Per ASTM E23

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 236448
 Certification Date: 4/26/2012

Nicholas Tepovich - Metallurgy Lab Manager



Material Test Report

Heat Code: SVB

An Ameri-Forge Group Company

13770 Industrial Rd. Houston, TX 77015

ISO 9001:2008 Certified

Sales: (713) 868-4421 Fax: (713) 455-8366

| | | | |
|---|------------------------------------|------------------------|------------------|
| R&M ENERGY SYSTEMS 10586 US HIGHWAY 75 N WILLIS, TX 77378 | PO: 7204869 | Sales Order: 105383 | Line: 3 |
| | Item Code: 9999H61011-0031R | | Qty Shipped: 100 |
| | Item Desc: 08.00 150-600 HUB - R&M | | |
| | Supplier: STEEL DYNAMICS | Supplier Heat: A116233 | |
| Spec: ASME SA350/M-01E LF2 CL1 & RMES 61-0072 rev 4 (Hubs) | | | |

| Element | (%wt) | Ladle | Product | EPCRA | CAS# | Element | (%wt) | Ladle | Product | EPCRA | CAS# |
|---------|-------------|-------|---------|-------|-----------|---------|------------|-------|---------|-------|-----------|
| C | Carbon | 0.18 | 0.20 | | | Cr | Chromium | 0.10 | 0.11 | ✓ | 7440-47-3 |
| Mn | Manganese | 1.06 | 1.05 | ✓ | 7439-96-5 | Mo | Molybdenum | 0.03 | 0.03 | | |
| P | Phosphorous | 0.006 | 0.008 | | | V | Vanadium | 0.038 | 0.04 | | |
| S | Sulphur | 0.004 | 0.003 | | | Cb | Columbium | 0.001 | 0.002 | | |
| Si | Silicon | 0.21 | 0.21 | | | Al | Aluminum | 0.027 | 0.025 | | |
| Cu | Copper | 0.19 | 0.17 | ✓ | 7440-50-8 | C.E. | | 0.41 | | | |
| Ni | Nickel | 0.07 | 0.07 | ✓ | 7440-02-0 | | | | | | |

| Mechanical Testing | | | | Heat Treat | | | |
|----------------------------|--------------------|--|--|-------------------------|------------------|--|--|
| Test Lab | AFG | | | Norm. Temp. (F) | 1675 | | |
| Test Bar Size | Sacrificial Piece | | | Norm. (Hrs) | 4 | | |
| HBW | 144 - 144 | | | Norm. Cooling Type | Air | | |
| Elg (%) | 34 | | | Norm. Location | AFG | | |
| RA (%) | 73 | | | Other | | | |
| Tensile Specimen Size (in) | .248 | | | MILL | STEEL DYNAMICS | | |
| Tensile (ksi) | 72.8 | | | MHC | A116233 | | |
| Yield (ksi) | 45.6 | | | VD | Y | | |
| Gauge Length | 1 | | | Gr.Sz | 5-8 (RAW MATL) | | |
| Specimen Orientation | LONGITUDINAL | | | Reduction Ratio (Parts) | 7.3:1 (RAW MATL) | | |
| LCVN Charpy Temp. (F) | -50 | | | | | | |
| LCVN (ft lbs) | 60 - 46 - 50 | | | | | | |
| LAvg 3(ft-lbs) | 52 | | | | | | |
| L Min (ft-lbs) | 46 | | | | | | |
| % Shear | 30 - 30 - 30 | | | | | | |
| Lat. Exp. | .048 - .033 - .039 | | | | | | |

The material on this report is in accordance with:
 ASME SA350/M-01E LF2 CL1, RMES 61-0072 rev 4 (Hubs) and product is compliant with NACE MR0175, Region 3 / ISO 15156, latest edition
 Chemical Analysis results shown are actual. Forgings are capable of passing hydrostatic test compatible with the appropriate rating. Elongation taken from a round specimen. All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing. Yield strength was determined using the 0.2% offset method.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 231553
 Certification Date: 2/28/2012

Nicholas Tepovich - Metallurgic Lab Manager

From:

To:

Document Summary Page

The MTR's are printed in the following order:

| # | Heat | SKU | Description | Branch Name | Customer | Invoice # | Customer PO |
|---|----------|---------|---------------------------|-------------|----------|-----------|-------------|
| 1 | 11N10817 | 7511779 | 3 STD WELD TEE WPB | Edmonton | | | |
| 2 | 55C10214 | 7510418 | 3(STD)X2(XH) WELD TEE WPB | Edmonton | | | |



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkok, Prapadaeng,
Samutprakarn, 10130 Thailand.

Purchaser : CCTE CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1

E-No. Purchase Order No. Job No.

D M Y Certificate No.

MC-778 4801189

14/08/2012 T 2012200641

| No. | MFG. No. | Specification for Material | | Specification for Inspection | | Visual Examination | Dimensional Inspection | | | | | | | | | |
|-------------------|------------|----------------------------|----------|------------------------------|----------------------|--------------------|------------------------|-----|-----|-----|------|------|------|-----|------------------|---------------|
| | | Product & Size | Quantity | Heat Treatment (Note 1) | Hardness Actual Data | | | | | | | | | | | |
| 1 | 12D10804 | T WPB 1 1/4 S40 | 83/170 | N | HB : 125 - 140 | Good | 7511698 | | | | | | | | | |
| 2 | 12F10803 | T WPB 1 1/4 S40 | 64/170 | N | HB : 125 - 140 | Good | 7511698 | | | | | | | | | |
| 3 | 11N10817 | T WPB 3 S40 | 800 | N | HB : 118 - 145 | Good | 7511779 | | | | | | | | | |
| 4 | 12E10815 | T WPB 8 X 6 S40 | 25 | N | HB : 118 - 145 | Good | 7510047 | | | | | | | | | |
| 5 | 55C10214-1 | T WPB 3 X 2 STDXS | 130/300 | N | HB : 118 - 145 | Good | 7510418 | | | | | | | | | |
| Material Heat No. | | 30 | 106 | 50 | 58 | 40 | 40 | 15 | 80 | 20 | 33 | 315 | 488 | 39 | | |
| Specification | | Chemical Composition % | | | | | | | | | | | | | Tension: Test *2 | |
| Min. | | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | C.E. | YS | TS | E |
| Max. | | X | X | X | X | X | X | X | X | X | X | X | X | | MPa. | % |
| | | 100 | 100 | 100 | 1000 | 1000 | 100 | 100 | 100 | 100 | 1000 | 1000 | 100 | | | |
| | | 10 | 29 | | | | | | | | | | | 240 | 415 | 30 |
| | | | | | | | | | | | | | | | | 197 HB : GOOD |
| 1 | JOK5087 | 19 | 26 | 86 | 14 | 6 | 1 | 2 | 6 | 8 | 0 | 0 | 36 | 359 | 517 | 50 |
| 2 | JOK5087 | 19 | 28 | 86 | 14 | 6 | 1 | 2 | 6 | 8 | 0 | 0 | 36 | 359 | 517 | 50 |
| 3 | J1L7545 | 19 | 19 | 84 | 15 | 4 | 1 | 2 | 5 | 2 | 0 | 0 | 35 | 324 | 493 | 40 |
| 4 | 86888 | 16 | 23 | 82 | 9 | 1 | 6 | 2 | 4 | 1 | 2 | 2 | 32 | 318 | 468 | 39 |
| 5 | J1KA246 | 19 | 19 | 77 | 13 | 5 | 2 | 2 | 4 | 1 | 0 | 1 | 33 | 315 | 488 | 39 |

(Note 1) A : Hot formed with final temperature between 620°C-980°C. Air Cooling N : Normalizing 910°Cx0.5 HR. Air Cooling *N : Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plate) S : Stress Relieving 675°Cx0.5 HR. Air Cooling

The forgings was manufactured sampled tested and inspected in accordance with the specification, and was found to meet the requirements
CE = C+Mn/6+(C+Mn/6+V)/5+(Ni+Cu)/15
MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned
and also with the purchaser's requirements and that the test results shown herein are correct.

GOOD

Quality Assurance Manager
Thai Benkan Co., Ltd.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
Form TZ6A/A



Purchaser : CCTF CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1

Thai Benkan Co., Ltd.
58 Soi Wakkana, Bangkok, Prapadaeng,
Samutprakan, 10130 Thailand.

E-No. MC-778 Purchase Order No. 4991159 Job No.

D M Y Certificate No. 19/06/2012 T- 2012200493

| No. | MFG. No. | Specification for Material | | | | | | | | | | Specification for Inspection | | | Visual Examination | Dimensional Inspection |
|-------------------|----------|--|-------|---------|--------|----------------|---------|-------|-------|-------|--------|------------------------------|-------------------------|----------------------|--------------------|------------------------|
| | | Product & Size | | | | | | | | | | Quantity | Heat Treatment (Note 1) | Hardness Actual Data | | |
| | | ASTM A234-11/ASME SA234-10 GR-WPB ASME B16.9-2007 B16.25-2007 | | | | | | | | | | | | | Good | Good |
| | | CSA Z245.11-09 GR-241 CAT 1 SS NACE MR0175/ISO 15156-2/92MR0103-10 | | | | | | | | | | | | | | |
| 1 | 55C10214 | T WPB 3 X 2 STD/XS | (T*) | 121/300 | N | HB : 118 - 145 | 7510418 | | | | | | | | | |
| 2 | 55C10216 | T WPB 3 X 2 XS/S160 | | 25 | N | HB : 118 - 145 | 7510477 | | | | | | | | | |
| 3 | 12E10819 | T WPB 10 X 8 SA0 | | 3/20 | N | HB : 118 - 145 | 7510988 | | | | | | | | | |
| 4 | 12E10818 | T WPB 10 X 8 SA0 | | 20 | N | HB : 118 - 145 | 7511284 | | | | | | | | | |
| 5 | 12D10823 | T WPB 10 X 6 SA0 | | 8/20 | N | HB : 118 - 145 | 7510988 | | | | | | | | | |
| Specification | | Chemical Composition % | | | | | | | | | | Tension Test *2 | | | HARDNESS MAX | |
| | | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | C.E. | YS | TS | E |
| Min. | | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | MPa | | % |
| Max. | | | 10 | 28 | | | | | | | | | 240 | 415 | 30 | |
| Material Heat No. | | 30 | | 106 | 50 | 58 | 40 | 40 | 40 | 15 | 80 | 20 | | 240 | 415 | 30 |
| 1 | 43491 | 15 | 26 | 85 | 12 | 1 | 3 | 4 | 4 | 2 | 3 | 1 | 31 | 329 | 468 | 37 |
| 2 | J1KA032 | 19 | 18 | 83 | 18 | 5 | 1 | 2 | 5 | 2 | 0 | 0 | 34 | 299 | 478 | 41 |
| 3 | 23558 | 18 | 19 | 79 | 12 | 3 | 1 | 1 | 3 | 0 | 0 | 0 | 32 | 303 | 448 | 39 |
| 4 | 23558 | 18 | 19 | 79 | 12 | 3 | 1 | 1 | 3 | 0 | 0 | 0 | 32 | 303 | 446 | 39 |
| 5 | J2L2550 | 19 | 23 | 84 | 12 | 7 | 2 | 2 | 5 | 1 | 0 | 0 | 34 | 318 | 482 | 44 |

(Note 1) A : Hot formed with final temperature between 620°C-980°C. Air Cooling N : Normalizing 910°Cx0.5 HR. Air Cooling *N : Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plate) S : Stress Relieving 675°Cx0.5 HR. Air Cooling

The forgings was manufactured, sample tested and inspected in accordance with the specification and was found to meet the requirements
CE = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY: GOOD

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

Quality Assurance Manager
Thai Benkan Co., Ltd.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
Form TZ-6A/3

Order Details:

Customer Name Global Flow Inc
 Sale Order # 3063120
 Sale Order Type SP
 Order Date 9/28/2012
 Customer PO 8342

Cory Kallis
 Bay 4, 125 Lockwood St. N.E.
 Redcliff, AB, Canada
 TOJ 2P0
 Phone : (403) 548-8161
 Email : CKallis@CEFranklin.com
 Web Site : www.cefranklin.com

From:

To:

The MTR's are printed in the following order:

Document Summary Page

| Doc# | SO Line | Doc Type | Heat # | Item # | Item Description |
|-------|---------|----------|---------|---------|---|
| 28064 | 1.000 | MTR | 12/7005 | 1074888 | 4 300 RFWN STD SA105N FLG .237"WT PN50 DN100 6.02M |
| 27797 | 1.000 | MTR | 3273/12 | 1074888 | 4 300 RFWN STD SA105N FLG .237"WT PN50 DN100 6.02M |
| 28288 | 2.000 | MTR | 4061/12 | 1068470 | 3 300 RFWN STD SA105N FLG .216"WT PN50 DN80 5.49MM |
| 28289 | 4.000 | MTR | 378T2 | 1074781 | 2 300 RFWN XH SA105N FLG .218"WT PN50 DN50 5.54MM |
| 27973 | 5.000 | MTR | 1K1870 | 1175064 | 3 STD 45 SML ELB SA234WPB .216"WT DN80 88.9 X |
| 28432 | 6.000 | MTR | 58426 | 1125702 | 1/2 X 3 - 8 3M TOL SA105N DN15 |
| 28437 | 7.000 | MTR | 2D0301 | 1174205 | 4 STD 45 SML ELB SA234WPB .237"WT DN100 11.4.3 |
| 28437 | 8.000 | MTR | 1K4212 | 1174969 | 4 STD LR 90 SML ELB SA234WPB .237"WT DN100 11.4.3 |
| 25455 | 9.000 | MTR | 11B1080 | 1175371 | 4 X 3 STD SML TEE SA234WPB .237" X .216"WT 11.4. |
| 28174 | 12.000 | MTR | 54P2019 | 1600912 | 3 STD X 2 XH SML CONC SA234 WPB .216 X .218"WT |
| 28479 | 13.000 | MTR | 1K1946 | 1171637 | 3 STD LR 90 SML ELB SA234WPB .216"WT DN80 88.9 X |
| 28479 | 13.000 | MTR | 1K1983 | 1171637 | 3 STD LR 90 SML ELB SA234WPB .216"WT DN80 88.9 X |
| 25146 | 14.000 | MTR | 1C6503 | 1174854 | 2 XH LR 90 SML ELB SA234WPB .218"WT DN50 60.3 X |
| 24353 | 14.000 | MTR | 60845 | 1174854 | 2 XH LR 90 SML ELB SA234WPB .218"WT DN50 60.3 X |
| 27343 | 14.000 | MTR | 1G8936 | 1174854 | 2 XH LR 90 SML ELB SA234WPB .218"WT DN50 60.3 X |
| 26968 | 16.000 | MTR | 58487 | 1125761 | 1 X 6 - 10 3M TOL SA105N DN25 |
| 27826 | 16.100 | MTR | 385661 | 1175283 | 2 XH SML TEE SA234WPB .218"WT DN50 60.3 X |
| 27659 | 16.100 | MTR | 54G100 | 1175283 | 2 XH SML TEE SA234WPB .218"WT DN50 60.3 X |

MTRs provided information.

| Doc# | SO Line | Doc Type | Heat # | Item # | Item Description |
|-------|---------|----------|---------|---------|---|
| 27870 | 16.100 | MTR | 355289 | 1175283 | 2 XH SML TEE SA234WPB .218"WT DN50 60.3 X |
| 28324 | 17.000 | MTR | 58715 | 1552894 | 1 X 2 - 2-1/2 3M TOL SA105N DN25 |
| 28065 | 18.000 | MTR | 12/7999 | 1076912 | 4 300 RFWN STD SA350LF2 CL1 FLG .237"WT PN50 DN100 6.02M |
| 26591 | 20.000 | MTR | 1020/11 | 1076525 | 2 300 RFWN XH SA350LF2 CL1 FLG .218"WT PN50 DN50 5.54MM |
| 28464 | 22.000 | MTR | 4068/12 | 1075784 | 3 300 RFWN STD SA350LF2 CL1 FLG .216"WT PN50 DN 80 5.49M |
| 28464 | 22.100 | MTR | 4068/12 | 1075784 | 3 300 RFWN STD SA350LF2 CL1 FLG .216"WT PN50 DN80 5.49MM |
| 27342 | 23.000 | MTR | BU212 | 1170896 | 4 STD SML TEE SA420WPL6 .237"WT DN100 114. |
| 27497 | 24.000 | MTR | 1E7853 | 1580271 | 8 X 6 STD SML ECC SA420WPL6 .322" X .280"WT 219. |
| 27213 | 25.000 | MTR | 11N118 | 1170811 | 8 X 4 STD SML TEE SA420WPL6 .322" X .237"WT 219. |
| 24010 | 26.000 | MTR | 10G010 | 1632413 | 6 STD 22.5 SML ELB SA420WPL6 .280"WT DN150 168. |
| 26969 | 27.000 | MTR | 58487 | 1445781 | 1 X 6 - 10 3M TOL SA350LF2 CL1 DN25 |
| 28264 | 29.000 | MTR | 58426 | 1452674 | 1/2 X 3 - 8 3M TOL SA350LF2 CL1 DN15 |
| 27403 | 30.000 | MTR | 07E1110 | 1170677 | 6 X 4 STD SML TEE SA420WPL6 .280" X .237"WT 168. |
| 27171 | 32.000 | MTR | 1011327 | 1170925 | 4 STD LR 90 SML ELB SA420WPL6 .237"WT DN100 114. |
| 5 | | | | 749 | |



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

VIA G. PARNI, 28
 Tel. +39 031.655441
 Fax +39 031.655149
 quality.mff@metalfar.com

SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

| | |
|---|-------------------------------------|
| CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE | |
| Certif. N. 2648 | Del/Dated 25.05.2012 |
| DDT / Del Note N. 2101 | Del/Dated 24.05.2012 |
| FORGED FLANGES & FITTINGS L.TD | Dest.: F.F.F. c/o C.E. FRANKLIN LTD |
| CASTLE HOUSE - STATION ROAD | EDMONTON, ALBERTA |
| EN5 PIPE NEW BARNETHERTFORD... | GB |
| CA | |

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA. | DESCRIZIONE | DIM. IN ACC. A | VISIVO E DIMENS. | | | | | | | | | | | | |
|---|----------|-------------|------------------|--------------------|-------------------|-----------------------|--------------------------|------------------|------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | DIM. ACCORDANCE TO | VIS. & DIMENS. | | | | | | | | | | | | |
| 127/0051 | 028 | 3798H/FR | 150,00 | W/IN 300 RF 4" STD | A105 | ASME/ANSI B16.5 -2009 | SATISFACTORY | | | | | | | | | | | | |
| MATERIALE / MATERIAL | | | C% | S% | Mn% | S% | P% | C-% | Ni% | Mo% | TT% | Cu% | V% | Nb% | N% | AP% | C.E. % | B % | |
| ASTM A105 (LADLE) | | | 0,195 | 0,210 | 0,960 | 0,007 | 0,011 | 0,060 | 0,040 | 0,010 | 0,020 | 0,100 | 0,001 | 0,002 | 0,010 | 0,025 | 0,379 | 0,000 | |
| PROVETTA / TEST SPECIMEN | FORMA | SNERVAMENTO | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | RESILIENZA / IMPACT TEST | FORNO / FURNACE | ORIGINE / ORIGIN | | | | | | | | | | |
| SECT. mm2 | LING. mm | YIELD POINT | TENSILE STRENGTH | ELONGATION | REDUCTION OF AREA | HARDNESS | TPQ / TYPE 10x10mm | ELECTRIC FURNACE | EUROPE | | | | | | | | | | |
| 126,60 | 50,80 | 330,0 | 533,0 | 31,0 | 58,0 | 159,0 - 163,0 | KV | | | | | | | | | | | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | | | | | | | | | | | | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | | | | | | | | | | | | |
| CSA CAN3 Z-245.12 -09 GRADE 248 CAT.1 | | | | | | | | | | | | | | | | | | | |

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA. | DESCRIZIONE | DIM. IN ACC. A | VISIVO E DIMENS. | | | | | | | | | | | | |
|---|----------|-------------|------------------|--------------------------------|-------------------|-----------------------|--------------------------|------------------|------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | DIM. ACCORDANCE TO | VIS. & DIMENS. | | | | | | | | | | | | |
| 127/0051 | 028 | 3810/FR | 30,00 | BLIND 150 RF 6" X 2" NPT A105N | | ASME/ANSI B16.5 -2009 | SATISFACTORY | | | | | | | | | | | | |
| MATERIALE / MATERIAL | | | C% | S% | Mn% | S% | P% | C-% | Ni% | Mo% | TT% | Cu% | V% | Nb% | N% | AP% | C.E. % | B % | |
| ASTM A105 (LADLE) | | | 0,195 | 0,210 | 0,960 | 0,007 | 0,011 | 0,060 | 0,040 | 0,010 | 0,020 | 0,100 | 0,001 | 0,002 | 0,010 | 0,025 | 0,379 | 0,000 | |
| PROVETTA / TEST SPECIMEN | FORMA | SNERVAMENTO | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | RESILIENZA / IMPACT TEST | FORNO / FURNACE | ORIGINE / ORIGIN | | | | | | | | | | |
| SECT. mm2 | LING. mm | YIELD POINT | TENSILE STRENGTH | ELONGATION | REDUCTION OF AREA | HARDNESS | TPQ / TYPE 10x10mm | ELECTRIC FURNACE | EUROPE | | | | | | | | | | |
| 126,60 | 50,80 | 330,0 | 533,0 | 31,0 | 58,0 | 159,0 - 163,0 | KV | | | | | | | | | | | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | | | | | | | | | | | | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | | | | | | | | | | | | |
| CSA CAN3 Z-245.12 -09 GRADE 248 CAT.1 | | | | | | | | | | | | | | | | | | | |

NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 15156-2:2009 - SOUR SERVICE
 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE

UFFICIO CONTROLLO QUALITA'
 QUALITY CONTROL DEPARTMENT

ENTE UFFICIALE DI COLLAUDO
 INSPECTION AUTHORITY

MARCHIO PRODUZIONE
 MANUFACTURER'S SYMBOL

L.S. Corti
Lab. Servizio





METALFAR

PRODOTTI INDUSTRIALI S.P.A.

STAMPAGGIO A CALDO DI ACCIAI COMUNITARI - LEGATI E INOSSIDABILI

SEDE AMMINISTRATIVA E STABILIMENTO:
23861 CESANA BRIANZA (LO) - Italy
Via G. Pajani, 28
Tel. +39 031.655441
Fax +39 031.655149
quality.mff@farmas.com

COMPANY WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= ISO 9001:2008 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

| | | | |
|---|----------------------|-------------------------------------|-------------------------|
| Certif. N. 1688 | Del/Dated 03.04.2012 | Fattura / Invoice N. 1137 | Del/Dated 30.03.2012 |
| DDT / Del Note N. 1312 | Del/Dated 30.03.2012 | Ns.Ord. / Our ref. N. | Del/Dated |
| FORGED FLANGES & FITTINGS LTD | | Dest.: F.F.F. c/o C.E. FRANKLIN LTD | |
| CASTLE HOUSE - STATION ROAD ENS 1PE NEW BARNET/HERTFORD... | | GB | EDMONTON, ALBERTA CA |

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA' | DESCRIZIONE | TRATTAMENTO TERMICO / HEAT TREATMENT | DIM. IN ACC. A | ORIGINE / ORIGIN |
|--|----------|--------------|------------------|--------------|-------------------|--------------------------------------|------------------------|------------------|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | | DIM. ACCORDANCE TO | VISIVO E DIMENS. |
| 12/39971 | 028 | | 3798H/FR | 150,00 | W/N 300 RF 4" STD | A105 | ASME/ANSI B16.5 - 2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A105 | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SNEVAMENTO | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | | |
| SEZ. mm2 | LUNG. mm | YIELD POINT | TENSILE STRENGTH | ELONGATION | REDUCTION OF AREA | HARDNESS | | |
| 126,60 | 50,80 | N/mm2 >=0,2% | N/mm2 >= | % >= | % >= | HBW | | |
| | | 362,0 | 522,0 | 31,0 | 58,0 | 159,0 - 163,0 | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | |
| ASTM/ASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | |
| CSA CAN3 Z-245-12-09 GRADE 248 CAT.I | | | | | | | | |

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA' | DESCRIZIONE | TRATTAMENTO TERMICO / HEAT TREATMENT | DIM. IN ACC. A | ORIGINE / ORIGIN |
|--|----------|--------------|------------------|--------------|-------------------|--------------------------------------|------------------------|------------------|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | | DIM. ACCORDANCE TO | VISIVO E DIMENS. |
| 3273/12 | 028 | | 3798H/FR | 150,00 | W/N 300 RF 4" STD | A105 | ASME/ANSI B16.5 - 2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A105 | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SNEVAMENTO | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | | |
| SEZ. mm2 | LUNG. mm | YIELD POINT | TENSILE STRENGTH | ELONGATION | REDUCTION OF AREA | HARDNESS | | |
| 126,60 | 50,80 | N/mm2 >=0,2% | N/mm2 >= | % >= | % >= | HBW | | |
| | | 362,0 | 544,0 | 31,0 | 59,0 | 164,0 - 166,0 | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | |
| ASTM/ASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | |
| CSA CAN3 Z-245-12-09 GRADE 248 CAT.I | | | | | | | | |

NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
NOTES MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 15156-2009 - SOUR SERVICE
MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE

UFFICIO CONTROLLO QUALITA'
QUALITY CONTROL DEPARTMENT

ENTE UFFICIALE DI COLLAUDO
INSPECTION AUTHORITY

MARCHIO PRODUZIONE
MANUFACTURER'S SYMBOL

L.S. Corti
L.S. Corti





METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E SPEDIMENTI:
 ZIBESTI CESANA BRIANZA (LC) - Italy
 Via G. Pardi, 28
 Tel: +39 031.655441
 Fax +39 031.655149
 quality.metalfar.it

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

| | | | |
|---|----------------------|---|----------------------|
| Certif. N. 3369 | Del/Dated 04.07.2012 | Fattura / Invoice N. 2311 | Del/Dated 04.07.2012 |
| DDT / Del Note N. 2704 | Del/Dated 04.07.2012 | Ns.Ord. / Our ref. N. | Del/Dated |
| CE FRANKLIN LTD | | Dest.: CE Franklin Ltd - DISTRIBUTION CEN. | |
| 1800, 635 - 8TH Avenue S.W. T2P 3M3 CALGARY, ALBERTA | | 2603 - 76 Avenue T2P 1P6 EDMONTON, ALBERTA | |

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

| COD. COL. COLATA | POS. ITEM | VS.ORDINE YOUR REFERENCE | Q.TA. Q.TY | DESCRIZIONE DESCRIPTION | DIM. IN ACC. A DIM. ACCORDANCE TO | VSIVO E DIMENS. VIS. & DIMENS. |
|--|-------------------------|--------------------------|------------|-------------------------|-----------------------------------|--------------------------------|
| HEAT CODE HEAT | | | | | | |
| 117/9875 | 005 | 3015795-OR-2100 | 91.00 | BLIND 150 RF 6" | ASME/ANSI B16.5 -2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | | | A105N | | |
| ASTM A105 (LADLE) | | | | | | |
| PROVETTA / TEST SPECIMEN | FORMA SHAPE | SVERNAMENTO YIELD POINT | | | | |
| SECT. mm2 | 1-O Z-D | N/mm2 >=0.2% | | | | |
| 50,80 | 1 | 336,0 | | | | |
| ROTTURA TENSILE STRENGTH | ALLUNGAMENTO ELONGATION | | | | | |
| SECT. mm2 | % >= | | | | | |
| 50,80 | 1 | 544,0 | 31,0 | 58,0 | 164,0 - 166,0 | 0,0 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | |
| ASTM/A588 A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | |
| CSA CAN3 Z245.12-09 GRADE 248 CAT.1 SOUR SERVICE | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | FORNO / FURNACE | ORIGINE / ORIGIN |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | ELECTRIC FURNACE | EUROPE |

| COD. COL. COLATA | POS. ITEM | VS.ORDINE YOUR REFERENCE | Q.TA. Q.TY | DESCRIZIONE DESCRIPTION | DIM. IN ACC. A DIM. ACCORDANCE TO | VSIVO E DIMENS. VIS. & DIMENS. |
|--|-------------------------|--------------------------|------------|-------------------------|-----------------------------------|--------------------------------|
| HEAT CODE HEAT | | | | | | |
| 406/112 | 084 | 3015795-OR-2100 | 259.00 | WIN 300 RF 3" STD | ASME/ANSI B16.5 -2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | | | A105N | | |
| ASTM A105 (LADLE) | | | | | | |
| PROVETTA / TEST SPECIMEN | FORMA SHAPE | SVERNAMENTO YIELD POINT | | | | |
| SECT. mm2 | 1-O Z-D | N/mm2 >=0.2% | | | | |
| 50,80 | 1 | 324,0 | | | | |
| ROTTURA TENSILE STRENGTH | ALLUNGAMENTO ELONGATION | | | | | |
| SECT. mm2 | % >= | | | | | |
| 50,80 | 1 | 529,0 | 30,0 | 59,0 | 159,0 - 163,0 | 0,0 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | |
| ASTM/A588 A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | |
| CSA CAN3 Z245.12-09 GRADE 248 CAT.1 SOUR SERVICE | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | FORNO / FURNACE | ORIGINE / ORIGIN |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | ELECTRIC FURNACE | EUROPE |

NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 NOTES MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15166-2009 - SOUR SERVICE
 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE

| | | |
|---|---|--|
| UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT | ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY | MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL |
| <i>Luigi Corti</i> | <i>Luigi Corti</i> | |

CLIENTE / Customer / Client
CE FRANKLIN LTD.
 1800, 635 - 8TH AVENUE S.W.
 CALGARY, ALBERTA CANADA
 T2P 3M3

CERTIFICADO DE INSPECCION
 Inspection Certificate - Certificat de Réception

DIN EN 10204 / 3.1
 ISO 10474 / 3.1

FECHA: 04/07/2012
 N.º 149488
 HOJA: 1
 Page: 1



ULMA FORJA, S.COOP.
 Bº Zubillaga, 3 - Apdo. 14
 20560 ORAITI (Gipuzkoa) SPAIN
 Tel.: 34 - 943 780552
 Fax: 34 - 943 781808
 E-mail: ulma@ulmaforja.com

PRODUCTO **FLANGES**
 Article - Produit
 SU PEDIDO N.º 3015728-OR-2100
 Your Order No. Votre Cde. N.º

DE de 23/04/2012

Certified acc. PED 97/23/EC-AD2000-W0
 by TÜV Rheinland
 N.º 01 202 EQ 02 7443

Packing List: 94475

NORMAS APLICABLES **ASME B16.5-09**
 Requirements - Normes Applicables

MATERIAL CORRESPONDIENTE **ASTM/AASME A5A105N-11**
 Material Correspondent - Qualité

MODO DE FUSION (?) **NACE MR0175/ISO15156-2-09 & MR0103-10**
 Steel Making - Elaboration de l'acier
 Clause 7.2.1.4, Annex A.2 and SSC Region 3.
 E = Elec. Y = Oxígeno básico
 CSA-Z245 12-09 GR248 CAT I - SS (WN & BLIND FLANGES ONLY)

DEPARTAMENTO **QUALITY ASSURANCE**
 Section Département



| COLADA N.º Heat No N.º Coudée | COMPOSICION QUIMICA - STEEL MAKERS LADLE ANALYSIS - ANALYSE CHIMIQUE | | | | | | | | | | | OBSERVACIONES Remarks Observations (?) | COLADA N.º Heat No N.º Coudée | RESISTENCIA T. Strength Tensil Rupt N/mm2 | LARGAR. Y. Strength 0.2 % N/mm2 | ALARGAM. Elongation Alongement Lc. 1 d % | ESTRICCION Red. Area Striction % | RESILIENCIA Impact test Resilience Joules | CHARPY V 10x10mm MEDA Average Moynm | DUREZA Hardness Dureté HBW | | | | |
|-------------------------------------|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---|-------------------------------------|--|--|--|---|--|--|-------------------------------------|------|------|------------|------------|
| | C % | Si % | Mn % | P % | S % | Cr % | Ni % | Mo % | Nb % | V % | Cu % | | | | | | | | | | Al % | Ti % | N % | CEq % |
| 330A2 378T2 | 0.210 0.190 | 0.250 0.210 | 0.850 0.959 | 0.009 0.017 | 0.001 0.024 | 0.160 0.151 | 0.080 0.137 | 0.040 0.023 | 0.001 0.003 | 0.002 0.005 | 0.240 0.367 | 0.028 0.002 | 0.000 0.000 | 0.000 0.000 | 0.413 0.419 | 330A2 378T2 | 509 | 314 | 29.10 28.30 | 59.30 58.70 | | | 154 151 | 158 157 |

- Las dimensiones y la condición superficial se hallaron satisfactorias.
- Dimension and surface condition were found acceptable.
- Les dimensions et état de surface sont satisfaisants.
- Los materiales citados cumplen las normas aplicables.
- Manufacturing requirements are satisfied.
- Les normes applicables sont respectées.

(?) OBSERVACIONES:
 Remarks
 Observations
 N NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR

EL INSPECTOR
 Works Inspector - L'inspecteur
ULMA FORJA, S. COOP.
 Dpto. de Garantía de calidad
 Quality Assurance Dept.

PURCHASER : SEYBOLD



INSPECTION CERTIFICATE
PT. RIGID INDUSTRIES CO., LTD.

DATE: 2012 - 05 - 30

STANDARD : ASTM A234 WPB-11
ASME SA234 WPB-04

CSA Z245.11-09 Gr.241 Cat I Sour Service

8, MEL-CHUNG RD, NIAO-SONG,
KAOHSIUNG HSIEN, 83301 TAIWAN
TEL: 886-77310527-8
FAX: 886-77315887

ORDER NO: 7005228/29391260R210
P.I. NO: 1L10-2

CERTIF. NO: 225

MATERIALS : ASTM A106 Gr.B (SEAMLESS PIPE)
INSPECTION SPEC. : ASME B16.9 - 07

ACCORDING TO EN10204/DIN50049/R3.1

| ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG NO. | VISUAL & DIMENTIONAL INSPECTION | HARDNESS MAX. 197 HB | HEAT TREATMENT (NOTE) | MAGNETIC PARTICLE EXAMINATION | IMPACT TEST (J) | CHEMICAL COMPOSITION % | | | | | | | | | | PHYSICAL TEST | | | |
|----------|----------------|--------------|---------|---------------------------------|----------------------|-----------------------|-------------------------------|-----------------|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------------|---------|---------|-----|
| | | | | | | | | | C x100 | Si x100 | Mn x100 | P x1000 | S x1000 | Cu x100 | Ni x100 | Cr x100 | Mo x100 | V x100 | Nb x1000 | Y S KSI | T S KSI | E % |
| 1 | ELL 45 LR 3" | 12 | 1F46137 | GOOD | 140 - 142 | A | | | 29.8 | | | | | | 43.5 | 55.2 | 29.8 | 27 | | | | |
| 2 | ELL 45 LR 3" | 588 | 1K1870 | GOOD | 142 - 145 | A | | | 34 | | | | | | 45.5 | 67.1 | 31.5 | 34 | | | | |
| 3 | ELL 45 LR 3" | 100 | 1K1283 | GOOD | 134 - 137 | A | | | 29 | | | | | | 44.4 | 63.2 | 32.0 | 29 | | | | |
| 4 | ELL 180 LR 4" | 25 | 1G7177 | GOOD | 149 - 152 | A | | | 29 | | | | | | 43.4 | 67.1 | 31.8 | 29 | | | | |
| 5 | ELL 180 LR 2" | 50 | 0F6524 | GOOD | 140 - 141 | A | | | 30 | | | | | | 47.2 | 66.7 | 36.0 | 30 | | | | |
| 6 | ELL 180 LR 3" | 10 | 9L4095 | GOOD | 140 - 144 | A | | | 27 | | | | | | 43.1 | 66.0 | 37.0 | 27 | | | | |
| 7 | TEE 10" | 40 | 2A1685 | GOOD | 121 - 131 | N | | | 33 | | | | | | 50.8 | 82.0 | 38.0 | 33 | | | | |
| 8 | TEE 6" | 198 | 2A1100 | GOOD | 144 - 154 | N | | | 30 | | | | | | 45.0 | 69.0 | 32.9 | 30 | | | | |
| 9 | TEE 6" | 2 | 1U7340 | GOOD | 133 - 140 | N | | | 31 | | | | | | 46.3 | 67.2 | 41.0 | 31 | | | | |
| 10 | CON-RED 6X2" | 3 | 2B2975 | GOOD | 128 - 142 | N | | | 30.5 | | | | | | 44.1 | 65.7 | 30.5 | 30 | | | | |

(NOTE): A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING.
N: NORMALIZING AT TEMPERATURE 880°C X 0.5 HR, AIR COOLING.
NACE MR-01-75-09/S015156.2 & NACE MR 0103-10 : SATISFACTORY
WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

Our Partner

MANAGER OF Q.A. DEPT.

CERTIFIED MILL TEST REPORT

LOG NO. F00000000031561 Page 3 of 5

BONNEY FORGE CORPORATION
 P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
 (814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
 www.bonneyforge.com

DATE 07/12/2012

BONNEY ORDER NO. B000124370

CUSTOMER: CCTF CORPORATION

CUSTOMER ORDER NO.: 4030472-00

SHIP TO: CCTF CORPORATION (BURLINGTON)

4151 NORTH SERVICE ROAD

UNIT 2

BURLINGTON ON L7L 4X6

Canada

ITEM QUANTITY LOT NO. GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

9 250 58426 8-3 X 1/2 3000 A105N THRD T SA/A105N
 C 0.200 Cb 0.000 Co 0.003 Cr 0.050 Cu 0.110 Mn 1.020 Mo 0.010 Ni 0.040
 P 0.009 S 0.019 Si 0.180 V 0.004
 CE(Long Formula) = 0.39
 T/S(Psi) 76,250 Y/S(Psi) 51,875 EL(%) 30.80 RA(%) 63.95
 Brinell 139 BHN 137 BHN

10 25 58392 1 X 3/4 3000 A105N THRD T SA/A105N
 C 0.200 Cb 0.000 Co 0.002 Cr 0.040 Cu 0.100 Mn 1.010 Mo 0.010 Ni 0.020
 P 0.009 S 0.020 Si 0.180 V 0.003
 CE(Long Formula) = 0.39
 T/S(Psi) 74,000 Y/S(Psi) 48,800 EL(%) 32.00 RA(%) 69.00
 Brinell 163 BHN 163 BHN

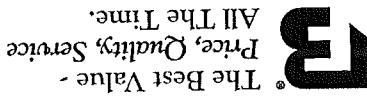
11 200 58677 5-3 X 3/4 3000 A105N THRD T SA/A105N
 A1 0.020 C 0.210 Co 0.003 Cr 0.020 Cu 0.040 Mn 1.040 Mo 0.010 Ni 0.004
 Nb 0.012 N 0.020 P 0.006 S 0.020 Si 0.230 V 0.003
 CE(Long Formula) = 0.39
 T/S(Psi) 74,015 Y/S(Psi) 49,869 EL(%) 30.75 RA(%) 62.56
 Brinell 132 BHN 132 BHN

12 100 58529 10-6X1 3M A105N THRD T SA/A105N
 A1 0.028 C 0.200 Co 0.002 Cr 0.050 Cu 0.020 Mn 1.030 Mo 0.010 Ni 0.003
 Nb 0.012 N 0.020 P 0.008 S 0.019 Si 0.240 V 0.004
 CE(Long Formula) = 0.39
 T/S(Psi) 71,875 Y/S(Psi) 48,125 EL(%) 33.10 RA(%) 63.00
 Brinell 130 BHN 132 BHN

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by *Kylee Ruiz*
 Kylee Ruiz
 QUALITY PROCESS MANAGER

CMTR: REV2

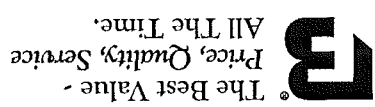


CERTIFIED MILL TEST REPORT

LOG NO. F00000000031561

Page 5 of 5

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneymfg.com



DATE 07/12/2012

BONNEY ORDER NO. B000124370

CUSTOMER: CCTF CORPORATION
ORDER NO.: 4030472-00

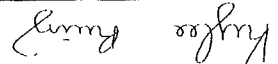
SHIP TO: CCTF CORPORATION (BURLINGTON)
4151 NORTH SERVICE ROAD
UNIT 2
BURLINGTON ON L7L 4X6
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. |
|------|----------|---------|----------------------------|
|------|----------|---------|----------------------------|

CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
3. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
7. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by 
KYLEE RUIZ
QUALITY PROCESS MANAGER

CMTR: REV2

PURCHASER : SEYBOLD
 STANDARD : ASTM A234 WPB-11
 ASME SA234 WPB-04



INSPECTION CERTIFICATE
RIEID INDUSTRIES CO., LTD.

MATERIALS : ASTM A106 Gr.B (SEAMLESS PIPE)
 INSP. SPEC. : ASME B16.9 - 07

8. MEI-CHUNG RD. NIAO-SONG,
 KAOHSIUNG HSIEN, 83301 TAIWAN
 TEL: 886-77310521~8
 FAX: 886-77315887

ACCORDING TO EN10204/DIN50049/3.1

DATE: 2012 - 08 - 07
 ORDER NO: Z005630/30088920R210
 P.I. NO: 2D01-3
 CERTIFI. NO: 333

| ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG NO. | VISUAL & DIMENSIONAL INSPECTION | HARDNESS MAX. 197 HB | HEAT TREATMENT (NOTE) | MAGNETIC PARTICLE EXAMINATION | IMPACT TEST (J) | | | | | | | | |
|----------|---------------------|--------------|---------|---------------------------------|----------------------|-----------------------|-------------------------------|-----------------|------------------------|----|----|----|---------------|------|------|----|
| | | | | | | | | | CHEMICAL COMPOSITION % | | | | | | | |
| ITEM NO. | MATERIAL CHARGE NO. | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | PHYSICAL TEST | | | |
| | | | | | | | | | | | | | Y S | T S | E | |
| STANDARD | | MIN | MAX | | | | | | | | | | | | | |
| 13 | ELL 45 LR 2" | XH | 116 | 2D4351 | GOOD | 131 - 135 | A | | | | | | 43.4 | 65.4 | 30.2 | 50 |
| 14 | ELL 45 LR 4" | STD | 600 | 2D0301 | GOOD | 132 - 134 | A | | | | | | 45.5 | 66.6 | 31.3 | 28 |
| 15 | ELL 90 LR 6" | STD | 700 | 2A1847 | GOOD | 143 - 144 | A | | | | | | 43.4 | 67.6 | 32.9 | 36 |
| 13 | 319751 | 18 | 52 | 10 | 1 | 4 | 2 | 40 | 40 | 15 | 8 | 20 | 35.0 | 95.0 | | |
| 14 | 514401 | 18 | 97 | 10 | 7 | 9 | 4 | 5 | 5 | 1 | <1 | <1 | 35.0 | 60.0 | | |
| 15 | 317747 | 18 | 55 | 10 | 1 | 5 | 3 | 4 | 4 | 2 | <1 | <1 | 35.0 | 60.0 | | |

(NOTE): A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING.
 N: NORMALIZING AT TEMPERATURE 880°C X 0.5HR, AIR COOLING.
 NACE MR-01-75-09/S01 5156.2 & NACE MR 0103-10 : SATISFACTORY
 WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASERS REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

Qu E Lam

MANAGER OF Q.A. DEPT.

PURCHASER : SEYBOLD

ASTM A234 WPB-11

STANDARD : ASME SA234 WPB-04



INSPECTION CERTIFICATE

INDUSTRIES CO., LTD.

DATE: 2012 - 08 - 07

ORDER NO: Z005630/30069820R210

CSA Z245.11-09 Gr.241 Cat I Sour Service

8, MEI-CHUNG RD, NIAO-SONG,
KAOHSIUNG HIEN, 83301 TAIWAN
TEL: 886-77310527-8
FAX: 886-77315887

P.I. NO: 2D01-3

MATERIALS : ASTM A106 Gr.B (SEAMLESS PIPE)

INSPECTION SPEC. : ASME B16.9 - 07

ACCORDING TO EN10204/DIN50049/3.1

CERTIFI. NO: 333

| ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG NO. | VISUAL & DIMENSIONAL INSPECTION | HARDNESS MAX. 197 HB | HEAT TREATMENT (NOTE) | MAGNETIC PARTICLE EXAMINATION | IMPACT TEST (J) | CHEMICAL COMPOSITION % | | | | | | | PHYSICAL TEST | | | | | | | |
|----------|-----------------|--------------|-------------|---------------------------------|----------------------|-----------------------|-------------------------------|-----------------|------------------------|---------|---------|---------|---------|---------|---------|---------------|---------|--------|----------|---------|---------|------|-----------|
| | | | | | | | | | C x100 | SI x100 | Mn x100 | P x1000 | S x1000 | Cu x100 | NI x100 | Cr x100 | Mo x100 | V x100 | Nb x1000 | Y S KSI | T S KSI | E % | C.E. X100 |
| 3 | ELL 45 LR 4" | XH 120 | 2C1401 | GOOD | 138 - 143 | A | | | 30 | 10 | 29 | 50 | 58 | 40 | 40 | 40 | 15 | 8 | 20 | 44.7 | 95.0 | 32.7 | 50 |
| 4 | ELL 90 LR 1.12" | XH 75 | 1C7576 (1C) | GOOD | 132 - 135 | A | | | 14 | 24 | 107 | 9 | 5 | 6 | 3 | 4 | 1 | 3 | <1 | 42.8 | 85.3 | 31.3 | 34 |
| 5 | ELL 90 LR 2" | STD 500 | 1F4437 | GOOD | 133 - 135 | A | | | 21 | 26 | 49 | 8 | 7 | 9 | 3 | 3 | 1 | 1 | <1 | 43.1 | 85.2 | 31.1 | 30 |
| 6 | ELL 90 LR 4" | STD 760 | 1K4212 | GOOD | 138 - 141 | A | | | 19 | 23 | 54 | 7 | 2 | 6 | 4 | 5 | 3 | 3 | <1 | 45.0 | 86.7 | 32.3 | 29 |
| 7 | ELL 90 LR 10" | XH 10 | 1K1427 | GOOD | 152 - 153 | A | | | 17 | 21 | 95 | 9 | 3 | 3 | 3 | 3 | 1 | 1 | <1 | 50.1 | 88.3 | 32.8 | 34 |
| 8 | ELL 180 LR 2" | STD 30 | 2C2924 | GOOD | 133 - 136 | A | | | 19 | 23 | 56 | 7 | 4 | 5 | 4 | 5 | 2 | 3 | <1 | 43.5 | 84.9 | 30.1 | 29 |
| 9 | TEE 3" | XH 50 | 2B6814 | GOOD | 130 - 137 | N | | | 17 | 25 | 99 | 11 | 2 | 12 | 5 | 5 | 1 | 1 | <1 | 45.0 | 87.1 | 33.0 | 35 |
| 10 | RED-TEE 6X3" | XH 70 | 2C4941 | GOOD | 137 - 149 | N | | | 15 | 23 | 87 | 15 | 8 | 8 | 3 | 5 | 3 | 3 | <1 | 43.4 | 86.7 | 31.8 | 31 |
| 11 | RED-TEE 10X6" | STD 35 | 2D2306 | GOOD | 130 - 142 | N | | | 14 | 23 | 70 | 7 | 7 | 13 | 5 | 3 | 1 | 1 | <1 | 43.5 | 86.7 | 46.0 | 27 |
| 12 | ELL 45 LR 2" | XH 35 | 0G70170 | GOOD | 137 - 143 | A | | | 19 | 25 | 52 | 15 | 6 | 2 | 2 | 2 | 1 | 1 | <1 | 53.3 | 82.3 | 30.3 | 28 |

(NOTE): A. HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C, 880°C, AIR COOLING.
 N. NORMALIZING AT TEMPERATURE 880°C X 0.5HR, AIR COOLING.
 NACE MR-01-75-09/ISO15156.2 & NACE MR 0103-10 : SATISFACTORY
 WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASERS REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

Qu E Lam

MANAGER OF Q.A. DEPT.



Purchaser : CCTF CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1

Thai Benkan Co., Ltd.
58 Soi Wakkunai, Bangkok, Prapadeng,
Samutprakarn, 10130 Thailand.

E-No. MC-230 Purchase Order No. 4028491 Job No.

D M Y Certificate No. 09/03/2011 T- 2011200230

| No. | MFG. No. (Heat Identification No.) | Specification for Material Made from Seamless Pipe | | Specification for Inspection | | Visual Examination | Dimensional Inspection |
|-----|---------------------------------------|--|-----------------|------------------------------|----------------------------|--------------------|------------------------|
| | | ASTM A234-10/ASME SA234-07 Gr-WPB CSA Z245.11-09 Gr.241 CAT1 NACE MR0175/ISO 15156-2 R3-03 6MR0103-07 | ASME B16.9-2007 | Quantity | Heat Treatment (Note 1) | | |
| | | Product & Size | | (T*1) | | | |
| 1 | 10M10809 | T WPB 3 X 2 1/2 S40 | | 25 | N | HB : 115 - 145 | 7512617 |
| 2 | 10K10809 | T WPB 3 X 1 1/2 S40 | | 10 | N | HB : 125 - 140 | 7512651 |
| 3 | 11B10809 | T WPB 4 X 3 S40 | | 50 | N | HB : 115 - 145 | 7512759 |
| 4 | 10E10812 | T WPB 4 X 2 S40 | | 50 | N | HB : 120 - 135 | 7512791 |
| 5 | 10K10820 | T WPB 6 X 3 S40 | | 2/25 | N | HB : 120 - 140 | 7512899 |

(Note 1) A : Hot formed with final temperature between 620°C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR, Air Cooling *N : Normalizing 910°Cx0.5 HR, Air Cooling (Specification for material made from plate) S : Stress Relieving 675°Cx0.5 HR, Air Cooling

The things was manufactured, sampled, tested and inspected in accordance with the specification, and was found to meet the requirements

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15 MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY : GOOD

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "r" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Form TZ-6A/2

Quality Assurance Manager
Thai Benkan Co., Ltd.

Purchaser : CE Franklin Ltd

INSPECTION CERTIFICATE



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkok, Prapacheng,
Samnprakan, 10130 Thailand.

E.No. MC-6986
Purchase Order No. P/O 2839101-OR-2100
Job No.

TO EN10204 3.1

D M Y Certificate No.
13/06/2012 T- 2012200469

| No. | Hardness Actual data | MFG. No. | Specification for Material ASTM A232-TYPICAL SIZE-10 GR. A/B/B CSA Z245-11-09 or 241 CAT 1 SS MACE M0174/ISO 15156-2 R3-0944/R0103-10 | Product & Size RE WPB 3 X 2 XS (T+D) | Quantity | Specification for Inspection ASME B16.3-2007, B16.25-2007 | Heat Treatment (Note 1) | Visual Examination Good | Dimensional Inspection Good | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------------|----------|---|--|----------|--|----------------------------|----------------------------|--------------------------------|------------------------|---------------------------|------------------------|-----|-----|-----|-----|----|--|--|--|--|--|-----------------|--|-----|--|--|--|--|--|--|--|--|--|--|--|----|----|---|----|----|---|---|----|----|----|----|---|----|------|-----|-----|------|--|----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------|-------|-------|-------|--------|--------|-------|-------|-------|--------|--------|-------|--|--|--|--|--|--|--|--|---|---------|----|----|----|----|---|---|---|---|---|---|----|----|----|-----|-----|----|--|--|---|---------|----|----|----|----|---|---|---|---|---|---|---|----|----|-----|-----|----|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | Chemical Composition % | Tension Test *2 YS MPa | TS MPa | E % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | HB-118-132 | SAP20204 | | RE WPB 3 X 2 XS | 15 | | N | Good | 7514409 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | HB-119-125 | SAP20194 | | RC WPB 3 X 2 STDXS | 150 | | N | 0.0002 | 7510428 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="3">Material Heat No.</th> <th colspan="11">Chemical Composition %</th> <th colspan="2">Tension Test *2</th> <th rowspan="3">E %</th> </tr> <tr> <th colspan="11"></th> <th>YS</th> <th>TS</th> </tr> <tr> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Cu</th> <th>Ni</th> <th>Cr</th> <th>Mo</th> <th>V</th> <th>Nb</th> <th>C.E.</th> <th>MPa</th> <th>MPa</th> </tr> </thead> <tbody> <tr> <td>Max.</td> <td></td> <td>10</td> <td>29</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Min.</td> <td>X 100</td> <td>X 100</td> <td>X 100</td> <td>X 1000</td> <td>X 1000</td> <td>X 100</td> <td>X 100</td> <td>X 100</td> <td>X 1000</td> <td>X 1000</td> <td>X 100</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>J1KA032</td> <td>19</td> <td>18</td> <td>83</td> <td>18</td> <td>5</td> <td>1</td> <td>1</td> <td>2</td> <td>5</td> <td>2</td> <td>TR</td> <td>TR</td> <td>34</td> <td>310</td> <td>491</td> <td>39</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>7-24045</td> <td>18</td> <td>24</td> <td>83</td> <td>16</td> <td>1</td> <td>1</td> <td>1</td> <td>2</td> <td>2</td> <td>1</td> <td>3</td> <td><1</td> <td>33</td> <td>314</td> <td>451</td> <td>61</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | | | | | | | | | Material Heat No. | Chemical Composition % | | | | | | | | | | | Tension Test *2 | | E % | | | | | | | | | | | | YS | TS | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | C.E. | MPa | MPa | Max. | | 10 | 29 | | | | | | | | | | | | | | | | | Min. | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | | | | | | | | | 1 | J1KA032 | 19 | 18 | 83 | 18 | 5 | 1 | 1 | 2 | 5 | 2 | TR | TR | 34 | 310 | 491 | 39 | | | 2 | 7-24045 | 18 | 24 | 83 | 16 | 1 | 1 | 1 | 2 | 2 | 1 | 3 | <1 | 33 | 314 | 451 | 61 | | | 3 | | | | | | | | | | | | | | | | | | | | 4 | | | | | | | | | | | | | | | | | | | | 5 | | | | | | | | | | | | | | | | | | | |
| Material Heat No. | Chemical Composition % | | | | | | | | | | | Tension Test *2 | | E % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | YS | TS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | C.E. | MPa | | MPa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. | | 10 | 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Min. | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | J1KA032 | 19 | 18 | 83 | 18 | 5 | 1 | 1 | 2 | 5 | 2 | TR | TR | 34 | 310 | 491 | 39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 7-24045 | 18 | 24 | 83 | 16 | 1 | 1 | 1 | 2 | 2 | 1 | 3 | <1 | 33 | 314 | 451 | 61 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

(Note 1) A: Hot formed with final temperature between 620°C-980°C, Air Cooling N: Normalizing 910°Cx0.5 HR. Air Cooling *N: Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plate) S: Stress Relieving 675°Cx0.5 HR. Air Cooling

The forgings was manufactured, sampled, tested and inspected in accordance with the specification, and was found to meet the requirements.
C.E. = C+Mn/6+(Q+Mo+V)/5+(Ni+Cu)/15
MAGNETIC PARTICLE EXAMINATION FOR THE ONLY:

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1: "T" symbolized wall thickness in mm. * 2: YS Yield strength TS = Tensile strength E = Elongation
Form TZ-6A/3

Quality Assurance Manager
Thai Benkan Co., Ltd.



INSPECTION CERTIFICATE
RIGID INDUSTRIES CO., LTD.

DATE: 2012.08.20

PURCHASER: SEYBOLD
ASTM A234 WPB-11
ASTM SA234 WPB-04

ORDER NO: Z006630/30068920RP210

8 MEI-CHUNG RD, NIAO-SONG,
KAOHSIUNG HSIEN, 83301 TAINWAN
TEL: 886-77310527~8
FAX: 886-77315887

P.I. NO: 2001-4

MATERIALS: ASTM A106 Gr.B (SEAMLESS PIPE)
INSPECTION SPEC: ASME B16.9-07

CSA Z245.11-09 Gr.290 Cat I Sour Service

CERTIF. NO: 363

| ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG. NO. | VISUAL & DIMENSIONAL INSPECTION | HARDNESS MAX. 197 HB | HEAT TREATMENT (NOTE) | MAGNETIC PARTICLE EXAMINATION | IMPACT TEST (J) | | | | | | |
|----------|----------------|--------------|----------|---------------------------------|----------------------|-----------------------|-------------------------------|-----------------|---|----|----|---|---|----|
| | | | | | | | | | C | SI | Mn | P | S | Cu |
| 2 | ELL 90 LR 3" | 730 | 1K1983 | GOOD | 140 - 142 | A | | | | | | | | |
| 3 | ELL 90 LR 3" | 320 | 1K1946 | GOOD | 140 - 142 | A | | | | | | | | |
| 4 | CON-RED 3X2" | 300 | 2E0840 | GOOD | 130 - 143 | N | | | | | | | | |
| 5 | RED-TEE 3X2" | 250 | 2B2209 | GOOD | 128 - 139 | N | | | | | | | | |
| 6 | RED-TEE 6X2" | 10 | 2E3702 | GOOD | 136 - 159 | N | | | | | | | | |
| 7 | RED-TEE 6X3" | 55 | 2C4941 | GOOD | 137 - 149 | N | | | | | | | | |
| 8 | ELL 90 LR 6" | 609 | 2A2052 | GOOD | 140 - 144 | A | | | | | | | | |
| 9 | ELL 90 LR 6" | 271 | 2G6024 | GOOD | 144 - 146 | A | | | | | | | | |
| 10 | TEE 6" | 126 | 2B7309 | GOOD | 138 - 148 | N | | | | | | | | |
| 11 | TEE 6" | 49 | 2A1100 | GOOD | 144 - 154 | N | | | | | | | | |

| ITEM NO. | MATERIAL CHARGE NO. | CHEMICAL COMPOSITION % | | | | | | | | | | | | | | PHYSICAL TEST | | | |
|----------|---------------------|------------------------|-----|------|------|------|-------|-------|------|------|------|------|------|-------|------|---------------|------|------|--|
| | | STANDARD | | C | SI | Mn | P | S | Cu | Ni | Cr | Mg | V | Nb | Y.S | T.S | E | C.E. | |
| | | MIN | MAX | x100 | x100 | x100 | x1000 | x1000 | x100 | x100 | x100 | x100 | x100 | x1000 | KSI | KSI | % | X100 | |
| 2 | 316883 | 30 | 160 | 22 | 53 | 7 | 2 | 3 | 40 | 40 | 40 | 3 | 2 | 35.0 | 60.0 | 95.0 | 30.8 | 28 | |
| 3 | 316746 | 18 | 58 | 25 | 68 | 9 | 2 | 3 | 3 | 6 | 3 | 2 | <1 | 44.5 | 64.7 | 30.8 | 30.6 | 29 | |
| 4 | 1124440 | 14 | 81 | 22 | 81 | 15 | 2 | 5 | 5 | 4 | 1 | 1 | <1 | 44.1 | 63.2 | 30.6 | 30.6 | 28 | |
| 5 | 309909 | 19 | 54 | 25 | 54 | 7 | 2 | 7 | 3 | 3 | 2 | 2 | <1 | 44.4 | 64.3 | 32.0 | 32.0 | 28 | |
| 6 | 420202 | 15 | 89 | 24 | 54 | 10 | 2 | 7 | 4 | 3 | 2 | 2 | <1 | 55.9 | 62.3 | 34.2 | 34.2 | 29 | |
| 7 | Z21103141 | 15 | 89 | 24 | 89 | 10 | 5 | 7 | 4 | 5 | 2 | 2 | <1 | 46.7 | 69.1 | 31.6 | 31.6 | 29 | |
| 8 | 319752 | 18 | 54 | 25 | 54 | 7 | 2 | 8 | 8 | 3 | 3 | 3 | <1 | 43.4 | 66.7 | 31.8 | 31.8 | 31 | |
| 9 | 320824 | 19 | 54 | 24 | 54 | 8 | 3 | 4 | 4 | 4 | 1 | 1 | <1 | 43.8 | 65.3 | 32.9 | 32.9 | 28 | |
| 10 | J1KB209 | 10 | 127 | 22 | 54 | 8 | 3 | 5 | 5 | 6 | 1 | 1 | <1 | 43.4 | 65.9 | 31.8 | 31.8 | 29 | |
| 11 | 317900 | 20 | 55 | 27 | 127 | 18 | 3 | 2 | 2 | 11 | 1 | 1 | <1 | 46.2 | 70.1 | 33.8 | 33.8 | 33 | |

(NOTE): A. HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING.
N: NORMALIZING AT TEMPERATURE 880°C X 0.5HR, AIR COOLING.
NACE MR-01-75-09/ISO 15156.2 & NACE MR 0103-10: SATISFACTORY
WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

Qu E Lam
MANAGER OF Q.A. DEPT.

PURCHASER : SEYBOLD
 ASTM A234 WPB-11
 ASTM SA234 WPB-04



INSPECTION CERTIFICATE
RIGID INDUSTRIES CO., LTD.

STANDARD : CSA Z245.11-09 Gr.290 Cat I Sour Service
 MATERIALS : ASTM A106 Gr.B (SEAMLESS PIPE)
 INSP. SPEC. : ASME B16.9-07

8. MEL-CHUNG RD. NIAO-SONG,
 KAOSHUNING HSIEN, 83301 TAIWAN
 TEL: 886-77310527~8
 FAX: 886-77315887

DATE: 2012 - 08 - 20
 ORDER NO: Z005630/300068820R210
 P.I. NO: 2D01-4
 CERTIF. NO: 363

| ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG NO. | VISUAL & DIMENTIONAL INSPECTION | HARDNESS MAX. 197 HB | HEAT TREATMENT (NOTE) | MAGNETIC PARTICLE EXAMINATION | IMPACT TEST (J) | | | | | | |
|----------|----------------|--------------|---------|---------------------------------|----------------------|-----------------------|-------------------------------|-----------------|---|----|----|---|---|----|
| | | | | | | | | | C | Si | Mn | P | S | Cu |
| 2 | ELL 90 LR 3" | 730 | 1K1983 | GOOD | 140 - 142 | A | | | | | | | | |
| 3 | ELL 90 LR 3" | 320 | 1K1946 | GOOD | 140 - 142 | A | | | | | | | | |
| 4 | CON-RED 3X2" | 300 | 2E0840 | GOOD | 130 - 143 | N | | | | | | | | |
| 5 | RED-TEE 3X2" | 250 | 2B2209 | GOOD | 128 - 139 | N | | | | | | | | |
| 6 | RED-TEE 6X2" | 10 | 2E3702 | GOOD | 136 - 159 | N | | | | | | | | |
| 7 | RED-TEE 6X3" | 55 | 2C4941 | GOOD | 137 - 149 | N | | | | | | | | |
| 8 | ELL 90 LR 6" | 609 | 2A2052 | GOOD | 140 - 144 | A | | | | | | | | |
| 9 | ELL 90 LR 6" | 271 | 2G6024 | GOOD | 144 - 146 | A | | | | | | | | |
| 10 | TEE 6" | 126 | 2B7309 | GOOD | 138 - 148 | N | | | | | | | | |
| 11 | TEE 6" | 49 | 2A1100 | GOOD | 144 - 154 | N | | | | | | | | |

| ITEM NO. | MATERIAL CHARGE NO. | CHEMICAL COMPOSITION % | | | | | | | | | | | | | | PHYSICAL TEST | | | |
|----------|---------------------|------------------------|------|------|-------|-------|------|------|------|------|------|-------|-----|-----|-----|---------------|------|------|----|
| | | C | | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | Y S | T S | E | C.E. | | |
| | | x100 | x100 | x100 | x1000 | x1000 | x100 | x100 | x100 | x100 | x100 | x1000 | KSI | KSI | % | X100 | | | |
| | STANDARD | MIN. | MAX. | 10 | 29 | | 50 | | 58 | 40 | 40 | 40 | 15 | 8 | 20 | 35.0 | 60.0 | | 50 |
| 2 | 316883 | 18 | 22 | 53 | 7 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | <1 | <1 | 44.5 | 64.7 | 30.8 | 28 |
| 3 | 316746 | 18 | 25 | 58 | 9 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | <1 | <1 | 44.1 | 63.2 | 30.6 | 29 |
| 4 | 1124440 | 14 | 22 | 81 | 15 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 1 | <1 | 1 | 44.4 | 64.3 | 32.0 | 28 |
| 5 | 309909 | 19 | 25 | 54 | 7 | 2 | 7 | 3 | 7 | 3 | 3 | 3 | 2 | <1 | <1 | 55.9 | 62.3 | 34.2 | 29 |
| 6 | 420202 | 15 | 24 | 89 | 10 | 6 | 10 | 7 | 6 | 4 | 4 | 4 | 2 | <1 | <1 | 46.7 | 69.1 | 31.6 | 29 |
| 7 | Z21103141 | 15 | 23 | 87 | 15 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 5 | <1 | 3 | 43.4 | 66.7 | 31.8 | 31 |
| 8 | 319752 | 18 | 25 | 54 | 7 | 2 | 7 | 4 | 2 | 4 | 3 | 3 | 1 | <1 | <1 | 43.8 | 65.3 | 32.9 | 28 |
| 9 | 320824 | 19 | 24 | 54 | 8 | 3 | 8 | 5 | 3 | 5 | 2 | 2 | 6 | <1 | <1 | 43.4 | 65.9 | 31.8 | 29 |
| 10 | J1KB209 | 10 | 22 | 127 | 18 | 3 | 18 | 2 | 3 | 2 | 2 | 2 | 11 | <1 | <1 | 46.2 | 70.1 | 33.8 | 33 |
| 11 | 317900 | 20 | 27 | 55 | 8 | 3 | 8 | 4 | 3 | 4 | 2 | 2 | 5 | <1 | <1 | 45.0 | 69.0 | 32.9 | 30 |

(NOTE): A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING.
 N: NORMALIZING AT TEMPERATURE 880°C X 0.5HR, AIR COOLING.
 NACE MR-01-75-09/ISO 15156.2 & NACE MR 0103-10 : SATISFACTORY
 WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

Qu E Lam

MANAGER OF Q.A. DEPT.



INSPECTION CERTIFICATE
RIGID INDUSTRIES CO., LTD.

8, MEI-CHUNG RD., NIAO-SONG,
 KAOHSIUNG HSIEN, 83301 TAIWAN
 TEL: 886-77310527-8
 FAX: 886-77315887

DATE: 2011 - 05 - 18

ORDER NO.: 700321926221440R210

P.I. NO.: 0J01-2

CERTIF. NO.: 234

PURCHASER: SEYBOLD
 ASTM A234 WPB-07
 ASTM SA234 WPB-04

CSA Z245.11-05 Gr.241 Cat I Sour Service

MATERIALS: ASTM A106 Gr.B (SEAMLESS PIPE)
 INSP. SPEC.: ASME B16.9 - 03

ACCORDING TO EN10204/DIN50049/3.1

| ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG NO. | VISUAL & DIMENSIONAL INSPECTION | HARDNESS MAX 197 HB | HEAT TREATMENT (NOTE) | MAGNETIC PARTICLE EXAMINATION | IMPACT TEST (J) | CHEMICAL COMPOSITION % | | | | | | | | | | PHYSICAL TEST | | | | |
|----------|-----------------------|--------------|---------|---------------------------------|---------------------|-----------------------|-------------------------------|-----------------|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------------|---------|---------|-----|-----------|
| | | | | | | | | | C x100 | SI x100 | Mn x100 | P x1000 | S x1000 | Cu x100 | Ni x100 | Cr x100 | Mo x100 | V x100 | Nb x1000 | Y S KSI | T S KSI | E % | C.E. X100 |
| 1 | ELL 45 LR 4" 1171531 | 10 | 0J2488 | GOOD | 144 - 146 | A | | | 49.3 | 71.0 | 43.9 | | | 31 | | | | | | | | | |
| 2 | ELL 45 LR 4" 1175291 | 50 | 1A0708 | GOOD | 140 - 141 | A | | | 50.9 | 64.3 | 38.4 | | | 30 | | | | | | | | | |
| 3 | ELL 45 LR 6" 1174889 | 100 | 1A5188 | GOOD | 146 - 148 | A | | | 43.2 | 86.4 | 38.0 | | | 28 | | | | | | | | | |
| 4 | ELL 45 LR 10" 117500 | 3 | 1A6779 | GOOD | 150 - 153 | A | | | 41.4 | 62.7 | 35.2 | | | 28 | | | | | | | | | |
| 5 | ELL 45 LR 10" 1171504 | 32 | 0J6073 | GOOD | 149 - 154 | A | | | 49.8 | 65.8 | 34.8 | | | 34 | | | | | | | | | |
| 6 | ELL 90 LR 2" 1174854 | 2500 | 1G6503 | GOOD | 129 - 132 | A | | | 54.8 | 69.7 | 30.5 | | | 27 | | | | | | | | | |
| 7 | ELL 90 LR 3" 1175021 | 125 | 1A2251 | GOOD | 153 - 155 | A | | | 47.2 | 74.7 | 40.0 | | | 35 | | | | | | | | | |
| 8 | ELL 90 LR 4" 1171143 | 24 | 0F4681 | GOOD | 144 - 146 | A | | | 46.4 | 72.6 | 36.0 | | | 35 | | | | | | | | | |
| 9 | ELL 90 LR 4" 1171143 | 576 | 1D2859 | GOOD | 151 - 155 | A | | | 54.8 | 63.3 | 31.5 | | | 30 | | | | | | | | | |
| 10 | ECC-RED 6X3" 1174601 | 15 | 0H6075 | GOOD | 153 - 156 | N | | | 43.2 | 62.3 | 33.2 | | | 29 | | | | | | | | | |
| | | | | | | | | | 30 | 30 | 50 | | | | | | | | | | | | |
| | | | | | | | | | 18 | 25 | 54 | | | | | | | | | | | | |
| | | | | | | | | | 20 | 25 | 53 | | | | | | | | | | | | |
| | | | | | | | | | 17 | 22 | 57 | | | | | | | | | | | | |
| | | | | | | | | | 15 | 25 | 69 | | | | | | | | | | | | |
| | | | | | | | | | 17 | 22 | 94 | | | | | | | | | | | | |
| | | | | | | | | | 17 | 24 | 57 | | | | | | | | | | | | |
| | | | | | | | | | 17 | 24 | 99 | | | | | | | | | | | | |
| | | | | | | | | | 17 | 23 | 97 | | | | | | | | | | | | |
| | | | | | | | | | 17 | 23 | 97 | | | | | | | | | | | | |
| | | | | | | | | | 19 | 22 | 56 | | | | | | | | | | | | |
| | | | | | | | | | 19 | 25 | 56 | | | | | | | | | | | | |
| | | | | | | | | | 30 | 10 | 29 | | | | | | | | | | | | |
| | | | | | | | | | 30 | 10 | 29 | | | | | | | | | | | | |

(NOTE): A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING.
 N: NORMALIZING AT TEMPERATURE 880°C X 0.5HR, AIR COOLING.
 NACE MR-01-75-03/S015156.2 & NACE MR 0103-03 : SATISFACTORY
 WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

Qu E Lan
 MANAGER OF Q.A. DEPT.

APCO
APCO PIPE FITTINGS CO., LTD.
No. 53, Ship Road South, Queen Area, Yuyao City
Tel: 86-53-6856333, Fax: 86-53-6856333
Email: apcco@apcco.com.cn, WWW: www.apcco.com.cn

MATERIALS TESTING CERTIFICATE
BUTT-WELDING PIPE FITTINGS
EN 10204 3.1

CERTIFICATE NO.
10013-2-1

CUSTOMER: TFF CANADA INC
P.O. NO. B-10013-1

APCO PED CERTIFICATE No. Y/C326/0331
APCO ISO CERTIFICATE NO. C0109Q11751R2S12200

MATERIAL STANDARDS: ASTM A234 WPB/ASME SA234-WPB 2007
DIMENSION STANDARD: ANSI B16.9-2007
SPECIAL CONDITIONS: Made of seamless pipes

C.E. = C + Mn + Cr + Mo + V + Ni + Cu
5 5 5 5 5 15

| ITEM | NPS | DESCRIPTION | QTY | HEAT # | MECHANICAL | | PROPERTIES | | CHEMICAL COMPOSITION | | | | | | | | | | | | | | | |
|------|---------|----------------|-----|--------|------------|---------|------------|---------|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | | | | | 415 MIN | 240 MIN | 187 MAX | 167 MAX | 10.1 MAX | 0.015 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX | 0.005 MAX |
| 46 | 362-12" | CON RED STD | 100 | 58073 | 472 | 285 | 35 | 124 | YES | - | 0.3 | 0.29 | 0.05 | 0.005 | 0.005 | 0.01 | 0.4 | 0.15 | 0.4 | 0.4 | 0.08 | 0.02 | 0.5 | |
| 48 | 4x3 | CON RED STD | 400 | 54173 | 475 | 280 | 32 | 125 | YES | - | 0.18 | 0.55 | 0.012 | 0.005 | 0.005 | 0.25 | 0.04 | 0.04 | 0.05 | 0.089 | 0.009 | 0.31 | | |
| 53 | 8x4" | CON RED STD | 250 | 54003 | 475 | 280 | 33 | 125 | YES | - | 0.20 | 0.57 | 0.015 | 0.005 | 0.27 | 0.05 | 0.01 | 0.03 | 0.08 | 0.008 | 0.009 | 0.29 | | |
| 55 | 8x4" | CON RED STD | 25 | 49114 | 475 | 280 | 33 | 125 | YES | - | 0.20 | 0.50 | 0.011 | 0.005 | 0.25 | 0.09 | 0.02 | 0.04 | 0.05 | 0.005 | 0.009 | 0.31 | | |
| 58 | 8x5 | CON RED STD | 80 | 45114 | 475 | 280 | 33 | 125 | YES | - | 0.22 | 0.50 | 0.011 | 0.005 | 0.25 | 0.08 | 0.02 | 0.04 | 0.05 | 0.005 | 0.009 | 0.31 | | |
| 83 | 1-1/2" | 90 LR ELBOW XS | 200 | E2 | 471 | 285 | 33 | 124 | NO | 370 | 0.18 | 0.55 | 0.015 | 0.005 | 0.25 | 0.06 | 0.02 | 0.04 | 0.05 | 0.005 | 0.009 | 0.31 | | |
| 84 | 2" | 90 LR ELBOW XS | 150 | 50845 | 495 | 275 | 32 | 123 | NO | 370 | 0.18 | 0.55 | 0.015 | 0.005 | 0.25 | 0.06 | 0.02 | 0.04 | 0.05 | 0.005 | 0.009 | 0.31 | | |
| 85 | 2" | 90 SR ELBOW XS | 50 | 50845 | 495 | 275 | 32 | 123 | NO | 370 | 0.18 | 0.55 | 0.015 | 0.005 | 0.25 | 0.06 | 0.02 | 0.04 | 0.05 | 0.005 | 0.009 | 0.31 | | |
| 89 | 3" | 45 LR ELBOW XS | 25 | 54205 | 470 | 275 | 30 | 123 | NO | 370 | 0.19 | 0.52 | 0.016 | 0.005 | 0.23 | 0.05 | 0.02 | 0.04 | 0.05 | 0.007 | 0.009 | 0.30 | | |
| 89 | 3" | TEE XS | 100 | 08557 | 469 | 285 | 35 | 123 | NO | 370 | 0.19 | 0.52 | 0.016 | 0.005 | 0.25 | 0.02 | 0.08 | 0.04 | 0.05 | 0.007 | 0.009 | 0.30 | | |
| 90 | 6" | TEE XS | 10 | 27057 | 457 | 270 | 33 | 123 | NO | 370 | 0.20 | 0.58 | 0.013 | 0.005 | 0.24 | 0.03 | 0.02 | 0.04 | 0.03 | 0.008 | 0.009 | 0.31 | | |
| 91 | 8" | TEE XS | 13 | 94016 | 475 | 285 | 32 | 125 | NO | 370 | 0.19 | 0.56 | 0.015 | 0.005 | 0.25 | 0.04 | 0.03 | 0.05 | 0.005 | 0.007 | 0.009 | 0.31 | | |

We hereby certify that the material described herein has been inspected/described satisfactorily in accordance with the standards specified above and purchase order requirements.

REMARKS: 1. VISUAL EXAMINATION: GOOD
2. DIMENSIONAL EXAMINATION: GOOD
3. MELTING PROCEDURE: E
4. MATERIAL IN ACCORDANCE WITH EN ISO 75-2002
5. HEAT TREATMENT: COLD FORMED FITTINGS HAVE BEEN NORMALIZED AT 920 C AND COOLED IN STILL AIR
HOT FORMED FITTINGS HAVE BEEN FORMED AT TEMP 870 C AND COOLED IN STILL AIR.

HEAT/Detailed: E2 92772

DATE: 2002.03.20
CHIEF ENGINEER:
APCO PIPE FITTINGS CO., LTD.

PURCHASER : SEYBOLD
 ASTM A234 WPB-10
 STANDARD : ASTM SA234 WPB-04



INSPECTION CERTIFICATE
RIGID INDUSTRIES CO., LTD.

MATERIALS : ASTM A106 Gr.B (SEAMLESS PIPE)
 INSP. SPEC. : ASME B16.9 - 03

8. MEI-CHUNG RD. NIAO-SUNG,
 KAOHSIUNG HSIEN, 83301 TAIWAN
 TEL: 886-77310527-8
 FAX: 886-77315887

ORDER NO: Z004596/28261530R210
 P.I. NO: 1G05-5

DATE: 2012 - 02 - 23
 CERTIF. NO: 060

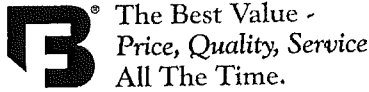
| ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG NO. | VISUAL & DIMENSIONAL INSPECTION | HARDNESS MAX 197 HB | HEAT TREATMENT (NOTE) | MAGNETIC PARTICLE EXAMINATION | IMPACT TEST (J) | | | | | | |
|----------|------------------|--------------|---------|---------------------------------|---------------------|-----------------------|-------------------------------|-----------------|---|----|----|---|---|----|
| | | | | | | | | | C | SI | Mn | P | S | Cu |
| 1 | ELL 45 LR 2" | 250 | 1G8836 | GOOD | 122 - | A | | | | | | | | |
| 2 | ELL 90 LR 1.1/4" | 100 | 1E1986 | GOOD | 123 - | A | | | | | | | | |
| 3 | ELL 90 LR 2" | 750 | 1D3651 | GOOD | 131 - | A | | | | | | | | |
| 4 | ELL 90 LR 2" | 2000 | 1G8936 | GOOD | 128 - | A | | | | | | | | |
| 5 | ELL 90 LR 3" | 250 | 1K1383 | GOOD | 142 - | A | | | | | | | | |
| 6 | CON-RED 3X2" | 200 | 1K0714 | GOOD | 146 - | N | | | | | | | | |
| 7 | TEE 8" | 25 | 2A3315 | GOOD | 138 - | N | | | | | | | | |
| 8 | RED-TEE 4X3" | 150 | 1G6238 | GOOD | 143 - | N | | | | | | | | |
| 9 | RED-TEE 4X3" | 40 | 1I2091 | GOOD | 138 - | N | | | | | | | | |
| 10 | RED-TEE 6X3" | 44 | 111297 | GOOD | 136 - | N | | | | | | | | |

| ITEM NO. | MATERIAL CHARGE NO. | CHEMICAL COMPOSITION % | | | | | | | | | | | | | | PHYSICAL TEST | | | | | | | |
|----------|---------------------|------------------------|------|------|-------|-------|------|------|-------|-------|------|------|------|------|-------|---------------|------|-------|-----|-----|---|------|--|
| | | C | | SI | | Mn | | P | | S | | Cu | | Ni | | Cr | | Mo | | V | | Nb | |
| | | x100 | x100 | x100 | x1000 | x1000 | x100 | x100 | x1000 | x1000 | x100 | x100 | x100 | x100 | x100 | x100 | x100 | x1000 | KSI | KSI | % | X100 | |
| 1 | 315036 | 18 | 24 | 53 | 9 | 9 | 6 | 3 | 4 | 4 | 15 | 8 | 20 | 51.6 | 169.0 | 30.3 | 28 | | | | | | |
| 2 | 210785 | 21 | 23 | 53 | 14 | 10 | 2 | 1 | 1 | 1 | 1 | 1 | <1 | 48.6 | 168.2 | 33.0 | 30 | | | | | | |
| 3 | 313361 | 17 | 24 | 56 | 10 | 5 | 7 | 5 | 4 | 4 | 2 | 2 | <1 | 45.5 | 170.7 | 32.4 | 28 | | | | | | |
| 4 | 315036 | 18 | 24 | 53 | 9 | 9 | 6 | 3 | 4 | 4 | 3 | 3 | <1 | 51.6 | 169.0 | 30.3 | 28 | | | | | | |
| 5 | 316983 | 18 | 23 | 55 | 9 | 4 | 6 | 3 | 4 | 4 | 3 | 3 | <1 | 44.4 | 163.2 | 32.0 | 29 | | | | | | |
| 6 | 511114 | 17 | 25 | 99 | 11 | 2 | 12 | 5 | 5 | 5 | 1 | 1 | <1 | 45.0 | 167.1 | 33.0 | 35 | | | | | | |
| 7 | Z11109115 | 14 | 24 | 93 | 15 | 4 | 2 | 1 | 2 | 2 | 2 | 2 | <1 | 49.2 | 165.9 | 32.8 | 30 | | | | | | |
| 8 | 605338 | 17 | 23 | 99 | 8 | 2 | 7 | 3 | 3 | 3 | 1 | 1 | <1 | 47.7 | 168.0 | 35.6 | 34 | | | | | | |
| 9 | 605291 | 15 | 25 | 68 | 7 | 2 | 9 | 3 | 2 | 2 | 1 | 1 | <1 | 49.5 | 171.1 | 31.9 | 27 | | | | | | |
| 10 | 615297 | 18 | 23 | 97 | 10 | 5 | 6 | 3 | 2 | 2 | 1 | 1 | <1 | 49.8 | 163.7 | 33.8 | 35 | | | | | | |

(NOTE): A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 820°C-980°C, AIR COOLING.
 N: NORMALIZING AT TEMPERATURE 880°C X 0.5 HR, AIR COOLING.
 NACE MR-01-75-03/ISO 15156.2 & NACE MR 0103-03: SATISFACTORY
 WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

Q. E. Lam
 MANAGER OF Q.A. DEPT.

CERTIFIED MILL TEST REPORT



LOG NO. F00000000024284 Page 3 of 4

BONNEY FORGE CORPORATION
 P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
 (814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
 www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 01/25/2012

CUSTOMER
 ORDER NO.: 4029911-00

BONNEY ORDER NO. B000113158

SHIP TO: CCTF CORPORATION (BURLINGTON)
 4151 NORTH SERVICE ROAD
 UNIT 2
 BURLINGTON ON L7L 4X6
 Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|---------------|----------|---------|---|
| 8 7551568 | 250 | 58392 | 5 -3 X 3/4 3000 A105N THRD T SA/A105N C 0.200 Cb 0.000 Co 0.002 Cr 0.040 Cu 0.100 Mn 1.010 Mo 0.010 Ni 0.020 P 0.009 S 0.020 Si 0.180 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 74,000 Y/S(PSI) 48,800 EL(%) 32.00 RA(%) 69.00 Brinell 163 BHN 163 BHN |
| 9 7551673 | 100 | 58487 | 10-6X1 3M A105N THRD T SA/A105N Al 0.026 C 0.200 Co 0.002 Cr 0.040 Cu 0.070 Mn 1.020 Mo 0.010 N 0.003 Nb 0.015 Ni 0.020 P 0.007 S 0.021 Si 0.220 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 72,500 Y/S(PSI) 50,000 EL(%) 30.85 RA(%) 61.55 Brinell 135 BHN 135 BHN |
| 10 7551797 | 50 | 58193 | 3 X 1 1/2 3000 A105N THRD T SA/A105N Al 0.020 C 0.200 Co 0.004 Cr 0.030 Cu 0.090 Mn 1.070 Mo 0.010 N 0.005 Nb 0.014 Ni 0.030 P 0.007 S 0.019 Si 0.180 V 0.004 CE(Long Formula) = 0.40 T/S(PSI) 71,875 Y/S(PSI) 50,000 EL(%) 36.10 RA(%) 65.15 Brinell 132 BHN 137 BHN |
| 11 7551916 | 50 | 58379 | 18-12X2 3M A105N THRD T SA/A105N C 0.200 Cb 0.000 Co 0.002 Cr 0.040 Cu 0.110 Mn 1.010 Mo 0.010 Nb 0.015 Ni 0.020 P 0.007 S 0.023 Si 0.200 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,750 Y/S(PSI) 50,000 EL(%) 31.90 RA(%) 65.15 Brinell 139 BHN 135 BHN |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht
 Meloney Specht
 QUALITY PROCESS MANAGER

CMTR: REV2



The Best Value -
Price, Quality, Service
All The Time.

CERTIFIED MILL TEST REPORT

LOG NO. F0000000024284 Page 4 of 4

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 01/25/2012

CUSTOMER
ORDER NO.: 4029911-00

BONNEY ORDER NO. B000113158

SHIP TO: CCTF CORPORATION (BURLINGTON)
4151 NORTH SERVICE ROAD
UNIT 2
BURLINGTON ON L7L 4X6
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|------|----------|---------|--|
|------|----------|---------|--|

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
3. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE IN REPORTED IN PSI.
7. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht
Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2



erne fittings gmbh
 A-6824 Schllins
 Hauptstrasse 48
 Austra/Europe
 Telefon +43/5524 501-0
 12 100 3054
 Reg. Nr. 12 100 3054



**Abnahmeprüfzeugnis
 Inspection Certificate
 EN 10204 - 3.1**

Kunde [customer]
 CE Franklin Ltd.
 Distribution Center
 Attn. Lalita Verbonac
 2603 -76 Avenue
 CDN-16P 1P6 Edmonton, Alberta

Zeugnis Nr. [cert. no.]
 015478/12-HG
Schmelze Nr [heat no.]
 385661
Unsere Auftrags-Nr./Art.Nr. [our order no./item no.]
 137463TD-0210 / 034423
Ihre Bestell Nr. [your order no.]
 2959695-OR-2100
Menge [quantity]
 600

Artikelbezeichnung [designation]
 tees
 E-S-WPB-2"1/2"-XS/XS
Anforderungen der Bestellung [requirements of the order]
 ASME B16.9-2007, material:W/PB, TR-basematerial:ASME Sect. II part D table Y-1, TR-fitting:ASTM A 234/A 234M-10, ASME SA-234/SA-234M-Ed.07/A08a, TR-addit fitting:NACE MR0175/ISO15156-2:2003A.2, NACE MR0103-2007 2.1 and 4, M0803-05, certificate:EN 10204/3.1, rust protection:Millstandard, execution:Seamless

Vormaterial
 base material/ seamless pipe

Analyse [analysis]
 Schmelze Nr. [heat no.] Y
 Erschmelzungsart [melting process] 1 = Schmelzanalyse [heat analysis] 2 = Produktanalyse [product analysis]
Index

| Index | Si | Mn | P | S | Cr | Mo | Ni | Cu | V | Nb | Al | B | Ti | N |
|-------|--------|------|------|-------|-------|------|------|------|------|------|-------|-------|--------|-------|
| 1 | 0,12 | 0,20 | 1,30 | 0,014 | 0,002 | 0,06 | 0,01 | 0,03 | 0,05 | 0,01 | 0,008 | 0,030 | 0,0004 | 0,015 |
| 2 | 385661 | | | | | | | | | | | | | |

(Si + Mn) * (P + Sn) * 10000
 C + (Mn / 6) + (Cr + Mo + V) / 5 + (Cu + Ni) / 15

Mech.-technologische Prüfung [mech. technological test]

Proben Nr.
 fest no.]
 2209_12

Zugversuch [tensile test]

| Pr.-Lage [pos. of sample] | Temp. | Dehngr. [yield str.] Rd 0.2 | Zugfestigkeit [tensile str.] Rm (MPa) | Dehnung [elongation] Z _r (%) |
|---------------------------|--------|-----------------------------|---------------------------------------|---|
| L | +20 °C | 347 | 472 | 32,5 |

Kerbschlagbiegeversuch [notched bar impact test]
 Form:
 Kerbschlagarbeit [impact values] (J)
 140-148 HB
Wärmebehandlung [heat treatment]
 normalized temperature 920 °C
 Holding Time 15 min.
 Cooling in still air

Kennzeichnung [marking]
 AUSTRIA / WPB / 385661 / 2"1/2" / XS / XS / MT

Prüfung und Ausmessung [visual inspection and dimensional check]
 o.B./o.K.

Zusatzmarkierung [add. mark.]
 Die gelieferten Produkte entsprechen den Anforderungen der Bestellung (einschließlich Herstellung, Probenahme, Testen und Prüfen). [The supplied products comply with the requirements of the order (including manufacturing, sampling, testing and inspections).]
 Der Werkseverständige [the Works Inspector]
 Gabrher Harald

Bemerkungen [remarks]
 cold formed
 NACE MR 0175/ISO 15156-2 Region 3
 magnetic particle examination acc. ASTM E709: o.K.

Zertifiziert nach DGR L 97/23/EG Anhang 1 - Absatz 4.3 durch TÜV SÜD Industrie Service, Benannte Stelle 0036, Zertifikat Nr. 12912002MUC [Certified acc. to PED 97/23/EG Annex 1, Paragraph 4.3 by TÜV SÜD Industrie Service, Notified Body 0036, Certificate No. 12912002MUC]



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkok, Prapadaeng,
Samutprakan, 10130 Thailand.

INSPECTION CERTIFICATE

TO EN10204 3.1

D M Y Certificate No.

12/03/2012 T. 2012200242

Purchaser : CE Franklin Ltd

E.No. Purchase Order No. Job No.

MC-502 P/O 2825882-OR-2100

| No. | MFG. No. | Specification for Material | | Specification for Inspection | | Visual Examination | Dimensional Inspection | | | | | | | | | |
|-------------------|----------|---|----------|------------------------------|-----------|--------------------|------------------------|----------------------------|----------|-----------------|-----------|-----------|----------|-----|-----|----|
| | | Made from Seamless Pipe | | ASME B16.9-2007 B16.25-2007 | | | | | | | | | | | | |
| | | ASTM A234-1/ASME SA234-10 Gr.WPB CSA Z246-11-09 Gr.241 CAT1 SB NACE MR0175/ISO 15156-2 RC-09/MR0103-10 | | Quantity | | | | Heat Treatment (Note 1) | | | | | | | | |
| 1 | 54G10091 | T WPB 2 XS | 850 | N | 0.0001 | 7512040 | 7515758 | | | | | | | | | |
| 2 | 54G10095 | T WPB 2 S160 | 100 | N | 0.0000 | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| Specification | | Chemical Composition % | | | | | | | | Tension Test *2 | | | | | | |
| Material Heat No. | | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | C.E. | YS | TS | E |
| Min. | | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | X 100 | X 100 | X 100 | X 1000 | X 1000 | X 100 | | | |
| Max. | | | 10 | 29 | | | | | | | | | | 240 | 415 | 30 |
| 1 | JOK8310 | 18 | 16 | 82 | 15 | 6 | 1 | 3 | 6 | 3 | | | 34 | 273 | 458 | 62 |
| 2 | J9L1217 | 20 | 20 | 80 | 20 | 7 | 1 | 2 | 7 | 1 | | | 35 | 316 | 482 | 58 |
| 3 | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |

(Note 1) A : Hot formed with final temperature between 620 °C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR, Air Cooling *N : Normalizing 910°Cx0.5 HR, Air Cooling (Specification for material made from plate) S : Stress Relieving 675° Cx0.5 HR, Air Cooling

The forgings was manufactured, sampled, tested and inspected in accordance with the specification, and was found to meet the requirements.
CE = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY:

GOOD

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Quality Assurance Manager
Thai Benkan Co., Ltd.



erne fittings gmbh
 A-6824 Schllins
 Hauptstrasse 48
 Austria/Europe
 Telefon +43/5524 501-0
 Telefax +43/5524 501-930



Reg. No.
12 100 3054

**Abnahmeprüfzeugnis
 Inspection Certificate
 EN 10204 - 3.1**

Artikelbezeichnung [designation]
tees

E-S-WPB-2"2"-XS/XS

Kunde [customer]
 CE Franklin Ltd
 Distribution Center
 Attn: Lalita Verbonac
 2603 - 76 Avenue
 CDN-T6P 1P6 Edmonton, Alberta

Zeugnis Nr. [cert. no.] Rev. Datum [date]
 019452/12-HG 02/05/2012
Schmelze Nr. [heat no.] Ident. Nr. [ident no.]
 355289
Unsere Auftrags-Nr./Art-Nr. [our order no./item no.]
 137463TD-0211 / 034423
Ihre Bestell. Nr. [your order no.]
 2959695-OR-2100
Menge [quantity]
 400

Anforderungen der Bestellung [requirements of the order]
 ASME B16.9-2007, material:WPB, TR-basematerial:ASME Sect. II
 part D table Y-1, TR-fitting:ASTM A 234/A 234M-10, ASME
 SA-234/SA-234M-Ed.07/A08a, TR-addit fitting:NACE
 MR0175/ISO15156-2:2003A.2, NACE MR0103-2007 2.1 and 4,
 M0803-05, certificate:EN 10204/3.1, rust protection:Millistandard,
 execution:Seamless

Vormaterial
 [base material] seamless pipe

| Analyse [analysis] | Schmelze Nr. [heat no.] | Erschmelzungsart [melting process] | 1 = Schmelzeanalyse [heat analysis] J-Faktor CEQ [CEQ]: | | | | | | | | | | | C + (Mn / 6) + (Cr + Mo + V) / 5 + (Cu + Ni) / 15 | | | |
|--------------------|-------------------------|------------------------------------|---|------|------|-------|-------|------|------|------|------|------|-------|---|--------|-------|-------|
| | | | 2 = Produktanalyse [product analysis] | | | | | | | | | | | | | | |
| Index | | | C | Si | Mn | P | S | Cr | Mo | Ni | Cu | V | Nb | Al | B | Ti | N |
| 1 | 355289 | Y | 0.11 | 0.19 | 1.29 | 0.020 | 0.003 | 0.03 | 0.01 | 0.04 | 0.03 | 0.01 | 0.008 | 0.025 | 0.0003 | 0.017 | 0.006 |
| 2 | 355289 | | | | | | | | | | | | | | | | |

Mech.-technologische Prüfung [mech. technological test]

| Nr. [test no.] | Pr.-Lage [pos. of sample] | Temp. +20 °C | Zugversuch [tensile test] | | | PR-Lage [pos. of sample] | Temp. | Querschnitt [cross sec.] | Kerbschlagarbeit [impact values] (J) | Härteprüfung [hardness test] | Wärmebehandlung [heat treatment] |
|----------------|---------------------------|--------------|----------------------------|---------------------------------------|----------------------------|--------------------------|-------|--------------------------|--------------------------------------|------------------------------|---|
| | | | Dehng. [yield str.] Rb 0.2 | Zugfestigkeit [tensile str.] Rm (MPa) | Dehnung [elongation] Z (%) | | | | | | |
| 3494_12 | L | | 360 | 485 | 29.5 | | | | | 137-142 HB | normalized temperature 920 °C Holding Time 15 min. Cooling in still air |

Kennzeichnung [marking] AUSTRIA / WPB / 355289 / 2" / 2" / XS / XS / MT

Besichtigung und Ausmessung [visual inspection and dimensional check] o.B./o.K.

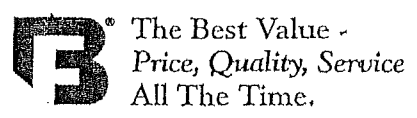
Bemerkungen [remarks]
 cold formed
 magnetic particle examination acc. ASTM E709: o.k.

Zusatzmarkierung [add. mark.]
 Die gelieferten Produkte entsprechen den Anforderungen der Bestellung (einschließlich Herstellung, Probenahme, Testen und Prüfen). [The supplied products comply with the requirements of the order (including manufacturing, sampling, testing and inspections).]
 Der Werkstoffverständige [the Works Inspector]
 02/05/12 Grabherr Harald

Zertifiziert nach DGR L 97/23/EG Anhang I - Absatz 4.3 durch TÜV SÜD Industrie Service, Benannte Stelle 0036, Zertifikat Nr. 129/2002MUC [Certified acc. to PED 97/23/EG Annex I, Paragraph 4.3 by TÜV SÜD Industrie Service, Notified Body 0036, Certificate No. 129/2002MUC]

1/2

CERTIFIED MILL TEST REPORT



LOG NO. F0000000031496 Page 3 of 4

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 07/11/2012

CUSTOMER
ORDER NO.: 4891593-00

BONNEY ORDER NO. B000124681

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

ITEM QUANTITY LOT NO. GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS

| | | | | |
|---------|-----|-------|--|----------|
| 10 | 500 | 58638 | 5-4X1 3M A105N THRD T | SA/A105N |
| 7551665 | | | Al 0.022 C 0.220 Co 0.002 Cr 0.030 Cu 0.050 Mn 1.050 Mo 0.000 N 0.003 Nb 0.013 Ni 0.020 P 0.006 S 0.020 Si 0.210 V 0.003 CE(Long Formula) = 0.41 T/S(PST) 81,500 Y/S(PST) 53,500 EL(%) 31.00 RA(%) 56.00 Brinell 163 BHN | |

| | | | | |
|---------|-----|-------|--|----------|
| 11 | 250 | 58715 | 2X1 3M A105N THRD T | SA/A105N |
| 7551622 | | | Al 0.027 C 0.205 Co 0.003 Cr 0.050 Cu 0.110 Mn 1.020 Mo 0.010 N 0.004 Nb 0.015 Ni 0.020 P 0.007 S 0.022 Si 0.180 V 0.003 CE(Long Formula) = 0.40 T/S(PST) 72,500 Y/S(PST) 48,200 EL(%) 31.00 RA(%) 68.00 Brinell 143 BHN | |

Skc # 1552894

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht
Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2

2/2

CERTIFIED MILL TEST REPORT



The Best Value -
Price, Quality, Service
All The Time.

LOG NO. F00000000031496

Page 4 of 4

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 07/11/2012

CUSTOMER
ORDER NO.: 4891593-00

BONNEY ORDER NO. B000124681

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|------|----------|---------|--|
|------|----------|---------|--|

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
3. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
7. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht

Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Perini, 28
 Tel. +39 031 655141
 Fax +39 031 655149
 quality.mfi@amms.com

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Perini, 28
 Tel. +39 031 655141
 Fax +39 031 655149
 quality.mfi@amms.com

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

| | |
|---|----------------------|
| CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE | |
| Certif. N. 2648 | Del/Dated 25.05.2012 |
| DDT / Del Note N. 2101 | Del/Dated 24.05.2012 |
| FORGED FLANGES & FITTINGS LTD | |
| CASTLE HOUSE - STATION ROAD | |
| ENS 1PE NEW BARNET/HERTFORD... | |
| GB | EDMONTON, ALBERTA |
| Fattura / Invoice N. 1785 | |
| Ns. Ord. / Our ref. N. | |
| Dest.: F.F.F. c/o C.E. FRANKLIN LTD | |
| Del/Dated 24.05.2012 | |

| COD. COL. COLATA | POS. ITEM | VS. ORDINE YOUR REFERENCE | Q.TA. DESCRIZIONE | DIM. IN ACC. A DIM. ACCORDANCE TO | ORIGINE / ORIGIN |
|--|-------------|---------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|
| HEAT CODE HEAT | 181 | 3810/FR | W/N 300 RF 4" STD LF2CL1 | ASME/ANSI B16.5-2009 | VISIVO E DIMENS. SATISFACTORY |
| MATERIALE / MATERIAL | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | 0,200 | 0,210 | 0,950 | 0,003 |
| PROVETA / TEST SPECIMEN | FORMA SHAPE | SNERVAMENTO YIELD POINT M/min2 >=0,2% | ROTTURA TENSILE STRENGTH M/min2 >= | ALLUNGAMENTO ELONGATION %>= | CONTRAZIONE REDUCTION OF AREA %>= |
| SEZ. mm2 | LUNG. mm | | | | |
| 126,60 | 50,80 | 328,0 | 530,0 | 31,0 | 58,0 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | |
| ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | |
| CSA CAN3 Z-245.12 -09 GRADE 290 CAT.II | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | |
| NORMALIZED AT 930 C - COOLED IN STILL AIR | | | | | |

| COD. COL. COLATA | POS. ITEM | VS. ORDINE YOUR REFERENCE | Q.TA. DESCRIZIONE | DIM. IN ACC. A DIM. ACCORDANCE TO | ORIGINE / ORIGIN |
|--|-------------|---------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|
| HEAT CODE HEAT | 191 | 3810/FR | W/N 600 RF 3" STD LF2CL1 | ASME/ANSI B16.5-2009 | VISIVO E DIMENS. SATISFACTORY |
| MATERIALE / MATERIAL | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | 0,189 | 0,170 | 1,070 | 0,008 |
| PROVETA / TEST SPECIMEN | FORMA SHAPE | SNERVAMENTO YIELD POINT M/min2 >=0,2% | ROTTURA TENSILE STRENGTH M/min2 >= | ALLUNGAMENTO ELONGATION %>= | CONTRAZIONE REDUCTION OF AREA %>= |
| SEZ. mm2 | LUNG. mm | | | | |
| 126,60 | 50,80 | 352,0 | 549,0 | 30,0 | 57,0 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | |
| ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | |
| CSA CAN3 Z-245.12 -09 GRADE 290 CAT.II | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | |
| NORMALIZED AT 930 C - COOLED IN STILL AIR | | | | | |

| | | | |
|---|---|---|--|
| NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION | UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT | ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY | MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL |
| NOTES MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 15165-2009 - SOUR SERVICE | | | |
| MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE | | | |
| | | | |

Is. Corti
Is. Corti





METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STABILIMENTO:
 23851 CESSANA BRIANZA (LC) - Italy
 Via G. Pardi, 28
 Tel. +39 031 655441
 Fax +39 031 655148
 quality.metalfar.com

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

4890538-00

| | | | |
|---|---------------------|-----------------------------|---------------------|
| CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE | | | |
| Carta: N. 3491 | Deidated 13.07.2012 | Fattura / Invoice N. 2377 | Deidated 13.07.2012 |
| DDT / Ddt Note N. 2820 | Deidated 13.07.2012 | Ns.Ord. / Our ref. N. | Deidated |
| FORGED FLANGES & FITTINGS LTD | | Dest.: F.F.F. do CCTF - EDM | |
| CASTLE HOUSE - STATION ROAD | | 5407, 59 AVENUE | |
| ENS IPE NEW BARNET/HERTFORD... | | T8B 3G2 EDMONTON, ALBERTA | |
| GB | | CA | |

Page 2 - 7

1075784

| COD. COL. | COLATA | POS. | VS. ORDINE | O.T.A. | DESCRIZIONE | TRATTAMENTO TERMICO / HEAT TREATMENT | DIM. IN ACC. A | ORIGINE / ORIGIN |
|-------------------------|---------|----------------|------------------|-----------------|---------------|---|----------------|------------------|
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | O.T.Y. | DESCRIPTION | | | | |
| 11/36145 | 045 | 3800/CCTF EDM | 64,00 | BLIND 600 RE 4" | A105N | NORMALIZED AT 920 C - COOLED IN STILL AIR | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A105 (LADLE) | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | DIREZZA | RESISTENZA / IMPACT TEST - JOULE/cm2 | | |
| SEZ. mm2 | 1-O 2-D | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | | |
| 126,80 | 1 | >=0,2% | N/mm2 | % | HBW | | | |
| 50,80 | 1 | 349,0 | 537,0 | 31,0 | 163,0 - 165,0 | 20 89 89 83 | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A105 (LADLE) | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | DIREZZA | RESISTENZA / IMPACT TEST - JOULE/cm2 | | |
| SEZ. mm2 | 1-O 2-D | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | | |
| 126,80 | 1 | >=0,2% | N/mm2 | % | HBW | | | |
| 50,80 | 1 | 349,0 | 537,0 | 31,0 | 163,0 - 165,0 | 20 89 89 83 | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A105 (LADLE) | | | | | | | | |

| COD. COL. | COLATA | POS. | VS. ORDINE | O.T.A. | DESCRIZIONE | TRATTAMENTO TERMICO / HEAT TREATMENT | DIM. IN ACC. A | ORIGINE / ORIGIN |
|-------------------------|---------|----------------|------------------|-----------------|---------------|---|----------------|------------------|
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | O.T.Y. | DESCRIPTION | | | | |
| 11/36145 | 045 | 3800/CCTF EDM | 64,00 | BLIND 600 RE 4" | A105N | NORMALIZED AT 920 C - COOLED IN STILL AIR | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A105 (LADLE) | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | DIREZZA | RESISTENZA / IMPACT TEST - JOULE/cm2 | | |
| SEZ. mm2 | 1-O 2-D | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | | |
| 126,80 | 1 | >=0,2% | N/mm2 | % | HBW | | | |
| 50,80 | 1 | 349,0 | 537,0 | 31,0 | 163,0 - 165,0 | 20 89 89 83 | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A105 (LADLE) | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | DIREZZA | RESISTENZA / IMPACT TEST - JOULE/cm2 | | |
| SEZ. mm2 | 1-O 2-D | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | | |
| 126,80 | 1 | >=0,2% | N/mm2 | % | HBW | | | |
| 50,80 | 1 | 349,0 | 537,0 | 31,0 | 163,0 - 165,0 | 20 89 89 83 | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A105 (LADLE) | | | | | | | | |

| COD. COL. | COLATA | POS. | VS. ORDINE | O.T.A. | DESCRIZIONE | TRATTAMENTO TERMICO / HEAT TREATMENT | DIM. IN ACC. A | ORIGINE / ORIGIN |
|-----------------------------|---------|----------------|------------------|-------------------|---------------|---|----------------|------------------|
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | O.T.Y. | DESCRIPTION | | | | |
| 4068/42 | 063 | 3800/CCTF EDM | 259,00 | W/N 300 RE 3" STD | LF2CL1 | NORMALIZED AT 930 C - COOLED IN STILL AIR | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | DIREZZA | RESISTENZA / IMPACT TEST - JOULE/cm2 | | |
| SEZ. mm2 | 1-O 2-D | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | | |
| 126,80 | 1 | >=0,2% | N/mm2 | % | HBW | | | |
| 50,80 | 1 | 345,0 | 552,0 | 31,0 | 164,0 - 166,0 | -50 63 67 65 | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | DIREZZA | RESISTENZA / IMPACT TEST - JOULE/cm2 | | |
| SEZ. mm2 | 1-O 2-D | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | | |
| 126,80 | 1 | >=0,2% | N/mm2 | % | HBW | | | |
| 50,80 | 1 | 345,0 | 552,0 | 31,0 | 164,0 - 166,0 | -50 63 67 65 | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | | | | | | | |

| COD. COL. | COLATA | POS. | VS. ORDINE | O.T.A. | DESCRIZIONE | TRATTAMENTO TERMICO / HEAT TREATMENT | DIM. IN ACC. A | ORIGINE / ORIGIN |
|-----------------------------|---------|----------------|------------------|-------------------|---------------|---|----------------|------------------|
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | O.T.Y. | DESCRIPTION | | | | |
| 4068/42 | 063 | 3800/CCTF EDM | 259,00 | W/N 300 RE 3" STD | LF2CL1 | NORMALIZED AT 930 C - COOLED IN STILL AIR | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | DIREZZA | RESISTENZA / IMPACT TEST - JOULE/cm2 | | |
| SEZ. mm2 | 1-O 2-D | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | | |
| 126,80 | 1 | >=0,2% | N/mm2 | % | HBW | | | |
| 50,80 | 1 | 345,0 | 552,0 | 31,0 | 164,0 - 166,0 | -50 63 67 65 | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | | | | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | DIREZZA | RESISTENZA / IMPACT TEST - JOULE/cm2 | | |
| SEZ. mm2 | 1-O 2-D | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | | |
| 126,80 | 1 | >=0,2% | N/mm2 | % | HBW | | | |
| 50,80 | 1 | 345,0 | 552,0 | 31,0 | 164,0 - 166,0 | -50 63 67 65 | | |
| MATERIALE / MATERIAL | | | | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | | | | | | | |

NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 NOTES MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009

| | | |
|--|--|---|
| UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT | ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY | MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL |
| <i>Bracchi</i> | | |



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

STRADA 6 A CALDO DI ACQUA CALDA - LEGATE E INOSSIDIBILI

SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LO) - Italy
 Via G. Pardi, 28
 Tel. +39 031.655441
 Fax +39 031.655149
 quality.mff@metalfar.com

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

4890538-00

Page 2 - 7

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

| | | | |
|--------------------------------|---------------------|------------------------------|---------------------|
| Carit. N. 3491 | De/Dated 13.07.2012 | Fattura / Invoice N. 2377 | De/Dated 13.07.2012 |
| DDI / Del Note N. 2820 | De/Dated 13.07.2012 | Ns.Ord. / Our ref. N. | De/Dated |
| FORGED FLANGES & FITTINGS LTD | | Dest.: F.F.F. c/o CCTF - EDM | |
| CASTLE HOUSE - STATION ROAD | | 5407, 53 AVENUE | |
| ENS TPE NEW BARNET/HERTFORD... | | T8B 302 EDMONTON, ALBERTA | |
| GB | | CA | |

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA. | DESCRIZIONE | DIM. IN ACC. A | ORIGINE / ORIGIN |
|--|---------|-------------|--|------------------|-----------------|----------------------|---------------------------------------|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | O.TY | DESCRIPTION | DIM. ACCORDANCE TO | VISIVO E DIMENS. V.S. & DIMENS. |
| 11/36145 | 045 | 045 | 3800/CCTF EDM | 64,00 | BLIND 600 RF 4" | ASM/EANSI B16.5-2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | | | | | | |
| ASTM A105 (LADLE) | | | C% 0,210 S1% 0,230 M1% 0,990 S% 0,009 P% 0,009 C1% 0,090 N1% 0,050 M0% 0,010 T1% 0,010 C1% 0,160 V1% 0,002 N1% 0,001 N1% 0,000 A1% 0,010 C.E.% 0,409 | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | YIELD POINT | ROTTURA | ALLUNGAMENTO | DUREZZA | RESISTENZA / IMPACT TEST - JOULE/EN82 |
| SEZ. mm2 | 1=O 2=D | YIELD POINT | N/mm2 >=0,2% | TENSILE STRENGTH | ELONGATION | HARDNESS | TEMP. / TYPE (kWh/mm) |
| 126,60 | 50,80 | 349,0 | 537,0 | 31,0 | 59,0 | 163,0 - 165,0 | 20 1 89 2 89 3 83 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | |
| ASTM/ASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | | |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | | | |

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA. | DESCRIZIONE | DIM. IN ACC. A | ORIGINE / ORIGIN |
|--|---------|-------------|--|------------------|-----------------|----------------------|---------------------------------------|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | O.TY | DESCRIPTION | DIM. ACCORDANCE TO | VISIVO E DIMENS. V.S. & DIMENS. |
| 11/36145 | 045 | 045 | 3800/CCTF EDM | 64,00 | BLIND 600 RF 4" | ASM/EANSI B16.5-2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | | | | | | |
| ASTM A105 (LADLE) | | | C% 0,210 S1% 0,230 M1% 0,990 S% 0,009 P% 0,009 C1% 0,090 N1% 0,050 M0% 0,010 T1% 0,010 C1% 0,160 V1% 0,002 N1% 0,001 N1% 0,000 A1% 0,010 C.E.% 0,409 | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | YIELD POINT | ROTTURA | ALLUNGAMENTO | DUREZZA | RESISTENZA / IMPACT TEST - JOULE/EN82 |
| SEZ. mm2 | 1=O 2=D | YIELD POINT | N/mm2 >=0,2% | TENSILE STRENGTH | ELONGATION | HARDNESS | TEMP. / TYPE (kWh/mm) |
| 126,60 | 50,80 | 349,0 | 537,0 | 31,0 | 59,0 | 163,0 - 165,0 | 20 1 89 2 89 3 83 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | |
| ASTM/ASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | | |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | | | |

| COD. COL. | COLATA | POS. | VS. ORDINE | Q.TA. | DESCRIZIONE | DIM. IN ACC. A | ORIGINE / ORIGIN |
|--|---------|-------------|--|------------------|-------------------|--------------------|---------------------------------------|
| HEAT CODE | HEAT | ITEM | YOUR REFERENCE | O.TY | DESCRIPTION | DIM. ACCORDANCE TO | VISIVO E DIMENS. V.S. & DIMENS. |
| 4068/12 | 063 | 063 | 3800/CCTF EDM | 259,00 | W/N 300 RF 3" STD | LF2CL1 | SATISFACTORY |
| MATERIALE / MATERIAL | | | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | | C% 0,195 S1% 0,200 M1% 0,990 S% 0,003 P% 0,007 C1% 0,120 N1% 0,080 M0% 0,026 T1% 0,020 C1% 0,080 V1% 0,003 N1% 0,001 N1% 0,008 A1% 0,025 C.E.% 0,394 | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | YIELD POINT | ROTTURA | ALLUNGAMENTO | DUREZZA | RESISTENZA / IMPACT TEST - JOULE/EN82 |
| SEZ. mm2 | 1=O 2=D | YIELD POINT | N/mm2 >=0,2% | TENSILE STRENGTH | ELONGATION | HARDNESS | TEMP. / TYPE (kWh/mm) |
| 126,60 | 50,80 | 345,0 | 552,0 | 31,0 | 60,0 | 164,0 - 166,0 | -50 1 63 2 67 3 65 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | |
| ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | | |
| NORMALIZED AT 930 C - COOLED IN STILL AIR | | | | | | | |

| | | | |
|--|----------------------------|----------------------------|-----------------------|
| NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION | UFFICIO CONTROLLO QUALITA' | ENTE UFFICIALE DI COLLAUDO | MARCHIO PRODUZIONE |
| NOTES MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009 | QUALITY CONTROL DEPARTMENT | INSPECTION AUTHORITY | MANUFACTURER'S SYMBOL |
| | | | |

1075784

INSPECTION CERTIFICATE

1499-1, SONG JUNG-DONG,
GANGSEO-GU BUSAN, KOREA
Tel : 82-51-831-6550
Fax : 82-51-831-6886

(EN10204:2004 3.1 / ISO 10474:1991 3.1B)

| Customer | CE Franklin LTD. | | Certificate No. | 20120101051 | Date | 2012/01/05 | | |
|------------------------------|--|--------------|---------------------------------|---------------|---------|------------|----------------|--------------|
| P.O No. | 2826338-OR-2100 | | Project Name | EDMONTON | | | | |
| Job No. | | | POR/Req'n No | | | | | |
| Specification for Material | ASTM/ASME A/SA420 WPL6(2010Ed.) NACE MR0175/ISO 15156-2 RESION 3 AND NACE MR0103-10 | | Starting Material | SEAMLESS PIPE | | | | |
| Specification for Inspection | ASME B16.9-2007 | | Dimension and Visual Inspection | GOOD | | | | |
| Heat Code No [HCN] | No. | Descriptions | | | | Qty (Pcs) | Heat Treatment | N.D.E (GOOD) |
| BL336 | 0082 | STRAIGHT TEE | STD | B.W | 3" | 50 | N: 910°C | MT |
| BU212 | 0083 | STRAIGHT TEE | STD | B.W | 4" | 200 | N: 910°C | MT |
| BV064 | 0084 | STRAIGHT TEE | STD | B.W | 12" | 10 | N: 910°C | MT |
| BL606 | 0085 | REDUCING TEE | STD | B.W | 3" x 2" | 150 | N: 910°C | MT |

CHEMICAL COMPOSITION (%)

| Heat Code No [HCN] | Spec | C S Mn P S Ni Cr Mo Cu V Co B C.E Raw/HeatNo | | | | | | | | | | | | | |
|--------------------|------|--|------|------|-------|-------|-------|------|------|------|-------|-------|--------|-------|--------|
| | | Max. | 0.30 | 0.35 | 1.35 | 0.035 | 0.040 | 0.40 | 0.30 | 0.12 | 0.40 | 0.030 | 0.020 | - | 0.43 |
| | Min. | - | 0.15 | 0.50 | - | - | - | - | - | - | - | - | - | - | - |
| BL336 | L | 0.14 | 0.23 | 0.84 | 0.008 | 0.007 | 0.03 | 0.04 | 0.01 | 0.08 | 0.001 | 0.011 | 0.0004 | 0.298 | 400559 |
| | P | 0.13 | 0.25 | 0.83 | 0.009 | 0.005 | 0.04 | 0.03 | 0.02 | 0.07 | 0.003 | 0.010 | 0.0003 | 0.286 | |
| BU212 | L | 0.14 | 0.24 | 0.9 | 0.008 | 0.005 | 0.03 | 0.04 | 0.01 | 0.06 | 0.005 | 0.017 | 0.0003 | 0.307 | 513850 |
| | P | 0.13 | 0.26 | 0.89 | 0.009 | 0.003 | 0.04 | 0.03 | 0.02 | 0.06 | 0.004 | 0.018 | 0.0003 | 0.296 | |
| BV064 | L | 0.14 | 0.27 | 0.88 | 0.011 | 0.005 | 0.04 | 0.05 | 0.01 | 0.07 | 0.001 | 0.01 | 0.0004 | 0.306 | 113802 |
| | P | 0.12 | 0.25 | 0.85 | 0.008 | 0.003 | 0.02 | 0.04 | 0.01 | 0.05 | 0.001 | 0.02 | 0.0002 | 0.278 | |
| BL606 | L | 0.14 | 0.23 | 0.84 | 0.008 | 0.007 | 0.03 | 0.04 | 0.01 | 0.08 | 0.001 | 0.011 | 0.0004 | 0.298 | 400559 |
| | P | 0.13 | 0.22 | 0.85 | 0.007 | 0.006 | 0.02 | 0.05 | 0.02 | 0.07 | 0.002 | 0.010 | 0.0002 | 0.282 | |

MECHANICAL PROPERTIES

| Heat Code No [HCN] | Spec | Y.S | | T.S | E.L (%) | Hardness Test | | * Impact Test (J) | | | |
|--------------------|------|------|------|------|---------|---------------|-----------|-------------------|-------|-------|-------|
| | | Ksi | | | | HB | Temp.(°C) | Size(2mm-v) | | | |
| | | Max. | Min. | 85 | | 197 | -46 | Act. | Ave. | | |
| BL336 | P | 50.1 | 71.3 | 33.5 | | 141 | 143 | 82.3 | 111.2 | 168.5 | 120.7 |
| | P | 43.6 | 67.2 | 32.5 | | 144 | 142 | 46.5 | 62.1 | 52.2 | 53.6 |
| BU212 | P | 43.6 | 69.4 | 41.5 | | 143 | 145 | 67.5 | 65.7 | 64.8 | 66.0 |
| | P | 48.2 | 71.6 | 33.5 | | 141 | 143 | 51.3 | 68.5 | 58.3 | 59.4 |

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Remark : * CSA Z245.11-09 Gr241 CAT II Sour Service
 * Cu+Ni+Cr+Mo < 1.00% * Cr+Mo < 0.32%
 BL336 = 0.16 BL336 = 0.05
 BU212 = 0.14 BU212 = 0.05
 BV064 = 0.17 BV064 = 0.05
 BL606 = 0.16 BL606 = 0.05
 *Tensile Test specimen Type : Longitudinal

* Impact Specimen Size & Spec. Value,
 Size Mln. Ave.
 BL336 10X2.5X55mm 4.1 5.4
 BU212 10X5.0X55mm 7.0 9.5
 BV064 10X7.5X55mm 10.8 13.6
 BL606 10X2.5X55mm 4.1 5.4

Legend:
 HB: Brinell AC: Air Cool
 ST: Solution Treatment OC: Oil Cool
 SR: Stress Relieving WQ: Water Quenched
 N: Normalized WC: Water Cool
 T: Tempered
 A: Annealed L: Ladle
 Q: Quenched P: Product
 (G): Hot-Dip Galvanized Coating
 Y.S: 0.2% Offset Method

Reviewed by :

Witnessed by :

Approved by :

S. A. Lee

Director of Quality Assurance Dept

1580271



INSPECTION CERTIFICATE
RIGID INDUSTRIES CO., LTD.

DATE: 2011-11-30

PURCHASER: SEVEBOLD
 STANDARD: ASTM A420 WPL6-07
 ASTM S4420 WPL6-04

8 MEI-CHUNG RD, NIAO-SONG,
 KAOHSIUNG HSIEN, 83301 TAINAN
 TEL: 886-77310527-8
 FAX: 886-77315887

MATERIALS: CSA Z46.11-05 Gr 241 Cat II Sour Service
 ASTM A303.6 (SEAMLESS PIPE)
 INSP. SPEC.: ASME B16.9-03

ACCORDING TO EN10204/DIN50049/3.1

CERTIF. NO.: 595

P.I. NO.: 1W04-2

ORDER NO.: 7005062/11411ART

| ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG NO. | VISUAL & DIMENSIONAL INSPECTION | HARDNESS MAX 197 HB | HEAT TREATMENT (NOTE) | MAGNETIC PARTICLE EXAMINATION | IMPACT TEST (J) | | | | | | | |
|----------|----------------------|------------------------|---------|---------------------------------|---------------------|-----------------------|-------------------------------|---|----------|----------------|--------------|---------------|---------------------------------|---------------------|-----------------------|
| | | | | | | | | | ITEM NO. | PRODUCT & SIZE | QUANTITY PCS | MFG NO. | VISUAL & DIMENSIONAL INSPECTION | HARDNESS MAX 197 HB | HEAT TREATMENT (NOTE) |
| 59 | ECC-RED 8X6"WPL6 STD | 35 | 1E7853 | GOOD | 134 - 145 | # | | 10 X 7.5 X 2V AT 45°C 259.4 267.2 241.5 256.0 | | | | | | | |
| ITEM NO. | MATERIAL CHARGE NO. | CHEMICAL COMPOSITION % | | | | | | | | | | PHYSICAL TEST | | | |
| | | C x100 | Si x100 | Mn x100 | P x1000 | S x1000 | Cu x100 | Ni x100 | Cr x100 | Mo x100 | V x1000 | Nb x10000 | Y S KSI | T S KSI | E % |
| 59 | J0LB553 | MIN. | 15 | 60 | | | | | | | | 35.0 | 60.0 | 30.0 | |
| | | MAX. | 30 | 35 | 135 | 35 | 40 | 40 | 30 | 12 | 5 | 20 | 47.7 | 67.7 | 35 |

NOTE: A. HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C AIR COOLING.
 N. NORMALIZING AT TEMPERATURE 880°C X 0.5HR AIR COOLING.
 NACE MR-01-75-03MS01 5156.2 & NACE MR 0103-03 : SATISFACTORY
 WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

On E Dam
 MANAGER OF Q.A. DEPT.



Thai Benkan Co., Ltd.
58 Soi Watkarnai, Bangkan, Prapadaeng,
Samutprakan, 10130 Thailand.

Purchaser : CCTF CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1

488982 Purchase Order No.

Job No.

D M Y Certificate No.
09/01/2012 T - 2012030016

| E-No. | Specification for Material Made from Seamless Pipe | | | | | | | | | | Specification for Inspection | | Visual Examination | Dimensional Inspection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|------------------|-----|-----------------------|------|-------------------|-----|----------|-----|----------|------------------------------|----------------------|--------------------|------------------------|------|----------------------------|-----------------|---|---|----|----|----|----|----|---|----|------|--------------------|--|----------------------------|--|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|---|-----------------|------|-----|-----|-----|------|------|-----|-----|-----|-----|------|------|------|-----|-----|-----|----|-----|------|----|----|-----|----|----|----|----|----|----|--|----|----|--|--|-----|--|-----|--|----|----|-----|----|---|---|---|----|---|--|---|---|----|-----|-----|----|-----|
| | ASTM A420-10a / ASME SA420-10 Gr. WPL6 CSA Z46 11-08 Gr. Z41 CAT # MASC Sour Service | | | | | | | | | | ASME B16.9-2007, B16.25-2007 | | | | Good | Good | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MFG. No. (Heat Identification No.) | | Product & Size | | Material Manufacturer | | Material Heat No. | | Item No. | | Quantity | | Hardness Actual Data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11N11813 | | T WPL6 8 X 4 S40 | | J1K8910 | | 7582018 | | | | 20 | | HB : 120-145 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Chemical Composition %</p> <table border="1"> <thead> <tr> <th>Specifi- cation</th> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Cu</th> <th>Ni</th> <th>Cr</th> <th>Mo</th> <th>Al</th> <th>V</th> <th>Nb</th> <th>C.E.</th> <th colspan="2">*2 Tension Test</th> <th colspan="2">Hardness Max 197 HB : GOOD</th> </tr> <tr> <th></th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>X</th> <th>YS</th> <th>TS</th> <th>E</th> <th>Impact Test (J)</th> </tr> <tr> <th>Min.</th> <td>100</td> <td>100</td> <td>100</td> <td>1000</td> <td>1000</td> <td>100</td> <td>100</td> <td>100</td> <td>100</td> <td>1000</td> <td>1000</td> <td>1000</td> <td>100</td> <td>240</td> <td>415</td> <td>30</td> <td>104</td> </tr> <tr> <th>Max.</th> <td>23</td> <td>40</td> <td>135</td> <td>35</td> <td>40</td> <td>40</td> <td>40</td> <td>30</td> <td>12</td> <td></td> <td>80</td> <td>20</td> <td></td> <td></td> <td>585</td> <td></td> <td>103</td> </tr> <tr> <th></th> <td>11</td> <td>20</td> <td>130</td> <td>11</td> <td>2</td> <td>2</td> <td>2</td> <td>12</td> <td>1</td> <td></td> <td>0</td> <td>0</td> <td>36</td> <td>313</td> <td>461</td> <td>47</td> <td>101</td> </tr> </thead></table> | | | | | | | | | | | | | | Specifi- cation | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | Al | V | Nb | C.E. | *2 Tension Test | | Hardness Max 197 HB : GOOD | | | X | X | X | X | X | X | X | X | X | X | X | X | X | YS | TS | E | Impact Test (J) | Min. | 100 | 100 | 100 | 1000 | 1000 | 100 | 100 | 100 | 100 | 1000 | 1000 | 1000 | 100 | 240 | 415 | 30 | 104 | Max. | 23 | 40 | 135 | 35 | 40 | 40 | 40 | 30 | 12 | | 80 | 20 | | | 585 | | 103 | | 11 | 20 | 130 | 11 | 2 | 2 | 2 | 12 | 1 | | 0 | 0 | 36 | 313 | 461 | 47 | 101 |
| Specifi- cation | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | Al | V | Nb | C.E. | *2 Tension Test | | Hardness Max 197 HB : GOOD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | X | X | X | X | X | X | X | X | X | X | X | X | X | YS | TS | E | Impact Test (J) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Min. | 100 | 100 | 100 | 1000 | 1000 | 100 | 100 | 100 | 100 | 1000 | 1000 | 1000 | 100 | 240 | 415 | 30 | 104 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. | 23 | 40 | 135 | 35 | 40 | 40 | 40 | 30 | 12 | | 80 | 20 | | | 585 | | 103 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 11 | 20 | 130 | 11 | 2 | 2 | 2 | 12 | 1 | | 0 | 0 | 36 | 313 | 461 | 47 | 101 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>NORMALIZING 910 C X 0.5 HR. AIR COOLING</p> <p>The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.</p> <p>Material according to ANSINACE MR0175/ISO15156-2 (Region 3) :2009 & MR0103-2010</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

CE = C+Mn/6+(C+Mn+V)/5+(Ni+Cu)/15 MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY : GOOD

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Quality Assurance Manager
Thai Benkan Co., Ltd.

Purchaser : CCTF CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1

Thai Benkan Co., Ltd.
58 Soi Watkrnai, Bangferu, Prapadaeng,
Samutprakarn, 10130 Thailand



4887897 Purchase Order No.

Job No.

D M Y Certificate No.
02/11/2010 T - 2010030502

| E.No. | Specification for Material | | Specification for Inspection | | Visual Examination | Dimensional Inspection | | | | | | | | | | | |
|---|--|------------------------------|---|------------------------------------|--------------------|------------------------|-----|-----|------|------|------|--------------------|----------------------------|-----|------|-----|---|
| | Made from Seamless Pipe | | ASME B16.9-2007 | | | | | | | | | | | | | | |
| MB-968 | ASTM A213 / ASME SA213 GR. TP6 CSA Z46.11-08 Gr.241 CWT 1 NACE MR0175/ISO 15156-2 R3.03 / MR0103-07 | | | | Good | Good | | | | | | | | | | | |
| MFG. No. (Heat Identification No.) | 10G01024 | | Product & Size 22.5 EL WPL 6 6 S40 (T.*1) | | Quantity 20 | Item No. 7562356 | | | | | | | | | | | |
| Material Manufacturer SUMITOMO METAL INDUSTRIES LTD. | | Material Heat No. JOL1A16 | | Hardness Actual Data HB:115-135 | | | | | | | | | | | | | |
| Specification | Chemical Composition % | | | | | | | | | | | *2 Tension Test | Hardness Max 197 HB : GOOD | | | | |
| | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | Al | V | | | Nb | C.E. | YS | TS |
| X | X | X | X | X | X | X | X | X | X | X | X | X | | MPa | | % | Impact Test (J) 10 X 5.0 X 2V AT -45 °C |
| 100 | 100 | 100 | 1000 | 1000 | 100 | 100 | 100 | 100 | 1000 | 1000 | 1000 | 100 | | | | | |
| Min. | 15 | 50 | | | | | | | | | | | 240 | 415 | 30 | 77 | |
| Max. | 23 | 40 | 135 | 35 | 40 | 40 | 40 | 30 | 12 | | | | | 585 | | 102 | AVE. 83 |
| | 12 | 25 | 129 | 9 | 3 | 1 | 2 | 11 | 1 | | | | 338 | 473 | 43 | 69 | |

THE FITTINGS WAS MANUFACTURED, SAMPLED, TESTED, AND INSPECTED IN ACCORDANCE WITH THE SPECIFICATION, AND WAS FOUND TO MEET THE REQUIREMENTS.

C.E. = C+Mn/6+(C+Mn+V)/5+(NI+CU)/15
MAGNETIC PARTICLE EXAMINATION FOR THE ONLY.
We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.
* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Quality Assurance Manager
Thai Benkan Co., Ltd.

CERTIFIED MILL TEST REPORT



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LOG NO. F0000000024568 Page 4 of 6

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 02/01/2012

**CUSTOMER
ORDER NO.:** 4890968-00

BONNEY ORDER NO. B000113694

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|---------------|----------|---------|--|
| 10 7693037 | 150 | 58487 | 10 -6 X 1 3000 LF2 THRD T SA/A350 LF2 CL1 Al 0.026 C 0.200 Co 0.002 Cr 0.040 Cu 0.070 Mn 1.020 Mo 0.010 N 0.003 Nb 0.015 Ni 0.020 P 0.007 S 0.021 Si 0.220 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 72,500 Y/S(PSI) 50,000 EL(%) 30.85 RA(%) 61.55 Brinell 135 BHN 135 BHN Charpy -50 F 36/38/19 (Ft-Lbs) Average 31.00 |
| 11 7690202 | 25 | 57659 | 6 X 2 3000 LF2 THRD T SA/A350 LF2 CL1 Al 0.022 C 0.190 Co 0.003 Cr 0.030 Cu 0.090 Mn 1.040 Mo 0.010 Nb 0.016 Ni 0.030 P 0.009 S 0.022 Si 0.200 V 0.003 CE(Long Formula) = 0.38 T/S(PSI) 72,375 Y/S(PSI) 50,000 EL(%) 33.05 RA(%) 67.90 Brinell 127 BHN 127 BHN Charpy -50 F 81/37/53 (Ft-Lbs) Average 57.00 |
| 13 7690116 | 150 | 58218 | 5 -4 X 1 3000 LF2 SOCK S SA/A350 LF2 CL1 Al 0.028 C 0.190 Cb 0.000 Co 0.005 Cr 0.130 Cu 0.250 Mn 1.000 Mo 0.020 N 0.006 Nb 0.012 Ni 0.080 P 0.012 S 0.019 Si 0.200 V 0.003 CE(Long Formula) = 0.41 T/S(PSI) 75,000 Y/S(PSI) 50,000 EL(%) 31.15 RA(%) 59.55 Brinell 135 BHN 135 BHN Charpy -50 F 42/66/51 (Ft-Lbs) Average 53.00 |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht

**Meloney Specht
QUALITY PROCESS MANAGER**

CMTR: REV2

CERTIFIED MILL TEST REPORT



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Page 6 of 6

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www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 02/01/2012

CUSTOMER

BONNEY ORDER NO. B000113694

ORDER NO.: 4890968-00

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS. |
|------|----------|---------|--|
|------|----------|---------|--|

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. CERTIFYING TO ASTM A350 LF2 07 REVISION.
3. THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
4. THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
5. THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
6. THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
7. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
8. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE IN REPORTED IN PSI.
9. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht
Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2

CERTIFIED MILL TEST REPORT



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LOG NO. F00000000030736

Page 1 of 4

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www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 06/22/2012

CUSTOMER

BONNEY ORDER NO. B000122735

ORDER NO.: 4891487-00

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|--------------|----------|---------|---|
| 1 7690049 | 25 | 58379 | 3 X 2 3000 LF2 SOCK S SA/A350 LF2 CL1 C 0.200 Cb 0.000 Co 0.002 Cr 0.040 Cu 0.110 Mn 1.010 Mo 0.010 Nb 0.015 Ni 0.020 P 0.007 S 0.023 Si 0.200 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,750 Y/S(PSI) 50,000 EL(%) 31.90 RA(%) 65.15 Brinell 139 BHN 135 BHN Charpy -50 F 22/31/14 (Ft-Lbs) Average 22.30 |
| 2 7690082 | 25 | 58183 | 36-3/4 X 1/2 3M LF2 LREO T SA/A350 LF2 CL1 Al 0.026 C 0.210 Cb 0.000 Co 0.005 Cr 0.060 Cu 0.130 Mn 1.020 Mo 0.010 N 0.004 Nb 0.014 Ni 0.040 P 0.010 S 0.017 Si 0.190 V 0.003 CE(Long Formula) = 0.41 T/S(PSI) 74,375 Y/S(PSI) 50,875 EL(%) 31.05 RA(%) 61.80 Brinell 132 BHN 132 BHN Charpy -50 F 64/33/59 (Ft-Lbs) Average 52.00 |
| 3 7692050 | 250 | 58426 | 8-3 X 1/2 3M LF2 THRD T SA/A350 LF2 CL1 C 0.200 Cb 0.000 Co 0.003 Cr 0.050 Cu 0.110 Mn 1.020 Mo 0.010 Ni 0.040 P 0.009 S 0.019 Si 0.180 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 76,250 Y/S(PSI) 51,875 EL(%) 30.80 RA(%) 63.95 Brinell 139 BHN 137 BHN Charpy -50 F 27/32/48 (Ft-Lbs) Average 35.70 |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht

Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2

CERTIFIED MILL TEST REPORT

LOG NO. F0000000030736

Page 4 of 4

BONNEY FORGE CORPORATION

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DATE 06/22/2012

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BONNEY ORDER NO. B000122735

ORDER NO.: 4891487-00

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. CERTIFYING TO ASTM A350 LF2 07 REVISION.
3. THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
4. THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
5. THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
6. THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
7. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
8. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
9. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Meloney Specht

Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2

WFF FITTINGS AND FLANGES (CANADA) LTD.

INSPECTION CERTIFICATE

TO EN10204 3.1



Thai Benkan Co., Ltd.
58 Soi Watrunai, Bangkru, Prapadaeng,
Samprakan, 10130 Thailand.

Purchaser: _____
Purchase Order No. E0445DD/BKT Job No. _____

D M Y Certificate No.
04/07/2007 T 2007020693

| E.No. | Specification for Material | | Specification for Inspection | | Visual Examination | Dimensional Inspection | | | | | | | | | | | |
|------------------------------------|------------------------------|---|--|------|--------------------|------------------------|------|-----|------|------|------|-----------------|-----|----------------------------|----|-----|----------------------------|
| | M/A-902 | ASTM A620 - 02ASME SA620 WFLG NACE MR0175-2003 | ASME B16.9-2003 | Good | | | Good | | | | | | | | | | |
| MFG. No. (Heat Identification No.) | 07E11107 | | Product & Size T WPL68 X 4 S40 (T*1) | | Quantity 25 | | | | | | | | | | | | |
| Material Manufacturer | Material Heat No. J5L7253 | | | | | | | | | | | | | | | | |
| Specification | Chemical Composition % | | | | | | | | | | | *2 Tension Test | | Hardness Max 197 HB : GOOD | | | |
| | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | Al | V | Nb | CE | YS | TS | E | Impact Test (D) |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | MPa | | % | 10 X 5.0 X 2V AT -45 °C |
| 100 | 100 | 100 | 1000 | 1000 | 100 | 100 | 100 | 100 | 1000 | 1000 | 1000 | 100 | 240 | 475 | 30 | 105 | |
| Min. | 15 | 50 | | | | | | | | | | | | | | | |
| Max. | 30 | 40 | 135 | 35 | 40 | 40 | 40 | 30 | 12 | | | | | 655 | | | 137 |
| | 20 | 19 | 85 | 16 | 6 | 2 | 3 | 5 | 0 | 0 | 0 | 36 | 277 | 432 | 42 | 107 | AVE. 116 |

NORMALIZING 910 C X 0.5 HR. AIR COOLING

CE = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY.

GOOD

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : T* symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Quality Assurance Manager
Thai Benkan Co., Ltd.

[Signature]

11700775



erne fittings gmbh
 A-6824 Schläins
 Hauptstrasse 48
 Austria/Europe
 Telefon +43/5524 501-0
 Telefax +43/5524 501-980
 Reg. No. 12 100 3054



**Abnahmeprüfzeugnis
 Inspection Certificate
 EN 10204 - 3.1**

Artikelbezeichnung [designation]
 elbows
 LR-90-S-WPL6-4"-STD

Zeugnis Nr. [cert. no.] 005456112-SD
Rev. 03/02/2012
Datum [date] 03/02/2012

Schmelze Nr [heat no.] 1011327749
Ident Nr. [ident no.] 137463TD-0651 / 002399

Unsere Auftrags-Nr./Art.-Nr. [our order no./item no.] 137463TD-0651 / 002399
Ihre Bestell Nr. [your order no.] 2959695-OR-2100
Menge [quantity] 369

Anforderungen der Bestellung [requirements of the order]
 ASME B16.9-2007 LR, material:WPL6, TR-base material:ASME Sect. II part D table Y-1, TR-fitting:ASTM A 420/A 420M-10, ASME SA-420M-Ed. 07, TR-addit fitting:NACE MR0175/ISO15156-2:2003A.2, NACE MR0103-2007 2.1 and 4, M0803-05, certificate:EN 10204/3.1, rust protection:Millistandard, execution:Seamless

Kunde [customer]
 CE Franklin Ltd.
 Distribution Center
 Attn. Lalita Verbonac
 2603 -76 Avenue
 CDN-T6P 1P6 Edmonton, Alberta

Vormaterial seamless pipe

| | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|-------------------------|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|---|--|--|--|--|
| Analyse [analysis] | Schmelze Nr. [heat no.] | 1 = Schmelzeanalyse [heat analysis] | | | | | | | | | | | | | | | J-Faktor | (Si + Mn) * (P + Sn) * 10000 | | | | |
| | Y | | | | | | | | | | | | | | | | CEQ [CEQ] | C + (Mn / 6) + (Cr + Mo + V) / 5 + (Cu + Ni) / 15 | | | | |
| Index | 1011327749 | C | Si | Mn | P | S | Cr | Mo | Ni | Cu | V | Al | B | TI | N | Sn | Ca | Ceq | | | | |
| | | 0.1528 | 0.2516 | 0.8983 | 0.0088 | 0.0032 | 0.0257 | 0.0030 | 0.0105 | 0.0122 | 0.0023 | 0.0315 | 0.0001 | 0.0016 | 0.0048 | 0.0017 | 0.0022 | 0.31 | | | | |

Mech.-technologische Prüfung [mech. technological test]

| Nr. [test no.] | Pr.-Lage [pos. of sample] | Temp. +20 °C | Zugversuch [tensile test] | | | Kerbschlagbiegeversuch [notched bar impact test] | | | Form: ISO-V | Kerbschlagarbeit [impact values] (J) | Härteprüfung [hardness test] |
|----------------|---------------------------|--------------|---------------------------|------------------------------|--------------------------------|--|--------------|--------------------------|-------------|---|------------------------------|
| | | | Dehng. [yield str.] | Zugfestigkeit [tensile str.] | Dehnung [elov-gation] (AD (%)) | PR-Lage [pos. of sample] | Temp. -50 °C | Querschnitt [cross sec.] | | | |
| 0705_12 | LNZ | 351 | 349 | 515 | 31,5 | LNZ | 40 | 82-76-83 | 137-145 HB | normalized temperature 920 °C Holding Time 30 min. Cooling in still air | |

Kennzeichnung [marking] AUSTRIA / WPL6 / 1011327749 / 4" / STD

Besichtigung und Ausmessung [visual inspection and dimensional check] o.B./o.K.

Bemerkungen [remarks]
 hot formed over mandrel
 NACE MR-0175/ISO15156-2 Region 3

Zusatzmarkierung [add. mark.]
 Die gelieferten Produkte entsprechen den Anforderungen der Bestellung (einschließlich Herstellung, Probenahme, Testen und Prüfen). (The supplied products comply with the requirements of the order (including manufacturing, sampling, testing and inspections).)
 Der Werksachverständige [the Works Inspector]
 03/02/12 Scheibensock Daniel

Zertifiziert nach DGR1 97/23/EG Anhang I - Absatz 4.3 durch TÜV SÜD Industrie Service, Benannte Stelle 0036, Zertifikat Nr. 129/2002MUC [Certified acc. to PED 97/23/EG Annex I, Paragraph 4.3 by TÜV SÜD Industrie Service, Notified Body 0036, Certificate No. 129/2002MUC]

12-652-01-5

YANCHENG H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 1 OF 5

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves |
|-------------------|----------------------------------|-----------------------|------------------------------|--------|-------------------------------|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1"3000PSI |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 |
| Seat Test | Hydro | 45.6 | 180 | 0 | PO No.: |
| | Air | 0.6-0.7 | 180 | 0 | CAT No.: K3-R10TH30LZ |
| Valve requirement | API 6A [✓] BS1868 [] BS1873 [] | | | | NACE MR 0175 [✓] |

| Serial No. | Heat No. 1P229 | | | Lot No. | |
|------------|----------------|---------|------|-----------|--|
| | Body | End cap | Ball | Stem | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |

We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order.

Inspector

REVIEWED BY

YANCHENG H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 2 OF 5

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves |
|-------------------|-----------------------------------|------------------------|------------------------------|--------|-------------------------------|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1"3000PSI |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 |
| Seat Test | Hydro | 45.6 | 180 | OK | PO No.: |
| | Air | 0.6-0.7 | 180 | OK | CAT No.: K3-R10TH30LZ |
| Valve requirement | API 6A (✓) BS1868 () BS1873 () | | | | NACE MR 0175 (✓) |

| Serial No. | Heat No. | | | Lot No. | | |
|------------|----------|---------|------|-----------|--|--|
| | Body | End cap | Ball | Stem | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |

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|---|------------------|------------------------|
| <p>We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order.</p> | <p>Inspector</p> | <p>REVIEWED BY</p> |
|---|------------------|------------------------|

YANCHENG H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 3 OF 5

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves | |
|-------------------|--|-----------------------|------------------------------|--------|--|-----------------------|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1"3000PSI | |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: | |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 | |
| Seat Test | Hydro | 45.6 | 180 | 0 | OK | PO No.: |
| | Air | 0.6-0.7 | 180 | 0 | OK | CAT No.: K3-R10TH30LZ |
| Valve requirement | API 6A <input checked="" type="checkbox"/> BS1868 <input type="checkbox"/> BS1873 <input type="checkbox"/> | | | | NACE MR 0175 <input checked="" type="checkbox"/> | |

| Serial No. | Heat No. | | | Lot No. | |
|------------|----------|---------|------|-----------|--|
| | Body | End cap | Ball | Stem | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
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| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
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| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |

| | | |
|---|-----------|-------------|
| <p>We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order.</p> | Inspector | REVIEWED BY |
|---|-----------|-------------|

YANCHENG H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 4 OF 5

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves |
|-------------------|--|-----------------------|------------------------------|--------|--|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1"3000PSI |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 |
| Seat Test | Hydro | 45.6 | 180 | OK | PO No.: |
| | Air | 0.6-0.7 | 180 | OK | CAT No.: K3-R10TH30LZ |
| Valve requirement | API 6A <input checked="" type="checkbox"/> BS1868 <input type="checkbox"/> BS1873 <input type="checkbox"/> | | | | NACE MR 0175 <input checked="" type="checkbox"/> |

| Serial No. | Heat No. | | | Lot No. | |
|------------|----------|---------|------|-----------|--|
| | Body | End cap | Ball | Stem | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
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| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |
| | Q13 | B13 | F24 | A070821-1 | |

| | | |
|---|---------------------|-----------------------|
| <p>We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order.</p> | Inspector _____ | REVIEWED BY _____ |
|---|---------------------|-----------------------|

YANCHENG H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 5 OF 5

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves |
|-------------------|--|-----------------------|------------------------------|--------|--|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1"3000PSI |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 |
| Seat Test | Hydro | 45.6 | 180 | OK | PO No.: |
| | Air | 0.6-0.7 | 180 | OK | CAT No.: K3-R10TH30LZ |
| Valve requirement | API 6A <input checked="" type="checkbox"/> BS1868 <input type="checkbox"/> BS1873 <input type="checkbox"/> | | | | NACE MR 0175 <input checked="" type="checkbox"/> |

| Serial No. | Heat No. | | | Lot No. | | |
|--|----------|---------|------|-----------|--|-------------|
| | Body | End cap | Ball | Stem | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
| | Q13 | B13 | F24 | A070821-1 | | |
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| We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order. | | | | Inspector | | REVIEWED BY |

YANCHENG H & M PRESSURE VALVE CO.,LTD

MATERIAL CERTIFICATE

Certificate No:

No.6 Juheng Road Economic development Zone
Yancheng City, China

(BS EN 10204.3.1.B)

Certificate Date:

Tel: +86-515-8281015 Fax: +86-515-8281003

Customer: KF

P/O No:

QTY:

Material: ASTM A350 LF2

E-mail: ygf@public.yc.js.cn

Description: BALL VALVES1/2"-3000PSI

CAT No: K3-F05TH30LZ

Material: ASTM A350 LF2

Sheet 1 of 3

CHEMICAL ANALYSIS (%) MAX

| Name of Parts | Heat No. | CHEMICAL ANALYSIS (%) MAX | | | | | | | | | | | MECHANICAL PROPERT | | | | | |
|---------------|----------|---------------------------|----------|------------|-----------|-----------|----------|----------|-----------|----------|-----------|-----------|--------------------|-------------|-------------|------------|-----------|----------|
| | | C | Mn | P | S | Si | Ni | Cr | Mo | Cu | V | Cb | Others | Tensile | Yield | Elongation | Reduction | Hardness |
| BODY | Q11 | 0.30 Max. | 0.6-1.35 | 0.035 Max. | 0.04 Max. | 0.15-0.30 | 0.4 Max. | 0.3 Max. | 0.12 Max. | 0.4 Max. | 0.08 Max. | 0.02 Max. | | 485-655 Mpa | 250Min. MPa | 22% Min. | 30% Min. | 190 |
| END GAP | Q11 | 0.160 | 0.920 | 0.028 | 0.031 | 0.200 | 0.300 | 0.220 | 0.090 | 0.320 | 0.050 | 0.011 | | 485 | 330 | 28 | 30 | 190 |
| | | | | | | | | | | | | | | | | | | |
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HEAT TREATMENT

Quenching+Tempering

REMARKS

We hereby certify that the materials described above have been tested and comply to NACE MR 0175 the material specifications of the purchase order.

Signature / Date

**YANCHENG H & M PRESSURE VALVE
CO.,LTD**

MATERIAL CERTIFICATE

Certificate No:

No.6 Juheng Road Economic development Zone
Yancheng City, China

(BS EN 10204.3.1.B)

Certificate Date:

Tel: +86-515-8281015 Fax: +86-515-8281003

Customer: KF

PI/O No:

QTY:

Material: ASTM A182 F316

E-mail: ygf@public.yc.js.cn

Description: BALL VALVES1/2"3000PSI

CAT No: K3-F05TH30LZ

Sheet 2 of 3

| Name of Parts | Heat No. | CHEMICAL ANALYSIS (%) MAX | | | | | | | | | | MECHANICAL PROPERT | | | | | |
|---------------|----------|---------------------------|-----------|---------------|---------------|-----------|---------------|---------------|-------------|-----|-----|--------------------|----------------------------|--------------------------|---------------------------|--------------------------|----------------|
| | | C | Mn | P | S | SI | NI | Cr | Mo | Ne | TI | Others | Tensile 515 Min. MPa | Yield 205 Min. MPa | Elongation 30% Min. | Reduction 50% Min. | Hardness HB |
| BALL | F22 | 0.08 Max. | 2 Max. | 0.045 Max. | 0.030 Max. | 1 Max. | 10-14 Max. | 16-18 Max. | 2-3 Max. | ... | ... | | 520 | 220 | 35 | 55 | 158 |
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REMARKS

We hereby certify that the materials described above have been tested and comply to NACE MR 0175 the material specifications of the purchase order.

Signature / Date



KF Industries

A Division of CIRCOR International, Inc.

1500 S.E. 89TH STREET

OKLAHOMA CITY, OK 73149

ISO 10474
DIN EN 10204
MATERIAL CERTIFICATION 3.1

VALVE CERTIFICATION

SECTION 1 OF 3

| | | | | | | | |
|-------------|---------------------------------|-------------|--------|-----------------|---|--------|-----------|
| SOLD TO: | KF INDUSTRIES-CANADA | KF TICKET | | QTY | 4 | Date : | 6/28/2012 |
| SHIPPED TO: | 9331-39TH AVENUE, | CUSTOMER PO | P29849 | TAG NO. | | | |
| PART NO.: | E3784-829G613CK(E3784-829G613.) | REF. PO | | CERTIFICATE NO. | | | 201228755 |

| VALVE SIZE (PPS) | VALVE DESCRIPTION | | SERIES | FAE |
|----------------------|-------------------|----|--------|-----|
| | CL300 | RF | | |
| VALVE PRESSURE CLASS | | | | |
| VALVE END CONNECTION | | | | |

| VALVE COMPONENT PARTS | VALVE COMPONENT MATERIAL | OPTIONS | CERTIFICATE OF CONFORMANCE |
|-----------------------|--------------------------|-----------------------|---|
| Body | LCC | BARE STEM: | <p>IT IS CERTIFIED THAT THE ABOVE REFERENCED PRODUCTS HAVE BEEN MANUFACTURED, INSPECTED AND TESTED IN ACCORDANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR OTHER PURCHASE ORDER REQUIREMENTS.</p> <p>CERTIFICATE OF ORIGIN</p> <p>IT IS CERTIFIED THAT PRODUCT(S) FURNISHED FOR ABOVE REFERENCED ORDER WERE PRODUCED IN CHINA.</p> |
| Adapter | LCC | HANDLE: | |
| Ball | 316 | GEAR OPERATOR: | |
| Stem | 316 | ACTUATION: | |
| Seating | 316 | CSA Z245.15 COMPLIANT | |
| | | SOUR SERVICE | |

| CERTIFIED TEST RECORD | | API 6D <input checked="" type="checkbox"/> | API 6A <input type="checkbox"/> | API 598 <input type="checkbox"/> | ANSI B16.34 <input checked="" type="checkbox"/> | OTHER / SPECIFY <input type="checkbox"/> | 49 CFR Ch.1 PART192 CLASS 3 <input checked="" type="checkbox"/> |
|-----------------------|-----------------|--|---------------------------------|----------------------------------|---|--|---|
| TEST TYPE | PRESSURE (PSIG) | TIME IN MINUTES | TEST MEDIA | TEST RESULTS | INSPECTION | INSPECTION RESULTS | |
| HYDROSTATIC SHELL | 1125 | 5 | 60/40 GLYCOLWATER | ZERO LEAKAGE | INSPECTION | GOOD | |
| HYDROSTATIC SEAT | 825 | 5 | SAME | SAME | VISUAL | GOOD | |
| AIR SEAT | | | AIR | SAME | OPERATIONAL | GOOD | |
| FUNCTIONAL TEST | | | | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN THE RECORDS OF COMPANY.

KF QUALITY ASSURANCE: Joe Yu

CUSTOMER INSPECTOR: _____

| | |
|------|-----------|
| DATE | 6/28/2012 |
| DATE | |

P.O. Box 95249
 1500 S.E. 89th STREET
 OKLA. CITY, OK 73143

KE INDUSTRIES, INC.
 VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

SECTION 2 OF 3

| | | | | | |
|------------------|---------------------------------|-------------------------|-----------|-------------|--------|
| PART NO.: | E3784-829G613CK(E3784-829G613.) | QTY: | 4 | PAGE | 1 of 1 |
| P.O.NO.: | P29849 | CERTIFICATE NO.: | 201228755 | | |

COMPONENT HEAT CODES

| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 |
|-----------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|
| 1 | 687662 | X88492 | X70093 | FQ7906 | EG51005 | | FU2302 | FU2302 | |
| 2 | 687663 | X88492 | X70102 | FQ7906 | EG51000 | | FU2302 | FU2302 | |
| 3 | 687664 | X88491 | X70093 | FQ7906 | EG51000 | | FU2302 | FU2302 | |
| 4 | 687665 | X88491 | X70093 | FQ7906 | EG51053 | | FU2302 | FU2302 | |
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IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

QA AUTHORIZED SIGNATURE: JOE YU DATE: 6/28/2012

CUSTOMER INSPECTOR: _____ DATE: _____

P.O. Box 95249
 1500 S.E. 89th STREET
 OKLA. CITY, OK 73143

CIRCOR ENERGY PRODUCTS
 MATERIAL TEST REPORT

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204


SECTION 3 OF 3

| DATE | 6/28/2012 | VENDOR No. | 8622 | PAGE | 1 of 1 | CERTIFICATE NO.: | 201228755 | | | | | | | | | | | | | | | |
|-----------|-----------|-----------------------|-------|-------|--------|------------------|-----------|--------|--------|-------|-------|-----------------------|---------------|-------------|-----------|-------------------------|-----|------|------|------|--|--|
| HEAT CODE | MTR SPEC. | Chemical Test Results | | | | | | | | | | Physical Test Results | | | | Impact At -46°C(FT-LBS) | | | | | | |
| | | C | MN | SI | P | S | CR | NI | MO | V | CU | NB | TENSILE (PSI) | YIELD (PSI) | ELON. (%) | RED. (%) | BHN | 1 | 2 | 3 | | |
| 1 | X70093 | LCC | 0.194 | 1.070 | 0.330 | 0.018 | 0.019 | 0.030 | 0.269 | 0.007 | 0.008 | 0.030 | 84535 | 51765 | 27 | 54 | 165 | 27.4 | 31.1 | 29.6 | | |
| 2 | X70102 | LCC | 0.189 | 1.080 | 0.341 | 0.022 | 0.017 | 0.047 | 0.226 | 0.007 | 0.005 | 0.039 | 84825 | 54230 | 28 | 54 | 166 | 28.9 | 27.4 | 27.4 | | |
| 3 | X88491 | LCC | 0.195 | 1.127 | 0.324 | 0.019 | 0.018 | 0.040 | 0.258 | 0.007 | 0.002 | 0.030 | 83230 | 57420 | 28 | 57 | 161 | 30.4 | 26.7 | 31.1 | | |
| 4 | X88492 | LCC | 0.189 | 1.094 | 0.338 | 0.013 | 0.016 | 0.031 | 0.267 | 0.011 | 0.007 | 0.039 | 84390 | 53940 | 28 | 56 | 158 | 25.9 | 28.9 | 31.1 | | |
| 5 | EG51000 | 316 | 0.020 | 1.170 | 0.600 | 0.035 | 0.015 | 17.440 | 10.130 | 2.040 | | 0.290 | 81925 | 40600 | 62 | 77 | 153 | | | | | |
| 6 | EG51005 | 316 | 0.020 | 1.170 | 0.600 | 0.035 | 0.015 | 17.440 | 10.130 | 2.040 | | 0.290 | 81925 | 40600 | 62 | 77 | 153 | | | | | |
| 7 | EG51053 | 316 | 0.026 | 1.190 | 0.550 | 0.037 | 0.011 | 17.350 | 10.350 | 2.150 | | 0.260 | 82070 | 39730 | 65 | 79 | 150 | | | | | |
| 8 | FQ7906 | 316 | 0.030 | 0.730 | 0.350 | 0.034 | 0.001 | 16.550 | 10.100 | 2.010 | | 0.210 | 80475 | 39440 | 57 | 61 | 160 | | | | | |
| 9 | FU2302 | 316 | 0.023 | 1.222 | 0.545 | 0.030 | 0.002 | 17.330 | 10.060 | 2.032 | | 0.213 | 81200 | 36250 | 46 | 68 | 198 | | | | | |
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QA AUTHORIZED SIGNATURE: **Joe Yu**

DATE: **6/28/2012**

123458



KF Industries
A Division of **Clark International, Inc.**

1500 S.E. 89TH STREET
OKLAHOMA CITY, OK 73149

ISO 10474
DIN EN 10204
MATERIAL CERTIFICATION 3.1

| | | | | | |
|-------------|---------------------------------|-------------|--------|-----------------|-----------------|
| SOLD TO: | KF INDUSTRIES-CANADA | KF TICKET | QTY | 10 | Date: 7/12/2012 |
| SHIPPED TO: | 9331-39TH AVENUE, | CUSTOMER PO | P29725 | TAG NO. | |
| PART NO.: | E2300-8922G21CK(E2300-8922G21.) | REF. PO | | CERTIFICATE NO. | 201229344 |

| VALVE DESCRIPTION | | SERIES | FE |
|----------------------|-------|--------|----|
| VALVE SIZE (IPS) | 2"RP | | |
| VALVE PRESSURE CLASS | CL300 | | |
| VALVE END CONNECTION | RF | | |

| VALVE COMPONENT PARTS | VALVE COMPONENT MATERIAL |
|-----------------------|--------------------------|
| Body | LCC |
| Adapter | LF2 |
| Ball | 316 |
| Stem | 316 |

| | |
|--|---|
| NON NACE: <input type="checkbox"/> | NACE - MRO175 LATEST REVISION <input checked="" type="checkbox"/> |
| VALVE REQUIREMENTS | |
| FIRE SAFE CERTIFIED: API 607 <input checked="" type="checkbox"/> API 6FA <input type="checkbox"/> API 6FD <input type="checkbox"/> | |
| OPTIONS | |
| BARE STEM: | <input type="checkbox"/> |
| HANDLE: | <input checked="" type="checkbox"/> |
| GEAR OPERATOR: | <input type="checkbox"/> |
| ACTUATION: | <input type="checkbox"/> |
| CSA Z245.15 COMPLIANT | <input checked="" type="checkbox"/> |
| SOUR SERVICE | <input checked="" type="checkbox"/> |

| | |
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| CERTIFICATE OF CONFORMANCE | |
| IT IS CERTIFIED THAT THE ABOVE REFERENCED PRODUCTS HAVE BEEN MANUFACTURED, INSPECTED AND TESTED IN ACCORDANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR OTHER PURCHASE ORDER REQUIREMENTS. | |
| CERTIFICATE OF ORIGIN | |
| IT IS CERTIFIED THAT PRODUCT(S) FURNISHED FOR ABOVE REFERENCED ORDER WERE PRODUCED IN CHINA. | |

| CERTIFIED TEST RECORD | | API 6D <input checked="" type="checkbox"/> | API 6A <input type="checkbox"/> | API 598 <input type="checkbox"/> | ANSI B16.34 <input checked="" type="checkbox"/> | OTHER / SPECIFY <input type="checkbox"/> | 49 CFR Ch. 1 PART192 CLASS 3 <input checked="" type="checkbox"/> |
|-----------------------|-----------------|--|---------------------------------|----------------------------------|---|--|--|
| TEST TYPE | PRESSURE (PSIG) | TIME IN MINUTES | TEST MEDIA | | TEST RESULTS | INSPECTION | INSPECTION RESULTS |
| HYDROSTATIC SHELL | 1125 | 2 | 60/40 GLYCOL/WATER | | ZERO LEAKAGE | DIMENSIONAL | GOOD |
| HYDROSTATIC SEAT | 825 | 2 | SAME | | SAME | VISUAL | GOOD |
| AIR SEAT | | | AIR | | SAME | OPERATIONAL | GOOD |
| FUNCTIONAL TEST | | | | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN THE RECORDS OF COMPANY.

KF QUALITY ASSURANCE: JOE YU

CUSTOMER INSPECTOR: _____

| | |
|------|-----------|
| DATE | 7/12/2012 |
| DATE | |

P.O. Box 95249
 1500 S.E. 89th STREET
 OKLA. CITY, OK 73143

123458A

KE INDUSTRIES, INC.
 VALVE CERTIFICATION

3.1 B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

| | | | | | | |
|-----------|---------------------------------|----------------|------|----|------------------|-----------|
| PART NO.: | E2300-8922G21CK(E2300-8922G21.) | SECTION 2 OF 3 | QTY: | 10 | PAGE | 1 of 1 |
| P.O.NO.: | P29725 | | | | CERTIFICATE NO.: | 201229344 |

| COMPONENT HEAT CODES | | | | | | | | | |
|----------------------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|
| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 |
| 1 | 670864 | X70500 | FB1462 | FQ7885 | EG51084 | | | | |
| 2 | 670865 | X70500 | FB1462 | FQ7885 | EG51084 | | | | |
| 3 | 670866 | X70500 | FB1462 | FQ7885 | EG51084 | | | | |
| 4 | 670867 | X70500 | FB1462 | FQ7885 | EG51084 | | | | |
| 5 | 670868 | X70506 | FB1462 | FQ7885 | EG51084 | | | | |
| 6 | 670869 | X70506 | FB1462 | FQ7885 | EG51084 | | | | |
| 7 | 670870 | X70506 | FB1462 | FQ7885 | EG51084 | | | | |
| 8 | 670871 | X70503 | FB1462 | FQ7885 | EG51084 | | | | |
| 9 | 670872 | X70503 | FB1462 | FQ7885 | EG51084 | | | | |
| 10 | 670873 | X70513 | FB1348 | FQ7885 | EG51084 | | | | |
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IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

| | | | |
|--------------------------|--------|------|-----------|
| QA AUTHORIZED SIGNATURE: | JOE YJ | DATE | 7/12/2012 |
| CUSTOMER INSPECTOR: | | DATE | |

P.O. Box 95249
1500 S.E. 89th STREET
OKLA. CITY, OK 73143

CIRCOR ENERGY PRODUCTS
MATERIAL TEST REPORT

3.1.B MATERIAL CERTIFICATION
ISO 10474
DIN EN 10204

123458 B

SECTION 3 OF 3

| HEAT CODE | MTR SPEC. | Chemical Test Results | | | | | | | | | | Physical Test Results | | | | | | | | | | |
|-----------|-----------|-----------------------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-----------------------|---------------|-------------|-----------|----------|-----|-------------------------|-------|-------|---|---|
| | | C | MIN | SI | P | S | CR | NI | MO | V | CU | NB | TENSILE (PSI) | YIELD (PSI) | ELON. (%) | RED. (%) | BHN | Impact At -46°C(FT-LBS) | | | | |
| 1 | X70500 | LCC | 0.190 | 0.894 | 0.317 | 0.027 | 0.009 | 0.053 | 0.218 | 0.007 | 0.007 | 0.039 | | | | | | | | 1 | 2 | 3 |
| 2 | X70503 | LCC | 0.191 | 0.948 | 0.317 | 0.022 | 0.009 | 0.115 | 0.203 | 0.030 | 0.007 | 0.057 | 84825 | 56115 | 28.4 | 56 | 157 | 31.1 | 29.6 | 33.3 | | |
| 3 | X70506 | LCC | 0.191 | 0.901 | 0.317 | 0.028 | 0.011 | 0.061 | 0.262 | 0.009 | 0.006 | 0.045 | 75986.09 | 49590 | 24.8 | 63 | 164 | 34.1 | 30.4 | 30.4 | | |
| 4 | X70513 | LCC | 0.196 | 0.957 | 0.342 | 0.027 | 0.009 | 0.057 | 0.290 | 0.006 | 0.004 | 0.055 | 78300 | 51475 | 27.4 | 56 | 169 | 34.1 | 31.1 | 33.3 | | |
| 5 | EG51084 | 316 | 0.023 | 1.090 | 0.280 | 0.037 | 0.024 | 0.024 | 17.810 | 10.190 | 2.020 | 0.180 | 79170 | 53795 | 30.4 | 58 | 162 | 34.8 | 34.1 | 33.3 | | |
| 6 | FB1348 | LF2 | 0.220 | 0.920 | 0.240 | 0.018 | 0.005 | 0.019 | 0.010 | 0.004 | 0.004 | 0.042 | 93380 | 47560 | 57 | 76 | 153 | | | | | |
| 7 | FB1482 | LF2 | 0.200 | 0.920 | 0.250 | 0.024 | 0.007 | 0.019 | 0.013 | 0.004 | 0.003 | 0.051 | 78590 | 60320 | 31 | 77 | 158 | 128.9 | 117.0 | 115.6 | | |
| 8 | FO7885 | 316 | 0.016 | 1.140 | 0.370 | 0.036 | 0.016 | 0.016 | 16.110 | 10.110 | 2.040 | 0.110 | 71485 | 54375 | 32 | 78 | 150 | 149.6 | 125.9 | 142.2 | | |
| 9 | | | | | | | | | | | | | 88885 | 45240 | 55 | 69 | 158 | | | | | |
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QA AUTHORIZED SIGNATURE: JOE YU DATE: 7/12/2012

123456



KF Industries

A Division of **CLARK** International, Inc. 1500 S.E. 89TH STREET
OKLAHOMA CITY, OK 73149

VALVE CERTIFICATION

ISO 10474
DIN EN 10204
MATERIAL CERTIFICATION 3.1

SECTION 1 OF 3

| | | | | | | |
|-------------|---------------------------------|-------------|--|--------|-----------------|------------------|
| SOLD TO: | KF INDUSTRIES-CANADA | KF TICKET | | QTY | 10 | Date : 7/12/2012 |
| SHIPPED TO: | 9831-39TH AVENUE, | CUSTOMER PO | | P297/1 | TAG NO. | |
| PART NO.: | E2300-8922G21CK(E2300-8922G21.) | REF. PO | | | CERTIFICATE NO. | 201229353 |

| VALVE SIZE (IPS) | VALVE DESCRIPTION | | VALVE REQUIREMENTS | |
|----------------------|-------------------|--------|--------------------|--|
| | 2" RP | SERIES | FE | |
| VALVE PRESSURE CLASS | CL300 | TYPE | FLOATING | |
| VALVE END CONNECTION | RF | | | |

| VALVE COMPONENT PARTS | VALVE COMPONENT MATERIAL | OPTIONS | CERTIFICATE OF PERFORMANCE |
|-----------------------|--------------------------|-----------------------|--|
| Body | LOC | BARE STEM: | IT IS CERTIFIED THAT THE ABOVE REFERENCED PRODUCTS HAVE BEEN MANUFACTURED, INSPECTED AND TESTED IN ACCORDANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR OTHER PURCHASE ORDER REQUIREMENTS. |
| Adapter | LP2 | HANDLE: | |
| Ball | 316 | GEAR OPERATOR: | |
| Stem | 316 | ACTUATION: | |
| | | CSA Z245.15 COMPLIANT | |
| | | SOUR SERVICE | CERTIFICATE OF ORIGIN IT IS CERTIFIED THAT PRODUCT(S) FURNISHED FOR ABOVE REFERENCED ORDER WERE PRODUCED IN CHINA. |

| CERTIFIED TEST RECORD | API 6D <input checked="" type="checkbox"/> | API 6A <input type="checkbox"/> | API 598 <input type="checkbox"/> | ANSI B16.34 <input checked="" type="checkbox"/> | OTHER / SPECIFY <input type="checkbox"/> | 49 CFR CH.1 PART192 CLASS 3 <input checked="" type="checkbox"/> | |
|-----------------------|--|---------------------------------|----------------------------------|---|--|---|--------------------|
| TEST TYPE | PRESSURE (PSIG) | TIME IN MINUTES | | TEST MEDIA | TEST RESULTS | INSPECTION | INSPECTION RESULTS |
| HYDROSTATIC SHELL | 1125 | 2 | | 60/40 GLYCOLWATER | ZERO LEAKAGE | DIMENSIONAL | GOOD |
| HYDROSTATIC SEAT | 825 | 2 | | SAME | SAME | VISUAL | GOOD |
| AIR SEAT | | | | AIR | SAME | OPERATIONAL | GOOD |
| FUNCTIONAL TEST | | | | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN THE RECORDS OF COMPANY.

KF QUALITY ASSURANCE: **JOE YU**

CUSTOMER INSPECTOR: _____

| | |
|------|-----------|
| DATE | 7/12/2012 |
| DATE | |

P.O. Box 95249
 1500 S.E. 89th STREET
 OKLA. CITY, OK 73143

123456A

KF INDUSTRIES, INC.
 VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

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|------------------|---------------------------------|-----------------------|-------------|----|-------------------------|-----------|
| PART NO.: | E2300-8922G21CK(E2300-8922G21.) | SECTION 2 OF 3 | QTY: | 10 | PAGE | 1 of 1 |
| P.O.NO.: | P29771 | | | | CERTIFICATE NO.: | 201229353 |

| COMPONENT HEAT CODES | | | | | | | | | | | |
|----------------------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|--|--|
| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 | | |
| 1 | 673308 | X70512 | FB1862 | FD1345 | EG51084 | | | | | | |
| 2 | 673309 | X70512 | FB1862 | FD1345 | EG51084 | | | | | | |
| 3 | 673310 | X70512 | FB1862 | FD1345 | EG51084 | | | | | | |
| 4 | 673311 | X70510 | FB1862 | FD1345 | EG51084 | | | | | | |
| 5 | 673312 | X70512 | FB1862 | FD1345 | EG51084 | | | | | | |
| 6 | 673313 | X70512 | FB1862 | FD1345 | EG51084 | | | | | | |
| 7 | 673314 | X70512 | FB1862 | FD1345 | EG51084 | | | | | | |
| 8 | 673315 | X70512 | FB1862 | FD1345 | EG51084 | | | | | | |
| 9 | 673316 | X70512 | FB1862 | FD1345 | EG51084 | | | | | | |
| 10 | 673317 | X70510 | FB1862 | FD1345 | EG51084 | | | | | | |
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IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

| | | | |
|---------------------------------|--------|-------------|-----------|
| QA AUTHORIZED SIGNATURE: | 009 YU | DATE | 7/11/2012 |
| CUSTOMER INSPECTOR: | | DATE | |

123457



KF Industries

1500 S.E. 89TH STREET

A Division of CIRCOR International, Inc. OKLAHOMA CITY, OK 73149

VALVE CERTIFICATION

ISO 10474

DIN EN 10204

MATERIAL CERTIFICATION 3.1

SECTION 1 OF 3

| | | | | | | | |
|--------------------|---------------------------------|--------------------|--------|------------------------|-----------|-------------|-----------|
| SOLD TO: | KF INDUSTRIES-CANADA | KF TICKET | | QTY | 10 | Date | 7/12/2012 |
| SHIPPED TO: | 9331-39TH AVENUE, | CUSTOMER PO | P29666 | TAG NO. | | | |
| PART NO.: | E2300-8922G21CK(E2300-8922G21.) | REF. PO | | CERTIFICATE NO. | 201229418 | | |

| VALVE SIZE (IPS) | VALVE DESCRIPTION | | SERIES | FE |
|----------------------|-------------------|-------|--------|----|
| | 2"RP | CL300 | | |
| VALVE PRESSURE CLASS | RF | | | |
| VALVE END CONNECTION | | | | |

VALVE REQUIREMENTS
 NON NACE: NACE - MRO7/5 LATEST REVISION
 FIRE SAFE CERTIFIED: API 607 API 6FA API 6FD

| VALVE COMPONENT PARTS | VALVE COMPONENT MATERIAL | OPTIONS | CERTIFICATE OF CONFORMANCE |
|-----------------------|--------------------------|---|--|
| Body | LCC | BARE STEM: <input checked="" type="checkbox"/> | IT IS CERTIFIED THAT THE ABOVE REFERENCED PRODUCTS HAVE BEEN MANUFACTURED, INSPECTED AND TESTED IN ACCORDANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR OTHER PURCHASE ORDER REQUIREMENTS. |
| Adapter | LF2 | HANDLE: <input checked="" type="checkbox"/> | |
| Ball | 316 | GEAR OPERATOR: <input type="checkbox"/> | |
| Stem | 316 | ACTUATION: <input type="checkbox"/> | |
| | | CSA Z245.15 COMPLIANT <input checked="" type="checkbox"/> | |
| | | SOUR SERVICE <input checked="" type="checkbox"/> | CERTIFICATE OF ORIGIN IT IS CERTIFIED THAT PRODUCT(S) FURNISHED FOR ABOVE REFERENCED ORDER WERE PRODUCED IN CHINA. |

| CERTIFIED TEST RECORD | API 6D <input checked="" type="checkbox"/> | API 6A <input type="checkbox"/> | API 598 <input type="checkbox"/> | ANSI B16.34 <input checked="" type="checkbox"/> | OTHER / SPECIFY <input type="checkbox"/> | 49 CFR Ch. 1 PART192 CLASS 3 <input checked="" type="checkbox"/> | TEST MEDIA | TEST RESULTS | INSPECTION | INSPECTION RESULTS |
|-----------------------|--|---------------------------------|----------------------------------|---|--|--|--------------------|--------------|-------------|--------------------|
| TEST TYPE | PRESSURE (PSIG) | TIME IN MINUTES | | | | | 60/40 GLYCOL/WATER | ZERO LEAKAGE | DIMENSIONAL | GOOD |
| HYDROSTATIC SHELL | 1125 | 2 | | | | | SAME | SAME | VISUAL | GOOD |
| HYDROSTATIC SEAT | 825 | 2 | | | | | AIR | SAME | OPERATIONAL | GOOD |
| AIR SEAT | | | | | | | | | | |
| FUNCTIONAL TEST | | | | | | | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN THE RECORDS OF COMPANY.

KF QUALITY ASSURANCE: 409 YU

CUSTOMER INSPECTOR: DATE 7/12/2012

P.O. Box 95249
 1500 S.E. 89th STREET
 OKLA. CITY, OK 73143

123457A

KF INDUSTRIES, INC.
 VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

SECTION 2 OF 3

| | | | | | |
|-----------|---------------------------------|------------------|-----------|------|--------|
| PART NO.: | E2300-8922G21CK(E2300-8922G21.) | QTY: | 10 | PAGE | 1 of 1 |
| P.O.NO.: | P29666 | CERTIFICATE NO.: | 201229418 | | |

| COMPONENT HEAT CODES | | | | | | | | | |
|----------------------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|
| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 |
| 1 | 663991 | X70500 | FB1462 | FQ7885 | EG51084 | | | | |
| 2 | 663992 | X88543 | FB1462 | FQ7885 | EG51084 | | | | |
| 3 | 663993 | X88543 | FB1462 | FQ7885 | EG51084 | | | | |
| 4 | 663994 | X88543 | FB1462 | FQ7885 | EG51084 | | | | |
| 5 | 663995 | X88543 | FB1462 | FQ7885 | EG51084 | | | | |
| 6 | 663996 | X88543 | FB1462 | FQ7885 | EG51084 | | | | |
| 7 | 663997 | X88543 | FB1462 | FQ7885 | EG51084 | | | | |
| 8 | 663998 | X88543 | FB1462 | FQ7885 | EG51084 | | | | |
| 9 | 663999 | X88543 | FB1462 | FQ7885 | EG51084 | | | | |
| 10 | 664000 | X70500 | FB1462 | FQ7885 | EG51084 | | | | |
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IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

QA AUTHORIZED SIGNATURE:

Joe Yu

DATE

7/12/2012

CUSTOMER INSPECTOR:

DATE

P.O. Box 95249
 1500 S.E. 89th STREET
 OKLA. CITY, OK 73143

CIRCOR ENERGY PRODUCTS
 MATERIAL TEST REPORT

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

123457B

SECTION 3 OF 3

| DATE | 7/12/2012 | VENDOR NO. | 8622 | PAGE | 1 of 1 | CERTIFICATE NO.: | 201229418 | | | | | | | | | | | | | | |
|-----------|-----------|-----------------------|-------|-------|--------|------------------|-----------------------|--------|--------|-------------------------|-------|-------|---------------|-------------|-----------|----------|-----|-----|-------|-------|-------|
| | | Chemical Test Results | | | | | Physical Test Results | | | Impact At -48°C(FT-LBS) | | | | | | | | | | | |
| HEAT CODE | MTR SPEC. | C | MN | SI | P | S | CR | NI | MO | V | CU | NB | TENSILE (psi) | YIELD (psi) | ELON. (%) | RED. (%) | BHN | 1 | 2 | 3 | |
| 1 | X70500 | LCC | 0.190 | 0.894 | 0.317 | 0.027 | 0.009 | 0.053 | 0.218 | 0.007 | 0.007 | 0.039 | | 84825 | 56115 | 28.4 | 56 | 157 | 31.1 | 29.6 | 33.3 |
| 2 | X88543 | LCC | 0.192 | 1.070 | 0.310 | 0.021 | 0.014 | 0.028 | 0.238 | 0.008 | 0.010 | 0.044 | | 81055 | 53360 | 29 | 57 | 168 | 28.9 | 29.6 | 27.4 |
| 3 | EG61084 | 316 | 0.023 | 1.090 | 0.280 | 0.037 | 0.024 | 17.810 | 10.190 | 2.020 | | 0.180 | | 93380 | 47560 | 57 | 76 | 153 | | | |
| 4 | FB1462 | LF2 | 0.200 | 0.920 | 0.250 | 0.024 | 0.007 | 0.019 | 0.013 | 0.004 | 0.003 | 0.051 | 0.001 | 71485 | 54375 | 32 | 78 | 150 | 149.6 | 125.9 | 142.2 |
| 5 | FQ7885 | 316 | 0.016 | 1.140 | 0.370 | 0.036 | 0.016 | 16.110 | 10.110 | 2.040 | | 0.110 | | 88885 | 45240 | 55 | 69 | 158 | | | |
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QA AUTHORIZED SIGNATURE: Joe Yu

DATE 7/12/2012



KF Industries

A Division of CIRCOR International, Inc. 1500 S.E. 89TH STREET
OKLAHOMA CITY, OK 73149

VALVE CERTIFICATION

ISO 10474

DIN EN 10204

MATERIAL CERTIFICATION 3.1

SECTION 1 OF 3

123480

| | | | | | | | |
|-------------|--------------------------------|-------------|--|-----------------|---|--------|-----------|
| SOLD TO: | KF INDUSTRIES-CANADA | KF TICKET | | QTY | 5 | Date : | 7/20/2012 |
| SHIPPED TO: | 9331-39TH AVENUE, | CUSTOMER PO | | TAG NO. | | | |
| PART NO.: | E2306-8922G21CK(E2306-8922G21) | REF. PO | | CERTIFICATE NO. | | | 201229907 |

| VALVE SIZE (IPS) | VALVE DESCRIPTION | | SERIES | FE |
|----------------------|-------------------|-------|--------|----|
| | 4"FP | CL300 | | |
| VALVE PRESSURE CLASS | RF | | | |
| VALVE END CONNECTION | | | | |

| VALVE COMPONENT PARTS | VALVE COMPONENT MATERIAL | OPTIONS | CERTIFICATE OF CONFORMANCE |
|-----------------------|--------------------------|---|--|
| Body | LCC | HANDLE: <input checked="" type="checkbox"/> | IT IS CERTIFIED THAT THE ABOVE REFERENCED PRODUCTS HAVE BEEN MANUFACTURED, INSPECTED AND TESTED IN ACCORDANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR OTHER PURCHASE ORDER REQUIREMENTS. |
| Adapter | LF2 | GEAR OPERATOR: <input type="checkbox"/> | |
| Ball | 316 | ACTUATION: <input type="checkbox"/> | |
| Stem | 316 | CSA Z245.15 COMPLIANT <input checked="" type="checkbox"/> | |
| | | SOUR SERVICE <input checked="" type="checkbox"/> | CERTIFICATE OF ORIGIN IT IS CERTIFIED THAT PRODUCT(S) FURNISHED FOR ABOVE REFERENCED ORDER WERE PRODUCED IN CHINA. |
| | | | |

| CERTIFIED TEST RECORD | AP1 6D <input checked="" type="checkbox"/> | | | AP1 6A <input type="checkbox"/> | | | AP1 598 <input type="checkbox"/> | | | ANSI B16.34 <input checked="" type="checkbox"/> | | | OTHER / SPECIFY <input type="checkbox"/> | | | 49 CFR Ch.1 PART192 CLASS 3 <input checked="" type="checkbox"/> | | |
|-----------------------|--|-----------------|-----------------|---------------------------------|--------------|-------------|----------------------------------|--|--|---|--|--|--|--|--|---|--|--|
| | TEST TYPE | PRESSURE (PSIG) | TIME IN MINUTES | TEST MEDIA | TEST RESULTS | INSPECTION | INSPECTION RESULTS | | | | | | | | | | | |
| HYDROSTATIC SHELL | 1125 | 2 | | 60/40 GLYCOL/WATER | ZERO LEAKAGE | INSPECTION | GOOD | | | | | | | | | | | |
| HYDROSTATIC SEAT | 825 | 2 | | SAME | SAME | VISUAL | GOOD | | | | | | | | | | | |
| AIR SEAT | | | | AIR | SAME | OPERATIONAL | GOOD | | | | | | | | | | | |
| FUNCTIONAL TEST | | | | | | | | | | | | | | | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN THE RECORDS OF COMPANY.

KF QUALITY ASSURANCE: Joe Yu

CUSTOMER INSPECTOR: DATE: 7/20/2012

P. O. Box 95249
 1500 S.E. 89th STREET
 OKLA. CITY, OK 73143

12348DA

KF INDUSTRIES, INC.
 VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

| | | | | | | |
|------------------|---------------------------------|-----------------------|-------------|---|-------------------------|-----------|
| PART NO.: | E2306-8922G21CK(E2306-8922G21.) | SECTION 2 OF 3 | QTY: | 5 | PAGE | 1 of 1 |
| P.O.NO.: | P29883 | | | | CERTIFICATE NO.: | 201229907 |

| COMPONENT HEAT CODES | | | | | | | | | | |
|----------------------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|--|
| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 | |
| 1 | 698150 | ZA3066 | FB1856 | FD1365 | EG51061 | | | | | |
| 2 | 698151 | ZA3069 | FB1856 | FD1365 | EG51061 | | | | | |
| 3 | 698152 | ZA3069 | FB1856 | FD1365 | EG51061 | | | | | |
| 4 | 698153 | ZA3073 | FB1856 | FD1365 | EG51061 | | | | | |
| 5 | 698154 | ZA3068 | FB1856 | FD1365 | EG51061 | | | | | |
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IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

QA AUTHORIZED SIGNATURE: JOE YU

CUSTOMER INSPECTOR: DATE 7/20/2012

P.O. Box 95249
1500 S.E. 89TH STREET
OKLA. CITY, OK 73143

123480B

CIRCOR ENERGY PRODUCTS
MATERIAL TEST REPORT

3.1 B MATERIAL CERTIFICATION
ISO 10474
DIN EN 10204

SECTION 3 OF 3

| | | | | | | | |
|------|-----------|------------|------|------|--------|------------------|-----------|
| DATE | 7/20/2012 | VENDOR No. | 8622 | PAGE | 1 of 1 | CERTIFICATE NO.: | 201229907 |
|------|-----------|------------|------|------|--------|------------------|-----------|

| HEAT CODE | MTR SPEC. | Chemical Test Results | | | | | | | | | | | Physical Test Results | | | | Impact At: -46°C(F=-48) | | | | | | |
|-----------|-----------|-----------------------|-------|-------|-------|-------|-------|--------|--------|-------|-------|-------|-----------------------|-------------|-----------|----------|-------------------------|----|-----|------|------|------|--|
| | | C | MN | SI | P | S | CR | NI | MO | V | CU | NB | TENSILE (PSI) | YIELD (PSI) | ELON. (%) | RED. (%) | BHN | 1 | 2 | 3 | | | |
| 1 | EG51061 | 316 | 0.026 | 1.190 | 0.550 | 0.037 | 0.011 | 17.350 | 10.350 | 2.150 | | 0.260 | | | 82070 | 39730 | 65 | 79 | 150 | | | | |
| 2 | FB1856 | LF2 | 0.180 | 0.970 | 0.250 | 0.011 | 0.008 | | 0.012 | 0.008 | 0.002 | 0.048 | 0.001 | | 76415 | 50170 | 36 | 75 | 156 | 63.7 | 43.0 | 45.9 | |
| 3 | FD1365 | 316 | 0.019 | 0.830 | 0.420 | 0.034 | 0.001 | 16.340 | 10.050 | 2.050 | | 0.410 | | | 82650 | 41325 | 65 | 77 | 158 | | | | |
| 4 | ZA3068 | LCC | 0.202 | 1.078 | 0.541 | 0.018 | 0.009 | 0.070 | 0.043 | 0.006 | | 0.186 | | | 75400 | 44225 | 30 | 42 | 174 | 25.9 | 27.4 | 28.1 | |
| 5 | ZA3068 | LCC | 0.202 | 1.082 | 0.473 | 0.025 | 0.011 | 0.051 | 0.019 | 0.005 | | 0.279 | | | 78300 | 49300 | 31 | 41 | 178 | 29.6 | 31.1 | 30.4 | |
| 6 | ZA3069 | LCC | 0.209 | 1.260 | 0.600 | 0.026 | 0.010 | 0.038 | 0.015 | 0.004 | | 0.254 | | | 75400 | 44950 | 31 | 43 | 174 | 25.2 | 28.1 | 28.1 | |
| 7 | ZA3073 | LCC | 0.187 | 1.088 | 0.518 | 0.018 | 0.012 | 0.036 | 0.012 | 0.003 | | 0.234 | | | 81200 | 49300 | 31 | 41 | 179 | 34.8 | 34.8 | 31.9 | |
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QA AUTHORIZED SIGNATURE:

Joe Yu

DATE

7/20/2012

YANCHENG H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 1 OF 3

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves |
|-------------------|---|-----------------------|------------------------------|--------|---|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1"3000PSI |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 |
| Seat Test | Hydro | 45.6 | 180 | OK | PO No.: |
| | Air | 0.6-0.7 | 180 | OK | CAT No.: K3-F10SW30LZ |
| Valve requirement | API 6A <input checked="" type="checkbox"/> <input type="checkbox"/> BS1868 <input type="checkbox"/> <input type="checkbox"/> BS1873 <input type="checkbox"/> <input type="checkbox"/> | | | | NACE MR 0175 <input checked="" type="checkbox"/> <input type="checkbox"/> |

| Serial No. | Heat No. | | | Lot No. | |
|--|----------|---------|------|-----------|-------------|
| | Body | End cap | Ball | Stem | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order. | | | | Inspector | REVIEWED BY |

YANCHENG

111948

H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 2 OF 3

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves | |
|-------------------|---------------------|-----------------------|------------------------------|--------|-------------------------------|-----------------------|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1"3000PSI | |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: | |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 | |
| Seat Test | Hydro | 45.6 | 180 | 0 | OK | PO No.: |
| | Air | 0.6-0.7 | 180 | 0 | OK | CAT No.: K3-F10SW30LZ |
| Valve requirement | API 6A | EN 10 | BS1868 | EN 10 | NACE MR 0175 | |

| Serial No. | Heat No. | | | Lot No. | | |
|--|----------|---------|------|-----------|-------------|--|
| | Body | End cap | Ball | Stem | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| | Q13 | Q13 | F24 | A070821-1 | | |
| We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order. | | | | Inspector | REVIEWED BY | |

YANCHENG

111948A

H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 3 OF 3

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves | |
|-------------------|--|-----------------------|------------------------------|--------|---|-----------------------|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1"3000PSI | |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: | |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 | |
| Seat Test | Hydro | 45.6 | 180 | 0 | OK | PO No.: |
| | Air | 0.6-0.7 | 180 | 0 | OK | CAT No.: K3-F10SW30LZ |
| Valve requirement | API 6A <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> BS1868 <input type="checkbox"/> <input type="checkbox"/> BS1873 <input type="checkbox"/> <input type="checkbox"/> | | | | NACE MR 0175 <input checked="" type="checkbox"/> <input type="checkbox"/> | |

| Serial No. | Heat No. | | | Lot No. | |
|--|----------|---------|------|-----------|-------------|
| | Body | End cap | Ball | Stem | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
| | Q13 | Q13 | F24 | A070821-1 | |
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| We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order. | | | | Inspector | REVIEWED BY |

111948B

| YANCHENG H & M PRESSURE VALVE CO., LTD | | MATERIAL CERTIFICATE (BS EN 10204.3.1.B) | | | | | | | | | | Certificate No: | | | | | | | | | | |
|--|----------|---|----------|-------------------------------------|--------------|---------------|-------------|-------------|--------------|-----------------------|--------------|-----------------------|--------|---------------------------|-------------------------|---------------------------|--------------------------|----------------|-------------------------------------|---------------|----|----|
| No.6 Juheng Road Economic development Zone Yancheng City, China | | Customer: KF | | Description: BALL VALVES 1" 3000PSI | | | | P/O No: | | CAT No: K3-F10SWV30LZ | | QTY: | | Material: ASTM A350 LF2 | | Certificate Date: | | | | | | |
| Tel: +86-515-8281015 Fax: +86-515-8281003 E-mail: ycf@public.yc.is.cn | | | | | | | | | | | | Sheet 1 of 3 | | | | | | | | | | |
| Name of Parts | Heat No. | CHEMICAL ANALYSIS (%) MAX | | | | | | | | | | MECHANICAL PROPERTIES | | | | | | | | | | |
| | | C | Mn | P | S | SI | NI | Cr | Mo | Cu | V | CB | Others | Tensile 485-655 Mpa | Yield 250Min. MPa | Elongation 22% Min. | Reduction 30% Min. | Hardness HB | Impact Test AK(46°C) 20J Min. | Ave. Value | | |
| BODY | Q13 | 0.30 Max. | 0.6-1.35 | 0.035 Max. | 0.04 Max. | 0.15- 0.50 | 0.4 Max. | 0.3 Max. | 0.12 Max. | 0.4 Max. | 0.08 Max. | 0.02 Max. | | 550 | 280 | 28 | 30 | 190 | 28 | 27 | 30 | 28 |
| END CAP | Q13 | 0.160 | 0.910 | 0.029 | 0.031 | 0.200 | 0.350 | 0.210 | 0.090 | 0.320 | 0.030 | 0.015 | | 550 | 280 | 28 | 30 | 190 | 28 | 27 | 30 | 28 |
| | | | | | | | | | | | | | | | | | | | | | | |
| HEAT TREATMENT | | REMARKS | | | | | | | | | | | | | | | | | | | | |
| Quenching+Tempering | | We hereby certify that the materials described above have been tested and comply to NACE MR 0175 the material specifications of the purchase order. | | | | | | | | | | | | | | | | | | | | |
| | | Signatures / Date | | | | | | | | | | | | | | Inspector | | | | | | |

111948C

| YANCHENG H & M PRESSURE VALVE CO.,LTD | | | | | | | | | | MATERIAL CERTIFICATE | | | | | | | | | | | | | | |
|---|---------|-------------|----------|--------------|--------------|----------|--------------|--------------|------------|---|-----|--------|-----------------|-----------------|-------------|-------------|------------|----------------------|---------------|-----|----------|-----|-------------|--|
| No.6 Juheng Road Economic development Zone Yancheng City, China | | | | | | | | | | (BS EN 10204.3.1.B) | | | | | | | | | | | | | | |
| Tel: +86-515-8281015 Fax: +86-515-8281003 E-mail: yor@public.yc.js.cn | | | | | | | | | | Customer: KF Description: BALL VALVE ST3008FSI P/Q No: CAT No: K3-F10SW30LZ | | | | | | | | | | | | | | |
| CHEMICAL ANALYSIS (%) MAX | | | | | | | | | | MECHANICAL PROPERTIES | | | | | | | | | | | | | | |
| Name of Parts | Heat No | C | Mn | P | S | SI | NI | Cr | Mo | Ne | TI | Others | Tensile | | Yield | | Elongation | | Reduction | | Hardness | | Impact Test | |
| | | 0.08 Max | 2 Max | 0.045 Max | 0.030 Max | 1 Max | 10-14 Max | 16-18 Max | 2-3 Max | ... | ... | | 515 Min. MPa | 205 Min. MPa | 30% Min. | 50% Min. | HB Min. | AK(45°C) 20J Min. | Aut. Value | | | | | |
| BALL | F24 | 0.032 | 1.950 | 0.025 | 0.030 | 0.600 | 10.20 | 16.54 | 2.400 | ... | ... | | 520 | 220 | 38 | 55 | 138 | ... | ... | ... | ... | ... | ... | |
| REMARKS | | | | | | | | | | | | | | | | | | | | | | | | |
| We hereby certify that the materials described above have been tested and comply to MACE MR 0175 the material specifications of the purchase order. | | | | | | | | | | | | | | | | | | | | | | | | |
| Signature / Date | | | | | | | | | | | | | | | | | | Inspector | | | | | | |

1115480

118492

YANCHENG H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281015

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 1 OF 1

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves |
|-------------------|--|-----------------------|------------------------------|--------|--|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 2"3000PSI |
| Shell Test | 31.1 | 180 | 0 | OK | Quantity: |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 |
| Seat Test | Hydro | 22.8 | 180 | 0 | OK |
| | Air | 0.6-0.7 | 180 | 0 | OK |
| Valve requirement | API 6A (<input checked="" type="checkbox"/>) BS1868 () BS1873 () | | | | NACE MR 0175 (<input checked="" type="checkbox"/>) |

| Serial No. | Heat No. | | | Lot No. | |
|--|----------|---------|------|-----------|-------------|
| | Body | End cap | Ball | Stem | |
| | Q16 | Q16 | F27 | A070821-1 | |
| | Q16 | Q16 | F27 | A070821-1 | |
| | Q16 | Q16 | F27 | A070821-1 | |
| | Q16 | Q16 | F27 | A070821-1 | |
| | Q16 | Q16 | F27 | A070821-1 | |
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| We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order. | | | | Inspector | REVIEWED BY |

118492A

YANCHENG H & M PRESSURE VALVE CO., LTD

No.6 Juheng Road Economic development Zone
Yancheng City, China

MATERIAL CERTIFICATE

(BS EN 10204.3.1.B)

Certificate No:

Certificate Date:

Tel: +86-515-8281015 Fax: +86-515-8281003

Customer: KF

PIQ No:

QTY:

Material: ASTM A350 LF2

E-mail: yqfj@public.yc.js.cn

Description: BALL VALVES 23000PSI

CAT No: K3-F20TSS30LZ

Sheet 1 of 3

| Name of Parts | Heat No. | CHEMICAL ANALYSIS (%) MAX | | | | | | | | | | | MECHANICAL PROPERTY | | | | | |
|---|----------|---------------------------|----------|---------------|--------------|---------------|-------------|-------------|--------------|-------------|--------------|--------------|---------------------|----------------|--------------|--------------------|-------------------|------------------|
| | | C | Mn | P | S | Si | Ni | Cr | Mo | Cu | V | Cb | Others | Tensile Mpa | Yield Mpa | Elongation Min. | Reduction Min. | Hardness HB |
| BODY | Q16 | 0.30 Max. | 0.6-1.35 | 0.035 Max. | 0.04 Max. | 0.15- 0.30 | 0.4 Max. | 0.3 Max. | 0.12 Max. | 0.4 Max. | 0.08 Max. | 0.02 Max. | | 485-655 | 260Min. | 22% | 30% | 185 |
| END CAP | Q16 | 0.200 | 0.920 | 0.026 | 0.030 | 0.280 | 0.340 | 0.240 | 0.060 | 0.350 | 0.030 | 0.015 | | 550 | 320 | 30 | 35 | 185 |
| HEAT TREATMENT | | | | | | | | | | | | | | | | | | |
| Quenching+Tempering | | | | | | | | | | | | | | | | | | |
| REMARKS | | | | | | | | | | | | | | | | | | |
| We hereby certify that the materials described above have been tested and comply to NACE MR 0175 the material specifications of the purchase order. | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | Signature / Date |

11849213

| Impact Test | | | | Av. |
|-------------|----|----|----|-------|
| AK(-45°C) | | | | Value |
| 20J Min. | | | | |
| 29 | 30 | 27 | 29 | 29 |
| 29 | 30 | 27 | 29 | 29 |
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| Inspector | | | | |

118492C

| YANCHENG H & M PRESSURE VALVE CO.,LTD | | MATERIAL CERTIFICATE (BS EN 10204.3.1.B) | | Certificate No: | | | | | | | | | | | | |
|---|----------|---|----------------------|-------------------|---------------|-----------|---------------|---------------|-------------|-----|-----|--------|----------------------------|--------------------------|---------------------------|--------------------------|
| No.6 Juheng Road Economic development Zone Yancheng City, China | | | | Certificate Date: | | | | | | | | | | | | |
| Tel: +86-515-8281015 Fax: +86-515-8281003 E-mail: ygf@public.yc.js.cn | | | Customer: KF | | P/O No: | | | | | | | | | | | |
| Description: BALL VALVES*3000PSI | | | CAT No: K3-F20TS301Z | | QTY: | | | | | | | | | | | |
| Material: ASTM A182 F316 | | | Sheet 2 of 3 | | | | | | | | | | | | | |
| Name of Parts | Heat No. | CHEMICAL ANALYSIS (%) MAX | | | | | | | | | | | MECHANICAL PROPERT | | | |
| | | C | Mn | P | S | Si | Ni | Cr | Mo | Ne | Ti | Others | Tensile 515 Min. MPa | Yield 205 Min. MPa | Elongation 30% Min. | Reduction 50% Min. |
| BALL | FZ7 | 0.08 Max. | 2 Max. | 0.045 Max. | 0.030 Max. | 1 Max. | 10-14 Max. | 16-18 Max. | 2-3 Max. | ... | ... | 520 | 230 | 37 | 56 | 158 |
| | | | | | | | | | | | | | | | | |
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| REMARKS | | | | | | | | | | | | | | | | |
| We hereby certify that the materials described above have been tested and comply to NACE MR 0175 the material specifications of the purchase order. | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | Signature / Date | |

H & M PRESSURE VALVE CO.,LTD

NO.6 Juheng Road, Economic Development Zone, Yancheng City, China

Tel: +86-515-8281015

Fax: +86-515-8281003

E-mail: ygf@public.yc.js.cn

Certificate No:

DATE:

SHEET: 2 OF 2

PRESSURE TEST CERTIFICATE

| Pressure Test | | | | | Name of Valves: Ball valves | |
|--|---------------------|-----------------------|------------------------------|--------|---|-----------------------|
| Item | Test Pressure (MPa) | Test Durations (Sec.) | Allowable Leakage Rate (max) | Result | Size & Class: 1/2"3000PSI | |
| Shell Test | 62.1 | 180 | 0 | OK | Quantity: | |
| Backseat Test | -- | -- | -- | -- | Valve Material: ASTM A350 LF2 | |
| Seat Test | Hydro | 45.6 | 180 | 0 | OK | PO No.: |
| | Air | 0.6-0.7 | 180 | 0 | OK | CAT No.: K3-F05SW30LZ |
| Valve requirement <input checked="" type="checkbox"/> API 6A <input type="checkbox"/> <input type="checkbox"/> BS1868 <input type="checkbox"/> <input type="checkbox"/> BS1873 <input type="checkbox"/> <input type="checkbox"/> | | | | | NACE MR 0175 <input checked="" type="checkbox"/> <input type="checkbox"/> | |

| Serial No. | Heat No. | | | Lot No. | |
|--|----------|---------|------|-----------|-------------|
| | Body | End cap | Ball | Stem | |
| | Q11 | Q11 | F22 | A070821-1 | |
| | Q11 | Q11 | F22 | A070821-1 | |
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| We hereby certify that the above valves have been tested as per API598 and comply to NACE MR 0175 the specification of the purchase order. | | | | Inspector | REVIEWED BY |

111946A

| | | | | | | | | | | | | | | | | | | | |
|--|----------|--|----------|------------------------------|-----------|-----------|----------|----------|-----------|----------|-------|-------|--------|---------|---------|-------------|-----------|----------|-------------|
| YANCHENG H & M PRESSURE VALVE CO.,LTD | | MATERIAL CERTIFICATE | | Certificate No: | | | | | | | | | | | | | | | |
| No.6 Juheng Road Economic development Zone Yancheng City, China | | (BS EN 10204.3.1.B) | | Certificate Date: | | | | | | | | | | | | | | | |
| Tel: +86-515-8281015 Fax: +86-515-8281003 | | Customer: KF | | Material: ASTM A350 LF2 | | | | | | | | | | | | | | | |
| E-mail: ycf@public.yc.js.cn | | Description: BALL VALVES/1/2"3000PSI | | P/O No: CAT No: K3-F05SW30LZ | | | | | | | | | | | | | | | |
| | | CHEMICAL ANALYSIS (%) MAX | | MECHANICAL PROPERTIES | | | | | | | | | | | | | | | |
| Name of Parts | Heat No. | C | Min | P | S | SI | NI | Cr | MO | Cu | V | CB | Others | Tensile | Yield | Elongation | Reduction | Hardness | Impact Test |
| | | 0.30 Max. | 0.6-1.35 | 0.035 Max. | 0.04 Max. | 0.15-0.30 | 0.4 Max. | 0.3 Max. | 0.12 Max. | 0.4 Max. | 0.320 | 0.050 | 0.021 | | 485 MPa | 250Min. MPa | 22% Min. | 30% Min. | HB 190 |
| BODY | Q11 | 0.180 | 0.920 | 0.028 | 0.031 | 0.200 | 0.300 | 0.220 | 0.090 | 0.320 | 0.050 | 0.011 | | 485 | 330 | 28 | 30 | 190 | 28 27 30 28 |
| END CAP | Q11 | 0.160 | 0.920 | 0.028 | 0.031 | 0.200 | 0.300 | 0.220 | 0.090 | 0.320 | 0.050 | 0.011 | | 485 | 330 | 28 | 30 | 190 | 28 27 30 28 |
| | | <p style="text-align: center;">HEAT TREATMENT</p> <p style="text-align: center;">Quenching+Tempering</p> <p style="text-align: center;">REMARKS</p> <p style="text-align: center;">We hereby certify that the materials described above have been tested and comply to NACE MR 0175 the material specifications of the purchase order.</p> | | | | | | | | | | | | | | | | | |
| YANCHENG H & M PRESSURE VALVE CO.,LTD | | MATERIAL CERTIFICATE | | Certificate No: | | | | | | | | | | | | | | | |
| No.6 Juheng Road Economic development Zone Yancheng City, China | | (BS EN 10204.3.1.B) | | Certificate Date: | | | | | | | | | | | | | | | |
| Tel: +86-515-8281015 Fax: +86-515-8281003 | | Customer: KF | | Material: ASTM A182 F316 | | | | | | | | | | | | | | | |
| E-mail: ycf@public.yc.js.cn | | Description: BALL VALVES/1/2"3000PSI | | P/O No: CAT No: K3-F05SW30LZ | | | | | | | | | | | | | | | |
| | | CHEMICAL ANALYSIS (%) MAX | | MECHANICAL PROPERTIES | | | | | | | | | | | | | | | |
| Name of Parts | Heat No. | C | Min | P | S | SI | NI | Cr | MO | Cu | V | CB | Others | Tensile | Yield | Elongation | Reduction | Hardness | Impact Test |
| | | 0.30 Max. | 0.6-1.35 | 0.035 Max. | 0.04 Max. | 0.15-0.30 | 0.4 Max. | 0.3 Max. | 0.12 Max. | 0.4 Max. | 0.320 | 0.050 | 0.021 | | 485 MPa | 250Min. MPa | 22% Min. | 30% Min. | HB 190 |
| BODY | Q11 | 0.180 | 0.920 | 0.028 | 0.031 | 0.200 | 0.300 | 0.220 | 0.090 | 0.320 | 0.050 | 0.011 | | 485 | 330 | 28 | 30 | 190 | 28 27 30 28 |
| END CAP | Q11 | 0.160 | 0.920 | 0.028 | 0.031 | 0.200 | 0.300 | 0.220 | 0.090 | 0.320 | 0.050 | 0.011 | | 485 | 330 | 28 | 30 | 190 | 28 27 30 28 |

11946B

123472



KF Industries

1500 S.E. 89TH STREET

A Division of **CHROKOR** International, Inc. OKLAHOMA CITY, OK 73149

MATERIAL CERTIFICATION 3.1

VALVE CERTIFICATION

ISO 10474

DIN EN 10204

SECTION 1 OF 3

| | | | | | | | |
|--------------------|---------------------------------|--------------------|--------|------------------------|-----------|---------------|-----------|
| SOLD TO: | KF INDUSTRIES-CANADA | KF TICKET | | QTY | 30 | Date : | 7/20/2012 |
| SHIPPED TO: | 9331-39TH AVENUE, | CUSTOMER PO | P29849 | TAG NO. | | | |
| PART NO.: | E2303-8922G21CK(E2303-8922G21.) | REF. PO | | CERTIFICATE NO. | 201229903 | | |

| | | | | | | | |
|--------------------------|-------|--------|----------|---------------------------|---|----------------------------------|-------------------------------------|
| VALVE DESCRIPTION | | | | VALVE REQUIREMENTS | | | |
| VALVE SIZE (IPS) | 3"RP | SERIES | FE | NON NACE: | <input type="checkbox"/> | NACE - MRO175 LATEST REVISION | <input checked="" type="checkbox"/> |
| VALVE PRESSURE CLASS | CL300 | TYPE | FLOATING | FIRE SAFE CERTIFIED: | API 607 <input checked="" type="checkbox"/> | API 6FA <input type="checkbox"/> | API 6FD <input type="checkbox"/> |
| VALVE END CONNECTION | RF | | | | | | |

| | | | |
|------------------------------|---------------------------------|-----------------------|---|
| VALVE COMPONENT PARTS | VALVE COMPONENT MATERIAL | OPTIONS | CERTIFICATE OF CONFORMANCE |
| Body | LCC | BARE STEM: | IT IS CERTIFIED THAT THE ABOVE REFERENCED PRODUCTS HAVE BEEN MANUFACTURED, INSPECTED, AND TESTED IN ACCORDANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR OTHER PURCHASE ORDER REQUIREMENTS. |
| Adapter | LF2 | HANDLE: | |
| Ball | 316 | GEAR OPERATOR: | |
| Stem | 316 | ACTUATION: | |
| | | CSA Z245.16 COMPLIANT | |
| | | SOUR SERVICE | CERTIFICATE OF ORIGIN IT IS CERTIFIED THAT PRODUCT(S) FURNISHED FOR ABOVE REFERENCED ORDER WERE PRODUCED IN CHINA. |

| | | | | | | |
|------------------------------|--|---------------------------------|----------------------------------|---|--|--|
| CERTIFIED TEST RECORD | API 6D <input checked="" type="checkbox"/> | API 6A <input type="checkbox"/> | API 698 <input type="checkbox"/> | ANSI B16.34 <input checked="" type="checkbox"/> | OTHER / SPECIFY <input type="checkbox"/> | 49 CFR Ch. 1 PART192 CLASS 3 <input checked="" type="checkbox"/> |
| TEST TYPE | PRESSURE (PSIG) | TIME IN MINUTES | TEST MEDIA | TEST RESULTS | INSPECTION | INSPECTION RESULTS |
| HYDROSTATIC SHELL | 1125 | 2 | 60/40 GL.YCO/LWATER | ZERO LEAKAGE | DIMENSIONAL | GOOD |
| HYDROSTATIC SEAT | 825 | 2 | SAME | SAME | VISUAL | GOOD |
| AIR SEAT | | | AIR | SAME | OPERATIONAL | GOOD |
| FUNCTIONAL TEST | | | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN THE RECORDS OF COMPANY.

KF QUALITY ASSURANCE: Joe Yu

CUSTOMER INSPECTOR: _____

| | |
|-------------|-----------|
| DATE | 7/20/2012 |
| DATE | |

P.O. Box 95249
 1500 S.E. 89TH STREET
 OKLA. CITY, OK 73143

123472A

KF INDUSTRIES, INC.
 VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

SECTION 2 OF 3

| | | | | | |
|-----------|--------------------------------|------------------|-----------|------|--------|
| PART NO.: | E2303-8922G21CK(E2303-8922G21) | QTY: | 30 | PAGE | 1 of 2 |
| P.O. NO.: | P29849 | CERTIFICATE NO.: | 201229903 | | |

| COMPONENT HEAT CODES | | | | | | | | | |
|----------------------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|
| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 |
| 1 | 687602 | ZA3001 | FB1901 | FD1349 | EG51050 | | | | |
| 2 | 687603 | ZA30010 | FB1901 | FD1349 | EG51050 | | | | |
| 3 | 687604 | X87963 | FB1899 | FD1349 | EG51050 | | | | |
| 4 | 687605 | ZA30011 | FB1899 | FD1349 | EG51050 | | | | |
| 5 | 687606 | X87683 | FB1908 | FD1349 | EG51050 | | | | |
| 6 | 687607 | ZA30011 | FB1908 | FD1349 | EG51050 | | | | |
| 7 | 687608 | ZA30011 | FB1908 | FD1349 | EG51050 | | | | |
| 8 | 687609 | ZA30010 | FB1901 | FD1349 | EG51050 | | | | |
| 9 | 687610 | ZA30011 | FB1908 | FD1349 | EG51050 | | | | |
| 10 | 687611 | X88415 | FB1899 | FD1349 | EG51050 | | | | |
| 11 | 687612 | ZA30011 | FB1899 | FD1349 | EG51050 | | | | |
| 12 | 687613 | X88415 | FB1901 | FD1349 | EG51050 | | | | |
| 13 | 687614 | ZA30010 | FB1901 | FD1349 | EG51050 | | | | |
| 14 | 687615 | X88415 | FB1901 | FD1349 | EG51050 | | | | |
| 15 | 687616 | ZA30010 | FB1901 | FD1349 | EG51050 | | | | |
| 16 | 687617 | ZA30011 | FB1908 | FD1349 | EG51050 | | | | |
| 17 | 687618 | ZA30010 | FB1901 | FD1349 | EG51050 | | | | |
| 18 | 687619 | X87963 | FB1901 | FD1349 | EG51050 | | | | |
| 19 | 687620 | X88415 | FB1901 | FD1349 | EG51050 | | | | |
| 20 | 687621 | ZA30010 | FB1901 | FD1349 | EG51050 | | | | |
| 21 | 687622 | ZA30010 | FB1908 | FD1349 | EG51050 | | | | |
| 22 | 687623 | ZA30011 | FB1908 | FD1349 | EG51050 | | | | |
| 23 | 687624 | ZA30010 | FB1901 | FD1349 | EG51050 | | | | |
| 24 | 687625 | X88415 | FB1948 | FD1349 | EG51050 | | | | |
| 25 | 687626 | X88415 | FB1901 | FD1349 | EG51050 | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

| | | | |
|--------------------------|--------|------|-----------|
| QA AUTHORIZED SIGNATURE: | Joe Yu | DATE | 7/20/2012 |
| CUSTOMER INSPECTOR: | | DATE | |

P.O. Box 95249
 1500 S.E. 89th STREET
 OKLA. CITY, OK 73143

KF INDUSTRIES, INC.
 VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

1234728

SECTION 2 OF 3

| | | | | | |
|-----------|---------------------------------|------------------|-----------|------|--------|
| PART NO.: | E2303-8922G21CK(E2303-8922G21.) | QTY: | 30 | PAGE | 2 of 2 |
| P.O.NO.: | P29849 | CERTIFICATE NO.: | 201229903 | | |

| COMPONENT HEAT CODES | | | | | | | | | | |
|----------------------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|--|
| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 | |
| 26 | 687627 | X88415 | FB1948 | FD1349 | EG51050 | | | | | |
| 27 | 687628 | X88311 | FB1948 | FD1349 | EG51050 | | | | | |
| 28 | 687629 | X88415 | FB1948 | FD1349 | EG51050 | | | | | |
| 29 | 687630 | X88415 | FB1948 | FD1349 | EG51050 | | | | | |
| 30 | 687631 | X87687 | FB1901 | FD1349 | EG51050 | | | | | |
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IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

| | | | |
|--------------------------|--------|------|-----------|
| QA AUTHORIZED SIGNATURE: | Joe Yu | DATE | 7/20/2012 |
| CUSTOMER INSPECTOR: | | DATE | |

P.O. Box 95249
1500 S.E. 89th STREET
OKLA. CITY, OK 73143

CIRCOR ENERGY PRODUCTS
MATERIAL TEST REPORT

3.1B MATERIAL CERTIFICATION
ISO 10474
DIN EN 10204

1234720

SECTION 3 OF 3

| | | | | | | | |
|------|-----------|------------|------|------|--------|------------------|-----------|
| DATE | 7/20/2012 | VENDOR No. | 8622 | PAGE | 1 of 1 | CERTIFICATE NO.: | 201229903 |
|------|-----------|------------|------|------|--------|------------------|-----------|

| HEAT CODE | MTR SPEC. | Chemical Test Results | | | | | | | | | | Physical Test Results | | | | | Impact At -46°C(FT-LS) | | | | | | | |
|-----------|-----------|-----------------------|-------|-------|-------|-------|-------|--------|--------|-------|-------|-----------------------|---------------|-------------|-----------|----------|------------------------|----|----|-----|------|-------|-------|--|
| | | C | MN | SI | P | S | CR | NI | MO | V | CU | NB | TENSILE (PSI) | YIELD (PSI) | ELON. (%) | RED. (%) | BHN | 1 | 2 | 3 | | | | |
| 1 | X87683 | LCC | 0.189 | 1.080 | 0.326 | 0.023 | 0.015 | 0.039 | 0.233 | 0.010 | 0.009 | 0.029 | | | | 82215 | 54810 | 28 | 56 | 166 | 29.6 | 28.9 | 28.9 | |
| 2 | X87687 | LCC | 0.192 | 1.061 | 0.323 | 0.021 | 0.012 | 0.041 | 0.262 | 0.011 | 0.003 | 0.043 | | | | 83375 | 50895 | 29 | 55 | 168 | 28.9 | 28.9 | 28.9 | |
| 3 | X87963 | LCC | 0.200 | 0.990 | 0.460 | 0.024 | 0.016 | 0.025 | 0.021 | 0.005 | 0.004 | 0.025 | | | | 79025 | 54955 | 29 | 48 | 160 | 30.4 | 30.4 | 30.4 | |
| 4 | X88311 | LCC | 0.190 | 1.088 | 0.311 | 0.013 | 0.015 | 0.044 | 0.264 | 0.011 | 0.002 | 0.025 | | | | 86420 | 51040 | 31 | 56 | 168 | 29.6 | 29.6 | 29.6 | |
| 5 | X88415 | LCC | 0.194 | 1.113 | 0.319 | 0.017 | 0.019 | 0.020 | 0.221 | 0.007 | 0.006 | 0.021 | | | | 82215 | 56405 | 28 | 59 | 157 | 27.4 | 27.4 | 26.7 | |
| 6 | EG51050 | 316 | 0.022 | 1.300 | 0.550 | 0.037 | 0.013 | 17.620 | 10.110 | 2.030 | | 0.350 | | | | 84825 | 39875 | 60 | 76 | 150 | | | | |
| 7 | FB1899 | LF2 | 0.200 | 1.020 | 0.230 | 0.018 | 0.010 | 0.037 | 0.011 | 0.004 | 0.003 | 0.029 | 0.001 | | | 75690 | 50170 | 36 | 76 | 154 | 92.6 | 106.7 | 123.0 | |
| 8 | FB1901 | LF2 | 0.200 | 1.020 | 0.230 | 0.018 | 0.010 | 0.037 | 0.011 | 0.004 | 0.003 | 0.029 | 0.001 | | | 75690 | 50170 | 36 | 76 | 154 | 92.6 | 106.7 | 123.0 | |
| 9 | FB1908 | LF2 | 0.200 | 1.020 | 0.230 | 0.018 | 0.010 | 0.037 | 0.011 | 0.004 | 0.003 | 0.029 | 0.001 | | | 75690 | 50170 | 36 | 76 | 154 | 92.6 | 106.7 | 123.0 | |
| 10 | FB1948 | LF2 | 0.200 | 1.020 | 0.230 | 0.018 | 0.010 | 0.037 | 0.011 | 0.004 | 0.003 | 0.029 | 0.001 | | | 75690 | 50170 | 36 | 76 | 154 | 92.6 | 106.7 | 123.0 | |
| 11 | FD1349 | 316 | 0.025 | 0.990 | 0.360 | 0.040 | 0.003 | 16.560 | 10.160 | 2.060 | | 0.012 | | | | 82650 | 42775 | 65 | 73 | 156 | | | | |
| 12 | ZA3001 | LCC | 0.228 | 0.971 | 0.517 | 0.030 | 0.016 | 0.090 | 0.032 | 0.004 | | 0.268 | | | | 74820 | 43355 | 35 | 50 | 171 | 34.1 | 31.1 | 34.1 | |
| 13 | ZA30010 | LCC | 0.205 | 0.780 | 0.387 | 0.034 | 0.013 | 0.040 | 0.020 | 0.004 | | 0.214 | | | | 76125 | 44225 | 30 | 50 | 175 | 30.4 | 31.1 | 34.1 | |
| 14 | ZA30011 | LCC | 0.210 | 1.054 | 0.504 | 0.018 | 0.009 | 0.067 | 0.009 | 0.003 | | 0.227 | | | | 81925 | 50750 | 24 | 42 | 179 | 27.4 | 31.1 | 32.6 | |
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QA AUTHORIZED SIGNATURE: *[Signature]* DATE: 7/20/2012

123384



KF Industries

A Division of CIRCOR International, Inc. OKLAHOMA CITY, OK 73149

VALVE CERTIFICATION

1500 S.E. 89TH STREET

ISO 10474
DIN EN 10204
MATERIAL CERTIFICATION 3.1

SECTION 1 OF 3

| | | | | | |
|-------------|---------------------------------|-------------|--------|-----------------|------------------|
| SOLD TO: | KF INDUSTRIES-CANADA | KF TICKET | QTY | 50 | Date : 6/21/2012 |
| SHIPPED TO: | 9331-39TH AVENUE, | CUSTOMER PO | PP9649 | TAG NO. | |
| PART NO.: | E2304-8922G21CK(E2304-8922G21.) | REF. PO | | CERTIFICATE NO. | 201228347 |

| VALVE SIZE (IPS) | VALVE DESCRIPTION | | SERIES | FE |
|----------------------|-------------------|-------|--------|----|
| | 3"FP | CL300 | | |
| VALVE PRESSURE CLASS | RF | | | |
| VALVE END CONNECTION | | | | |

| VALVE COMPONENT PARTS | VALVE COMPONENT MATERIAL | OPTIONS | CERTIFICATE OF CONFORMANCE |
|-----------------------|--------------------------|-----------------------|--|
| Body | LCC | BARE STEM: | IT IS CERTIFIED THAT THE ABOVE REFERENCED PRODUCTS HAVE BEEN MANUFACTURED, INSPECTED AND TESTED IN ACCORDANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR OTHER PURCHASE ORDER REQUIREMENTS. |
| Adapter | LP2 | HANDLE: | |
| Ball | 316 | GEAR OPERATOR: | |
| Stem | 316 | ACTUATION: | |
| | | CSA Z245.15 COMPLIANT | |
| | | SOUR SERVICE | CERTIFICATE OF ORIGIN IT IS CERTIFIED THAT PRODUCT(S) FURNISHED FOR ABOVE REFERENCED ORDER WERE PRODUCED IN CHINA. |

| | | | | | | | | |
|-----------------------|--|---------------------------------|----------------------------------|---|--|--|-------------|--------------------|
| CERTIFIED TEST RECORD | API 6D <input checked="" type="checkbox"/> | API 6A <input type="checkbox"/> | API 598 <input type="checkbox"/> | ANSI B16.34 <input checked="" type="checkbox"/> | OTHER / SPECIFY <input type="checkbox"/> | 49 CFR Ch. 1 PART192 CLASS 3 <input checked="" type="checkbox"/> | | |
| TEST TYPE | PRESSURE (PSIG) | TIME IN MINUTES | TEST MEDIA | | | TEST RESULTS | INSPECTION | INSPECTION RESULTS |
| HYDROSTATIC SHELL | 1125 | 2 | 60/40 GL.YCOL/WATER | | | ZERO LEAKAGE | DIMENSIONAL | GOOD |
| HYDROSTATIC SEAT | 825 | 2 | SAME | | | SAME | VISUAL | GOOD |
| AIR SEAT | | | AIR | | | SAME | OPERATIONAL | GOOD |
| FUNCTIONAL TEST | | | | | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN THE RECORDS OF COMPANY.

KF QUALITY ASSURANCE: Joe Yu

CUSTOMER INSPECTOR: _____ DATE: 6/21/2012

P.O. Box 95249
1500 S.E. 89th STREET
OKLA. CITY, OK 73143

123384A

KF INDUSTRIES, INC.
VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
ISO 10474
DIN EN 10204

SECTION 2 OF 3

| | | | | | |
|-----------|--------------------------------|------------------|-----------|------|--------|
| PART NO.: | E2304-8922G21CK(E2304-8922G21) | QTY: | 50 | PAGE | 1 of 2 |
| P.O.NO.: | P29649 | CERTIFICATE NO.: | 201228347 | | |

| COMPONENT HEAT CODES | | | | | | | | | |
|----------------------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|
| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 |
| 1 | 673531 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 2 | 673532 | I7038 | FB1908 | FQ7903 | EG51085 | | | | |
| 3 | 673533 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 4 | 673534 | I7038 | FB1908 | FQ7903 | EG51085 | | | | |
| 5 | 673535 | I7038 | FB1908 | FQ7903 | EG51085 | | | | |
| 6 | 673536 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 7 | 673537 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 8 | 673538 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 9 | 673539 | I7038 | FB1908 | FQ7903 | EG51085 | | | | |
| 10 | 673540 | I7051 | FB1908 | FQ7903 | EG51085 | | | | |
| 11 | 673541 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 12 | 673542 | I7038 | FB1908 | FQ7903 | EG51085 | | | | |
| 13 | 673543 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 14 | 673544 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 15 | 673545 | I7050 | FB1908 | FQ7903 | EG51085 | | | | |
| 16 | 673546 | I7028 | FB1861 | FQ7903 | EG51085 | | | | |
| 17 | 673547 | I7028 | FB1908 | FQ7903 | EG51085 | | | | |
| 18 | 673548 | I7038 | FB1908 | FQ7903 | EG51085 | | | | |
| 19 | 673549 | I7028 | FB1908 | FQ7903 | EG51085 | | | | |
| 20 | 673550 | I7047 | FB1908 | FQ7903 | EG51085 | | | | |
| 21 | 673551 | I7028 | FB1908 | FQ7903 | EG51085 | | | | |
| 22 | 673552 | I7038 | FB1908 | FQ7903 | EG51085 | | | | |
| 23 | 673553 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 24 | 673554 | I7038 | FB1861 | FQ7903 | EG51085 | | | | |
| 25 | 673555 | I7028 | FB1861 | FQ7903 | EG51085 | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

QA AUTHORIZED SIGNATURE:

JOE YU

DATE

6/21/2012

CUSTOMER INSPECTOR:

DATE

P.O. Box 95249
1500 S.E. 89th STREET
OKLA. CITY, OK 73143

123384B

KF INDUSTRIES, INC.
VALVE CERTIFICATION

3.1.B MATERIAL CERTIFICATION
ISO 10474
DIN EN 10204

SECTION 2 OF 3

| | | | | | |
|-----------|---------------------------------|------|----|------------------|-----------|
| PART NO.: | E2304-8922G21CK(E2304-8922G21.) | QTY: | 50 | PAGE | 2 of 2 |
| P.O.NO.: | P29649 | | | CERTIFICATE NO.: | 201228347 |

| COMPONENT HEAT CODES | | | | | | | | | | |
|----------------------|--------|---------|--------|--------|---------|----------|-----------|-----------|----------|--|
| VALVE S/N | BODY | ADAPTER | BONNET | BALL | STEM | TRUNNION | SEAT RING | SEAT RING | ADAPTER2 | |
| 26 | 673556 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 27 | 673557 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 28 | 673558 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 29 | 673559 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 30 | 673560 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 31 | 673561 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 32 | 673562 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 33 | 673563 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 34 | 673564 | 17042 | FB1861 | FQ7903 | EG51085 | | | | | |
| 35 | 673565 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 36 | 673566 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 37 | 673567 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 38 | 673568 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 39 | 673569 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 40 | 673570 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 41 | 673571 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 42 | 673572 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 43 | 673573 | 17050 | FB1908 | FQ7903 | EG51085 | | | | | |
| 44 | 673574 | 17050 | FB1908 | FQ7903 | EG51085 | | | | | |
| 45 | 673575 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 46 | 673576 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 47 | 673577 | 17042 | FB1908 | FQ7903 | EG51085 | | | | | |
| 48 | 673578 | 17051 | FB1861 | FQ7903 | EG51085 | | | | | |
| 49 | 673579 | 17050 | FB1861 | FQ7903 | EG51085 | | | | | |
| 50 | 673580 | 17047 | FB1861 | FQ7903 | EG51085 | | | | | |

IT IS CERTIFIED THAT THE ABOVE INFORMATION IS TRUE AND CORRECT AS CONTAINED IN COMPANY RECORDS.

| | | | |
|--------------------------|--------|------|-----------|
| QA AUTHORIZED SIGNATURE: | Joe Yu | DATE | 6/21/2012 |
| CUSTOMER INSPECTOR: | | DATE | |

P.O. Box 95249
 1500 S.E. 89TH STREET
 OKLA. CITY, OK 73143

CIRCOR ENERGY PRODUCTS
 MATERIAL TEST REPORT

3.1.B MATERIAL CERTIFICATION
 ISO 10474
 DIN EN 10204

123384C

SECTION 3 OF 3

| | | | | | | | |
|------|-----------|------------|------|------|--------|------------------|-----------|
| DATE | 6/21/2012 | VENDOR No. | 8622 | PAGE | 1 of 1 | CERTIFICATE NO.: | 201228347 |
|------|-----------|------------|------|------|--------|------------------|-----------|

| HEAT CODE | MTR SPEC. | Chemical Test Results | | | | | | | | | | | Physical Test Results | | | | | | | | |
|-----------|-----------|-----------------------|-------|-------|-------|-------|-------|--------|--------|-------|-------|-------|-----------------------|-------------|-----------|----------|-----|---------------------------|-------|-------|--|
| | | C | MN | SI | P | S | CR | NI | MO | V | CU | NB | TENSILE (psi) | YIELD (psi) | ELON. (%) | RED. (%) | BHN | Impact At -46°C (F-118°F) | | | |
| 1 | I7028 | LCC | 0.192 | 1.080 | 0.344 | 0.025 | 0.021 | 0.034 | 0.227 | 0.002 | 0.002 | 0.026 | 84390 | 52055 | 29 | 56 | 159 | 28.1 | 30.4 | 26.7 | |
| 2 | I7038 | LCC | 0.194 | 1.080 | 0.341 | 0.024 | 0.016 | 0.043 | 0.235 | 0.007 | 0.002 | 0.037 | 80910 | 56985 | 31 | 57 | 156 | 28.1 | 26.7 | 26.7 | |
| 3 | I7042 | LCC | 0.186 | 1.110 | 0.340 | 0.021 | 0.014 | 0.053 | 0.244 | 0.005 | 0.004 | 0.040 | 84100 | 56695 | 28 | 58 | 156 | 28.1 | 30.4 | 26.7 | |
| 4 | I7047 | LCC | 0.196 | 1.080 | 0.348 | 0.023 | 0.012 | 0.057 | 0.246 | 0.010 | 0.005 | 0.036 | 85260 | 54085 | 29 | 56 | 156 | 27.4 | 31.1 | 30.4 | |
| 5 | I7050 | LCC | 0.188 | 1.090 | 0.328 | 0.026 | 0.016 | 0.037 | 0.234 | 0.010 | 0.003 | 0.037 | 84535 | 56840 | 28 | 56 | 157 | 28.1 | 30.4 | 27.4 | |
| 6 | I7051 | LCC | 0.191 | 1.090 | 0.321 | 0.021 | 0.016 | 0.042 | 0.244 | 0.011 | 0.005 | 0.037 | 83810 | 55825 | 30 | 59 | 167 | 27.4 | 31.1 | 28.1 | |
| 7 | EG51085 | 316 | 0.023 | 1.090 | 0.280 | 0.037 | 0.024 | 17.810 | 10.190 | 2.020 | | 0.180 | 93380 | 49010 | 57 | 76 | 153 | | | | |
| 8 | FB1861 | LF2 | 0.200 | 1.020 | 0.230 | 0.018 | 0.010 | | 0.011 | 0.004 | 0.003 | 0.029 | 75690 | 50170 | 36 | 76 | 154 | 92.6 | 106.7 | 123.0 | |
| 9 | FB1908 | LF2 | 0.200 | 1.020 | 0.230 | 0.018 | 0.010 | | 0.011 | 0.003 | 0.003 | 0.029 | 75690 | 50170 | 36 | 76 | 154 | 92.6 | 106.7 | 123.0 | |
| 10 | FQ7903 | 316 | 0.022 | 1.020 | 0.440 | 0.035 | 0.002 | 16.340 | 10.100 | 2.030 | | 0.018 | 80475 | 42485 | 57 | 63 | 160 | | | | |
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QA AUTHORIZED SIGNATURE: Joe Yu DATE: 6/21/2012

12-052-015



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.imal@farinagroup.com
 MATERIAL TEST DEPARTMENT

**COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N°23/91/S**

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 22827 Dated 07.03.2012

FORGED FLANGES & FITTINGS LTD

CASTLE HOUSE, STATION RD
 NEW BARNET-EN5 1PE - UNITED KINGDOM

GB

Purchase Order Nr 3891
 Item Nr 004
 Packing List Nr 277
 Invoice Nr

| Heat Code | Heat Nr | Quantity | Description |
|-----------|---------|----------|--------------------------------------|
| EOY | 78342 | 2300,00 | FITTING 90 ELB. THRD NPT 2M 1" A105N |

| Element | C | Si | Mn | S | P | Cr | Ni | Mo | Ti | Cu |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ASTM A105 (LADLE) | 0,180 | 0,200 | 1,040 | 0,010 | 0,015 | 0,140 | 0,070 | 0,020 | 0,016 | 0,200 |
| Element | V | Nb | N | AL | | | C.E. | PRE | | |
| ASTM A105 (LADLE) | 0,002 | 0,002 | -- | 0,025 | | | 0,404 | -- | | |

| Test specimen | Shape | Tensile | Yeld Point >0,2% | Yeld Point >1% | Elongation | Reduction of area |
|---------------|-----------|--------------------|------------------|----------------|------------|-------------------|
| Sect. mm2 | Lenght mm | 1=O - 2=□ N/mm2 | N/mm2 | N/mm2 | % | % |
| 122,65 | 50,00 | 1 | 513,0 | 325,0 | 33,5 | 56,0 |

| HARDNESS | | IMPACT TEST | | | | |
|---------------|------|---------------|-----|---------|---------|---------|
| HBW | TYPE | Test specimen | °C | 1-Joule | 2-Joule | 3-Joule |
| 155,0 - 161,0 | KV | 10x10mm | -10 | 55 | 53 | 53 |

| | | | | | |
|-------------------------|---|--------|------------------|----------|--------|
| Heat treatment | Normalized at 880°-920°C / Air Cool | | ELECTRIC FURNACE | | |
| Dimension in accordance | ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS | | | | |
| Material in accordance | ASME SA ASTM A105-11 | | | | |
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | 111198 |

Notes ---

| | | |
|--|-----------------------------|--|
| QUALITY CONTROL DEPT. Boris Fizzotti | INSPECTION AUTHORITY | MANUFACTURER'S SYMBOL IML or |
|--|-----------------------------|--|



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.lml@farinagroup.com
 MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N° 23/91/S

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 22883 Dated 28.03.2012

FORGED FLANGES & FITTINGS LTD

CASTLE HOUSE, STATION RD
 NEW BARNET-EN5 1PE - UNITED KINGDOM

GB

Purchase Order Nr 3891
 Item Nr 078
 Packing List Nr 360
 Invoice Nr

| Heat Code | Heat Nr | Quantity | Description |
|-----------|----------|----------|----------------------------------|
| 9M8 | 11/79389 | 320,00 | FITTING CAP THRD NPT 3M 1" A105N |

| Element | C | Si | Mn | S | P | Cr | Ni | Mo | Ti | Cu |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ASTM A105 (LADLE) | 0,185 | 0,240 | 1,140 | 0,009 | 0,011 | 0,090 | 0,050 | 0,020 | 0,021 | 0,170 |

| Element | V | Nb | N | AL | C.E. | PRE |
|-------------------|-------|-------|----|-------|-------|-----|
| ASTM A105 (LADLE) | 0,003 | 0,003 | -- | 0,030 | 0,412 | -- |

| Test specimen Sect. mm2 | Length mm | Shape 1=O - 2=□ | Tensile N/mm2 | Yield Point >0,2% N/mm2 | Yield Point >1% N/mm2 | Elongation % | Reduction of area % |
|-------------------------|-----------|-----------------|---------------|-------------------------|-----------------------|--------------|---------------------|
| 122,65 | 50,00 | 1 | 529,0 | 345,0 | -- | 32,0 | 56,0 |

| HARDNESS | | | IMPACT TEST | | | |
|---------------|------|---------------|-------------|---------|---------|---------|
| HBW | TYPE | Test specimen | °C | 1-Joule | 2-Joule | 3-Joule |
| 160,0 - 164,0 | KV | 10x10mm | -10 | 64 | 67 | 68 |

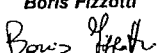

| | | |
|----------------|-------------------------------------|------------------|
| Heat treatment | Normalized at 880°-920°C / Air Cool | ELECTRIC FURNACE |
|----------------|-------------------------------------|------------------|

| | |
|-------------------------|---|
| Dimension in accordance | ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS |
|-------------------------|---|

| | |
|------------------------|----------------------|
| Material in accordance | ASME SA ASTM A105-11 |
|------------------------|----------------------|

| | | | | | |
|----------------------|--------------|--------|--------|----------|-------------------------|
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | 2012-2E201-0000130-0078 |
|----------------------|--------------|--------|--------|----------|-------------------------|

Notes --

| | | |
|--|----------------------|---|
| QUALITY CONTROL DEPT. Boris Fizzotti  | INSPECTION AUTHORITY | MANUFACTURER'S SYMBOL IML or  |
|--|----------------------|---|



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.imi@farinagroup.com
 MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N° 23/91/S

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 22734 Dated 14.02.2012

FORGED FLANGES & FITTINGS LTD

CASTLE HOUSE, STATION RD
 NEW BARNET-EN5 1PE - UNITED KINGDOM

GB

Purchase Order Nr 3891
 Item Nr 017
 Packing List Nr 153
 Invoice Nr 132

| Heat Code | Heat Nr | Quantity | Description |
|-----------|---------|----------|----------------------------------|
| T57 | 32949 | 3000,00 | FITTING TEE THRD NPT 2M 1" A105N |

| Element | C | Si | Mn | S | P | Cr | Ni | Mo | Ti | Cu |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ASTM A105 (LADLE) | 0,180 | 0,220 | 1,100 | 0,008 | 0,009 | 0,080 | 0,050 | 0,010 | 0,018 | 0,100 |

| Element | V | Nb | N | AL | C.E. | PRE |
|-------------------|-------|-------|----|-------|-------|-----|
| ASTM A105 (LADLE) | 0,003 | 0,001 | -- | 0,029 | 0,392 | -- |

| Test specimen | Shape | Tensile | Yeld Point >0,2% | Yeld Point >1% | Elongation | Reduction of area | |
|---------------|-----------|--------------------|------------------|----------------|------------|-------------------|------|
| Sect. mm2 | Lenght mm | 1=O - 2=□ N/mm2 | N/mm2 | N/mm2 | % | % | |
| 122,65 | 50,00 | 1 | 504,0 | 341,0 | -- | 32,0 | 56,5 |

| HARDNESS | | IMPACT TEST | | | | |
|---------------|------|---------------|-----|-------------|-------------|--------------|
| HBW | TYPE | Test specimen | °C | 1-Joule/cm2 | 2-Joule/cm2 | 3-Joule /cm2 |
| 155,0 - 160,0 | KV | 10x10mm | -10 | 65 | 67 | 66 |

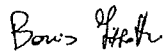

| | | |
|----------------|------------------------------------|------------------|
| Heat treatment | Normalized at 880°920°C / Air Cool | ELECTRIC FURNACE |
|----------------|------------------------------------|------------------|

| | |
|-------------------------|---|
| Dimension in accordance | ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS |
|-------------------------|---|

| | |
|------------------------|----------------------|
| Material in accordance | ASME SA ASTM A105-11 |
|------------------------|----------------------|

| | | | | | |
|----------------------|--------------|--------|--------|----------|--------|
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | 111016 |
|----------------------|--------------|--------|--------|----------|--------|

Notes ---

| | | |
|--|----------------------|---|
| QUALITY CONTROL DEPT. Boris Fizzotti  | INSPECTION AUTHORITY | MANUFACTURER'S SYMBOL IML or  |
|--|----------------------|---|



Commanding a Higher Standardsm

Certified Mill Test Report

8/31/2012

Customer
CE FRANKLIN LTD

P.O. 3087755-OR-2100

Heat No E22654
Heat Code HMI
Phoenix Order # 880528

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2011 / ASME SA106-2010 Edition

Part Number
15111008

Description
1 X 4" XHSM L BLK NIPL

Chemical Properties

| | | | | | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------------|-----------|
| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
| 0.1700 | 0.7500 | 0.0090 | 0.0070 | 0.2300 | 0.0180 | 0.0400 | 0.0120 | 0.3058 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0030 | 0.0010 | | 0.0290 | | | | 0.0010 | | 0.0020 |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|---------------------|
| Cr + Cu + Ni |
| 0.0700 |

Mechanical Properties

| | | | | | |
|----------------------|--------------------|--------------------------|---------------|------------|-------------|
| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
| 80,412 | 64,038 | 42.4% | | 159 | |

Charpy Minimum Impact - ft/lbs

| | | | |
|---------------|---------------|---------------|----------------|
| Test 1 | Test 2 | Test 3 | Average |
| N/A | N/A | N/A | N/A |

- * Hydro test passed. at 2500 psi.
- * Eddy Current test passed.
- * Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirments of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession

CapProducts, Ltd.
25 Winnipeg St
Vanastra, ON N0M 1L0



Phoenix * Capitol * Camco

1123109

Cap Products

Commanding a Higher Standard_{sm}

Certified Mill Test Report

7/26/2012

Customer
CE FRANKLIN LTD

P.O. 3064070-OR-2100

Heat No E22654
Heat Code HMI

BOX 6776 STN "D"
CALGARY, AB T2P2E8

Material ASTM A106-2011 / ASME SA106-2010 Edition

Phoenix Order # 869881

Part Number
15111012

Description
1 X 6" XHSML BLK NIPL

Chemical Properties

| | | | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|
| C | Mn | P | S | Si | Cu | Cr | Ni | C Eq. Long | |
| 0.1700 | 0.7500 | 0.0090 | 0.0070 | 0.2300 | 0.0180 | 0.0400 | 0.0120 | 0.3058 | |
| Mo | V | Co | Al | Cb | N | Pb | Sn | Ta | Ti |
| 0.0030 | 0.0010 | | 0.0290 | | | | 0.0010 | | 0.0020 |

Additional Chemical Properties

| | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |

| |
|--------------|
| Cr + Cu + Ni |
| 0.0700 |

Mechanical Properties

| Tensile (PSI) | Yield (PSI) | Elong. % in 2 in. | R of A | HBW | HBW2 |
|---------------|-------------|-------------------|--------|-----|------|
| 80,412 | 64,038 | 42.4% | | 159 | |

Charpy Minimum Impact - ft/lbs

| Test 1 | Test 2 | Test 3 | Average |
|--------|--------|--------|---------|
| N/A | N/A | N/A | N/A |

* Hydro test passed. at 2500 psi.

* Eddy Current test passed.

* Bend test passed.

This material meets the requirements of the governing specifications We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and test conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN10204 Section 3.1B.

Comments:

Meets Hardness Requirments of NACE MRO175/ISO 15156 latest editions. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our posession

CapProducts. Ltd.

25 Winnipeg St

Vanastra, ON N0M 1L0

PO. 9422 Job - 12-050-01-7 12-053-01-9
 12-051-01-9 12-054-01-9
 12-052-01-9 12-055-01-9

Purchaser : CE Franklin Ltd.

INSPECTION CERTIFICATE



E.No. Purchase Order No. Job No.
 MC-799 P/O 3006710-OR-2100

TO EN10204 3.1

D M Y Certificate No.

10/10/2012 T. 2012200183

Thai Benkan Co., Ltd.
 58 Soi Watkrunai, Bangkok, Prapadaeng,
 Samutprakarn, 10130 Thailand.

| No. | Hardness Actual data | MFG. No. | Specification for Material | | | | | | | | | | Specification for Inspection | | Visual Examination | Dimensional Inspection | | |
|-------------------|-------------------------|----------|---|-----|-----|-----|------|------|-----|-----|-----|------|------------------------------|----------------------------|--------------------|------------------------|----|---------------|
| | | | ASTM A234-11/ASME SA234-10 Gr. WPB Made from Seamless Pipe CSA Z46-11/08 Gr. 241 C4T1 SS MCE MR0175/90 15195-2 R2-004/FR0103-10 Product & Size | | | | | | | | | | Quantity | Heat Treatment (Note 1) | | | | |
| Specification | | | Chemical Composition % | | | | | | | | | | Tension Test *2 | | Elongation (%) | Hardness Max | | |
| Material Heat No. | | | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | V | Nb | C.E. | | | YS | TTS |
| 1 | HB:142-155 | 55D10068 | 30 | 100 | 100 | 100 | 1000 | 1000 | 100 | 100 | 100 | 1000 | 100 | 100 | 240 | 415 | 30 | 197 HB : GOOD |
| 2 | | | 20 | 21 | 84 | 13 | 8 | 2 | 2 | 5 | 1 | TR | TR | 35 | 334 | 485 | 58 | |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |

(Note 1) A : Hot formed with final temperature between 620 °C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR, Air Cooling *N : Normalizing 910°Cx0.5 HR, Air Cooling (Specification for material made from plate) S : Stress Relieving 675° Cx0.5 HR, Air Cooling

The fittings was manufactured, sampled tested and inspected in accordance with the specification, and was found to meet the requirements
 CE = C+Mn/6+Cr+Mo+V/5+(Ni+Cu)/15
 MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned
 and also with the purchaser's requirements and that the test results shown herein are correct. **GOOD**

Quality Assurance Manager
 Thai Benkan Co., Ltd.

Rungnapa Kempitanon

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
 Form TZ-6A/3

155204

CERTIFIED MILL TEST REPORT

B The Best Value -
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All The Time.

LOG NO. F0000000002140

Page 2 of 4

2

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-03
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 05/12/2010

CUSTOMER
ORDER NO.: 4888052-00

BONNEY ORDER NO. B000074594

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. | CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS |
|---------|----------|---------|---|--|
| 7551622 | 6 | 57894 | 2X1 3M A105N THRD T SA/A105N | C 0.200 Co 0.003 Cr 0.030 Cu 0.080 Mn 1.110 Mo 0.010 Nb 0.013 Ni 0.030 P 0.009 S 0.022 Si 0.190 V 0.004 CE(Long Formula) = 0.40 T/S 73,375 Y/S 51,250 EL 31.65 RA 54.90 Brinell 130 BHN 130 BHN |
| 7551681 | 7 | 57466 | 36-12X1 3M A105N THRD T SA/A105N | A1 0.024 C 0.200 Co 0.003 Cr 0.060 Cu 0.140 Mn 1.030 Mo 0.020 Nb 0.016 Ni 0.050 P 0.008 S 0.023 Si 0.220 V 0.000 CE(Long Formula) = 0.40 T/S 75,625 Y/S 53,500 EL 32.25 RA 66.75 Brinell 127 BHN 127 BHN |
| 7551797 | 8 | 57848 | 3 X 1 1/2 3000 A105N THRD T SA/A105N | C 0.200 Cr 0.050 Cu 0.150 Mn 1.010 Mo 0.010 Nb 0.017 Ni 0.050 P 0.008 S 0.022 Si 0.230 V 0.000 CE(Long Formula) = 0.39 T/S 74,375 Y/S 51,250 EL 32.30 RA 62.55 Brinell 130 BHN 127 BHN |
| 7550007 | 9 | 57989 | 4-31/2X2 3M A105N THRD T SA/A105N | C 0.200 Cr 0.050 Cu 0.150 Mn 1.010 Mo 0.010 Nb 0.017 Ni 0.050 P 0.008 S 0.022 Si 0.230 V 0.000 CE(Long Formula) = 0.39 T/S 74,375 Y/S 51,250 EL 32.30 RA 62.55 Brinell 130 BHN 127 BHN |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Billie Jo Clemens
Billie Jo Clemens
QUALITY PROCESS MANAGER

CMTR: REV2

CERTIFIED MILL TEST REPORT



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LOG NO. F00000000002140

Page 4 of 4

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-03

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 05/12/2010

CUSTOMER

BONNEY ORDER NO. B000074594

ORDER NO.: 4888052-00

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

ITEM QUANTITY LOT NO

GRADE OR SPECIFICATION NO
CHEMICAL ANALYSIS PHYSICAL PROPERTIES, REMARKS

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
3. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156.
4. CERTIFYING ASTM A105-09 / ASME SA105-07 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by

Billie Jo Clemens

Billie Jo Clemens

QUALITY PROCESS MANAGER

CMTR: REV2

Job 12-050-01-5, 12-051-01-5, 12-052-01-5, 12-053-01-5, 12-054-01-5, 12-055-01-5
12-056-01-5, 12-057-01-5, 12-058-01-5, 12-059-01-5, 12-060-01-5
12-061-01-5

CERTIFIED MILL TEST REPORT



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LOG NO. F00000000027719 Page 16 of 19

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: NATIONAL OILWELL CANADA ULC

DATE 04/12/2012

CUSTOMER

BONNEY ORDER NO. B000118621

ORDER NO.: 11845895

SHIP TO: NATIONAL OILWELL CANADA ULC
(EDMONTON)
7127 - 56 AVENUE
EDMONTON AB T6B 3L2
Canada

115843

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|------|----------|---------|--|
| 450 | 25 | 5014 | 1 3000 LF2 CAP T SA/A350 LF2 CL1 C 0.210 Cb 0.000 Co 0.003 Cr 0.040 Cu 0.080 Mn 1.020 Mo 0.010 Ni 0.040 P 0.007 S 0.016 Si 0.200 V 0.003 CE(Long Formula) = 0.40 T/S(PSI) 73,125 Y/S(PSI) 50,625 EL(%) 34.10 RA(%) 65.15 Brinell 137 BHN 137 BHN Charpy -50 F 40/84/31 (Ft-Lbs) Average 51.70 |
| 460 | 25 | 6080 | 1/2 3000 LF2 COUP T SA/A350 LF2 CL1 Al 0.020 C 0.210 Co 0.003 Cr 0.020 Cu 0.040 Mn 1.040 Mo 0.010 N 0.004 Nb 0.012 Ni 0.020 P 0.006 S 0.020 Si 0.230 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 74,300 Y/S(PSI) 50,313 EL(%) 36.70 RA(%) 65.64 Brinell 135 BHN 135 BHN Charpy -50 F 41/13/25 (Ft-Lbs) Average 26.30 |
| 490 | 25 | 6076 | 2 3M/6M LF2 HXPL T SA/A350 LF2 CL1 Al 0.022 C 0.200 Co 0.004 Cr 0.040 Cu 0.040 Mn 1.040 Mo 0.000 N 0.003 Nb 0.016 Ni 0.020 P 0.006 S 0.019 Si 0.200 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 73,001 Y/S(PSI) 47,851 EL(%) 34.60 RA(%) 65.18 Brinell 130 BHN 130 BHN Charpy -50 F 32/14/18 (Ft-Lbs) Average 21.30 |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht

Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2



METALFAR
PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STABILIMENTO:
 28961 CESANA BRIANZA (LO) - Italy
 Via G. Perini, 28
 Tel. +39 031 855441
 Fax +39 031 655149
 quality.metalfarspa.com

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

| | | | |
|---|----------------------|--|----------------------|
| CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE | | | |
| Certif. N. 4521 | Del/Dated 26.09.2012 | Fattura / Invoice N. 3106 | Del/Dated 26.09.2012 |
| DDT / Del Note N. 3561 | Del/Dated 26.09.2012 | Ns.Ord. / Our ref. N. | Del/Dated |
| CE FRANKLIN LTD | | Dest.: CE Franklin Ltd - DISTRIBUTION GEN. | |
| 1800, 635 - 8TH Avenue S.W. | | 2603 - 76 Avenue | |
| T2P 3M3 CALGARY, ALBERTA | | T6P 1P6 EDMONTON, ALBERTA | |
| CA | | CA | |
| | | Pag. 10 - 10 | |

| COD. COL. COLATA | POS. | VS. ORDINE | Q.TA' | DESCRIZIONE | DIMAIN ACC. A | VISIVO E DIMENS. | | | | | | | | | | |
|---|----------|-----------------|------------------|----------------|----------------------|------------------|---|-----------|------------------|-----------|----------------|-----------|---------------------------|-----------|-------------|----------|
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | Q.TY | THRD 300 RF 2" | DIM. ACCORDANCE TO | SATISFACTORY | | | | | | | | | | |
| 12/30884 | 145 | 3015795-OR-2100 | 150,00 | LFZCL1 | ASME/ANSI B16.5-2009 | | | | | | | | | | | |
| MATERIALE / MATERIAL | | | | | | | | | | | | | | | | |
| ASTM A350 LF2 CL1/2 (LADLE) | | C% 0,200 | Si% 0,220 | Mn% 0,910 | P% 0,013 | C% 0,140 | Ni% 0,060 | Mo% 0,020 | Ti% 0,017 | CU% 0,140 | V% 0,002 | Nb% 0,001 | N% 0,000 | Al% 0,025 | C.E.% 0,397 | B% 0,000 |
| PROVETTA / TEST SPECIMEN | FORMA | SNERVAMENTO | ROTTURA | ALLINEAMENTO | DUREZZA | | RESILIENZA / IMPACT TEST | | FORNO / FURNACE | | SNERVAMENTO | | ORIGINE / ORIGIN OF STEEL | | | |
| SEZ. mm2 | LUNG. mm | YIELD POINT | TENSILE STRENGTH | ELONGATION | HARDNESS | | TEMP / TYPE 10x10mm | | ELECTRIC FURNACE | | YIELD POINT | | EUROPEAN UNION | | | |
| 126,60 | 50,80 | 344,0 | 518,0 | 31,0 | HBW | | KV | | ELECTRIC FURNACE | | Min/med 2+1,0% | | | | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | | | | |
| ASTM/A5M E A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | NORMALIZED AT 930 C - COOLED IN STILL AIR | | | | | | | | | |
| CSA CAN3 Z245.12-09 GRADE 290 CAT.II SOUR SERVICE | | | | | | | | | | | | | | | | |

NOTE 100% MANUFACTURED IN ITALY
 NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009 - SOUR SERVICE
 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE

| | | |
|--|--|---|
| UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT | ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY | MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL |
| <i>L. Corti</i> | | |



I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.
 Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY
 Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.Impl@farinagroup.com
 MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY
 SYSTEM ISO 9001: 2008 CERTIFIED
 BY RINA
 CERT. N°23/91/S

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

Nr 23306 Dated 05.09.2012

FORGED FLANGES & FITTINGS LTD

CASTLE HOUSE, STATION RD
 NEW BARNET-EN5 1PE - UNITED KINGDOM

GB

Purchase Order Nr 3891
 Item Nr 184
 Packing List Nr 950
 Invoice Nr 865

| Heat Code | Heat Nr | Quantity | Description |
|-----------|----------|----------|---|
| K239 | 12/72355 | 465,00 | FITTING HEX.H.PLUG THRD NPT 2" A350/LF2 |

| Element | C | SI | Mn | S | P | Cr | NI | Mo | TI | Cu |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ASTM A350 LF2 cl.1 (LADLE) | 0,200 | 0,200 | 0,930 | 0,010 | 0,014 | 0,110 | 0,050 | 0,010 | 0,020 | 0,160 |

| Element | V | Nb | N | AL | C.E. | PRE |
|----------------------------|-------|-------|----|-------|-------|-----|
| ASTM A350 LF2 cl.1 (LADLE) | 0,003 | 0,002 | -- | 0,025 | 0,396 | |

| Test specimen | Shape | Tensile | Yeld Point >0,2% | Yeld Point >1% | Elongation | Reduction of area | |
|---------------|-----------|-----------|------------------|----------------|------------|-------------------|------|
| Sect. mm2 | Lenght mm | 1=O - 2=□ | N/mm2 | N/mm2 | % | % | |
| 122,65 | 50,00 | 1 | 534,0 | 330,0 | -- | 35,2 | 58,5 |

| HARDNESS | | IMPACT TEST | | | | |
|---------------|------|---------------|-----|---------|---------|---------|
| HBW | TYPE | Test specimen | °C | 1-Joule | 2-Joule | 3-Joule |
| 163,0 - 168,0 | KV | 10x10mm | -46 | 55 | 51 | 50 |

| | | |
|----------------|--------------------------------|------------------|
| Heat treatment | Normalized at 900°C / Air Cool | ELECTRIC FURNACE |
|----------------|--------------------------------|------------------|

| | |
|-------------------------|---|
| Dimension in accordance | ASME B16.11 Ed.2011 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS |
|-------------------------|---|

| | |
|------------------------|-----------------------------------|
| Material in accordance | ASME SA ASTM A350-11 Gr. LF2 cl.1 |
|------------------------|-----------------------------------|

| | | | | | |
|----------------------|--------------|--------|--------|----------|-------------------------|
| Visual & Dimensional | SATISFACTORY | Origin | EUROPE | Our Ref. | 2012-2E201-0000130-0184 |
|----------------------|--------------|--------|--------|----------|-------------------------|

Notes ---

QUALITY CONTROL DEPT.
 Boris Fizzotti
Boris Fizzotti

INSPECTION AUTHORITY

MANUFACTURER'S SYMBOL
 IML or

117# 21381, 11/38422, 13145 12-055-01-5
 PED 0115 TO 7002 ... 12-055-01-5, 12-055-01-5, 12-055-01-5, 12-055-01-5



METFAR
 PRODOTTI INDUSTRIALI S.P.A.
 SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Parifi, 28
 Tel. +39 031.655441
 Fax +39 031.655149
 quality.mtf@farmis.com

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE
 Certif. N. 1608 Del/Dated 29.03.2012
 DDT / Del Note N. 1271 Del/Dated 29.03.2012
 FORGED FLANGES & FITTINGS LTD
 Castle House - Station Road
 EN5 1PE NEW BARNET/HERTFORD... GB
 Dest.: F.F.F. clo C.E. FRANKLIN LTD
 EDMONTON, ALBERTA CA
 Pag. 8 - 16

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

| COD. COL. COLATA | POS. ITEM | VS. ORDINE YOUR REFERENCE | Q.TA. Q.TY | DESCRIZIONE DESCRIPTION | TRATTAMENTO TERMICO / HEAT TREATMENT | DIM. IN ACC. A DIM. ACCORDANCE TO | VSIVO E DIMENS. VIS. & DIMENS. | | | | | | | | | | | | |
|---|-------------|---------------------------|--------------------------|-------------------------|--------------------------------------|-----------------------------------|--------------------------------|--------------|--------------------------|----------------|-------|-------|-------|-------------------------|-------|-----|--------|-----|--|
| HEAT CODE HEAT | 11/38422 | 051 | 3810/FR | 630,00 | THRD 300 RF 2" | A105N | SATISFACTORY | | | | | | | | | | | | |
| MATERIALE / MATERIAL | | | | | | | | | | | | | | | | | | | |
| ASTM A105 | | | C% | S% | Mn% | S% | P% | C-% | Ni% | Mo% | Ti% | Cu% | V% | Nb% | N% | Al% | C.E. % | B % | |
| 0,190 | 0,210 | 0,920 | 0,010 | 0,010 | 0,100 | 0,050 | 0,020 | 0,015 | 0,160 | 0,002 | 0,001 | 0,000 | 0,015 | 0,382 | 0,000 | | | | |
| PROVETA / TEST SPECIMEN | FORMA SHAPE | SVERNAMENTO YIELD POINT | ROTTURA TENSILE STRENGTH | ALLUNGAMENTO ELONGATION | CONTRAZIONE REDUCTION OF AREA | DUREZZA HBW | RESILLENZA / IMPACT TEST | TEMPO / TYPE | RESILLENZA / IMPACT TEST | TEMPERATURA °C | 1 | 2 | 3 | SVERNAMENTO YIELD POINT | | | | | |
| 126,60 | 50,80 | 338,0 | 523,0 | 31,0 | 60,0 | 156,0 - 159,0 | 20 | 86 | 82 | 84 | 0,0 | | | | | | | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | | | | | | | | | | | | |
| ASTM/A5M E 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | | | | | | | | | | | | |
| CSA CAN3 Z-245.12-09 GRADE 248 CAT.1 | | | | | | | | | | | | | | | | | | | |

| COD. COL. COLATA | POS. ITEM | VS. ORDINE YOUR REFERENCE | Q.TA. Q.TY | DESCRIZIONE DESCRIPTION | TRATTAMENTO TERMICO / HEAT TREATMENT | DIM. IN ACC. A DIM. ACCORDANCE TO | VSIVO E DIMENS. VIS. & DIMENS. | | | | | | | | | | | | |
|---|-------------|---------------------------|--------------------------|-------------------------|--------------------------------------|-----------------------------------|--------------------------------|--------------|--------------------------|----------------|-------|-------|-------|-------------------------|-------|-----|--------|-----|--|
| HEAT CODE HEAT | 11/38422 | 051 | 3810/FR | 252,00 | THRD 300 RF 2" | A105N | SATISFACTORY | | | | | | | | | | | | |
| MATERIALE / MATERIAL | | | | | | | | | | | | | | | | | | | |
| ASTM A105 | | | C% | S% | Mn% | S% | P% | C-% | Ni% | Mo% | Ti% | Cu% | V% | Nb% | N% | Al% | C.E. % | B % | |
| 0,190 | 0,210 | 0,920 | 0,010 | 0,010 | 0,100 | 0,050 | 0,020 | 0,015 | 0,160 | 0,002 | 0,001 | 0,000 | 0,015 | 0,382 | 0,000 | | | | |
| PROVETA / TEST SPECIMEN | FORMA SHAPE | SVERNAMENTO YIELD POINT | ROTTURA TENSILE STRENGTH | ALLUNGAMENTO ELONGATION | CONTRAZIONE REDUCTION OF AREA | DUREZZA HBW | RESILLENZA / IMPACT TEST | TEMPO / TYPE | RESILLENZA / IMPACT TEST | TEMPERATURA °C | 1 | 2 | 3 | SVERNAMENTO YIELD POINT | | | | | |
| 126,60 | 50,80 | 338,0 | 523,0 | 31,0 | 60,0 | 156,0 - 159,0 | 20 | 86 | 82 | 84 | 0,0 | | | | | | | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | | | | | | | | | | | | | |
| ASTM/A5M E 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | | | | | | | | | | | | | |
| CSA CAN3 Z-245.12-09 GRADE 248 CAT.1 | | | | | | | | | | | | | | | | | | | |

| NOTE | MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION | UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT | ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY | MARCHIO PRODUZIONE MANUFACTURERS SYMBOL |
|-------|---|---|---|---|
| NOTES | MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 15156-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE | <i>Is. Corti</i> <i>Is. Corti</i> | | |



SAN ENG STEEL FORGING CO LTD
 311, Jan Hin Road, Jan Wu District
 Kaohsiung, Taiwan, R.O.C
 TEL: 07-3724249 ; FAX: 07-3712923
 URL: www.saneng.com.tw
 e-mail: saneng@ksis.secd.net.tw

MILL TEST CERTIFICATE
 EN10204-3.1 BIDIN500493.1.B)
 Customer: SEYBOLD INTERNATIONAL CORP.
 Order No.: Z0945942(2)VII

Certificate No.: SE-4594B
 Date: 12/12/2011
 Page: 3 OF 6

1073762

FORGED CARBON STEEL FLANGES

ASTM A105-10a/ASME SA105-10a

ASME B16.5-09
 CSA Z245.12

| Item No. | CODE NO | DESCRIPTION | QUANTITY | CHEMICAL COMPOSITION (%) | | | | | | | | | | | | | | CE(%) |
|----------|-----------|---------------------------------|----------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|---|-------|
| | | | | C | SI | Mn | P | S | Cu | Cr | NI | Mo | V | Nb | N | | | |
| 21 | 24069-105 | 300 WNRFS 160 1 1/2" A105N | 25 PCE | 0.350 | 0.100 | 0.600 | 0.035 | 0.040 | 0.400 | 0.300 | 0.400 | 0.120 | 0.090 | 0.020 | - | - | - | 0.408 |
| 22 | 24139-105 | 900/1500 BLRF 1 1/2" A105N | 25 PCE | 0.227 | 0.260 | 1.010 | 0.018 | 0.016 | 0.017 | 0.035 | 0.059 | 0.002 | 0.011 | 0.005 | 0.005 | - | - | 0.388 |
| 23 | 24062-105 | 900/1500 WNRFS 160 1 1/2" A105N | 28 PCE | 0.190 | 0.210 | 1.090 | 0.014 | 0.018 | 0.060 | 0.040 | 0.040 | 0.007 | 0.003 | 0.005 | 0.009 | - | - | 0.388 |
| 24 | 23850-105 | 900/1500 WNRFS 160 1 1/2" A105N | 25 PCE | 0.211 | 0.240 | 1.000 | 0.013 | 0.014 | 0.006 | 0.019 | 0.054 | 0.002 | 0.007 | 0.005 | 0.004 | - | - | 0.388 |
| 25 | 24040-105 | 900/1500 WNRFS 160 1 1/2" A105N | 25 PCE | 0.211 | 0.240 | 1.000 | 0.013 | 0.014 | 0.008 | 0.019 | 0.054 | 0.002 | 0.007 | 0.005 | 0.004 | - | - | 0.388 |
| 26 | 24108-105 | 900/1500 WNRFS 160 1 1/2" A105N | 25 PCE | 0.211 | 0.240 | 1.000 | 0.013 | 0.014 | 0.008 | 0.019 | 0.054 | 0.002 | 0.007 | 0.005 | 0.004 | - | - | 0.388 |
| 27 | 23875-105 | 900/1500 WNRFS 160 1 1/2" A105N | 25 PCE | 0.211 | 0.240 | 1.000 | 0.013 | 0.014 | 0.008 | 0.019 | 0.054 | 0.002 | 0.007 | 0.005 | 0.004 | - | - | 0.388 |
| 28 | 4424-105 | 150 SWRF XS 2" A105N | 25 PCE | 0.211 | 0.240 | 1.000 | 0.013 | 0.014 | 0.006 | 0.019 | 0.054 | 0.002 | 0.007 | 0.005 | 0.004 | - | - | 0.388 |
| 29 | 4424-105 | 150 SWRF XS 2" A105N | 38 PCE | 0.200 | 0.220 | 1.060 | 0.010 | 0.005 | 0.140 | 0.050 | 0.060 | 0.011 | 0.008 | 0.001 | 0.008 | - | - | 0.386 |
| 30 | 5026-105 | 300 THREE 2" A105N | 12 PCE | 0.210 | 0.210 | 1.150 | 0.016 | 0.004 | 0.006 | 0.020 | 0.010 | 0.001 | 0.003 | 0.001 | 0.006 | - | - | 0.402 |
| | | | 30 PCE | 0.211 | 0.260 | 1.050 | 0.010 | 0.008 | 0.012 | 0.043 | 0.045 | 0.005 | 0.037 | 0.005 | 0.004 | - | - | 0.407 |
| | | | | | | | | | | | | | | | | | | 0.399 |

*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.
 *2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S,T=Solution Treated, S,R=Stress Relieved,
 A,C=Air Cooled, F,C=Fluance Cooled, W,C=Water Cooled, O,C=Oil Cooled.
 *3: C.E. Value = C + (Mn /8) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15



APPROVED BY
 Manager of Quality Assurance Dept

REMARKS
 880CXHRS
 CONFORMS WITH NACE MR0103-07 AND NACE
 MR0175/ISO15156.2
 CONFORMS WITH Z245.12 CAT I GR.24B SOUR
 SERVICE-05
 TEST SPECIMEN ORIENTATION: TRANSVERSE



SEDE AMMINISTRATIVA E STABILIMENTO:
23961 CESANA BRIANZA (LC) - Italy
Via G. Pardi, 28
Tel. +39 031.655441
Fax +39 031.655149
quality.mtf@farmase.com

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= ISO 9001:2008 =

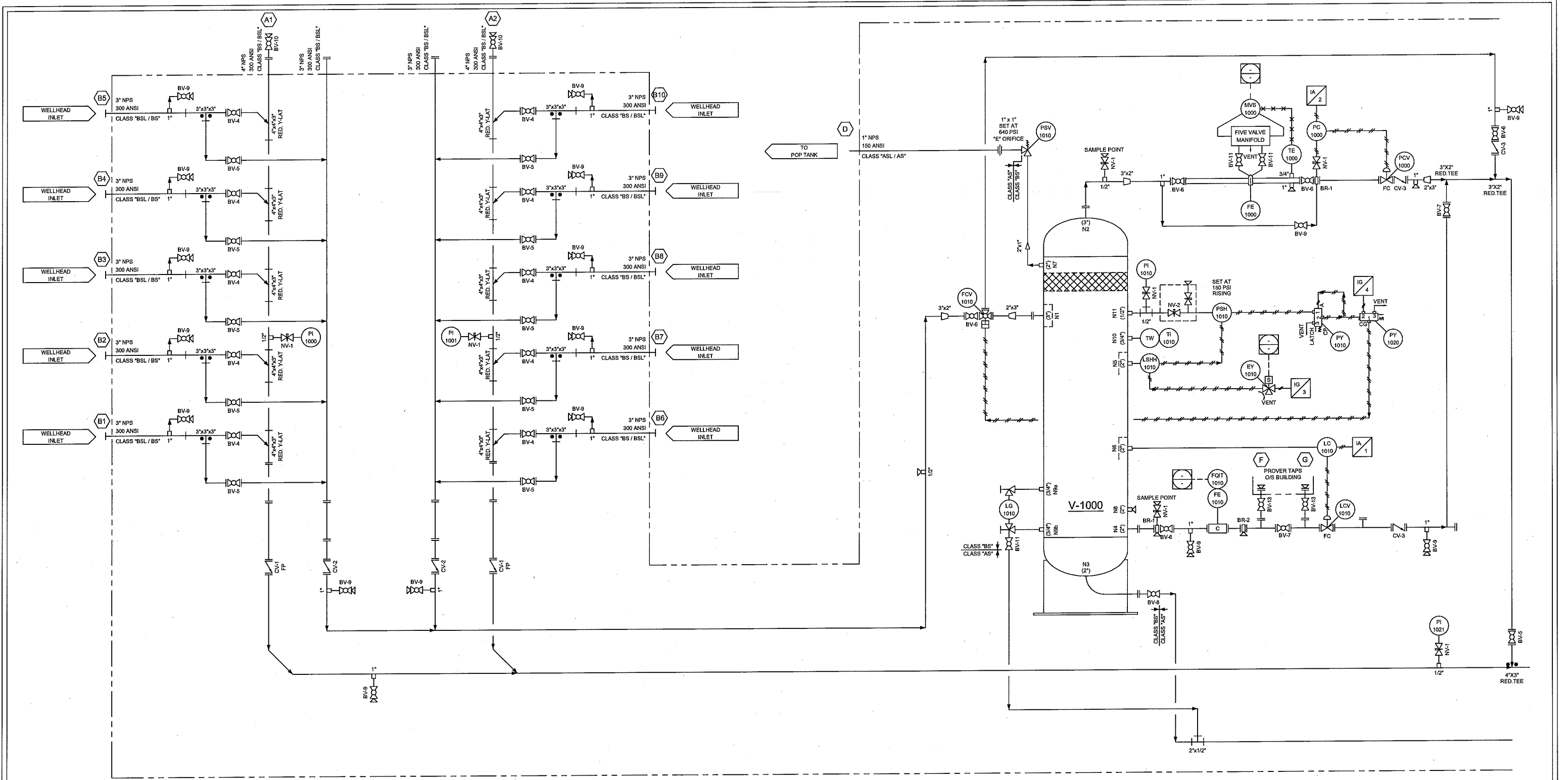
| | | | |
|---|----------------------|-------------------------------------|----------------------|
| CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE | | | |
| Certif. N. 1608 | Del/Dated 29.03.2012 | Fattura / Invoice N. 1077 | Del/Dated 29.03.2012 |
| DOT / Del Note N. 1271 | Del/Dated 29.03.2012 | Ns.Ord. / Our ref. N. | Del/Dated |
| FORGED FLANGES & FITTINGS LTD | | Dest.: F.F.F. c/o C.E. FRANKLIN LTD | |
| CASTLE HOUSE - STATION ROAD | | EMMONTON, ALBERTA | |
| EN5 1PE NEW BARNET/HERTFORD... | | GB | |
| | | CA | |

| | | | | | | | |
|---|----------|----------------|-------------------|--------------|-----------------------|------------------|------------------|
| COD. COL. COLATA | POS. | VS. ORDINE | Q.TA' DESCRIZIONE | A105N | DIM. IN ACC. A | FORNO / FURNACE | ORIGINE / ORIGIN |
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | Q.TY DESCRIPTION | | DIM. ACCORDANCE TO | ELECTRIC FURNACE | EUROPE |
| 11/384422 | 051 | 38101FR | THIRD 300 RF 2" | | ASME/ANSI B16.5 -2009 | | |
| MATERIALE / MATERIAL | | | | | | | |
| ASTM A105 | | | | | | | |
| PROVETTA / TEST SPECIMEN | FORMA | SNERVAMENTO | TENSILE STRENGTH | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | |
| SEZ. mm2 | LING. mm | YIELD POINT | N/mm2 >=0,2% | ELONGATION | REDUCTION OF AREA | HARDNESS | |
| 126,60 | 50,80 | 338,0 | 523,0 | 31,0 | 60,0 | 156,0 - 159,0 | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | |
| CSA CAN3 Z-245-12-09 GRADE 248 CAT.I | | | | | | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | |
| CSA CAN3 Z-245-12-09 GRADE 248 CAT.I | | | | | | | |

| | | | | | | | |
|---|----------|----------------|-------------------|--------------|-----------------------|------------------|------------------|
| COD. COL. COLATA | POS. | VS. ORDINE | Q.TA' DESCRIZIONE | A105N | DIM. IN ACC. A | FORNO / FURNACE | ORIGINE / ORIGIN |
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | Q.TY DESCRIPTION | | DIM. ACCORDANCE TO | ELECTRIC FURNACE | EUROPE |
| 11/384422 | 051 | 38101FR | THIRD 300 RF 2" | | ASME/ANSI B16.5 -2009 | | |
| MATERIALE / MATERIAL | | | | | | | |
| ASTM A105 | | | | | | | |
| PROVETTA / TEST SPECIMEN | FORMA | SNERVAMENTO | TENSILE STRENGTH | ALLUNGAMENTO | CONTRAZIONE | DUREZZA | |
| SEZ. mm2 | LING. mm | YIELD POINT | N/mm2 >=0,2% | ELONGATION | REDUCTION OF AREA | HARDNESS | |
| 126,60 | 50,80 | 338,0 | 523,0 | 31,0 | 60,0 | 156,0 - 159,0 | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | |
| CSA CAN3 Z-245-12-09 GRADE 248 CAT.I | | | | | | | |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | | |
| CSA CAN3 Z-245-12-09 GRADE 248 CAT.I | | | | | | | |

NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 NOTES MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 15166-2009 - SOUR SERVICE
 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE

| | | |
|--|--|---|
| UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT | ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY | MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL |
| <i>Luigi Corti</i> <i>Luigi Corti</i> | | |



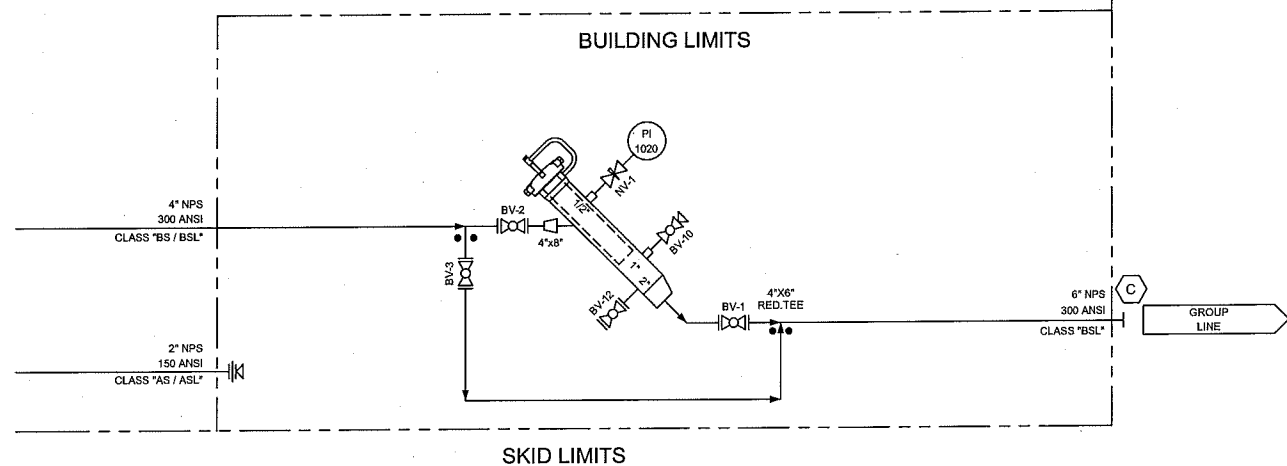
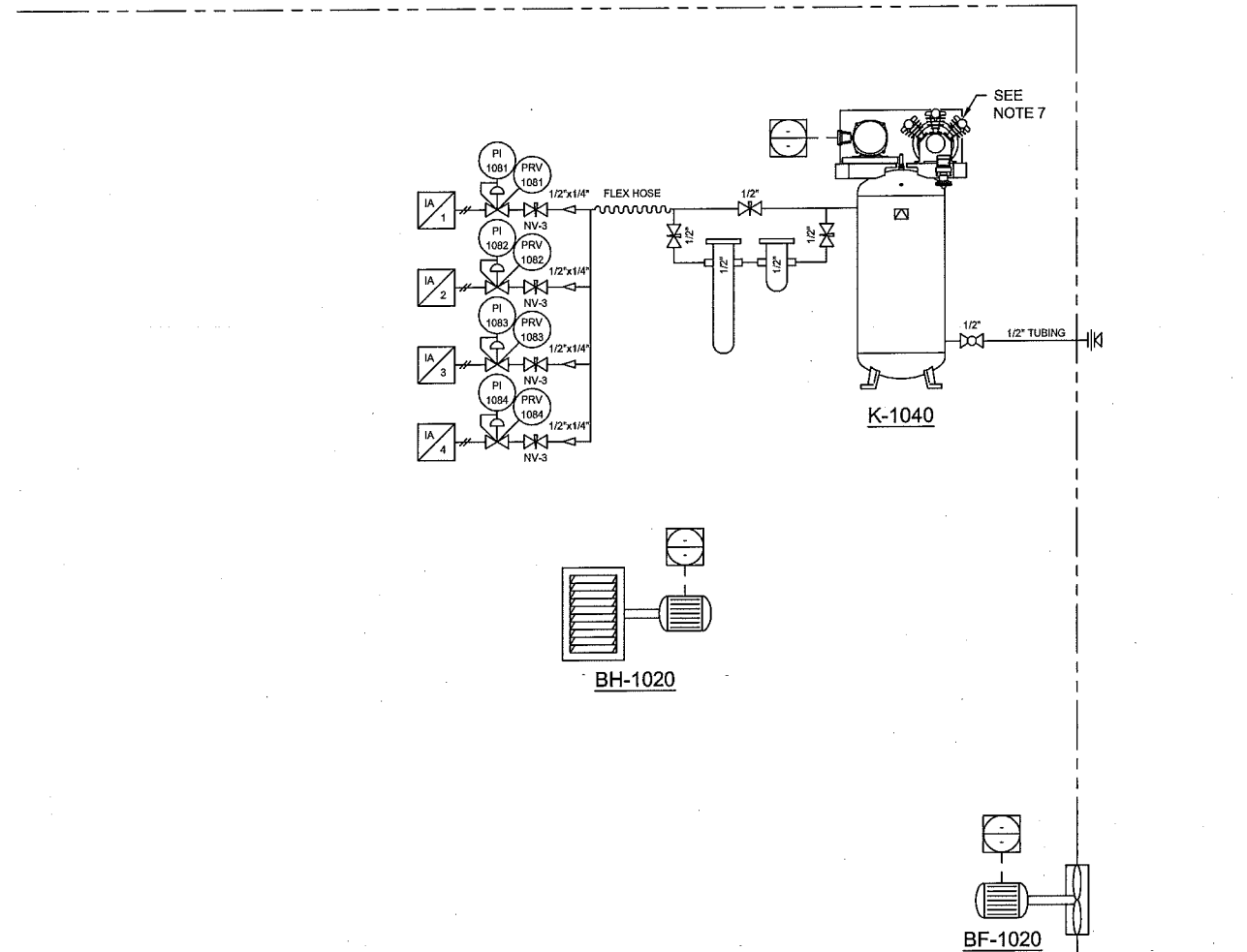
SKID/BUILDING LIMITS

| REV. | DATE | DESCRIPTION | BY | CHKD | APP'D |
|------|----------|-------------------------|----|------|-------|
| 2 | 03/14/13 | AS-BUILT | | | |
| 1 | 09/27/12 | REVISED ESD LOOP | DB | LW | PC |
| 0 | 09/14/12 | ISSUED FOR CONSTRUCTION | DB | LW | PC |

| | | | |
|--|-----------------------|--|-----------------------------|
| CUSTOMER: PennWest Exploration | | TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | |
| DRAWING NAME: P&ID | QUANTITY: 1 | PACKAGE SERIAL NO. (S): 12-052-01 | |
| JOB NO. (S): 12-052 | DRAWN BY: D. BRYAN | DATE: 09/14/12 | |
| REV. NO.: 2 | PAGE NO.: 1 OF 2 | SCALE: N.T.S. | DRAWING NO.: 12-052-P&ID |

| VALVES & SPECIAL ITEMS | | |
|------------------------|------|--|
| TAG | QTY. | DESCRIPTION |
| BR-1 | 2 | BLEED RING, 2" 3-600 ANSI, TAPPED (2) 1" & (1) 1/2" NPT, SA105N |
| BR-2 | 1 | BLEED RING, 2" 3-600 ANSI, TAPPED (1) 1/2" NPT, SA105N |
| BV-1 | 1 | KF DOUBLE B&B BALL VALVE, 6" 300 ANSI RF FP, LOW TEMP NACE |
| BV-2 | 1 | KF DOUBLE B&B BALL VALVE, 4" 300 ANSI RF FP, LOW TEMP NACE |
| BV-3 | 1 | KF DOUBLE B&B BALL VALVE, 4" 300 ANSI RF FP, LOW TEMP NACE |
| BV-4 | 10 | KF BALL VALVE, 3" 300 ANSI RF FP, NACE |
| BV-5 | 11 | KF BALL VALVE, 3" 300 ANSI RF FP, NACE |
| BV-6 | 5 | KF BALL VALVE, 2" 300 ANSI RF FP, NACE |
| BV-7 | 2 | KF BALL VALVE, 2" 300 ANSI RF FP, NACE |
| BV-8 | 1 | KF BALL VALVE, 2" NPT 3M RP, NACE |
| BV-9 | 17 | KF BALL VALVE, 1" NPT 3M FP, NACE |
| BV-10 | 3 | KF BALL VALVE, 1" NPT 3M FP, LOW TEMP NACE |
| BV-11 | 3 | KF BALL VALVE, 1/2" NPT 3M FP, NACE |
| BV-12 | 1 | KF BALL VALVE, 2" 300 ANSI RF FP, LOW TEMP NACE |
| BV-13 | 2 | KF BALL VALVE, 2" NPT 3M FP, NACE |
| CV-1 | 2 | WHEATLEY 510 CHECK VALVE, 4" 300 ANSI RF, NACE FP |
| CV-2 | 2 | WHEATLEY WAFER CHECK VALVE, 3" 300 ANSI, NACE |
| CV-3 | 3 | WHEATLEY WAFER CHECK VALVE, 2" 300 ANSI, NACE |
| NV-1 | 8 | WGI NEEDLE VALVE, 1/2" NPT MXF 6M, WN1434P, 316SS |
| NV-2 | 1 | WGI BLOCK AND BLEED NEEDLE VALVE, 1/2" NPT MXF, 10M, WN8534, 316SS |
| NV-3 | 4 | WGI NEEDLE VALVE, 1/4" NPT MXF 6M, WN1632P, CS |
| ST-1 | 0 | Y-STRAINER, 2" 300 ANSI RF, 316 BASKET, 1/8" PERFORATIONS, NACE |

| BILL OF MATERIALS | |
|-------------------|---|
| TAG NO. | DESCRIPTION |
| BF-1020 | BUILDING FAN, 12 ACPH, 120VAC, 1 PH, 60HZ, 1/4 HP, XP |
| BH-1020 | RUFFNECK FX5-600360-150T, 51,200 BTU/HR, 600V, 3PH, 60HZ, XP C/W RUFFNECK MOUNT KIT PIPE, FX4/FX5 16" FAN |
| K-1040 | EAGLE AIR COMPRESSOR PV02A, 2HP, 600V, 3PH, 60HZ, XP C/W DMD4-4 DELTECH PERMEABLE MEMBRANE DRYER |
| V-1000 | 24"OD X 60" S/S X 720 PSI @ +130°/20°F AB SOUR VERTICAL SEPARATOR |
| EY 1010 | ASCO EF6320G200DC 3-WAY SOLENOID VALVE, UNIVERSAL, C/W PNEUMATIC TRIP IND. |
| FCV 1010 | VALTORC 3-WAY T-PORT BALL VALVE, 2" 300 ANSI, SS C/W VALTORC VT150SR SPRING RETURN ACTUATOR, 80 PSI SUPPLY |
| FE 1000 | CANALTA SINGLE CHAMBER RUN, 2" 300 ANSI, NACE, FOC, SCH. 40. AGA 2000, PIN FLOW CONDITIONER, 49" OAL, (1) 1" & (1) 3/4" TOLS C/W 0.375" BORE ORIFICE PLATE & ONE (1) EXTRA ORIFICE PLATE HOLDER |
| FE/FQIT 1010 | FOXBORO CORIOLIS MASS FLOW AND DENSITY METER, 2" 600 ANSI 18.4" FACE TO FACE, MODEL NO. CFS10-20SECN-E (SEE NOTE 8) |
| LC 1010 | NORRISEAL EVS, SNAP, DA, 0-30 PSI, PVC DISPLACER, NACE |
| LCV 1010 | NORRISEAL 2220, 2" 300 ANSI RF, 3/4" QUICK-OPEN TRIM, FC, NACE |
| LG 1010 | QUEST-TEC 61RL LEVEL GAUGE C/W GAUGE COCKS, 1S, 3/4" X 1/2", NACE |
| LSHH 1010 | MURPHY LS200NDOV, 2" NPT, CS BODY, 304SS FLOAT C/W PNEUMATIC TRIP IND. |
| MVS/TE 1000 | FISHER MVS205R, 0-3626 PSI STATIC, 0-250" WC, -40/167°F, NACE C/W AIRCOM 3-WIRE PLATINUM 100-OHM RTD SENSOR, 5VM-SS-8-R MANIFOLD SS & TOW, 3/4" X 1/2" X 2-1/2" X 0.702", 316SS (SEE NOTE 8) |
| PC 1000 | CVS 4150, 0-300 PSI RANGE, SST, 6-30 PSI, DA |
| PCV 1000 | NORRISEAL 2220, 2" 300 ANSI RF, 3/4" THROTTLE TRIM, FC |
| PI 1000 / 1001 | PI, 4" FACE, 1000 PSI, DUAL SCALE, SS/SS, 1/2" BTM, LF, NACE |
| PI 1010 / 1020-1 | PI, 4" FACE, 1000 PSI, DUAL SCALE, SS/SS, 1/2" BTM, LF, NACE |
| PI 1081-1082 | PI, 2-1/2" FACE, 60 PSI, DUAL SCALE, SS/BRASS, 1/4" CBM, LF |
| PI 1083 | PI, 2-1/2" FACE, 60 PSI, DUAL SCALE, SS/BRASS, 1/4" BTM, LF |
| PI 1084 | PI, 2-1/2" FACE, 160 PSI, DUAL SCALE, SS/BRASS, 1/4" BTM, LF |
| PRV 1081-1083 | FISHER 67CFR, 1/4", 0-35 PSI |
| PRV 1084 | FISHER 67CFR, 1/4", 0-125 PSI |
| PSH 1010 | CVS 7970 HIGH PRESSURE PILOT, SET AT 150 PSI RISING C/W PNEUMATIC TRIP IND. |
| PSV 1010 | TAYLOR 8200, 1" MNPT X 1" FNPT, NACE, SET AT 640 PSI |
| PY 1010 | AMOT 4057 CP 3-WAY VALVE, MANUAL LATCH/PRESSURE, SPRING RETURN |
| PY 1020 | AMOT 4057 CG 3-WAY VALVE, PRESSURE OPERATED, SPRING RETURN |
| TI/TW 1010 | TI, 3" FACE X 6" STEM, -40F/160F, DUAL SCALE, 1/2" CBM, NACE THERMOWELL, 3/4" X 1/2" X 6" X 0.260" STEM, 316SS |

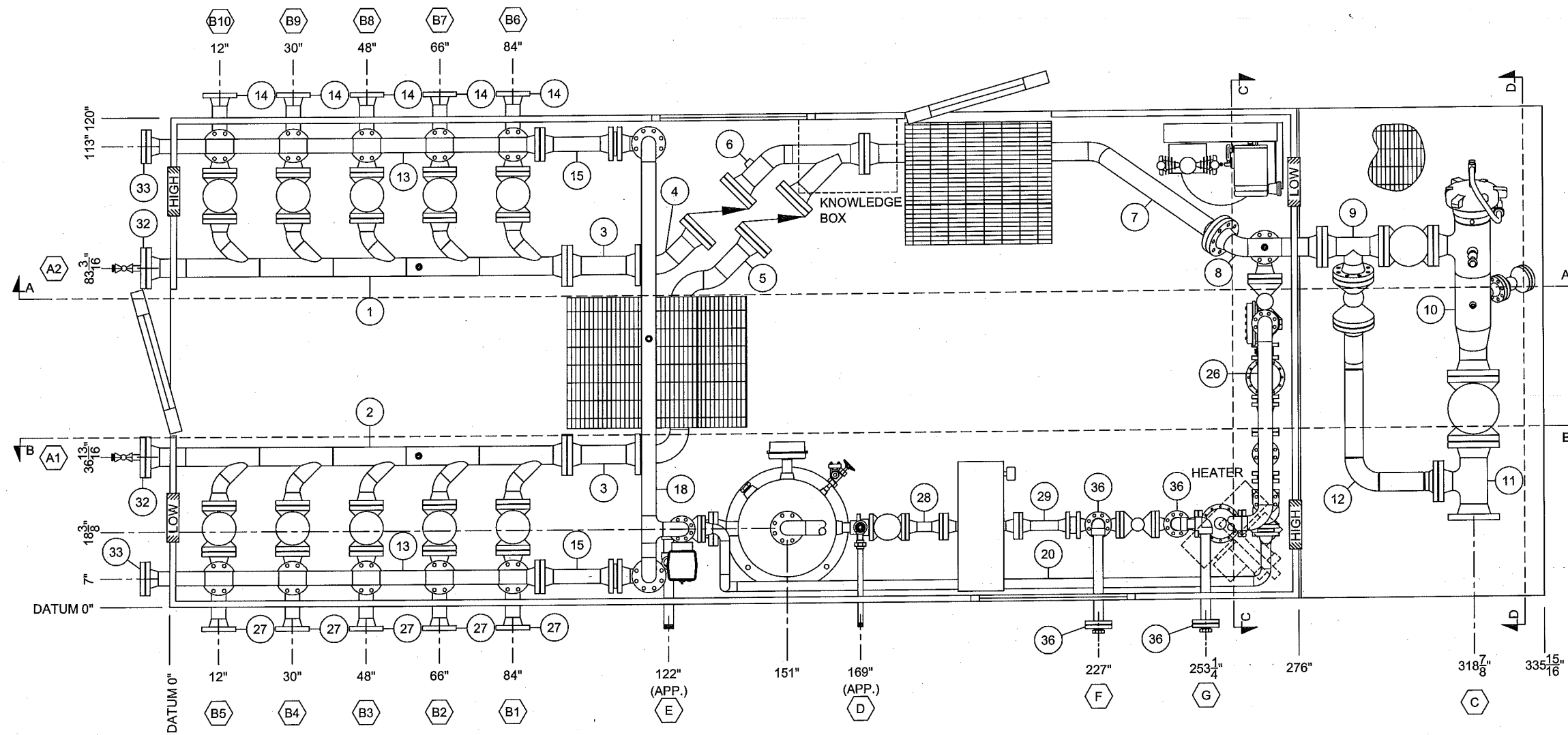


| PACKAGE CONNECTION SCHEDULE | |
|-----------------------------|---|
| A1-2 | 4" 300 ANSI RF, EMULSION INLET |
| B1-10 | 3" 300 ANSI RF, EMULSION INLET |
| C | 6" 300 ANSI RF, EMULSION OUTLET |
| D | 1" 150 ANSI MNPT, PSV OUTLET |
| E | 2" 150 ANSI MNPT, DRAIN HEADER OUTLET |
| F | 2" 300 ANSI RF C/W 2" FNPT (PLUGGED), PROVER OUTLET |
| G | 2" 300 ANSI RF C/W 2" FNPT (PLUGGED), PROVER OUTLET |

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NUMBER IS AQP-1464
2. THREADED PIPING PROGRAM IS GF-1 REV. 1
3. PROCESS/SENSING TUBING (GAS) TO BE 1/2" X 0.049" W.T. 316SS
4. PROCESS/SENSING TUBING (HYDRAULIC) TO BE 1/2" X 0.035" W.T. 316SS
5. INSTRUMENT LINE TUBING TO BE 3/8" X 0.035" W.T. 304SS
6. ALL TUBE FITTINGS TO BE SS (PROCESS/SENSING), CS (INSTRUMENT)
7. AIR SUCTION MUST BE OUTSIDE OF BUILDING
8. SUPPLIED BY GLOBALFLOW AUTOMATION

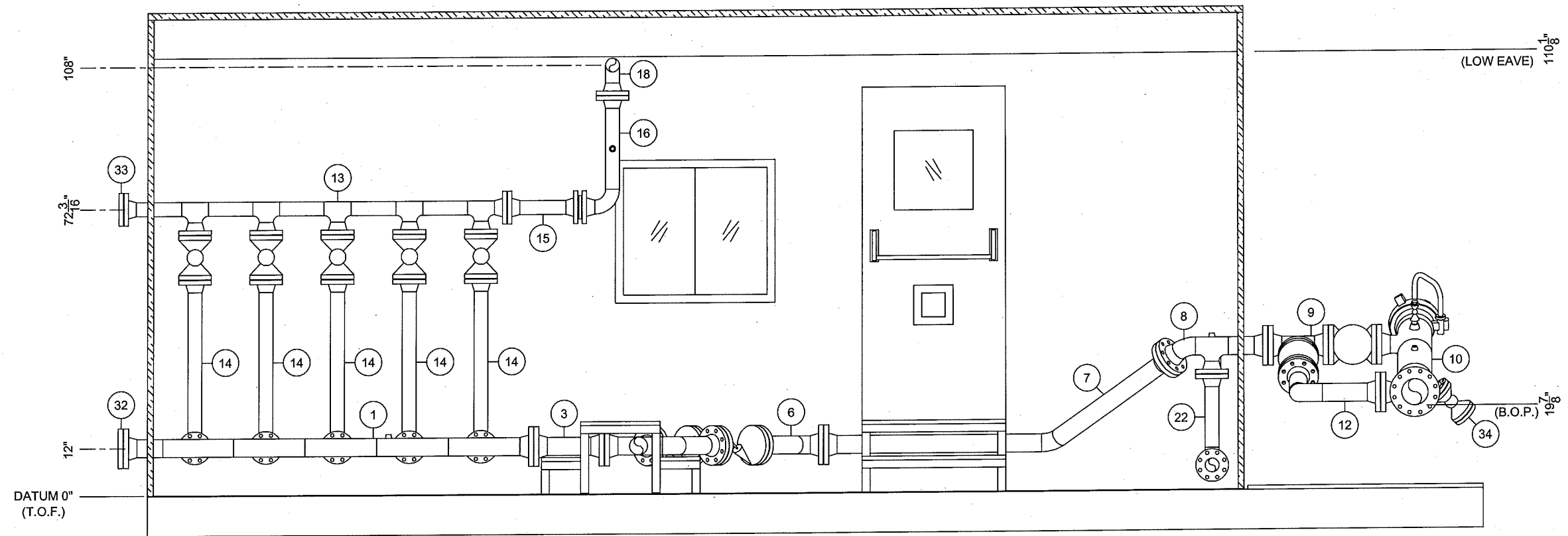
| | | | |
|---------------------------------|-----------|---|--------------|
| CUSTOMER: | | TITLE / PROJECT: | |
| PennWest Exploration | | 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | |
| DRAWING NAME: | QUANTITY: | PACKAGE SERIAL NO. (IF) | |
| P&ID | 1 | 12-052-01 | |
| JOB NO. (S): | DRAWN BY: | DATE: | |
| 12-052 | D. BRYAN | 09/14/12 | |
| REV. NO.: | PAGE NO.: | SCALE: | DRAWING NO.: |
| 2 | 2 OF 2 | N.T.S. | 12-052-P&ID |




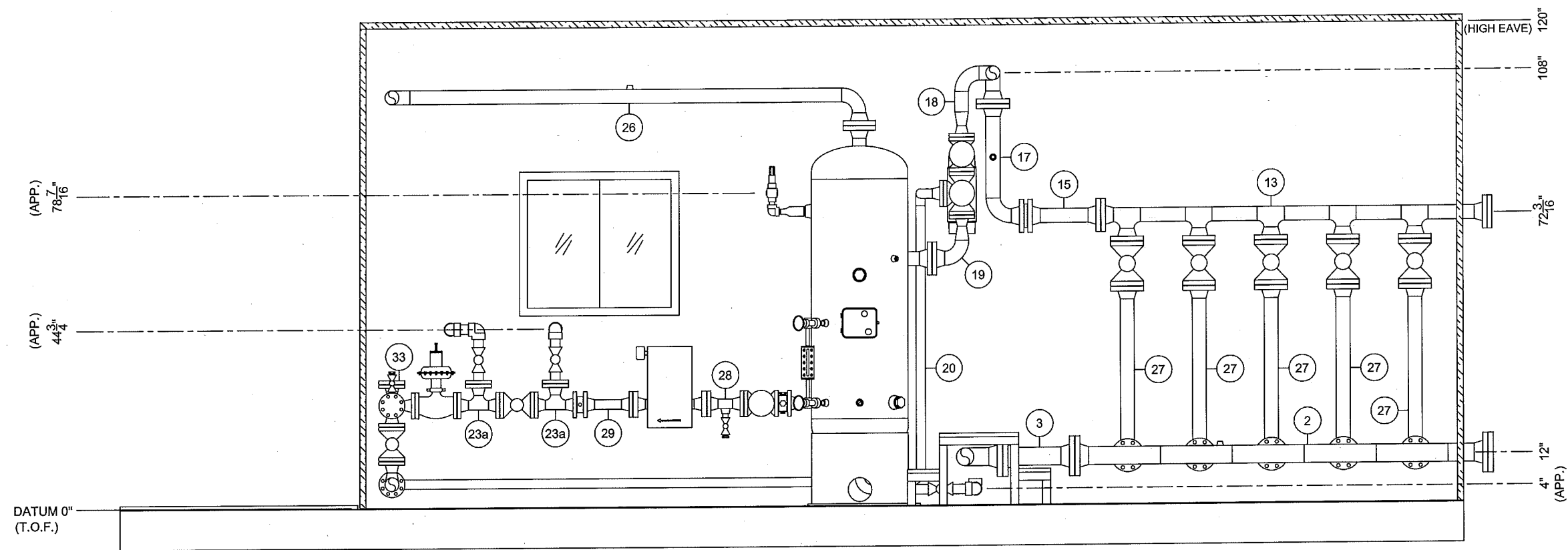
| REV. | DATE | DESCRIPTION | BY | CHK'D | APP'D |
|------|----------|---------------------------------|----|-------|-------|
| 2 | 03/15/13 | AS-BUILT | DB | WJ | WJ |
| 1 | 01/29/13 | ISSUED FOR REVISED CONSTRUCTION | MC | LW | PC |
| 0 | 09/14/12 | ISSUED FOR CONSTRUCTION | DB | LW | PC |



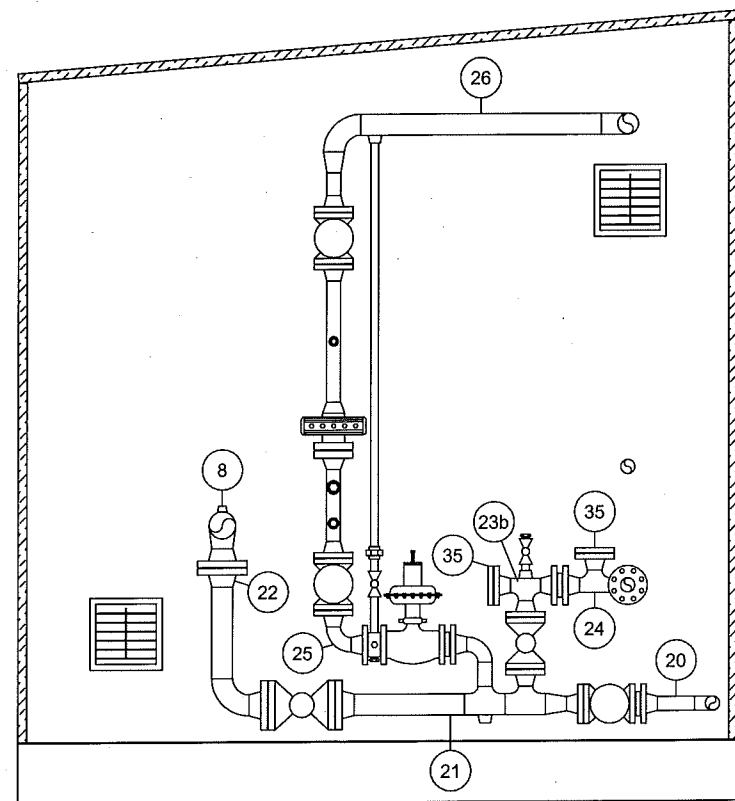
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|--|-----------------------|---|-------------------------------|
| CUSTOMER: PennWest Exploration | | TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER 24" OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | |
| DRAWING NAME: LAYOUT - PLAN VIEW | QUANTITY: 1 | PACKAGE SERIAL NO. (S): 12-052-01 | |
| JOB NO. (S): 12-052 | DRAWN BY: D. BRYAN | DATE: 09/14/12 | |
| REV. NO.: 2 | PAGE NO.: 1 OF 4 | SCALE: N.T.S. | DRAWING NO.: 12-052-LAYOUT |



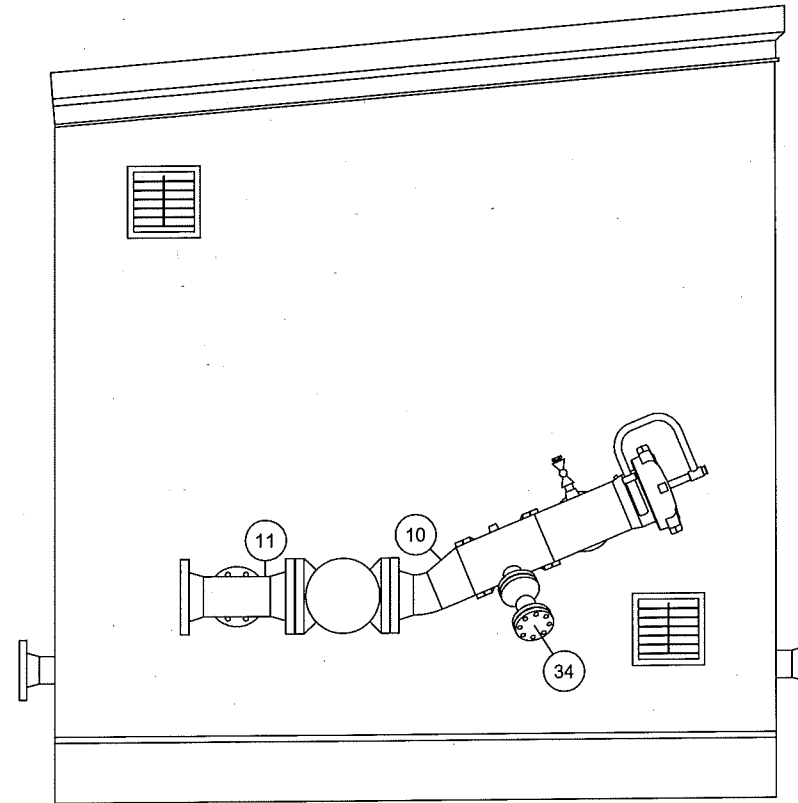
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|---|------------------------------|---|--------------------------------------|
| CUSTOMER: PennWest Exploration | | TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | |
| DRAWING NAME: LAYOUT - SECTION A | QUANTITY: 1 | PACKAGE SERIAL NO. (S): 12-052-1 | |
| JOB NO. (S): 12-052 | DRAWN BY: D. BRYAN | DATE: 09/14/12 | |
| REV. NO.: 2 | PAGE NO.: 2 OF 4 | SCALE: 3/8"=1'-0" | DRAWING NO.: 12-052-LAYOUT |



SECTION 'B'



SECTION 'C'



SECTION 'D'

| | | | |
|---|------------------------------|---|--------------------------------------|
| | | | |
| CUSTOMER: PennWest Exploration | | TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG | |
| DRAWING NAME: LAYOUT - SECTIONS B, C, D | QUANTITY: 1 | PACKAGE SERIAL NO. (S) 12-052-01 | |
| JOB NO. (S): 12-052 | DRAWN BY: D. BRYAN | DATE: 09/14/12 | |
| REV. NO.: 2 | PAGE NO.: 3 OF 4 | SCALE: 3/8"=1'-0" | DRAWING NO.: 12-052-LAYOUT |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | QTY. | HEAT NUMBER |
|------|-----------------------------|-----------------|------|-------------|
| 1 | SPOOL 01 | | 1 | |
| 2 | SPOOL 02 | | 1 | |
| 3 | SPOOL 03 | | 1 | |
| 4 | SPOOL 04 | | 1 | |
| 5 | SPOOL 05 | | 1 | |
| 6 | SPOOL 06 | | 1 | |
| 7 | SPOOL 07 | | 1 | |
| 8 | SPOOL 08 | | 1 | |
| 9 | SPOOL 09 | | 1 | |
| 10 | SPOOL 10 | | 1 | |
| 11 | SPOOL 11 | | 1 | |
| 12 | SPOOL 12 | | 1 | |
| 13 | SPOOL 13 | | 2 | |
| 14 | SPOOL 14 | | 5 | |
| 15 | SPOOL 15 | | 2 | |
| 16 | SPOOL 16 | | 1 | |
| 17 | SPOOL 17 | | 1 | |
| 18 | SPOOL 18 | | 1 | |
| 19 | SPOOL 19 | | 1 | |
| 20 | SPOOL 20 | | 1 | |
| 21 | SPOOL 21 | | 1 | |
| 22 | SPOOL 22 | | 1 | |
| 23 | SPOOL 23 | | 3 | |
| 24 | SPOOL 24 | | 1 | |
| 25 | SPOOL 25 | | 1 | |
| 26 | SPOOL 26 | | 1 | |
| 27 | SPOOL 27 | | 5 | |
| 28 | SPOOL 28 | | 1 | |
| 29 | SPOOL 29 | | 1 | |
| 32 | RFHB, 4" 300 ANSI W/ 1" NPT | SA-350 LF2 CL.1 | 2 | |
| 33 | RFB, 3" 300 ANSI | SA-350 LF2 CL.1 | 2 | |
| 34 | RFB, 2" 300 ANSI | SA-350 LF2 CL.1 | 1 | |
| 35 | RFB, 2" 300 ANSI | SA105N | 2 | |
| 36 | RFTD, 2" 300 ANSI | SA105N | 4 | |

GASKETS, STUDS, AND NUTS

| DESCRIPTION | MATERIAL | QTY. |
|---|-------------------|------|
| SPRLWND GSKT, 6" 300 ANSI FLEXIBLE GRAPHITE | AISI TYPE 316L SS | 2 |
| SPRLWND GSKT, 4" 300 ANSI FLEXIBLE GRAPHITE | AISI TYPE 316L SS | 18 |
| SPRLWND GSKT, 3" 3-600 ANSI FLEXIBLE GRAPHITE | AISI TYPE 316L SS | 55 |
| SPRLWND GSKT, 2" 3-600 ANSI FLEXIBLE GRAPHITE | AISI TYPE 316L SS | 38 |
| STUD, 3/4" X 4-3/4" | SA-193 B7M | 24 |
| STUD, 3/4" X 4-1/2" | SA-193 B7M | 136 |
| STUD, 3/4" X 4-1/4" | SA-193 B7M | 408 |
| STUD, 3/4" X 5-1/4" | SA-193 B7M | 16 |
| STUD, 5/8" X 3-1/2" | SA-193 B7M | 190 |
| STUD, 5/8" X 5-3/4" | SA-193 B7M | 16 |
| STUD, 5/8" X 4-1/4" | SA-193 B7M | 16 |
| STUD, 5/8" X 5-1/4" | SA-193 B7M | 8 |
| STUD, 5/8" X 4-1/2" | SA-193 B7M | 24 |
| NUT, 3/4" | SA-194-2HM | 1168 |
| NUT, 5/8" | SA-194-2HM | 512 |

GENERAL NOTES

1. QUALITY CONTROL PROGRAM IS AQP-1464
2. THREADED PIPING IS GF-1 REV. 1
3. GENERAL DEVIATION TOLERANCE IS +/- 1/4"
4. ALL OPENINGS SHALL BE COVERED FOR SHIPPING
5. PACKAGE TO BE COMPLETELY DRAINED OF WATER BEFORE SHIPPING
6. ALL PIPING PROJECTIONS TO BE 6" UNLESS OTHERWISE NOTED
7. APPROXIMATE SHIPPING WEIGHT: 21,750 LBS
8. APPROXIMATE SHIPPING DIMENSIONS: 11'-0" W X 29'-2" L X 11'-0" H
9. ERGONOMICS MUST BE CONSIDERED FOR PLACEMENT OF KNOWLEDGE BOX, HEATER, AND METERING EQUIPMENT

EXTERNAL PAINTING & PREP.

SURFACE PREPARATION (EXT): SSPC-SP6
 PRIMER (EXT): RUST-OLEUM QUICK-DRY
 TOP COAT (EXT): RUST-OLEUM ENAMEL
 TOP COAT THICKNESS (EXT): 1.5 TO 2.0 MILS DFT
 TOP COAT COLOR: LIGHT MACHINE GREY
 INSULATION:
 HEAT TRACING:
 JACKET:
 BANDING:

PACKAGE CONNECTION SCHEDULE

| | |
|-------|---|
| A1-2 | 4" 300 ANSI RF, EMULSION INLET |
| B1-10 | 3" 300 ANSI RF, EMULSION INLET |
| C | 6" 300 ANSI RF, EMULSION OUTLET |
| D | 1" 150 ANSI MNPT, PSV OUTLET |
| E | 2" 150 ANSI MNPT, DRAIN HEADER OUTLET |
| F | 2" 300 ANSI RF C/W 2" FNPT (PLUGGED), PROVER OUTLET |
| G | 2" 300 ANSI RF C/W 2" FNPT (PLUGGED), PROVER OUTLET |

ASME B31.3 CURRENT EDITION

| RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BS" / BST* | | | | | RATING / FLUID SERVICE: 300 ANSI, NORMAL, SOUR, STD TEMP, CLASS "BSL" | | | | | RATING / FLUID SERVICE: 150 ANSI, NORMAL, SOUR, STD TEMP, CLASS "AS" / AST* | | | | | RATING / FLUID SERVICE: 150 PSI, NORMAL, SWEET, STD TEMP, CLASS "AU" | | | | | | | | | | | | | | |
|---|-----------|-----------|----------------|--------------|---|-----------|------------|----------------|-----------------|---|-----------|-----------|----------------|--------------|--|-----------|-----------|----------------|--------------|----------------------|-----------|-----------|----------------|--------------|-------------------------------|--|--|--|--|
| M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -20°F (-29°C) | | | | | M.A.W.P.: 720 PSIG (4964 kPa) AT +100°F (+38°C) / -50°F (-45°C) | | | | | M.A.W.P.: 285 PSIG (1985 kPa) AT +100°F (+38°C) / -20°F (-29°C) | | | | | M.A.W.P.: 150 PSIG (1034 kPa) AT +100°F (+38°C) / -20°F (-29°C) | | | | | | | | | | | | | | |
| CORROSION ALLOWANCE: 0.0625" (1.6mm) TESTING MEDIUM: WATER | | | | | CORROSION ALLOWANCE: 0.0625" (1.6mm) TESTING MEDIUM: WATER | | | | | CORROSION ALLOWANCE: 0.0625" (1.6mm) TESTING MEDIUM: WATER | | | | | CORROSION ALLOWANCE: 0.0625" (1.6mm) TESTING MEDIUM: NITROGEN | | | | | | | | | | | | | | |
| TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MIN., (2) GAUGES & (1) CHART | | | | | TESTING PRESSURE: 1080 PSIG (7447 kPa), 60 MIN., (2) GAUGES & (1) CHART | | | | | TESTING PRESSURE: 427 PSIG (2944 kPa), 60 MIN., (2) GAUGES & (1) CHART | | | | | TESTING PRESSURE: 165 PSIG (1138 kPa), 15 MIN., (2) GAUGES | | | | | | | | | | | | | | |
| CONNECTION: THREADED | | | | | CONNECTION TESTING: HYDRO | | | | | CONNECTION: THREADED | | | | | CONNECTION TESTING: HYDRO | | | | | CONNECTION: THREADED | | | | | CONNECTION TESTING: PNEUMATIC | | | | |
| LINE SIZE | PIPE SCH. | PIPE MAT. | FITTING RATING | FITTING MAT. | LINE SIZE | PIPE SCH. | PIPE MAT. | FITTING RATING | FITTING MAT. | LINE SIZE | PIPE SCH. | PIPE MAT. | FITTING RATING | FITTING MAT. | LINE SIZE | PIPE SCH. | PIPE MAT. | FITTING RATING | FITTING MAT. | LINE SIZE | PIPE SCH. | PIPE MAT. | FITTING RATING | FITTING MAT. | | | | | |
| 1/2" | SCH. 160 | SA106B | 3000 PSI | SA105N | 1/2" | SCH. 160 | SA-333 GR6 | 3000 PSI | SA-350-LF2 CL.1 | 1/2" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1/2" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1/2" | SCH. 80 | SA106B | 3000 PSI | SA105N | | | | | |
| 3/4" | SCH. 160 | SA106B | 3000 PSI | SA105N | 3/4" | SCH. 160 | SA-333 GR6 | 3000 PSI | SA-350-LF2 CL.1 | 3/4" | SCH. 80 | SA106B | 3000 PSI | SA105N | 3/4" | SCH. 80 | SA106B | 3000 PSI | SA105N | 3/4" | SCH. 80 | SA106B | 3000 PSI | SA105N | | | | | |
| 1" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1" | SCH. 80 | SA-333 GR6 | 3000 PSI | SA-350-LF2 CL.1 | 1" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1" | SCH. 80 | SA106B | 3000 PSI | SA105N | | | | | |
| 1-1/4" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1-1/4" | SCH. 80 | SA-333 GR6 | 3000 PSI | SA-350-LF2 CL.1 | 1-1/4" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1-1/4" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1-1/4" | SCH. 80 | SA106B | 3000 PSI | SA105N | | | | | |
| 1-1/2" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1-1/2" | SCH. 80 | SA-333 GR6 | 3000 PSI | SA-350-LF2 CL.1 | 1-1/2" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1-1/2" | SCH. 80 | SA106B | 3000 PSI | SA105N | 1-1/2" | SCH. 80 | SA106B | 3000 PSI | SA105N | | | | | |
| 2" | SCH. 80 | SA106B | 3000 PSI | SA105N | 2" | SCH. 80 | SA-333 GR6 | 3000 PSI | SA-350-LF2 CL.1 | 2" | SCH. 80 | SA106B | 3000 PSI | SA105N | 2" | N/A | N/A | N/A | N/A | 2" | N/A | N/A | N/A | N/A | | | | | |

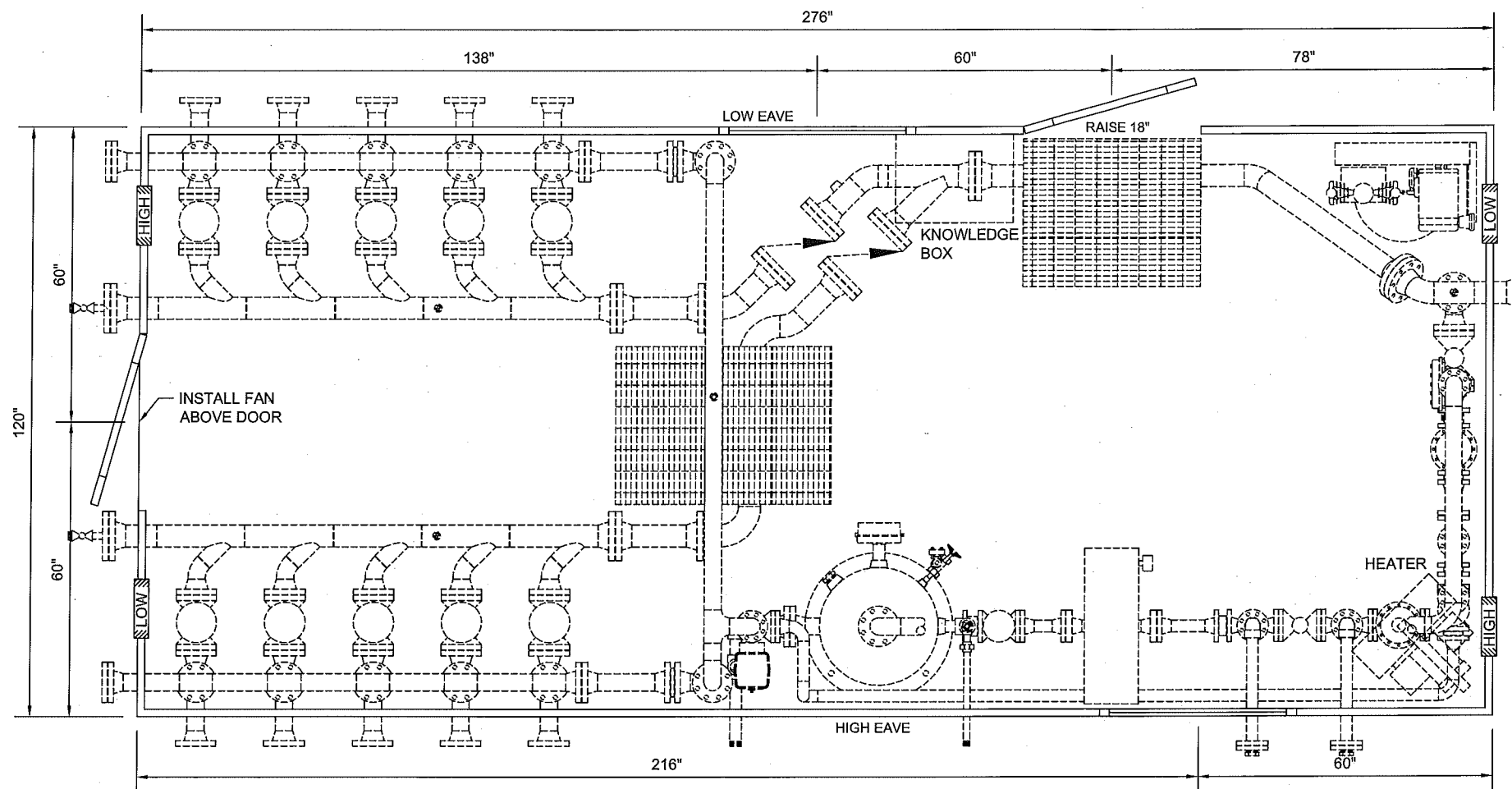


CUSTOMER: PennWest Exploration
 TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG

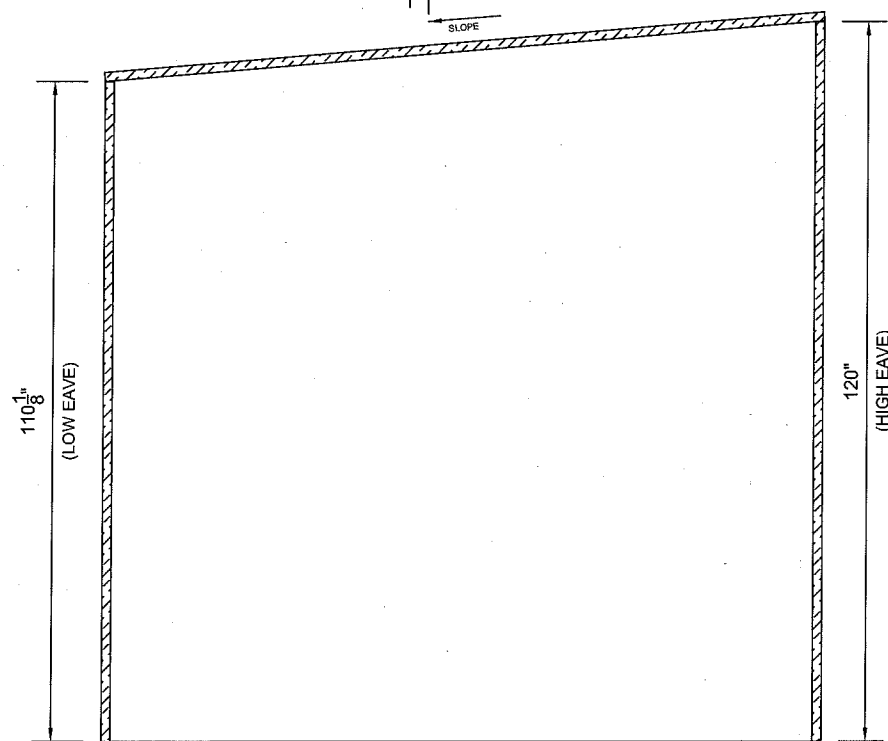
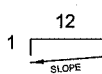
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 QUANTITY: 1
 PACKAGE SERIAL NO. (S): 12-052-01

JOB NO.: 12-052
 DRAWN BY: D. BRYAN
 DATE: 09/14/12

REV. NO.: 2
 SHEET NO.: 4 OF 4
 SCALE: 1/2"=1'-0"
 DRAWING NO.: 12-052 LAYOUT



PLAN



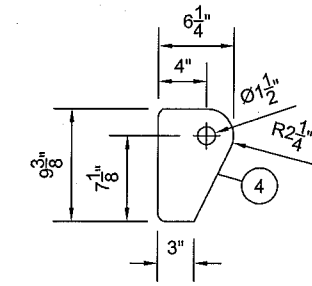
ELEVATION

| | |
|--|--|
| SLOPE | |
| <input checked="" type="checkbox"/> SHED (1/12) | <input type="checkbox"/> GABLE (4/12) <input type="checkbox"/> OTHER: . <input type="checkbox"/> NONE |
| TYPE | |
| <input type="checkbox"/> SELF-FRAMING | <input checked="" type="checkbox"/> THERMAL PANEL <input type="checkbox"/> ENCLOSURE <input type="checkbox"/> NONE |
| COLORS | |
| WALLS: TAN (QC-315) TRIM: METRO BROWN (QC-228) | ROOF: TAN (QC-315) LINER: WHITE |
| INSULATION | |
| WALLS | ROOF |
| <input checked="" type="checkbox"/> R12 <input type="checkbox"/> R20 <input type="checkbox"/> . | <input checked="" type="checkbox"/> R12 <input type="checkbox"/> R20 <input type="checkbox"/> . |
| VAPOUR BARRIER | |
| <input type="checkbox"/> 4 MILS <input type="checkbox"/> 6 MILS <input type="checkbox"/> OTHER: . <input checked="" type="checkbox"/> NONE | |
| DOORS | |
| 3' x 7' | 6' x 7' |
| <input checked="" type="checkbox"/> QUANTITY: 2 | <input checked="" type="checkbox"/> DOGGY DOOR <input type="checkbox"/> QUANTITY: . |
| <input checked="" type="checkbox"/> LOCKSET | <input type="checkbox"/> DOOR CLOSURE <input type="checkbox"/> LOCKSET <input type="checkbox"/> DOOR CLOSURE |
| <input checked="" type="checkbox"/> CHECK-CHAIN | <input type="checkbox"/> CANOPY <input type="checkbox"/> CHECK-CHAIN <input type="checkbox"/> CANOPY |
| <input checked="" type="checkbox"/> IWG WINDOW | <input type="checkbox"/> R10 INSULATION <input type="checkbox"/> WIRE GLASS WINDOW (BOTH DOORS) |
| <input checked="" type="checkbox"/> PANIC HARDWARE | <input type="checkbox"/> PANIC HARDWARE |
| <input checked="" type="checkbox"/> WEATHER-STRIPPING | <input type="checkbox"/> WEATHER-STRIPPING |
| WINDOWS | |
| 30" x 24" | 36" x 36" 36" x 48" |
| <input type="checkbox"/> QUANTITY: . | <input checked="" type="checkbox"/> QUANTITY: 2 <input type="checkbox"/> QUANTITY: . |
| TRANSLUCENT PANELS | |
| WALLS | ROOF |
| <input type="checkbox"/> QUANTITY: . | <input type="checkbox"/> QUANTITY: . |
| <input type="checkbox"/> GREEN <input type="checkbox"/> WHITE <input type="checkbox"/> CLEAR | <input type="checkbox"/> GREEN <input type="checkbox"/> WHITE <input type="checkbox"/> CLEAR |
| LOUVRES | |
| 8" x 8" | 12" x 12" 24" x 24" |
| <input type="checkbox"/> QUANTITY: . | <input checked="" type="checkbox"/> QUANTITY: 4 <input type="checkbox"/> QUANTITY: . |
| <input type="checkbox"/> SLIDE GATE | <input checked="" type="checkbox"/> SLIDE GATE <input type="checkbox"/> SLIDE GATE |
| <input type="checkbox"/> WEATHER HOOD | <input type="checkbox"/> WEATHER HOOD <input type="checkbox"/> WEATHER HOOD |
| BUILDING FAN | |
| <input checked="" type="checkbox"/> QUANTITY: 1 | SIZE: 12 ACPH, 120VAC, 1PH, 60Hz, 1/4 HP, XP |
| MISCELLANEOUS | |
| <input type="checkbox"/> EAVESTROUGHS | <input type="checkbox"/> DOWNSPOUTS <input type="checkbox"/> ICE RAKES |
| <input type="checkbox"/> RIDGE VENT | <input type="checkbox"/> P.ENG STAMPED DRAWINGS |
| <input type="checkbox"/> RIDGE VENTILATORS: QUANTITY: . | SIZE: . |
| <input type="checkbox"/> FRAMED OPENING: QUANTITY: . | SIZE: . |
| <input checked="" type="checkbox"/> OTHER: ONE (1) KNOWLEDGE BOX & ONE (1) DOOR CANOPY | |
| | |
| CUSTOMER: PennWest Exploration | TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG |
| DRAWING NAME: BUILDING | QUANTITY: 1 PACKAGE SERIAL NO. (S): 12-052-01 |
| JOB NO.: 12-052 | DRAWN BY: D. BRYAN DATE: 09/14/12 |
| REV. NO.: 1 | REV. DATE: 09/14/12 SCALE: 3/8"=1'-0" DRAWING NO.: 12-052-BUILDING |

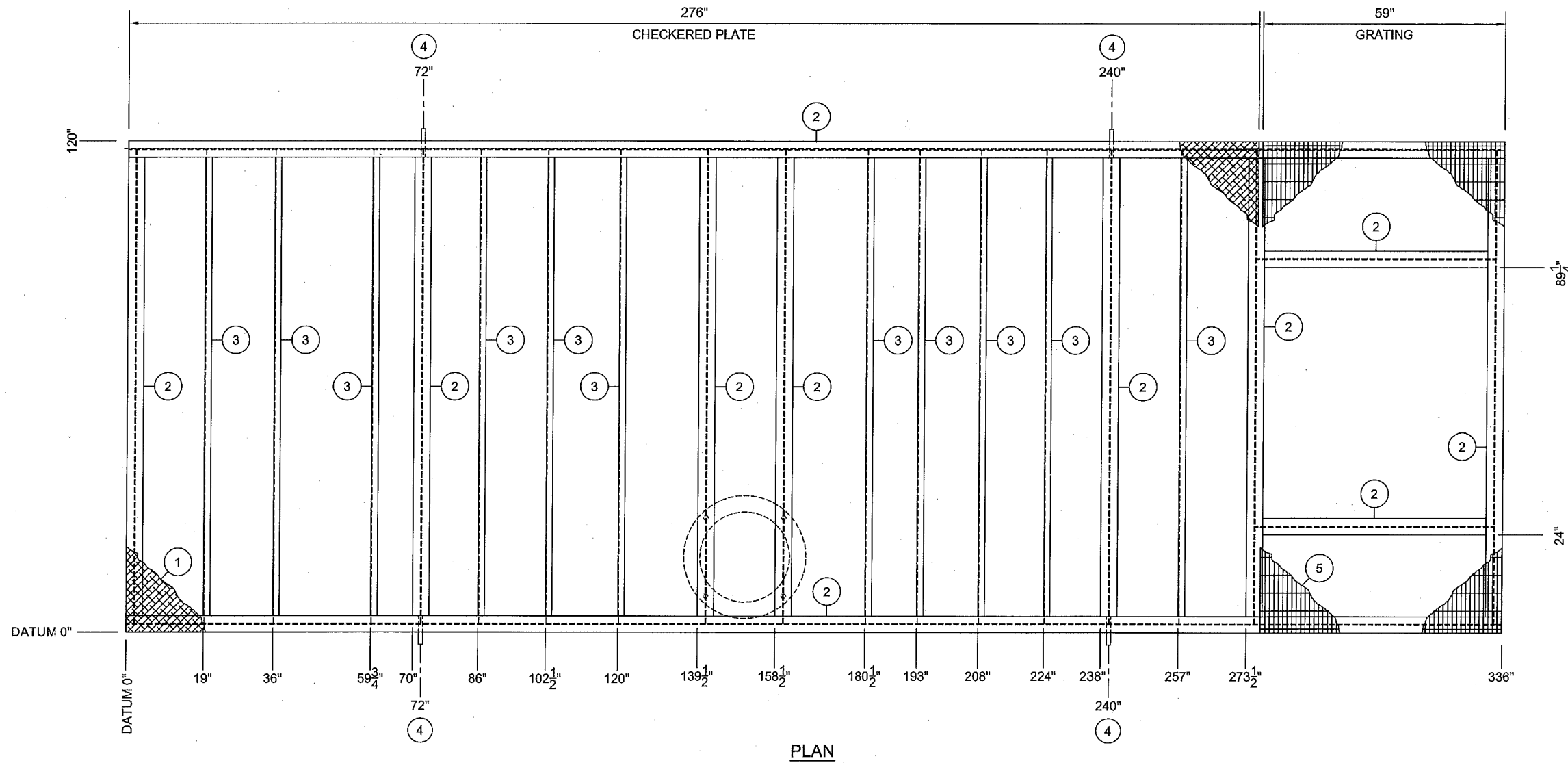
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|------|----------|-------------------------|----|-------|-------|
| 1 | 03/15/13 | AS BUILT | DB | | |
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | LW | PC |

BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. |
|------|--|----------|--------|------|
| 1 | CHECKER PLATE, 3/16" | A36/44W | | A/R |
| 2 | BEAM-WF, W10 X 15 LB/FT | A572-50 | | A/R |
| 3 | STANDARD CHANNEL, C4 X 5.4 LB/FT | A572-50 | | A/R |
| 4 | LIFT LUG - PLATE, 1" (SEE DETAIL) | A36/44W | | 4 |
| 5 | GRATING - WELDED BAR SERATED, 1" X 3/16" | A36/44W | | A/R |



LIFT LUG
N.T.S.



PLAN

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NUMBER IS AQP-1464
2. GENERAL DEVIATION TOLERANCE IS $\pm 1/8$ "
3. COPE STRUCTURAL STEEL AS REQUIRED
4. ALL WELDS ON THE SURFACE TO BE GROUND FLUSH FOR FLOOR PLATE
5. APPROXIMATE WEIGHT: 5300 lbs
6. SMAW, MCAW, OR FCAW PROCESSES ALLOWED, NO GMAW
7. MCAW PROCESSES ON ALL LIFT LUGS
8. SKID TO MEET CWB REQUIREMENTS

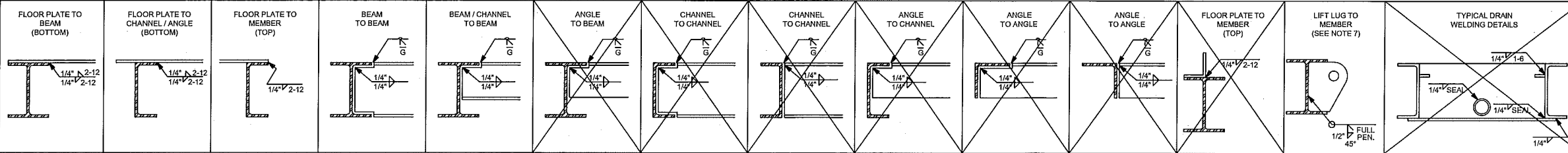
PAINTING

SURFACE PREPARATION: SSPC-SP3
 PRIMER: RUST-OLEUM QUICK DRY ENAMEL
 TOP COAT: RUST-OLEUM HIGH GLOSS ENAMEL
 TOP COAT THICKNESS: 1.5 TO 2.0 MILS DFT
 TOP COAT COLOR: LIGHT MACHINE GREY
 INSULATION: 2-1/2" URETHANE c/w FIRE RETARDANT CONFORMING TO ASTM E84

| REV. | DATE | DESCRIPTION | BY | CHK'D | APP'D |
|------|----------|-------------------------|----|-------|-------|
| 1 | 03/15/13 | AS BUILT | | | |
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | LW | PC |



CUSTOMER: PennWest Exploration
 TITLE / PROJECT: 3" INLET (10-WELLS) / 4" HEADER
 24"OD X 60" S/S X 720 PSI
 AB SOUR TEST SEPARATOR PKG



| | | |
|--------------------|--------------------|----------------------------------|
| DRAWING NAME: SKID | QUANTITY: 1 | PACKAGE SERIAL NO. (S): 12-052-1 |
| JOB NO.: 12-052 | DRAWN BY: D. BRYAN | DATE: 09/14/12 |
| REV. NO.: 1 | SHEET NO.: 1 OF 1 | SCALE: 3/8"=1'-0" |
| | | DRAWING NO.: 12-052-SKID |



277 Burnt park drive

Red Deer County AB T4S-2L4

Phone 1.866.660.KING Fax 347-1470

Email info@kingsenergy.com

Date : 22-Oct-12

Sales Order # : 017787

Serial # : 017787-251

Part#: 82E6351311

Customer : GLOBAL FLOW INC

7013 OLD TRANSCANADA HWY

REDCLIFF, ALBERTA

T0J 2P0

Customer PO # : PO0000008396

COPY

Safety Relief Valve Certification

Taylor Valve Technology, Inc. Safety Relief Valves are designed, manufactured and tested in accordance with the provisions of the ASME Boiler and Pressure Vessel Code, as allowed for within the provisions of ASME. The published relieving capacities have been certified by the National Board of Boiler and Pressure Vessel Inspectors.

Valve Specifications

| | | | | |
|----------------------|-----------------------------|----------------|---------|-----------------|
| Model Number : | Taylor Model 8200 Soft Seat | Orifice : | E | |
| Body Size : | 1 Inch | Diameter: | 0.620 | Inches |
| Part Number : | 82E6351311 | Area : | 0.212 | In ² |
| Body Configuration : | 1" MNPT X 1" FNPT | Temperature : | 70 | °F |
| Inlet Connection : | | Spring Range : | 451-850 | PSIG |
| Outlet Connection : | | Set Pressure : | 640.0 | PSIG |
| CRN: | 0G01316,2C | | | |

Materials

| | | | |
|----------------|------------------------------|-------------|------------------------------|
| Body : | WCC Carbon Steel | Spring : | 17.7 PH Stainless Steel |
| Seat Frame : | Carbon Steel | Guide : | 304 Stainless Steel |
| Seat Housing : | 17-4 PH H900 Stainless Steel | Adj Screw : | Carbon Steel with EN Plating |
| Trim : | Standard | Options : | None |
| Seat : | FKM 90d | | |

Set Pressure Specifications

ASME Units

| | | |
|-----------------------|-------|------|
| Set Pressure : | 640.0 | psig |
| ASME High Set Limit : | 659.2 | psig |
| ASME Low Set Limit : | 620.8 | psig |

ASME (90%) rated capacity at set pressure for indicated fluid, specific gravity and temperature.

Certifying Fluid : Air 2,329 SCFM Spec Gravity : 1.00 Temp : 60 °F

Tested by :

Department : Valve Technician

Signed Russ Spencer

Approved by :

Department : Shipping

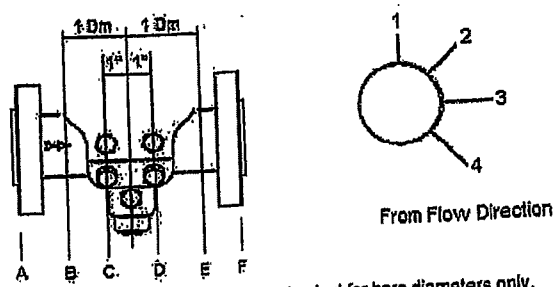
Signed Wendi House

Canalta

AGA Orifice Fitting Inspection Report

FITTING: Serial Number 50212766 Date 2/10/12
 Body Heat Number A0046 Top Housing Heat Number _____ Overall Length 713/16
 Line Size: 2" Schedule 40 ANSI Class 600 Flange Type RFW Material WCB

INSPECTED TO:
 AGA 3, 2nd ED. (86 Ed.)
 AGA 3, 3rd / 4th ED. (92 / 00 Ed.)



PLEASE NOTE:
 This drawing may not accurately represent the model ordered, it is intended as a reference of the spots checked for bore diameters only.
 Not all points may be applicable to all models and sizes.

ORIFICE FITTING INTERNAL DIAMETER:

| PLANE | UPSTREAM POINTS | | | DOWNSTREAM POINTS | | |
|-----------|-----------------|-------|-------|-------------------|-------|-------|
| | A | B | C | D | E | F |
| 1 | 2.069 | 2.069 | 2.069 | 2.069 | 2.069 | 2.069 |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| AVERAGE: | 2.069 | 2.069 | 2.069 | 2.069 | 2.069 | 2.069 |
| TEMP. | 65 | 65 | 65 | 65 | 65 | 65 |
| ROUGHNESS | 80 | 80 | 80 | 80 | 80 | 80 |

Maximum Upstream 1.0025 Dm = 2.074 Average of Column "C" 2.069 = Dm Maximum Downstream 1.005 Dm = 2.079
 Minimum Upstream 0.9975 Dm = 2.064 Minimum Downstream 0.995 Dm = 2.059

PRESSURE TAP TESTS:

| TAP SIZE ± 0.016" | TOP | | | | BOTTOM | | | |
|--|-----------|----------|-----------|----------|---------------------|----------|-----------|----------|
| | U/S RIGHT | U/S LEFT | D/S RIGHT | D/S LEFT | U/S RIGHT | U/S LEFT | D/S RIGHT | D/S LEFT |
| 0.375" <input checked="" type="checkbox"/> | Pass | Pass | Pass | Pass | | | | |
| 0.500" <input type="checkbox"/> | | | | | | | | |
| TAP LOCATION | -3 | -3 | -4 | -4 | | | | |
| PRESSURE TEST | Pass | Pass | Pass | Pass | | | | |
| INSPECTOR | w | | | | DATE <u>2/10/12</u> | | | |

ECCENTRICITY:

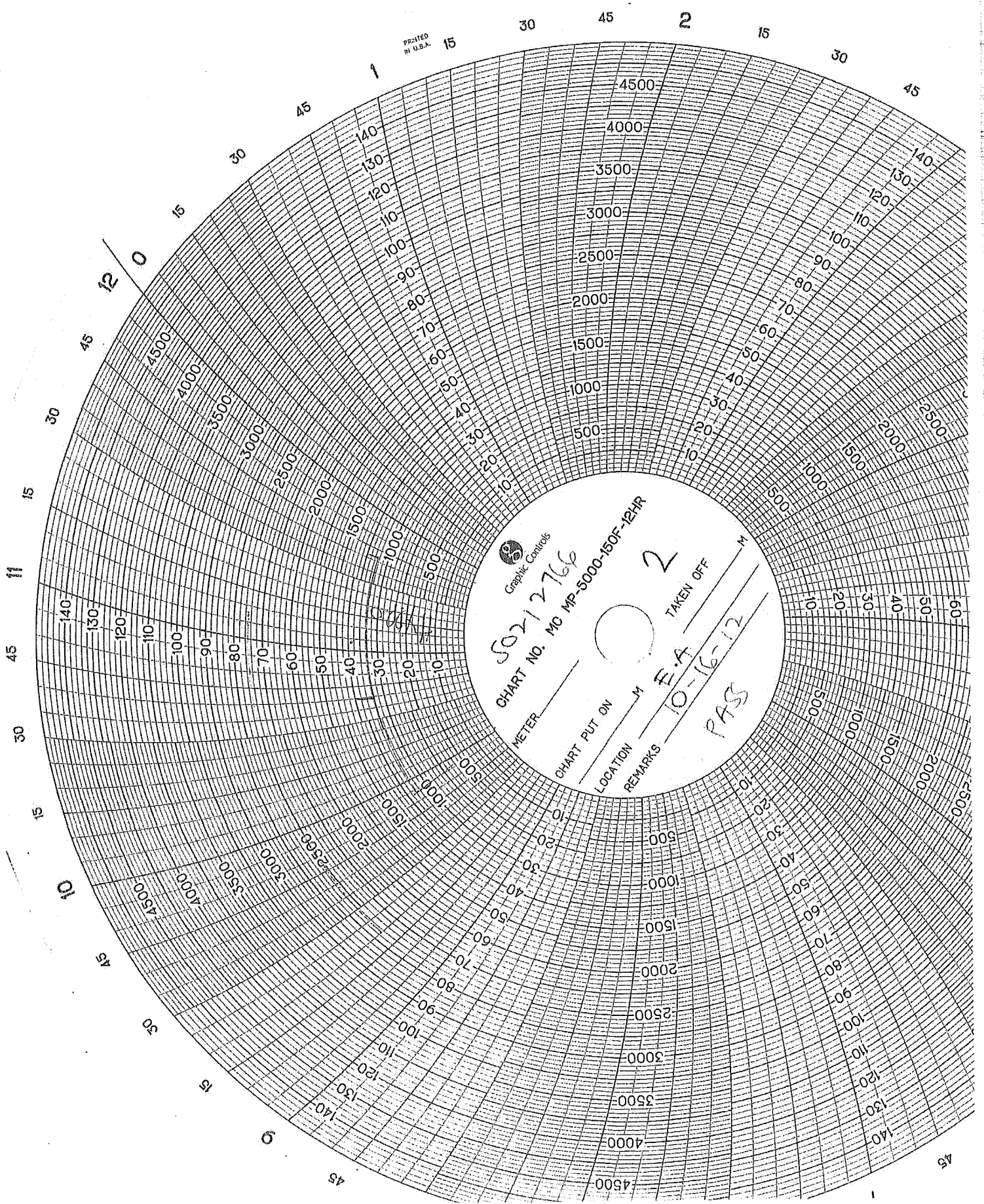
| | RIGHT | | LEFT | | TOP | | BOTTOM | |
|----------------------|------------|----------------------|-----------------|----------|--------------------|---------------|---------------------|--------------------|
| | HORIZONTAL | HORIZONTAL TOLERANCE | HORIZONTAL ECC. | VERTICAL | VERTICAL TOLERANCE | VERTICAL ECC. | DATE | INSPECTOR |
| HORIZONTAL | 0.000 | 0.006 | 0.002 | 0.012 | 0.023 | 0.009 | DATE <u>2/10/12</u> | INSPECTOR <u>w</u> |
| HORIZONTAL TOLERANCE | | | | | | | | |
| HORIZONTAL ECC. | | | | | | | | |

PLATE SEAL GAP:

TARGET SEAL GAP WIDTH 0.562" 0.688" 0.813" 0.875"

| SEAL GAP WIDTH (+0.007" / -0.003") | Top | Bottom | Right | Left |
|------------------------------------|---------------------|--------|-------|-------|
| | 0.562 | 0.562 | 0.562 | 0.562 |
| INSPECTOR | w | | | |
| | DATE <u>2/10/12</u> | | | |

PRINTED
IN U.S.A.





Flow Measurement
 6759 - 65th Avenue, Red Deer, Alberta T4P 1X5
 Ph: (403)342-4494 Fax: (403)346-7110
 Email: canalta@canaltacontrols.com

SINGLE CHAMBER ORIFICE FITTING DATASHEET

| | | | |
|---------------|-----------------|---------------------------------------|---|
| GENERAL | 1 | TAG NO. | - |
| | 2 | LINE NO. | - |
| | 3 | LINE SIZE/SCH. | 2" SCH40 ✓ |
| | 4 | DESIGN STANDARD | API 14.3/AGA 3 4th (2000) Ed, Part 2 ✓ |
| | 5 | QUANTITY | 3 ✓ |
| ORIFICE PLATE | 6 | MATERIAL | 316SS ✓ |
| | 7 | THICKNESS | IN 0.125 ✓ |
| | 8 | BETA (β) = d/D (Installed) | 0.48 ✓ |
| | 9 | BORE DIA "d" | IN 1.000 ✓ |
| | 10 | MAX ALLOWABLE BETA (β) = d/D | 0.75 ✓ |
| | 11 | MAX ALLOWABLE ORIFICE BORE DIA "d" IN | 1.500 ✓ |
| | 12 | VENT | DRAIN NO. No ✓ No ✓ |
| | 13 | SEAL RING MATERIAL | K-STYLE 316SS ✓ |
| | 14 | PLATE HOLDER MATERIAL | 316SS ✓ |
| | ORIFICE FITTING | 15 | BODY MATERIAL |
| 16 | | BODY SIZE & RATING | 2" 600RF ✓ |
| 17 | | SEAL GAP | 0.062" ✓ |
| 18 | | TRIM MATERIAL | 316SS ✓ |
| 19 | | BODY STYLE | Flange Weld ✓ |
| 20 | | TAP HOLE DIA | IN 0.375 ✓ |
| 21 | | INSIDE DIAMETER | IN 2.067 ✓ |
| 22 | | DESIGN STANDARD | B16.34-2009 ✓ |
| 23 | | TAP LOCATION | 1.000" From Plate Face ✓ |
| 24 | | TAP CONNECTION STYLE | 1/2" NPT ✓ |
| METER TUBE | 25 | NO. OF TAPS | 4 ✓ |
| | 26 | TUBE MATERIAL | A106B ✓ |
| | 27 | OUTER END CONNECTIONS | 2" 300RF ✓ |
| | 28 | FLANGE MATERIAL | A105N ✓ |
| | 29 | STUD BOLT MATERIAL | A193 B7M ✓ |
| | 30 | FLOW CONDITIONER TYPE/MATERIAL | Yes 50F/316SS ✓ |
| | 31 | CONDITIONER/VANE CONNECTION | 2" 300RF ✓ |
| | 32 | NUT MATERIAL | A194 2HM ✓ |
| | 33 | GASKET MATERIAL | 316SS Flexitallo Gasket ✓ |
| | 34 | DESIGN STANDARD | B31.3-2010 ✓ |

Customer: GlobalFlow

Customer PO#: 8269
 Ref#: 12-052 / 12-053 / 12-054
 Quote #: SQ7403
 SHT. 1 of 1
 WO #: 7061 #1
 Line ID: 1

Drawing: SCA-FC-F

| | | |
|------------|-----|---------|
| DIMENSIONS | OAL | 49 ✓ |
| | UL1 | 10.75 ✓ |
| | UL2 | 16.75 ✓ |
| | DL | 21.5 ✓ |
| | N1 | 9.5 ✓ |
| | N2 | 5.5 ✓ |
| | N3 | 0 ✓ |
| | N4 | 0 ✓ |
| | FC1 | |

Overall Length Tolerance +/- 1/4"
 Weld Bevel: 37.5° +/- 15°

Non-Destructive Testing

Radiography 100%
 ASME B31.3 Normal

MPI No

Liquid Penetrant No

Hardness Yes - 10%

Hydrotest (PSIG) 1 HOUR @ 1110

Corrosion Allowance 1/16"

PWHT YES

MAWP (PSIG) 740

@ -20 to 400F

CCL-1N (RT/LT-FCAW)
 CCL5 (Low Temp-SMAW)
 CCL6 (Reg Temp-SMAW)

Applicable Customer Specifications: Pennwest
 1 HOUR HYDRO TEST REQUIRED Hardness not to exceed 200BHN



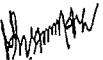
| | | | | | | |
|-------------|-------------|-------|-------|----|----|---------|
| CONNECTIONS | | N1 | N2 | N3 | N4 | NOTES : |
| | STYLE | T.O.L | T.O.L | | | |
| | SIZE | 3/4" | 1" | | | |
| | RATING | 3000# | 3000# | | | |
| | ORIENTATION | 0° | 0° | | | |
| MATERIAL | A105N | A105N | | | | |

| Rev | Description | By | Date |
|-----|-------------------------|----|----------------|
| 0 | Issued For Construction | ET | Sept. 19, 2012 |

CUSTOMER APPROVAL

Signature:

Printed Name: Lee Sprunger

| | | | | | | | | | | | | |
|---|---|---|---|---|--------------------------------------|------------------------------------|------------------|-----------|--------------------------|-----------|-----------|------------|
|  | FLOW LINK SYSTEMS (P) LTD AVANASHI ROAD, ARASUR, COIMBATORE- 641 407. INDIA. | TEST CERTIFICATE (EN 10204 - 3.1) | | | | TC NO : 1554 DATE : 23-Sep-2010 | | | | | | |
| | CUSTOMER CANALTA CONTROLS LTD. 6759 - 65 AVENUE, BAY #1, RED DEER, ALBERTA, T4P 1X5, CANADA. | SPECIFICATION REFERENCE 1. ASTM A216-08 Gr. WCB 2. NACE MR 0175 | | | MELT NO. A0046 / 28-Jul-10 | | | | | | | |
| PURCHASE ORDER NO. & DATE 15285 & 15677 | | | ORDER ACCEPTANCE NO. & DATE 10/417 & 10/558 | | | | | | | | | |
| CHEMICAL COMPOSITION % | | | | | | | | | | | | |
| SPECIFICATION | C | Si | S | P | Mn | Ni | Cr | Mo | V | Cu | AL | *RE |
| Minimum | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Maximum | 0.30 | 0.60 | 0.045 | 0.040 | 1.00 | 0.50 | 0.50 | 0.200 | 0.030 | 0.30 | -- | 1.00 |
| Achieved | 0.20 | 0.40 | 0.017 | 0.023 | 0.94 | 0.06 | 0.16 | 0.021 | 0.002 | 0.02 | -- | 0.27 |
| HEAT TREATMENT : Normalised - raised to 920° C and soaked for 3 Hrs and then air cooled | | | | | | | | | | | | |
| MECHANICAL PROPERTIES | | | | | | | | | | | | |
| SPECIFICATION | Y.S. (KSI) | UTS (KSI) | % ELONG. in 50mm (4d) / in-50mm (5d) | % RED IN AREA | NOTCH TOUGHNESS (at ° C) J | | BEND TEST | | HARDNESS (BHN) | | | |
| | | | | | Values | Avg. | ANGLE | D | | | | |
| Minimum | 36 | 70 | 22 | 35 | -- | -- | -- | -- | -- | | | |
| Maximum | -- | 95 | -- | -- | -- | -- | -- | -- | -- | | | |
| Achieved | 42 | 70 | 34 | 62 | -- | -- | -- | -- | 163 | | | |
| DETAIL OF CASTINGS | | | | | | | | | | | | |
| SNO. | DESCRIPTION | | | DRAWING NO / REV. | PART NO | QTY | | | | | | |
| 1 | 2" 600 SC BODY | | | 260SC04-TT-Rev.14 | -- | 11 | | | | | | |
| REMARKS : 1. The above stated KSI values have been calculated based on original tested N/MM ² values. 2. RE*=Ni + Cr +Mo+ V + Cu | | | | | | | | | | | | |
| CERTIFIED THAT 1. THE ABOVE GIVEN DETAILS ARE CORRECT. 2. THE MATERIAL CONFORMS TO ABOVE SPECIFICATION. 3. THE MATERIAL IS FREE OF CONTAMINATION FROM RADIO ACTIVE ELEMENT OR RADIATION THE PARTS WERE MANUFACTURED, TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND CERTIFIED IN ACCORDANCE WITH EN 10204 3.1 | | | |  P.MANIVANNAN SENIOR QUALITY MANAGER MANUFACTURER'S AUTHORIZED INSPECTOR | | | | | | | | |
| Prepared by : SM | | Checked by : QCE  | | | | | | | | | | |

MILL TEST CERTIFICATE

ACCORDING TO : EN-10204-3.1

MANUFACTURER: SHANDONG FLYING CASTING AND FORGING CO.LTD

DATE: NOV 18, 2010

PRODUCT: PIPE FITTINGS

INVOICE NO. R2010073

MATERIAL GRADE A105-09

STANDARD MSS SP -97

Technical Requirements

| ITEM | HEAT NO. | SIZE | DESCRIPTION | QTY (PCS) | INSPECTION RESULT | | | | | | | | | | | |
|---|----------|-------------------|---|-----------|--------------------|-------------------------|-------|-------|-------|-------|-------|------------------|----------------------|--------------------------------|-------------------------|--------------------------|
| | | | | | Visual inspection: | Dimensional inspection: | | | | | | | | | | |
| 1 | 00153 | 1" x 3/4" -3.1/2" | FORGED HIGH PRESSURE PIPE FITTINGS, NPT | 1000 | Acceptable | Acceptable | | | | | | | | | | |
| | 00174 | 3/4" x 3/4" -5" | 3000# A105 Threadollets, NPT | 989 | Acceptable | Acceptable | | | | | | | | | | |
| 2 | 01233 | 3/4" x 3/4" -5" | 3000# A105 Threadollets, NPT | 1011 | Acceptable | Acceptable | | | | | | | | | | |
| CHEMICAL COMPOSITION % | | | | | | | | | | | | | | | | |
| ITEM | HEAT NO. | C% | Si% | Mn% | P% | S% | Cr% | Ni% | Mo% | V% | Cu% | BRINELL HARDNESS | TENSILE STRENGTH MPA | YIELD STRENGTH 0.2% offset MPA | ELONGATION in 2 inch. % | REDUCTION OF AREA, MIN % |
| | MIN | 0.10 | 0.10 | 0.60 | | | | | | | | | 485 | 250 | 22 | 30 |
| | MAX | 0.35 | 0.350 | 1.05 | 0.035 | 0.040 | 0.300 | 0.400 | 0.120 | 0.08 | 0.4 | 187 | | | | |
| 1 | 00153 | 0.21 | 0.17 | 0.85 | 0.021 | 0.005 | 0.014 | 0.010 | 0.014 | 0.010 | 0.010 | 155 | 501 | 258 | 30 | 33 |
| | 00174 | 0.15 | 0.15 | 0.80 | 0.020 | 0.005 | 0.010 | 0.012 | 0.012 | 0.010 | 0.010 | 157 | 500 | 255 | 33 | 35 |
| 2 | 01233 | 0.19 | 0.27 | 0.91 | 0.013 | 0.008 | 0.010 | 0.020 | 0.010 | 0.010 | 0.012 | 152 | 535 | 355 | 33 | 35 |
| MECHANICAL PROPERTIES | | | | | | | | | | | | | | | | |
| APPROVED Chief of Inspection Section: LIL | | | | | | | | | | | | | | | | |

MILL TEST CERTIFICATE

ACCORDING TO : EN-10204-3.1

MANUFACTURER: SHANDONG FLYING CASTING AND FORGING CO.LTD

DATE: JUN 10, 2011

PRODUCT: PIPE FITTINGS

| INVOICE NO. | | MATERIAL GRADE | | STANDARD | | Technical Requirements | | | | | | | | | | |
|------------------------|----------|---|-----------|-------------------------|-------------------------|------------------------|----------------|-------------|------------------------|-------|-------|------------------|------------------|----------------|-------------|------------------------|
| R2011027 | | A105/N-09 | | ANSI/ASME B16.11 - 2005 | | | | | | | | | | | | |
| ITEM | HEAT NO. | DESCRIPTION | QTY (PCS) | INSPECTION RESULT | | MECHANICAL PROPERTIES | | | | | | | | | | |
| | | | | Visual inspection: | Dimensional inspection: | TENSILE STRENGTH | YIELD STRENGTH | ELONGATI ON | REDUCTION OF AREA, MIN | | | | | | | |
| 1 | 01236 | FORGED FITTINGS, ANSI B16.11, A105, THREADOLET, NPT, 3M | 2500 | Acceptable | Acceptable | 485 MPA | 250 MPA | 22 % | 30 % | | | | | | | |
| 2 | 00765 | 1" | 2500 | Acceptable | Acceptable | 515 MPA | 345 MPA | 33 % | 35 % | | | | | | | |
| CHEMICAL COMPOSITION % | | | | | | | | | | | | | | | | |
| ITEM | HEAT NO. | C% | Si% | Mn% | P% | S% | Cr% | Ni% | Mo% | V% | Ca% | BRINELL HARDNESS | TENSILE STRENGTH | YIELD STRENGTH | ELONGATI ON | REDUCTION OF AREA, MIN |
| | MIN | 0.10 | 0.10 | 0.60 | | | | | | | | 187 | 485 | 250 | 22 | 30 |
| | MAX | 0.35 | 0.350 | 1.05 | 0.035 | 0.040 | 0.300 | 0.400 | 0.120 | 0.08 | 0.4 | 175 | 530 | 355 | 33 | 35 |
| 1 | 01236 | 0.20 | 0.28 | 0.90 | 0.013 | 0.008 | 0.010 | 0.020 | 0.020 | 0.010 | 0.020 | 175 | 530 | 355 | 33 | 35 |
| 2 | 00765 | 0.19 | 0.27 | 0.94 | 0.017 | 0.009 | 0.011 | 0.020 | 0.025 | 0.020 | 0.021 | 177 | 515 | 345 | 33 | 35 |

APPROVED Chief of Inspection Section: LIL



苏州无缝钢管厂产品质量证明书

SZWF-R-192

SUZHOU SEAMLESS STEEL TUBE WORKS TEST CERTIFICATE

| |
|------------------------------------|
| L/C: CSLC4775/080006 |
| ISO9001/7516949/PED: QAC0051022 |
| API 5L-08566, SCT-0810 质证号: 810-01 |
| 进出口代码: 3200138171216 |

订货单位: 张家港华友钢管有限公司 合同号: 08-05-19 产品名称: 冷拔无缝钢管 产品标准: ASTM A106Gr-B-1999 交货日期: 2008.10.03 页码: 1/1
 CUSTOMER: CONTACT NO: PRODUCT: Cold Drawn Seamless Tubes SPECIFICATION: DATE OF DELIVERY: PAGE:

| 序号 NO. | 钢号 Steel Grade | 规格 Size(mm) | 炉号 Heat No. | 批号 Lot No. | 支数 Pieces | 重量 (kg) Weight | 化学成分 | | | | | | | | | | 捆箱 Bundles | | | | | | |
|-----------|-------------------|----------------------|----------------|---------------|--------------|-------------------|------|------|-------|-------|------|------|------|------|-------|---|---------------|---|---|----|----|---|--|
| | | | | | | | C | Mn | S | P | Si | Cr | Ni | Cu | Mo | W | | V | B | Ti | Al | | |
| 1 | Gr-B | 60.3x3.91x11.6/11.5m | 808A-39 | 398 | 213 | 13296 | 0.20 | 0.46 | 0.010 | 0.016 | 0.24 | 0.05 | 0.02 | 0.02 | 0.010 | | 0.013 | | | | | 5 | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | |

| 力学性能 | | | | | 工艺性能 | | | | | 显微组织 | | 非金属夹杂物 | | | | 脱碳层 | |
|-----------|-------------------------------|---------------------------------|-----------------------------|-------------------------|---------------------------------|------------------|---------------|---------------|----------|----------|-------------------|------------------------|--|--|--|-----------------|--|
| 序号 NO. | 屈服强度 Yield Strength MPa | 抗拉强度 Tensile Strength MPa | 伸长率 % Elongation 50mm | 硬度 Hardness (HRB) | 冲击功(J) Charpy Impact Test | 压扁 Flattening | 弯曲 Bending | 扩口 Flaring | 珠光体 P | 铁素体 F | 晶粒度 Grain Size | Non-Metallic Inclusion | | | | Decarburization | |
| 1 | 300 | 460 | 35.0 | | | | 合格 | | | | | | | | | 内 In 外 Out | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |

| 序号 NO. | 低倍组织 Macro-Structure | 晶粒度 Grain Size | 尺寸 Dimension | 表面 Surface | 无损检测 | | 热处理 Heat Treatment | 液压试验 Hydrostatic Test | 备注 Remarks: |
|-----------|-------------------------|-------------------|-----------------|---------------|--------|---------|-----------------------|--------------------------|---|
| | | | | | 涡流 E.T | 超声波 U.T | | | |
| 1 | 合格 | | 合格 | 合格 | | | 860°C | | 注: Remarks: 合计: 213 支 13,296 吨 5 件 |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |

1. 地址: 江苏省苏州市木渎镇中山东路 201 号 ADD: NO.201 Zhongshan East Road, Mudi Town, Suzhou City, Jiangsu Province, People's Republic of China
 2. 有异议时, 来函请标明钢号、炉号、规格、发货日期、原因, 并将实物保管好. When there is any complain, you are kindly requested to mark the Steel Grade, Heat No., Size, Delivery Date, Causes and reserve the materials in the condition
 质量反馈 TEL: 0512-66368856-8017 判定: 孙秀凤 审核: [Signature]
 质量检验印章: [Stamp] JUDGED BY [Signature] APPROVED BY [Signature]
 FAX: 0512-66261861 DATE OF ISSUE: 2008-10-03

ENV NO.:2008004

P/No.:SPEC-RF08004R4

STANDARD:ANSI/ASME B16.5 - 2003

MATERIAL:ASTM A350LFB

| DESCRIPTION | SIZE INCH | QTY | HEAT NO. | CHEMICAL COMPOSITION | | | | | | PHYSICAL TEST | | | | | | |
|---|--------------|-----|-------------|----------------------|--------------|--------------|-------------|-----------------|-------------------------|------------------------------|-----------------------|----------|-----------------------------|--------|--|--|
| | | | | C% ≤0.20 | Man% ≤0.9 | P% ≤0.035 | S% ≤0.04 | SI% 0.2-0.35 | YIELD POINT (MPA) | TENSILE STRENGTH (MPA) | ELONG ATION (%) | Hardness | Reduction of Area (%) | Result | | |
| ASTM A350 WELD NECK FLANGES ANSI B16.5 SPECIFICATION BLACK PAINTED FINISH | | | | | | | | | | | | | | | | |
| 300 R.F. Schedule 80, (I.D. -0.957") | 1" | 10 | 08A03001 | 0.15 | 0.75 | 0.021 | 0.017 | 0.22 | 285 | 498 | 35 | 170 | 35 | OK | | |
| 300 R.F. Schedule 80, (I.D. -1.500") | 1 1/2" | 10 | 08A03011 | 0.15 | 0.71 | 0.020 | 0.016 | 0.22 | 311 | 490 | 32 | 165 | 42 | OK | | |
| 900 R.T.J. Schedule 80, (I.D. -1.500") | 1 1/2" | 20 | 08A03311 | 0.18 | 0.65 | 0.027 | 0.015 | 0.22 | 315 | 495 | 37 | 165 | 40 | OK | | |
| 300 R.F. Schedule 40, (I.D. -2.067") | 2" | 50 | 08A03002 | 0.15 | 0.67 | 0.023 | 0.016 | 0.27 | 275 | 500 | 27 | 175 | 47 | OK | | |
| 600 R.F. Schedule 160, (I.D. -1.687") | 2" | 10 | 08A03102 | 0.18 | 0.66 | 0.020 | 0.011 | 0.21 | 315 | 495 | 30 | 172 | 37 | OK | | |
| 900 R.F. Schedule 160, (I.D. -1.687") | 2" | 10 | 08A03202 | 0.15 | 0.69 | 0.018 | 0.017 | 0.20 | 310 | 498 | 30 | 170 | 35 | OK | | |
| 600 R.F. Schedule 40, (I.D. -3.068") | 3" | 20 | 08A03103 | 0.12 | 0.65 | 0.022 | 0.021 | 0.25 | 315 | 510 | 31 | 175 | 35 | OK | | |
| 900 R.F. Schedule 80, (I.D. -2.900") | 3" | 10 | 08A03203 | 0.13 | 0.66 | 0.020 | 0.020 | 0.22 | 310 | 525 | 35 | 165 | 36 | OK | | |
| 150 R.F. Schedule 40, (I.D. -4.026") | 4" | 10 | 08A02904 | 0.13 | 0.70 | 0.020 | 0.011 | 0.25 | 287 | 490 | 33 | 168 | 35 | OK | | |
| 300 R.F. Schedule 80, (I.D. -3.826") | 4" | 10 | 08A03004 | 0.12 | 0.66 | 0.020 | 0.011 | 0.22 | 315 | 495 | 34 | 170 | 45 | OK | | |
| 600 R.F. Schedule 40, (I.D. -4.026") | 4" | 10 | 08A03104 | 0.18 | 0.67 | 0.027 | 0.015 | 0.23 | 275 | 495 | 32 | 170 | 40 | OK | | |
| 900 R.F. Schedule 80, (I.D. -3.826") | 4" | 10 | 08A03204 | 0.15 | 0.65 | 0.023 | 0.020 | 0.22 | 315 | 489 | 33 | 168 | 41 | OK | | |
| 300 R.F. Schedule 80, (I.D. -5.761") | 6" | 10 | 08A03006 | 0.15 | 0.68 | 0.022 | 0.017 | 0.20 | 310 | 497 | 31 | 165 | 42 | OK | | |
| 600 R.F. Schedule 80, (I.D. -5.761") | 6" | 50 | 08A03106 | 0.15 | 0.63 | 0.025 | 0.025 | 0.25 | 270 | 490 | 29 | 171 | 35 | OK | | |
| 900 R.F. Schedule 80, (I.D. -5.761") | 6" | 10 | 08A03206 | 0.18 | 0.68 | 0.022 | 0.015 | 0.20 | 271 | 499 | 27 | 173 | 36 | OK | | |
| 900 R.T.J. Schedule 80, (I.D. -5.761") | 6" | 50 | 08A03306 | 0.16 | 0.65 | 0.026 | 0.011 | 0.25 | 266 | 510 | 32 | 163 | 35 | OK | | |
| 600 R.F. Schedule 80, (I.D. -9.562") | 10" | 10 | 08A03110 | 0.12 | 0.63 | 0.021 | 0.020 | 0.22 | 315 | 511 | 35 | 170 | 37 | OK | | |
| 150 R.F. Schedule 40, (I.D. -11.938") | 12" | 10 | 08A02912 | 0.18 | 0.68 | 0.022 | 0.015 | 0.20 | 275 | 495 | 30 | 172 | 41 | OK | | |

HEAT TREATMENT PROCESS

NORMALIZED AT 920°C FOR 0.5 HOURS, COOLED IN STILL AIR

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN INSPECTED/TESTED SATISFACTORILY IN ACCORDANCE WITH THE STANDARDS SPECIFIED ABOVE AND PURCHASE ORDER REQUIREMENTS
INSPECTOR:AI XI CHEN DATE:MAR 12,2008

MILL TEST CERTIFICATE

ACCORDING TO : EN-10204-3.1

MANUFACTURER: SHANDONG FLYING CASTING AND FORGING CO.LTD
 DATE: APR 15, 2010

PRODUCT: FLANGES

| INVOICE NO. | | MATERIAL GRADE | | STANDARD | | Technical Requirements | | | | | | | | | | |
|------------------------|----------|---|-----------|------------------------|-------------------------|------------------------------|------------------|----------------|------------|-------------------|------|------------------|------------------|----------------|------------|-------------------|
| R2010024 | | A105-09 | | ANSI/ASME B16.5 - 2003 | | PED 97/23/EC Annex I Sec.4.3 | | | | | | | | | | |
| ITEM | HEAT NO. | DESCRIPTION | QTY (PCS) | INSPECTION RESULT | | MECHANICAL PROPERTIES | | | | | | | | | | |
| | | | | Visual inspection: | Dimensional inspection: | BRINELL HARDNESS | TENSILE STRENGTH | YIELD STRENGTH | ELONGATION | REDUCTION OF AREA | | | | | | |
| 1 | 146 | Forged steel Flanges ANSI B16.5 | 7 | Acceptable | Acceptable | 187 | 485 | 284 | 22 | 30 | | | | | | |
| 2 | 146 | 18" Flanges 600 ANSI RF WN SCH 80 A105N | 2 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 3 | 146 | 18" Flanges 150 ANSI RF BLIND A105 | 2 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 4 | 146 | 18" Flanges 300 ANSI RF BLIND A105N | 2 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 5 | 146 | 18" Flanges 600 ANSI RJ BLIND A105N | 2 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 6 | 146 | 12" Flange 600 Ansi RJ WN SCH XS A105N | 12 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 7 | 146 | 2" 300 ANSI RF WN SCH 80 A 105N | 50 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 8 | 146 | 2" 600 ANSI RF WN SCH 40 A 105N | 100 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 9 | 146 | 3" 600 ANSI RF WN SCH 80 A 105N | 100 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 10 | 146 | 4" 600 ANSI RF WN SCH 80 A 105N | 30 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| 10 | 146 | 6" 600 ANSI RF WN SCH 80 A 105N | 25 | Acceptable | Acceptable | 142 | 507 | 284 | 51 | 50 | | | | | | |
| CHEMICAL COMPOSITION % | | | | | | | | | | | | | | | | |
| ITEM | HEAT NO. | C% | Si% | Mn% | P% | S% | Cr% | Ni% | Mo% | V% | Cu% | BRINELL HARDNESS | TENSILE STRENGTH | YIELD STRENGTH | ELONGATION | REDUCTION OF AREA |
| | MIN | 0.10 | 0.60 | 0.035 | 0.040 | 0.300 | 0.400 | 0.120 | 0.08 | 0.4 | 187 | 485 | 250 | 22 | 30 | |
| | MAX | 0.35 | 0.350 | 1.05 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 1 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 2 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 3 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 4 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 5 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 6 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 7 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 8 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 9 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |
| 10 | 146 | 0.19 | 0.23 | 0.82 | 0.014 | 0.004 | 0.01 | 0.011 | 0.01 | 0.001 | 0.01 | 142 | 507 | 284 | 51 | 50 |

NORMALIZED AT 920°C FOR 0.5 HOURS, COOLED IN STILL AIR
 APPROVED Chief of Inspection Section: LIU CAI JIE



R & R Stress Relieving Service Ltd.

Nisku: 2103 - 6th Street, T9E 7X8 Tel: (780) 955-7559 Fax: (780) 955-2903
Blackfalds: #13 Burbank Industrial Park Tel: (403) 885-2280 Fax: (403) 885-0177
Toll Free: 1-800-499-HEAT(4328)

CERTIFICATE OF CONFORMANCE OF RECORDING INSTRUMENTS

CERTIFIED BY: R & R Stress Relieving Service Ltd.
TEST NUMBER: RR1012
DATE: October 9, 2012
DATE DUE: January 9, 2013
INSTRUMENT MFG: Chino
MODEL NUMBER: AH-3725 N00
SERIAL NUMBER: AH-02XA233
RECORDER NUMBER: IR-164

This instrument has been calibrated and it is within the manufacturers specifications.

REFERENCE STANDARDS

DIGI MITE 311600 S/N48430-5522

CERT DATE Nov 25/11

The calibration of all standards and measuring instruments used in the calibration are traceable to the National Research Council of Canada in Ottawa or to the National Bureau of Standards in Washington, D.C.

ENTERED OCT 15 2012


Shane Stimson

OIL AND GAS ☆ PETROCHEMICAL ☆ POWER ☆ PULP AND PAPER
INNOVATION ☆ QUALITY ☆ EXPERIENCE

Heat Treatment Instructions

| | | | |
|--------------|---|-------------|-----------------------|
| JOB NO.: | P.O. 7634 | CUSTOMER : | Canalta Controls Ltd. |
| DESCRIPTION: | Canalta Meter Tubes. *Note: Please add Protech to all Threads. | | |
| DATE: | OCTOBER / 12 / 2012 | Contractor: | R+R Stress Relieving |

COMPONENT DESCRIPTION:

| DWG. NO. AND LINE NO. | DIAMETER | THICKNESS | MATERIAL | LENGTH | WEIGHT |
|--|----------|-----------|----------|--------|----------|
| PEMBINA GAS. SO#6983#3. 630RFDC40SAL00FF. D061325, D061355. (2 Pieces) | 12.5 | 14.2 | LCC | 15.5" | 730.Lbs |
| TWIST OILFIELD. SO#7036#1. 260RFDC80SAW00WF. D025131, D025147, D025148, D025151, D025152, D025154, D025155, D025157, D025175, D025176. (20 Pieces) | 2.375 | 0.218 | A106 | 48" | 1550.Lbs |
| GLOBAL FLOW. SO#7061#1. 230RFSC40SSW00WF. S0212766, S0212765, S0212782. (9 Pieces) | 2.375 | 0.154 | A106 | 49" | 474.Lbs |
| T.A.K. OILFIELD. SO#7007#2. 260RFDC80SSAW00WF. D024950, D024947. (4 Pieces) | 2.375 | 0.218 | A106 | 48" | 316.Lbs |
| STETTLER OIL & GAS. SO#6549#1. 360RFDC80SSAW00WF. D036039, D036173, D036035, D036184, D036167, D036181. (12 Pieces) | 3.5 | 0.3 | A106 | 62.5 | 1170.Lbs |
| GLOBAL FLOW. SO#7200#1. 230RFSC40SSW00WF. S0212792. (3 Pieces) | 2.375 | 0.154 | A106 | 49" | 158.Lbs |

Temperature to be raised from (800°F)(427°C) to (1150°F)(621°C) at a maximum rate of (222°C)(400°F) Per Hour.

NOTE: MUST NOT EXCEED 400 °F (222 °C) Per Hour.

Calculated rate = 400 degrees F/hr. (222 °C / hr.) Divided by governing metal thickness.

Temperature to be held at (1150°F)(621°C) Plus or minus 25°F (14°C) For (60) minutes.

Temperature to be lowered from (1150°F)(621°C) to 800°F (427°C) at a maximum rate of (278°C)(500°F) Per Hour.

NOTE : MUST NOT EXCEED (500°F)(278 °C) Per Hour.

Calculated rate = 500 °F / hr. (278 °C / hr.) Divided by governing metal thickness.

Additional requirements:

* Job number and description required on heat treatment charts along with the operator's signature & date.

* Reporting of thermocouple attachment method and location, and verification of furnace thermocouple calibration is required.

* A sufficient number of thermocouples shall be located to control and maintain uniform distribution of temperature on all vessels and parts. Thermocouples shall be directly attached to the item or provision shall be made for thermocouple placement at bottom, centre and top of the furnace charge in accordance with the ASME Code.

* If Capacitor discharge welding is used to attach thermocouples an ASME Section IX welding procedure is required (WPS qualification is not required), and the energy output must be limited to 125 Watt-Seconds.

No other welding is permitted on vessels or parts. [0.5 X Capacitance in farads X Voltage² = W-Sec.]

Thermocouple Attachment Method : CAPACITOR DISCHARGE

Furnace Heat Number : BFA-12-737

Location(s) : Furnace diagonals

Furnace Operator Signature : *axr*

Date : Oct 13/12

Q.C. Inspector Signature : *Tyler*

Date : Oct 15/12

ENTERED OCT 15 2012

IRE 164 OF TC's 2

R & R Stress Relieving

Client: Canalta

Date: 10/12/12 Job #: _____

PO: 7634

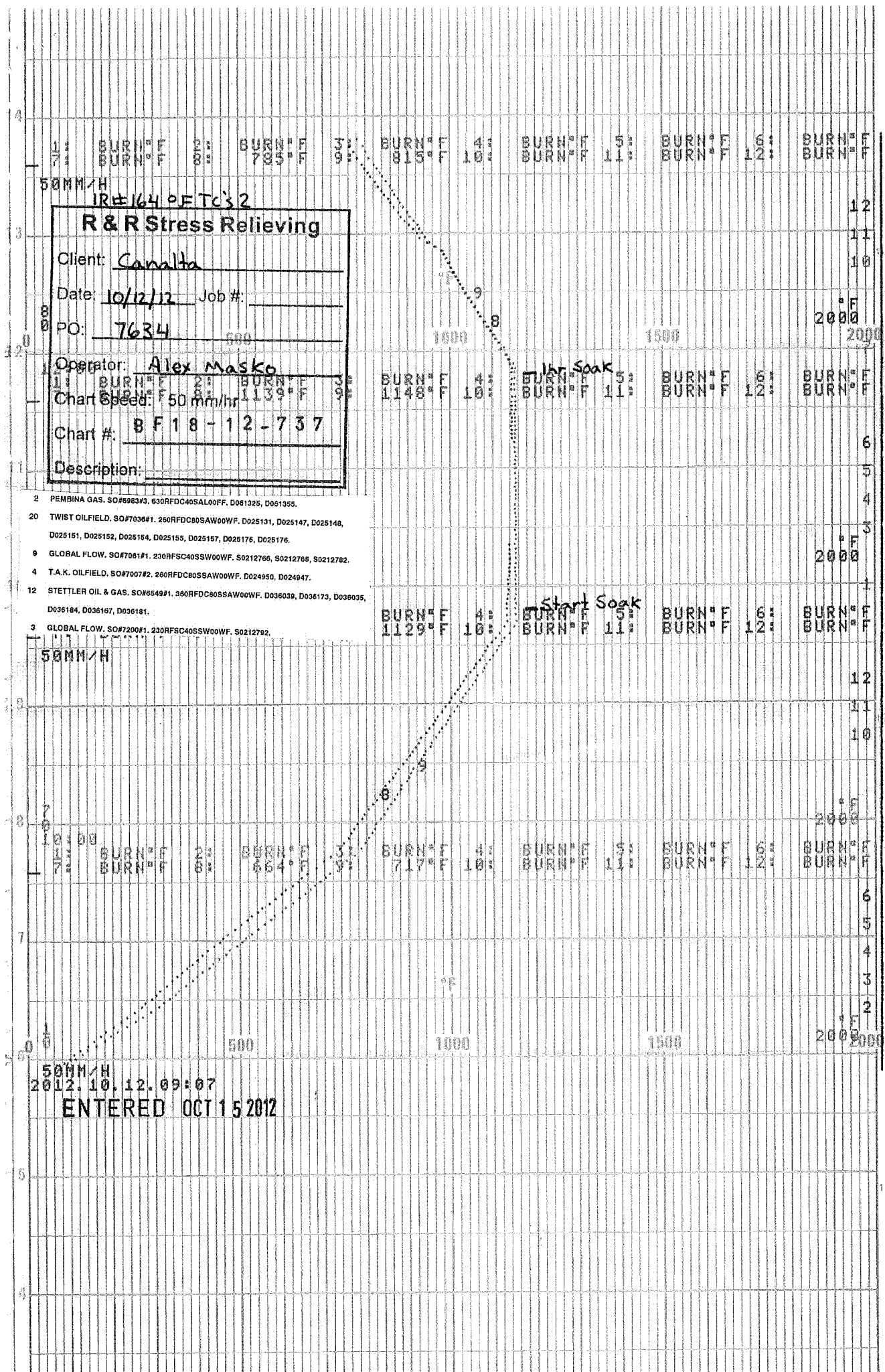
Operator: Alex Masko

Chart Speed: 50 mm/hr

Chart #: B F 18 - 12 - 7 3 7

Description: _____

- 2 PEMBINA GAS. SO#698303. 630RFDC40SAL00FF. D061325, D061355.
- 20 TWIST OILFIELD. SO#7036#1. 260RFDC80SAW00WF. D025131, D025147, D025148, D025151, D025152, D025154, D025155, D025157, D025175, D025176.
- 9 GLOBAL FLOW. SO#7061#1. 230RFSC40SSW00WF. S0212766, S0212765, S0212782.
- 4 T.A.K. OILFIELD. SO#7007#2. 260RFDC80SSAW00WF. D024950, D024947.
- 12 STETTLER OIL & GAS. SO#6549#1. 360RFDC80SSAW00WF. D036038, D036173, D036035, D036184, D036167, D036181.
- 3 GLOBAL FLOW. SO#7200#1. 230RFSC40SSW00WF. S0212792.



30 cm

30 cm

171 cm

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Global Flow Inc., 7013 Old TransCanada Highway, Redcliff, Alberta Canada T0J 2P0
(Name and address of Manufacturer)

2. Manufactured for PennWest Exploration 200, 207 - 9th Avenue SW, Calgary, Alberta Canada T2P 1K3
(Name and address of Purchaser)

3. Location of installation 07-31-001-25W1

4. Type Vertical Separator 12-052-1 V2315.2134 10-066-REG Rev. 2 N/A 2012
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing number) (National Board number) (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 2010
Year

to 2011a N/A N/A
(Addenda, if applicable (date)) (Code Case numbers) (Special service per UG-120(d))

6. Shell SA516-70N 0.625" 0.125" 24" od 60" s/s
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))

7. Seams Type 1 Full 100 1150°F 1.5 Type 1 Full 100 1
[Long. (welded, dbl., snagl., lap, butt)] [R.T. (spot or full)] (Eff., %) (H.T. temp.) (Time, hr) [Girth (welded, dbl., snagl., lap, butt)] [R.T. (spot or full)] (Eff., %) (No. of courses)

8. Heads: (a) Material SA516-70N (b) Material SA516-70N
(Spec. no., grade) (Spec. no., grade)

(A) 623885

| | Location (Top, Bottom, Ends) | Minimum Thickness | Corrosion Allowance | Crown Radius | Knuckle Radius | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side to Pressure (Convex or Concave) |
|-----|------------------------------|-------------------|---------------------|--------------|----------------|------------------|--------------------|----------------------|---------------|--------------------------------------|
| (a) | Top | 0.5625" | 0.125" | -- | -- | 2:1 | -- | -- | -- | Concave |
| (b) | Bottom | 0.5625" | 0.125" | -- | -- | 2:1 | -- | -- | -- | Concave |

If removable, bolts used (describe other fastenings) N/A
(Material spec. number, grade, size, number)

9. MAWP 720psi at max. temp. 130°F
(Internal) (External) (Internal) (External)

Min. design metal temp. -20°F at 720psi. Hydro., pneu., or comb. test pressure 1080psi

Proof test N/A

10. Nozzles, inspection, and safety valve openings:

| Purpose (Inlet, Outlet, Drain etc.) | No. | Diameter or Size | Type | Material | | Nozzle Thickness | | Reinforcement Material | Attachment Details | | Location (Insp. Open.) |
|-------------------------------------|-----|------------------|------|----------|--------|------------------|-------|------------------------|--------------------|--------|------------------------|
| | | | | Nozzle | Flange | Nom. | Corr. | | Nozzle | Flange | |
| See Attached U-4 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

11. Supports: Skirt Yes Lugs N/A Legs N/A Other N/A Attached Bottom Head/Welded
(Yes or no) (Number) (Number) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:

Impact Testing Exempt per UG20F(1-5), Volume: 15.90 cu ft/0.45 cu m, Const. Drwg: 12-052 VESSEL Rev.0

CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number 38,402 expires March 2, 2015.

Date Oct 30/12 Co. name Global Flow Inc. Signed [Signature]
(Manufacturer) (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by Global Flow Inc. at Redcliff, Alberta Canada

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Alberta and employed by ABSA

have inspected the component described in this Manufacturer's Data Report on Oct 30, 2012, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date Oct 30/12 Signed [Signature] Commissions NB10304 A,B AB-12
(Authorized Inspector) (National Board (Incl. endorsements), State, Province, and number)

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Global Flow Inc., 7013 Old TransCanada Highway, PO Box 1120, Redcliff, Alberta Canada T0J 2P0
 (Name and address of Manufacturer)
2. Manufactured for PennWest Exploration, 200, 207 - 9th Avenue SW, Calgary, Alberta Canada T2P 1K3 (A) 623885
3. Location of installation 07-31-001-25W1
 (Name and address)
4. Type: AB Sour Vertical Separator 12-052-1
 (Horiz., vert., or sphere) (Tank, separator, heat exh., etc.) (Mfg's. serial No.)
- V2315.2134 10-066-REG Rev.2 N/A 2012
 (CRN) (Drawing No.) (Nat'l Bd. No.) (Year Built)

Data Report
 Item Number 10
 Continued from Form U-1A

Remarks

| Purpose (Inlet, Outlet, Drain, etc.) | No. | Dia./ Size | Type | Material | | Nozzle Thickness | | Reinforce ment Material | Attachment Details | | Location (Insp. Open.) |
|--------------------------------------|-----|------------|------------|-------------------|--------|------------------|--------|-------------------------|--------------------|--------|------------------------|
| | | | | Nozzle | Flange | Nom. | Corr. | | Nozzle | Flange | |
| Inlet, Gas Outlet | 2 | 3" | CL300 RFWN | SA106B | SA105N | 0.438" | 0.125" | -- | UW16.1(c) | Type 1 | Shell, Top Head |
| Drain | 1 | 2" | Pipe | SA106B, SA234-WPB | -- | 0.344" | 0.125" | -- | UW16.1(c) | -- | Bottom Head |
| Liquid Outlet | 1 | 2" | CL300 RFWN | SA106B | SA105N | 0.344" | 0.125" | -- | UW16.1(c) | Type 1 | Shell |
| HLSD, LC, PSV, Inspection | 4 | 2" | TOL | SA105N | -- | 3M | 0.125" | -- | UW16.1(a) | -- | Shell |
| LG(2), TI | 3 | 3/4" | TOL | SA105N | -- | 3M | 0.125" | -- | UW16.1(a) | -- | Shell |
| PI | 1 | 1/2" | TOL | SA105N | -- | 3M | 0.125" | -- | UW16.1(a) | -- | Shell |
| | | | | | | | | | | | |
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Certificate of Authorization: Type "U" Certificate No. 38,402 Expires March 2, 2015

Date Oct. 30/12 Name Global Flow Inc. Signed [Signature]
 (Manufacturer) (Representative)

Date Oct. 30, 2012 Name [Signature] Commission NB10304 A, B AB-12
 (Authorized Inspector) (Nat'l Board incl. Endorsement, State, Province and No.)

EXHIBIT 9.5 TRAVEL SHEET (FRONT)

| DO NOT START CONSTRUCTION WITHOUT AI REVIEW | | | | | TRAVEL SHEET REVISION NO.: | | | | |
|---|--|--|--------|---|----------------------------|------|-------------|-------|------|
| AI REVIEW: Ⓟ | | REVIEW DATE: OCT 1/12 | | | | | | | |
| SERIAL NO.: 12-052-1 | | JOB NO.: 12-052 | | VESSEL TYPE: 24" x 60" x 720 PSI ABS GULL SCIP | | | | | |
| DRAWING NO.: | | DWG. REVISION NO.: | | TRAVEL SHEET INITIATION BY: h | | | | | |
| Seq. | Item | Comments | Q.C.I. | Date | A.I. Hold Points | A.I. | Date | Owner | Date |
| 1. | Calculations in File | | h | 10/01/12 | * | Ⓟ | OCT 1/12 | | |
| 2. | Release of App'd Dwg. | | h | 10/01/12 | | Ⓟ | OCT 30 2012 | | |
| 3. | Materials Examined | | DM | 22 OCT 12 | | | | | |
| 4. | Heat Numbers Recorded | | DM | 22 OCT 12 | * | Ⓟ | OCT 30 2012 | | |
| 5. | MTRs Checked | | h | 10/29/12 | * | Ⓟ | OCT 30 2012 | | |
| 6. | WPS(s) Checked | | h | 10/01/12 | * | Ⓟ | OCT 30 2012 | | |
| 7. | Welder(s) Qualified | | h | 10/01/12 | * | Ⓟ | OCT 30 2012 | | |
| 8. | Thicknesses Verified & Recorded | | DM | 22 OCT 12 | | | | | |
| 9. | Shell(s) & Head(s) Fit-up Inspection | | DM | 22 OCT 12 | | | | | |
| 10. | Nozzles & Fittings Fit-up Inspection | | DM | 22 OCT 12 | | | | | |
| 11. | Nozzle Orientation | | DM | 15 OCT 12 | | | | | |
| 12. | Nozzle & Flange Rating Checked | | DM | 22 OCT 12 | | | | | |
| 13. | Impact Tests | <i>Impact Test 1622f(15)</i> | | | | | | | |
| 14. | Internals Checked | | DM | 16 OCT 12 | | Ⓟ | OCT 1/12 | | |
| 15. | Final Internal Inspection | Shell Side | DM | 22 OCT 12 | ** | Ⓟ | OCT 30 2012 | | |
| | | Tube Side | | | | | | | |
| 16. | Weld Sizes Checked | | DM | 22 OCT 12 | | | | | |
| 17. | Welder I.D. Checked | | DM | 22 OCT 12 | | | | | |
| 18. | Final External Inspection | | DM | 22 OCT 12 | * | Ⓟ | OCT 30 2012 | | |
| 19. | Radiography | RT-1 | h | 10/19/12 | * | Ⓟ | | | |
| 20. | Other N.D.E. | | | | | | | | |
| 21. | Final Ext. Prior to P.W.H.T. | | DM | 22 OCT 12 | | | | | |
| 22. | PWHT Chart Checked | | h | 10/24/12 | * | Ⓟ | OCT 29/12 | | |
| 23. | Hydrostatic Test, <i>1080psi</i> <i>9260 PSI</i> | Shell Side Gauge # | h | 10/30/12 | ** | Ⓟ | OCT 30 2012 | | |
| | | Tube Side Gauge # | | | | | | | |
| 24. | CRN Drawing | CRN# 12315.2834 | h | 10/01/12 | * | Ⓟ | OCT 30 2012 | | |
| 25. | N.C.R. # | | | | | | | | |
| 26. | Nameplate Stamping | | h | 10/30/12 | ** | Ⓟ | OCT 30 2012 | | |
| 27. | Manuf. Data Report Completed & Verified | | h | 10/30/12 | ** | Ⓟ | OCT 30 2012 | | |
| 28. | Nameplate Installation | | h | 10/30/12 | | | | | |

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

VESSEL SERIAL NUMBER: 12-052

| MATERIAL THICKNESS VERIFICATION & IDENTIFICATION | | | | | WPS / WELD I.D. / WELDER SYMBOLS / FIT-UP | | | | | |
|--|-----------|------------------------|-----------------------------------|------------|---|-----------|---------------|--------------|---------------------|-------------------------|
| Description | Thickness | Material Spec. & Grade | Heat & Slab Number or I.D. Number | | WPS | Weld I.D. | Welder Symbol | Fit-Up Exam. | Verify Type 1 Joint | ABSA COMMENT/INSPECTION |
| Shell #1 | 0.636 | SAS1670 | 360216 | 90939V | GF6N | L- | T/R | | 22 | 16 Oct 12. (H) Oct 12 |
| Shell #2 | | | | | | L- | | | | |
| Shell #3 | | | | | | L- | | | | |
| Head #1 | 0.692 | SAS1670 | M40636 | FA2110902V | | C- | D/R | | 22 | 22 Oct 12 |
| Head #2 | 0.693 | SAS1670 | G9701 | 57020628V | | C- | D/R | | 22 | 22 Oct 12 |
| | | | | | | C- | | | | |
| | | | | | | C- | | | | |

| ATTACHMENT AND / OR NOZZLE MATERIAL THICKNESS VERIFICATION AND IDENTIFICATION | | | | | | WELDER ID / WPS & ABSA INSPECTIONS | | | |
|---|--------------|-------|---------|----------|---------------------|------------------------------------|--------|------|---------------------------|
| Mark | Mat I.D. | Neck | Fitting | Flange | Repad or Attachment | Cat. B | Cat. D | WPS | ABSA COMMENT / INSPECTION |
| N1 | Spec.-Grd | | | SA105N | | D | D | GF4N | |
| N2 | Thk./Rating | | | 3" 300 | X | | | | |
| | Heat # or ID | AOLK | | 37370 | | | | | |
| N4 | Spec.-Grd | | | SA105N | | D | D | GF4N | |
| | Thk./Rating | | | 2" 300 | X | | | | |
| | Heat # or ID | AQBK | | 1447/111 | | | | | |
| N5 | Spec.-Grd | | | SA105N | | | D | GF2N | |
| N6 | Thk./Rating | | | 2" 3000 | X | | D | | |
| N7 | Heat # or ID | | | 58531 | | | D | | |
| N8 | Spec.-Grd | | | SA105N | | | D | GF2N | |
| | Thk./Rating | | | 2" 3000 | | | | | |
| | Heat # or ID | | | 58531 | | | | | |
| N9 A | Spec.-Grd | | | SA105N | | | D | GF2N | |
| N9 B | Thk./Rating | | | 3/4 3000 | | | D | | |
| N10 | Heat # or ID | | | 58337 | | | D | | |
| N11 | Spec.-Grd | | | SA105N | | | D | GF2N | |
| | Thk./Rating | | | 1/2 3000 | X | | | | |
| | Heat # or ID | | | 58426 | | | | | |
| N3 | Spec.-Grd | | | SA105N | | | D | GF2N | |
| | Thk./Rating | | | 1/2 3000 | X | | | | |
| | Heat # or ID | 12003 | | 1200033 | | | | | |
| | Spec.-Grd | | | | | | | | |
| | Thk./Rating | | | | | | | | |
| | Heat # or ID | | | | | | | | |

| Used for recording miscellaneous information (Skirt / Lift Lug Heat numbers, Another Shell, etc...) | | | | |
|---|----------|-------------|------|---------|
| Designation | Material | Heat Number | WPS | Remarks |
| Skirt | SAS33 | 125E V | GF4N | |
| | | | | |
| | | | | |

| Shell & Heads | | | Final | | |
|---------------------|----------------------|-----------|--|--------------------|-----------|
| Task | Name / Welder Symbol | Date | Task | Name / Weld Symbol | Date |
| Layout / Checked by | Del Bryden | 15 Oct 12 | Weld ID / Material code / Vessel Serial number stamped | Del | 22 Oct 12 |
| Shell cut by | JASON | 15 Oct 12 | Vessel completed by | Del | 22 Oct 12 |
| Internals by | DAW | 15 Oct 12 | Final Quality Control check | Del | 22 Oct 12 |

May 19, 2011

GlobalFlow Inc
Bay 8, 1771 - 30th Street SW
Medicine Hat, AB
T1B 3N5

Dear Sir/Madam:

RE: REGISTRATION OF DESIGN
(GLOBALFLOW)

The design(s) for the following Boiler has been received by us and has been examined and accepted for registration in the Province of Manitoba as follows. Manitoba's CRN is designated by the digit 4 following the decimal point.

| DRAWING | PRESSURE | CRN | FILE | FEES |
|------------------|----------|----------|-------|----------|
| 10-066-REG REV.2 | 720 PSIG | V2315.24 | 30680 | \$110.00 |

Enclosed is our invoice in the amount of \$110.00. Please remit this amount within ten (10) days to complete the registration. One copy of your drawings bearing the Departmental Registration Stamp is enclosed. If only one copy of drawings was submitted to the Department, we will retain that copy.

The registration of this design does not relieve the manufacturer, the owner or his agent of the responsibility for the design or construction of a boiler, pressure vessel, or fired heater coil in accordance with the applicable Acts, Codes and Standards. Inspection and Technical Services assumes no responsibility by registering designs, examining plans and/or inspecting equipment or facility.

Yours truly,



Ryan DeLury, C.E.T.
Design Engineer, Inspection and Technical Services
/tm



505 - 6th Street, Suite 200
New Westminster, BC V3L 0E1

Toll Free: 1-866-566-SAFE

Fax: (778) 396 - 2064

www.safetyauthority.ca

GLOBALFLOW INC
BAY 8-1771 30TH STREET SW
MEDICINE HAT AB T1B 3N5

Date: June 10, 2011

Account #: 49326

Journal #: 51798

Our File #: 4708167

Attn: LEE WAECHTER

Re: Application for Design Registration

The design, as detailed in your, Dwg. No. 10-066-REG Rev 2, for a Pressure Vessel is accepted for registration as follows:

Registered To: GLOBALFLOW INC

CRN: V2315.21

MDMT: -20 deg F

MAWT: 130 deg F

MAWP: 720 psig

Drawing #: 10-066-REG

Drawing Revision: 2

Conditions Of Registration:

24" OD x 120" S/S Vertical Vessel CRN updated to add alternate nozzles N1C & N1D, and an alternate NPS 24 RFWN class 300 body flange complete with blind flange.

| | <u>Amount</u> | <u>HST</u> | <u>Total</u> |
|---------------------------------------|-----------------|----------------|-----------------|
| Fee for reviewing your design: | \$144.00 | \$17.28 | \$161.28 |
| Total: | \$144.00 | \$17.28 | \$161.28 |
| Less amount received with submission: | | | \$0.00 |
| An invoice for \$161.28 will follow. | | | \$161.28 |

March 07, 2011

Lee Waechter
GLOBALFLOW INC
ATTN KIM INSKO
1771-30 STREET SW BAY 8
MEDICINE HAT, AB T1B 3N5

Dear Lee Waechter,

The design submission, tracking number 2011-01173, originally received on February 25, 2011 was surveyed and accepted for registration as follows:

CRN : V2315.2 **Accepted on:** March 07, 2011
Reg Type : Revision To Acc. Design
Drawing No. : 10-066-REG Rev 2 As Noted

| Description | MAWP | Design Temperature | MDMT |
|-------------------|----------|--------------------|--------|
| Internal Pressure | 4964 kPa | 54 °C | -29 °C |

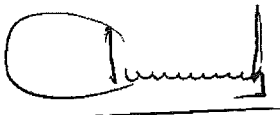
The registration is conditional on your compliance with the following notes:

- Please note that we have included on this design revision the following options:
 - * Added alternate nozzles N1C & N1D.
 - * And, added an alternate NPS 24 body flange, class 300, RFWN, 22.75 inches bore, SA-105N. Complete with blind flange.
- Note that we have revised the length of the shell to 120 inches.
- Also, note that we have revised the radiographic examination to 'full' on the longitudinal seam and 'spot' the circumferential seam as per UW-11(a)(5)b; RT 2.

An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

Enclosed are stamped prints for your reference.

Sincerely,



DE LEON, JESUS, P. Eng.
Design Survey Engineer



330 - 1855 Victoria Avenue
Regina, SK S4P 3T2
Canada

306-787-1443
info@tsask.ca
www.tsask.ca

REGISTRATION APPROVAL

14-Jun-11

Global Flow Inc.
Bay 8, 1771-30th Street SW
Medicine Hat, AB
T1B 3N5

Our File 44509 [0V]

ATTENTION : Lee Waechter

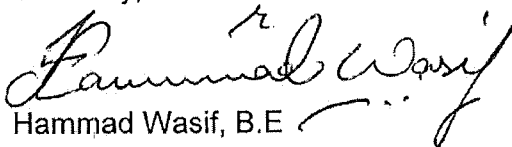
With reference to your submission respecting the registration of the item below, for legal use in the province, please note we have surveyed, approved and registered this design as noted.

| | | |
|------------------------|-------------------------|-----------------|
| MANUFACTURER : | Global Flow Inc. | |
| ITEM : | DRAWING NUMBER : | CRN : |
| Vertical Vessel | 10-066-REG Rev.2 | V2315.23 |

We wish to point out that every vessel must be constructed strictly in accordance with the registered design.

In addition to stamping every vessel with the registration number given above and as required in CSA Code B51, a Manufacturer's Data Report must be forwarded to this office immediately at the time a vessel is shipped. Such forms may be obtained upon request.

Sincerely,


Hammad Wasif, B.E

Codes and Standards Compliance

REMARKS: CRN registered under reciprocal agreement and conditional upon compliance with the notes on the original registration.

WELDING PROCEDURE SPECIFICATION NO.: GF-2N

WELDING PROCEDURE QUALIFICATION RECORD NO.(S): GF-2N-1, GF-2N-2,
GF-4N-1

QUALIFIED FOR

Base Metal (Typical): P1 Groups 1 & 2 to P1 Groups 1 & 2
(SA 333 Gr. 6, SA 350 Gr. LF2, SA 420 WPL6, SA 516 Gr. 70, etc.)
Process(es): SMAW Weld Types: GROOVE & FILLET
Position: ALL POSITIONS Diameter: ALL DIAMETERS
Filler Metal: E6010, E7018-1

BASE METAL CONDITIONS & GROOVE THICKNESS RANGE QUALIFIED:

NOTCH TOUGHNESS APPLICATIONS TO -46°C WITH P.W.H.T.

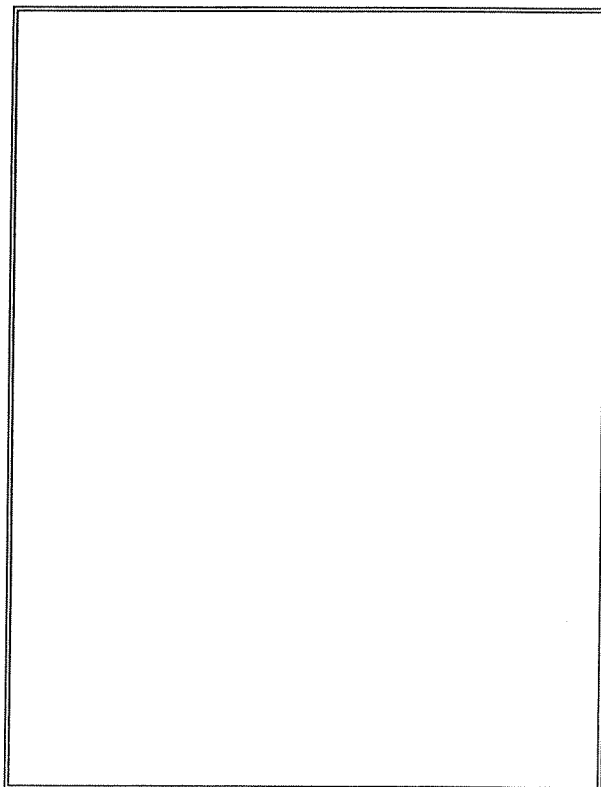
BASE METAL THICKNESS RANGE 3.2 to 203 mm (0.125 to 8.00 in.) inclusive

COMBINED DEPOSITED WELD METAL THICKNESS

| | |
|------------------------|----------------------------------|
| ASME B31.1 | <u>203 mm (8.00 in.) maximum</u> |
| ASME B31.3 | <u>203 mm (8.00 in.) maximum</u> |
| ASME SECT. VIII, DIV.1 | <u>203 mm (8.00 in.) maximum</u> |
| CSA Z662 FABRICATION | <u>203 mm (8.00 in.) maximum</u> |

| | |
|---|--|
| ALBERTA BOILERS SAFETY ASSOCIATION | |
| PROVINCE OF ALBERTA | |
| SAFETY CODES ACT | |
| WELDING PROCEDURE | |
| Reg. No. WP | <u>2843.2</u> |
| Spec No. | <u>GF-2N</u> |
| Weld Process | <u>SMAW</u> |
| Matl. Gr. P No. | <u>1 Gr 12</u> to P No. <u>1 Gr 12</u> |
| Elec. Gr. F No. | <u>3+4</u> A No. <u>1</u> |
| Th. Qual. For | <u>3.2 to 203 mm</u> PWHT <u>YES</u> |
| | <u>CVN -46°C</u> |
| Yr. <u>07</u> Mo. <u>04</u> Day <u>17</u> | Signed <u>[Signature]</u> |
| | R. ROSEBERG, P.ENG. |
| | WELDING SPECIALIST |

PROVINCIAL REGISTRATION



QW-482 WELDING PROCEDURE SPECIFICATION (WPS)

Global Flow

| | | | |
|-------------------------------------|---------------------------|---------|----------------|
| Welding Procedure Specification No. | GF-2N | Date | March 27, 2007 |
| Supporting PQR No. (s) | GF-2N-1, GF-2N-2, GF-4N-1 | | |
| Welding Process(es) | SMAW | Type(s) | Manual |

JOINTS (QW-402)

| | | | |
|--------------|--|-----------|--------------|
| Joint Design | All ASME groove & fillet, reference construction drawing for joint details. Where joint details are not specified, see figures 1 to 15 attached | | |
| Root Opening | As per attached typical groove designs, see figures 1 to 15 attached | | |
| Backing | With or without | Retainers | Not required |

BASE METALS (QW-403)

| | | | |
|---------------------------------|--|--|-----------------|
| P-Number | P1 Groups 1 & 2 | To P-Number | P1 Groups 1 & 2 |
| Thickness Range: | Groove | See cover page for thickness qualified by governing code | |
| | Fillet | All base metal thicknesses | |
| | Base Metal | 3.2 to 203 mm (0.125 to 8.00 in.) inclusive | |
| Pipe Diameter Ranges: | Groove | All diameters | |
| | Fillet | All diameters | |
| Deposited Weld Metal (Per Pass) | F3: 4.78 mm (0.188 in.) maximum F4: 12.7 mm (0.500 in.) maximum | | |
| Other | Carbon equivalent: 0.45 maximum for CSA Z662 sour service | | |

FILLER METALS (QW-404)

| | | |
|---------------------------------------|---|---------------------------|
| Specification No. (SFA) | SFA 5.1 | SFA 5.1 |
| AWS No. (Class) | E6010 | E7018-1 |
| F-No. | F3 | F4 |
| A-No. | A1 | A1 |
| Size | 3/32 to 5/32 in. inclusive | 3/32 to 1/4 in. inclusive |
| Deposited Weld Metal Thickness Range: | | |
| Groove | 4.78 mm (0.188 in.) max.* | 203 mm (8.00 in.) max.* |
| Fillet | All fillet sizes | All fillet sizes |
| Other | *Combined deposited weld metal thickness shall not exceed 203 mm (8.00 in.) | |

POSITION (QW-405)

| | | | |
|--------------------|-------------------------|--------------------|---------------|
| Position of Groove | All positions | Position of Fillet | All positions |
| Weld Progression | F3: Vertical up or down | F4: Vertical up | |

PREHEAT (QW-406)

| | |
|---------------------------------|--|
| Preheat Temperature (Minimum) | See attached preheat sheet |
| Interpass Temperature (Maximum) | 232°C (450°F) |
| Preheat Maintenance | See attached preheat sheet prior to welding. Preheat maintenance is not required if welding is interrupted or after the completion of welding unless required by the code of construction. |

WELDING PROCEDURE SPECIFICATION NO.: GF-4N

WELDING PROCEDURE QUALIFICATION RECORD NO. (S): GF-4N-1, GF-4N-2,
GF-2N-2

QUALIFIED FOR

Base Metal (Typical): P1 Groups 1 & 2 to P1 Groups 1 & 2
(SA 333 Gr. 6, SA 350 Gr. LF2, SA 420 WPL6, SA 516 Gr. 70, etc.)
Process(es): GMAW / SMAW Weld Types: GROOVE & FILLET
Position: ALL POSITIONS Diameter: ALL DIAMETERS
Filler Metal: GMAW: ER70S-2 SMAW: E7018-1

BASE METAL CONDITIONS & GROOVE THICKNESS RANGE QUALIFIED:

NOTCH TOUGHNESS APPLICATIONS TO -46°C WITH P.W.H.T.

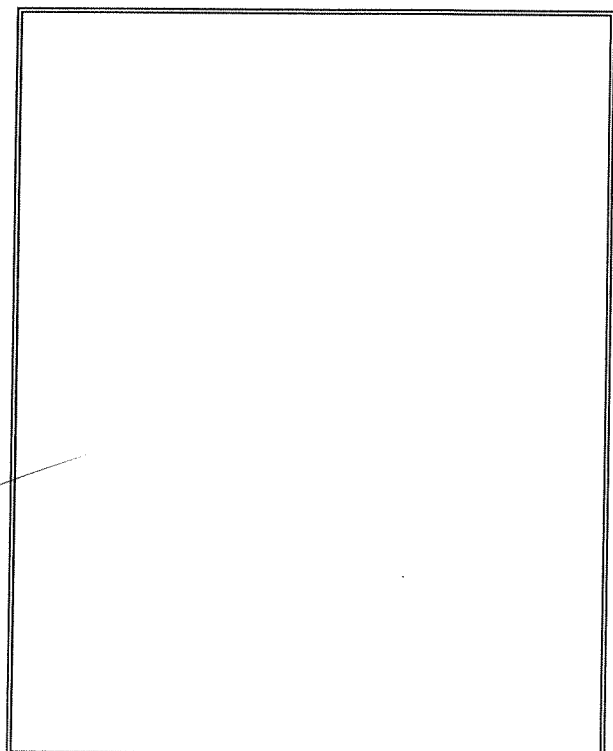
BASE METAL THICKNESS RANGE 3.0 to 203 mm (0.118 to 8.00 in.) inclusive

COMBINED DEPOSITED WELD METAL THICKNESS

| | |
|------------------------|----------------------------------|
| ASME B31.1 | <u>203 mm (8.00 in.) maximum</u> |
| ASME B31.3 | <u>203 mm (8.00 in.) maximum</u> |
| ASME SECT. VIII, DIV.1 | <u>203 mm (8.00 in.) maximum</u> |
| CSA Z662 FABRICATION | <u>203 mm (8.00 in.) maximum</u> |

| | |
|--|--|
| ALBERTA BOILERS SAFETY ASSOCIATION | |
| PROVINCE OF ALBERTA | |
| SAFETY CODES ACT | |
| WELDING PROCEDURE | |
| Reg. No. WP | <u>2843.2</u> |
| Spec No. | <u>GF-4N</u> |
| Weld Process | <u>GMAW/SMAW</u> |
| Matl. Gr. P No. | <u>1 Gr. 42</u> to P No. <u>1 Gr. 42</u> |
| Elec. Gr. F No. | <u>6+4</u> A No. <u>1</u> |
| Th. Qual. For | <u>3 to 203 mm</u> PWHT <u>YES</u> |
| | <u>CVN-46°C</u> |
| Yr. <u>07</u> Mo. <u>04</u> Day <u>17</u> Signed | <u>[Signature]</u> |
| | R. ROSEBERG, P.ENG. |
| | WELDING SPECIALIST |

PROVINCIAL REGISTRATION



QW-482 WELDING PROCEDURE SPECIFICATION (WPS)

| | | | |
|-------------------------------------|---------------------------|---------|--------------------|
| | Global Flow | | |
| Welding Procedure Specification No. | GF-4N | Date | March 28, 2007 |
| Supporting PQR No. (s) | GF-4N-1, GF-4N-2, GF-2N-2 | | |
| Welding Process(es) | GMAW / SMAW | Type(s) | Semi-auto / Manual |

JOINTS (QW-402)

| | | | |
|--------------|---|-----------|--------------|
| Joint Design | All ASME groove & fillet, reference construction drawing for joint details. Where joint details are not specified, see figures 1 to 15 attached. | | |
| Root Opening | As per attached typical groove designs, see figures 1 to 15 attached. | | |
| Backing | With or without | Retainers | Not required |

BASE METALS (QW-403)

| | | | |
|---------------------------------|---|---|-----------------|
| P-Number | P1 Groups 1 & 2 | To P-Number | P1 Groups 1 & 2 |
| Thickness Range: | Groove | See cover page for thickness qualified by governing code. | |
| | Fillet | All base metal thicknesses | |
| | Base Metal | 3.0 to 203 mm (0.118 to 8.00 in.) inclusive | |
| Pipe Diameter Ranges: | Groove | All diameters | |
| | Fillet | All diameters | |
| Deposited Weld Metal (Per Pass) | GMAW: 2.79 mm (0.110 in.) maximum | | |
| | SMAW: 12.7 mm (0.500 in.) maximum | | |
| Other | Carbon equivalent: 0.45 maximum for CSA Z662 sour service | | |

FILLER METALS (QW-404)

| | GMAW | SMAW |
|---------------------------------------|---|---------------------------|
| Specification No. (SFA) | SFA 5.18 | SFA 5.1 |
| AWS No. (Class) | ER70S-2 | E7018-1 |
| F-No. | F6 | F4 |
| A-No. | A1 | A1 |
| Size | .030 to .045 in. inclusive | 3/32 to 1/4 in. inclusive |
| Filler Metal Product Form | Solid wire | --- |
| Supplementary Fillers | Without | --- |
| Deposited Weld Metal Thickness Range: | | |
| Groove | 2.79 mm (0.110 in.) max.* | 203 mm (8.00 in.) max.* |
| Fillet | All fillet sizes | All fillet sizes |
| Other | *Combined deposited weld metal thickness shall not exceed 203 mm (8.00 in.) | |

POSITION (QW-405)

| | | |
|--------------------|---------------------|---------------------|
| Position of Groove | GMAW: All positions | SMAW: All positions |
| Position of Fillet | GMAW: All positions | SMAW: All positions |
| Weld Progression | GMAW: Vertical down | SMAW: Vertical up |

PREHEAT (QW-406)

| | |
|---------------------------------|--|
| Preheat Temperature (Minimum) | See attached preheat sheet |
| Interpass Temperature (Maximum) | 232°C (450°F) |
| Preheat Maintenance | See attached preheat sheet prior to welding. Preheat maintenance is not required if welding is interrupted or after the completion of welding unless required by the code of construction. |

WELDERS LOG

| WELDERS NAME/FILE NUMBER | SYMBOL | PROCESS/METHOD | BASE METALS | FILLER METAL "F" NUMBERS(S) | BACKING | MINIMUM OD (IN) | DEPOSIT THICKNESS (IN) | POSITIONS | UPHILL/DOWN HILL | CORED/SOLID | INSERT | BACKING GAS | GTAW CURRENT | GMAW X-FER | EXPIRY DATE P.O. DC. | | |
|-----------------------------|--------|-------------------|-------------|-----------------------------|----------------------|-----------------|------------------------|----------------------------------|------------------|-------------|--------|-------------|--------------|------------|----------------------|-----------|--|
| Craig Finke W22206 | F | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 17-May-14 | | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/MAX | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |
| Bryden Crane W26945 | C | GMAW/SMAW | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill | N/A | N/A | Optional | N/A | N/A | N/A | 13-Jun-13 | |
| | | SMAW | P-1 | F3/F4 | With/Without | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 13-Jun-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/MAX | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 11-Jan-14 | |
| Brett Leismeister W21122 | B | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 15-Dec-13 | |
| | | GMAW/SMAW | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill/N/A | N/A | N/A | Optional | N/A | N/A | N/A | 24-Aug-12 | |
| Chris Maier W24283 | A | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 24-Aug-12 | |
| | | SMAW | P1 | F6/F4 | With or Without/With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 24-Aug-12 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/MAX | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 11-Jan-14 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 18-Apr-13 | |
| Cole Chapman MW-70737 | P | Machine Operator | P1 | F6 | With | 2.875 | 0.110/MAX | Flat | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 05-Jul-13 | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Mark Rutherford W16171 | Z | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 04-Jul-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/MAX | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |
| Jordan Tweten W26988 | 3 | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 25-Jul-13 | |
| | | GMAW/SMAW | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill/N/A | N/A | N/A | Optional | N/A | N/A | N/A | 03-Oct-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/MAX | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |
| John Pacello W26021 | 4 | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | N/A | 04-Jul-13 | |
| | | GMAW/SMAW | P1 | F6/F4 | With or Without/With | 1 | 0.110/0.488 | F4 Flat, F6 SP 0-45, Flat | Downhill/N/A | N/A | N/A | Optional | N/A | N/A | N/A | 03-Oct-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/MAX | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | N/A | 15-Dec-13 | |

WELDERS LOG

| WELDERS NAME/FILE NUMBER | SYMBOL | PROCESS/METHOD | BASE METALS | FILLER METAL "F" NUMBER(S) | BACKING | MINIMUM OD (IN) | DEPOSIT THICKNESS (IN) | POSITIONS | UPHILL/DOWN HILL | CORED/SOLID | INSERT | BACKING GAS | GTAW CURRENT | GMAW X-FER | EXPIRY DATE P.Q.DC. |
|--------------------------|--------|---------------------------------------|-------------|----------------------------|----------------------|-----------------|------------------------|----------------------------------|------------------|-------------|--------|-------------|--------------|------------|---------------------|
| Jill Timushka | T | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 17-May-14 |
| W16062 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 17-May-14 |
| Clayton Mellicke | E | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 17-May-14 |
| W17827 | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 31-Aug-12 |
| Dylan Winter MW-70736 | I | GMAW(SC)/GMAW(MC) Machine Operator | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 11-Jan-14 |
| | | | P1 | F6 | With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | 05-Jul-13 |
| Sylvain Leclair | S | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 24-Feb-14 |
| W27000 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 24-Oct-14 |
| Chris Arnal MW-70739 | N | GMAW(SC)/GMAW(MC) Machine Operator | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 24-Oct-14 |
| | | | P1 | F6 | With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | 05-May-14 |
| Iain Blair MW-70740 | R | Machine Operator | P1 | F6 | With | WPS Limits | Max | Flat | N/A | N/A | N/A | N/A | N/A | N/A | 28-Jun-14 |
| Daniel Pellerin | D | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 26-Jun-14 |
| W-20311 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 26-Jun-14 |
| Curtis Vandermeulen | U | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 26-Jun-14 |
| W-21840 | | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/MAX | All | Up | N/A | N/A | N/A | N/A | N/A | 29-Jun-14 |
| Sheldon Weber W-17556 | G | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 29-Jun-14 |
| | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 29-Jun-14 |
| Reginald Zachar | J | SMAW | P1 | F3/F4 | With or Without/With | 1 | 0.250/0.436 | All | Up | N/A | N/A | N/A | N/A | N/A | 27-Apr-14 |
| W-4943 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.110/0.236 | SC: SP 0-45°, Flat MC: Flat | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 12-Oct-14 |
| Jason May | M | SMAW | P1 | F3/F4 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 12-Oct-14 |
| W-29260 | | GMAW(SC)/GMAW(MC) | P1 | F6 | With or Without/With | 1 | 0.250/Max | All | Up | N/A | N/A | N/A | N/A | N/A | 24-Oct-14 |
| | | | P1 | F6 | With or Without/With | 2.875 | 0.110/Max | SC: SP 0-45°, Flat MC: Flat/Horz | Downhill/N/A | Solid/Cored | N/A | Optional | N/A | N/A | 24-Oct-14 |



LAW INSPECTION SERVICES INC.

P.O. Box 1971, Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 12/2012
Page 1 of 1

R - 40891

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8559
 Location: Redcliff, AB. Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010"Pb F+B Film Agfa / D5
SIZE TYPE BRAND TYPE

SOD 20.375' SFD 21" Technique(s) Refer to back Code(s) ASME Sec VIII Div 1 UW51

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|----------|-----|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|---------------------|-----|
| 1 | 0-15 | ✓ | ✓ | ✓ | | | | | | | | | | | | | 625' T&L Long seams | |
| 2 | | | | | | | | | | | | | | | | | SN# 12-052-1 | |
| 3 | LI 0-15 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 4 | 15-30 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 5 | 30-45 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 6 | 45-60 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | LI 0-15 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 10 | 15-30 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 11 | 30-45 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 12 | 45-60 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | LI 0-15 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 16 | 15-30 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 17 | 30-45 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 18 | 45-60 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | |
| 21 | LI 0-15 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 22 | 15-30 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 23 | 30-45 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 24 | 45-60 | ✓ | ✓ | ✓ | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-------------------|
| 2" | Other (specify) |
| 3" | |
| 4" | 16PS-4 1/2" x 17" |
| 6" | |

Stamp
Roger Yarjau
 CGSB RTII
 ASNT RTII MTII
 #5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| 2 | 1 | | | |

Client Signature _____
 Client Print DR Hogg
 Technician Signature Roger Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971 Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 18/2012
Page 1 of 1

R - 43084

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8623
 Location: Redcliff, AB Client # _____
 Material carbon steel Source 3.9mm / Ir 192 Screens 0.010"Pb F+B Film ADP / D5
SIZE TYPE BRAND TYPE

SOD 11.375" SFD 18" Technique(s) Refer to back Code(s) ASME Sec VIII Div 1 UW51

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|----------------|-----|---|----|----|----|---|---|----|----|----|----|----|-----|-----|---|----------------------------------|------------|
| 1 | <u>.625"</u> | | | | | | | | | | | | | | | | <u>THK. CRACK SEAMS 24" O.D.</u> | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | <u>SN# 12-052-1</u> | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | <u>C1 0-15</u> | | | | | | | | | | | | | | | | | |
| 6 | <u>15-30</u> | | | | | | | | | | | | | | | | | |
| 7 | <u>30-45</u> | | | | | | | | | | | | | | | | | |
| 8 | <u>45-60</u> | | | | | | | | | | | | | | | | | |
| 9 | <u>60-75</u> | | | | | | | | | | | | | | | | | |
| 10 | <u>75-0</u> | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |
| 13 | <u>C2 0-15</u> | | | | | | | | | | | | | | | | <u>SKWIKAGE</u> | <u>(X)</u> |
| 14 | <u>15-30</u> | | | | | | | | | | | | | | | | <u>"</u> | <u>(X)</u> |
| 15 | <u>30-45</u> | | | | | | | | | | | | | | | | <u>"</u> | <u>(X)</u> |
| 16 | <u>45-60</u> | | | | | | | | | | | | | | | | <u>"</u> | <u>(X)</u> |
| 17 | <u>60-75</u> | | | | | | | | | | | | | | | | <u>"</u> | <u>(X)</u> |
| 18 | <u>75-0</u> | | | | | | | | | | | | | | | | <u>"</u> | <u>(X)</u> |
| 19 | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|-----------------------------|
| 2" | Other (specify) |
| 3" | |
| 4" | <u>11PCS - 4 1/2" x 17"</u> |
| 6" | |

Stamp
Roger Yarjau
CGSB RTII
ASNT RTII MTII
#5982

| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
|-----------|-----------|-----|----------|-----------|
| <u>2</u> | | | | |

Client Signature _____
 Client Print DR HOPE
 Technician Signature Rog Yarjau



LAW INSPECTION SERVICES INC.

P.O. Box 1971, Lethbridge, AB
T1J - 4K5 Ph. (403) 380-3555

Date Oct. 19/2012
Page 1 of 1

R - 43092

LAW Job # AM

Radiographic Inspection Report

Client: Global Flow Inc. Client # P.O.# 8832
 Location: Redcliff, AB Client # _____
 Material carbon steel Source 3.94mm / Ir 192 Screens 0.010"Pb F+B Film Agfa / D5
SIZE TYPE BRAND TYPE

SOD 11.375" SFD 12" Technique(s) Refer to back Code(s) ASME Sec III Div I UW51

T = Technique LF = Lack of Fusion LC = Low Cover EUC = External Undercut 1 = Slight
 WS = Welder Stamp S = Slag HL = High Low ACC = Accept 2 = Moderate
 IP = Incomplete Penetration BT = Burn Through CK = Crack Rej = Reject 3 = Severe
 P = Porosity IC = Internal Concavity IUC = Internal Undercut O = Other

| Film # | SIZE/SCH | ACC | T | WS | IP | LF | P | S | BT | IC | LC | HL | CK | IUC | EUC | O | Comments | REJ |
|--------|------------|--------------|-------------------------------------|------------|----|----|---|---|----|----|----|----|----|-----|-----|---|---------------------------------------|-----|
| 1 | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | <u>0.625" Thick Circ. Seam Repair</u> | |
| 3 | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | <u>ENT 12-052-1</u> | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | <u>CAR</u> | <u>0-15</u> | <input checked="" type="checkbox"/> | <u>7PA</u> | | | | | | | | | | | | | | |
| 7 | | <u>15-30</u> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| 8 | | <u>30-45</u> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| 9 | | <u>45-60</u> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| 10 | | <u>60-75</u> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| 11 | | <u>75-0</u> | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |

| Weld or film quantity | |
|-----------------------|---------------------|
| 2" | Other (specify) |
| 3" | |
| 4" | <u>61 Ks - 4/17</u> |
| 6" | <u>2/17</u> |

Stamp
Roger Yarjau

CGSB RTII
ASNT RTII MTII
#5982

| | | | | |
|-----------|-----------|-----|----------|-----------|
| Reg. hrs. | O.T. Hrs. | kms | Sub-days | Est. cost |
| <u>1</u> | | | | |

Client Signature _____
 Client Print DR Hope
 Technician Signature Roger Yarjau



**INTEGRATED
METALLURGICAL SERVICES LTD.**

5110A - 77 Avenue S.E., Calgary, Alberta T2C 2Z2

Phone (403) 279-2666 Fax: (403) 236-3677 e-mail: cpryde@nucleus.com or dolsen@nucleus.com

HEAT TREATING REQUIREMENTS

CUSTOMER : Global Flow Intelligent Production Solutions

P.O. #: PO0008603

MATERIAL : SA-516-70N

DESCRIPTION:

2-VESSELS, JOB #12-084 SER. #12-084-9 & 10 DWG. #12-084-VESSEL
ULTRAFAB INDUSTRIES LTD.
1-VESSEL, JOB #12-021, SER. #12-021-1 DWG. #12-021-VESSEL
1-VESSEL, JOB #12-052, SER. #12-052-1, DWG. #12-052-VESSEL
1-VESSEL, JOB #12-053, SER. #12-053-1, DWG. #12-053-VESSEL
PENNWEST EXPLORATION

JOB NO: 12-084/12-021/12-052/12-053

LENGTH: 116",120",60"S/S MAX.

WEIGHT: 21,876# TOTAL

DIA: 36"(2),30",24"(2)O/D MAX.

WALL THK: 1.500" MAX.

PROCEDURE

- | | | | |
|----|---------------------------------------|------------|---------------------------------|
| 1. | Furnace Temperature shall not exceed: | <u>425</u> | °C on loading. |
| 2. | Heat Rate: | <u>125</u> | °C per hour. |
| 3. | Holding Temperature: | <u>621</u> | ±10 or <u>±14</u> or +10\ -0 °C |
| 4. | Holding Time: | <u>90</u> | Minutes Minimum |
| 5. | Cooling Rate: | <u>150</u> | °C/Hr. Max. to <u>425</u> °C |

Issued to FURNACE # 3

FURNACE HEAT NUMBER: 3-12-130

Date: October 23, 2012

Issued by: C. Pryde

Specializing in Pre & Post Weld Heat Treatment. Serving the Industry with the Finest and Most Modern Equipment Available.



**Certificate of Calibration
Temperature Recorder**

Company: Integrated Metallurgical Services Ltd.
Address: 5110A 77th Avenue S.E.
Calgary, Alberta T2C 2Z2

Date: September 11, 2012
Due: December 11, 2012
Tech: H Reding

Description: Furnace # 3 Temperature Recorder, Type K Thermocouple
Make: Honeywell
Model: 15303816-24-43-2-000-002-10-002-C300

Serial #: 8926-5115378001
Range: 0 - 1200 °C

Calibration Data

| Input Value °C | As Found °C | As Found Error °C | As Left °C | As Left Error °C | Allowable Error °C |
|----------------|-------------|-------------------|------------|------------------|--------------------|
| 50.0 | 50 | 0 | 50 | 0 | ±14 |
| 300.0 | 300 | 0 | 300 | 0 | ±14 |
| 600.0 | 600 | 0 | 600 | 0 | ±14 |
| 900.0 | 900 | 0 | 900 | 0 | ±14 |
| 1150.0 | 1150 | 0 | 1150 | 0 | ±14 |

Comments: Recorder is within customer specification of ±14°C.

The test accuracy ratio of this calibration is at least 4:1 unless otherwise indicated. This unit has been calibrated using equipment and standards traceable to the National Research Council of Canada (NRC), the National Institute of Standards and Technology (NIST), or derived from accepted values of natural physical constants. This calibration certificate applies only to the item described and shall not be reproduced, other than in full, without approval from Reding Instrument Services Ltd.

Calibration Standard(s) Used

| Asset Used | Model Number | Serial Number | Asset Due Date |
|------------|--------------|---------------|-----------------|
| Fluke | 725 | 1407008 | August 16, 2013 |

Technician

SEP 11 2012

Date

Sign Off (Customer)

SEPTEMBER 11, 2012

Date



Heat Treat Instructions

| | | | | |
|-----------------------|----------------------|--------------------------|--------------|------------|
| Customer: | PennWest Exploration | | Date: | 20/09/2012 |
| Job Number(s): | 12-052 | Serial Number(s): | 12-052-1 | |

COMPONENT DESCRIPTION

| Drawing No. & Line No. | Diameter (") | Thickness (") | Material | Length (") | Weight (lb) |
|------------------------|--------------|---------------|-----------|------------|-------------|
| 12-052 VESSEL | 24.000 | 0.693 | SA516-70N | 60" s/s | 1,500 |
| | | | | | |
| | | | | | |

TYPE OF HEAT TREATMENT: **PRESSURE VESSEL STRESS RELIEF P-No. 1**

HEATING

Temperature to be raised from 800 F (427 C) to 1150 F (621 C) at a maximum rate of:

400 F/hr, (**222** C/hr)

NOTE: THIS VALUE MUST NEVER EXCEED 400 F (222 C) PER HOUR.

[Calculated rate = 400 degrees F/hr. (222 degrees C/hr.) Divided by the maximum metal thickness of the shell or head plate in inches]

HOLDING

Temperature to be held at a minimum of 1150 F (621 C) for: **60** minutes

[Holding time to be determined by Table UCS-56 for Nominal Thickness as specified in UW-40(f)]

COOLING

Temperature to be lowered from 1150 F (621 C) to 800 F (427 C) at a maximum rate of:

500 F/hr, (**278** C/hr)

NOTE: THIS VALUE MUST NEVER EXCEED 500 F (278 C) PER HOUR.

[Calculated rate = 500 degrees F/hr. (278 degrees C/hr.) Divided by the maximum metal thickness of the shell or head plate in inches]

From 800 F (427 C) items may be cooled in still air.

ADDITIONAL REQUIREMENTS

- Job number and description required on heat treatment charts along with the operator's signature & date.
- Reporting of thermocouple attachment method and location, and verification of furnace thermocouple calibration is required.
- A sufficient number of thermocouples shall be located to control and maintain uniform distribution of temperature on all vessels and parts. Thermocouples shall be directly attached to the item or provision shall be made for thermocouple placement at bottom, centre and top of the furnace charge in accordance with the ASME Code.
- During the heating period, there shall not be a greater variation in temperature throughout the portion of the vessel being heated than 250°F (139°C) within any 15 ft. (4.6 m) interval of length. An adequate number of thermocouples must be used to ensure this Code requirement is met. This limitation is also applicable to the temperature variations between the different thicknesses of various vessel components.
- During the holding period, there shall not be a greater difference than 150°F (83°C) between the highest and lowest temperature throughout the portion of the vessel being heat treated, except where the range is further limited by these instructions.
- If Capacitor Discharge welding is used to attach thermocouples an ASME Code Section IX Welding Procedure Specification is required (WPS qualification is not required), and the energy output must be limited to 125 Watt-Seconds. No other welding is permitted on vessels or parts.
[0.5 X Capacitance in farads X Voltage² = W-Sec.]
- The method of thermocouple removal shall not damage the heat treated item.

APPROVALS

Quality Control Inspector Signature: *[Signature]* Date: October 17/2012

Thermocouple Attachment Method/Locations: CAPACITANCE TOP/MID/BOTTOM

Furnace Heat Number: # 3-12-130

Furnace Operator Signature: *[Signature]* Date: OCTOBER 23, 2012



**INTEGRATED
METALLURGICAL SERVICES LTD.**
5110A - 77 Avenue S.E., Calgary, Alberta T2C 2Z2

DATE: **OCTOBER 23, 2012**

CUSTOMER: **GLOBALFLOW INTELLIGENT PRODUCTION SOLUTIONS**

ORDER NO: **PO008603**

JOB NO: **12-084/12-021/12-052/12-053**

PROCEDURE: **P.W.H.T.**

HEAT TREATING PER: **A.S.M.E.**

RATE OF RISE: **MOD. To 425°C to 621°C at 125°C/Hr**

HOLDING TEMP.: **621°C +14°C**

HOLDING TIME: **90 Min. Minimum**

COOLING RATE: **621°C to 425°C at 150°C/Hr.**

MATERIAL: **SA-516-70N**

NOTES:

2-VESSELS, 36"O/Dx116"O/Lx1.500"wall MAX. 7,710# Each JOB

#12-084, SER. #12-084-9&10, DWG. #12-084-VESSEL

ULTRAFAB INDUSTRIES LTD., 1-VESSEL, 30"O/Dx120"Slx.750"wall

MAX. 3,456# JOB #12-021 SER. #12-021-1, DWG. #12-021-VESSEL

2-VESSELS, 24"O/Dx60"Slx.693"wall MAX. 1,500# EACH JOB

#12-052, SER. #12-052-1, JOB #12-053, SER. #12-053-1

DWG. #12-052 & 12-053-VESSEL - PENNWEST EXPLORATION

OPERATOR: **Collin Pryde** Heat: #3-12-130

SIGNING
FOR I.M.S. LTD.

APPROVED BY

KIM INSKO

TYPE K TYPED

0 100 200 300 400 500 600 700

TYPE K TYPED

0 100 200 300 400 500 600 700

TYPE K TYPED

0 100 200 300 400 500 600 700

TYPE K TYPED

0 100 200 300 400 500 600 700

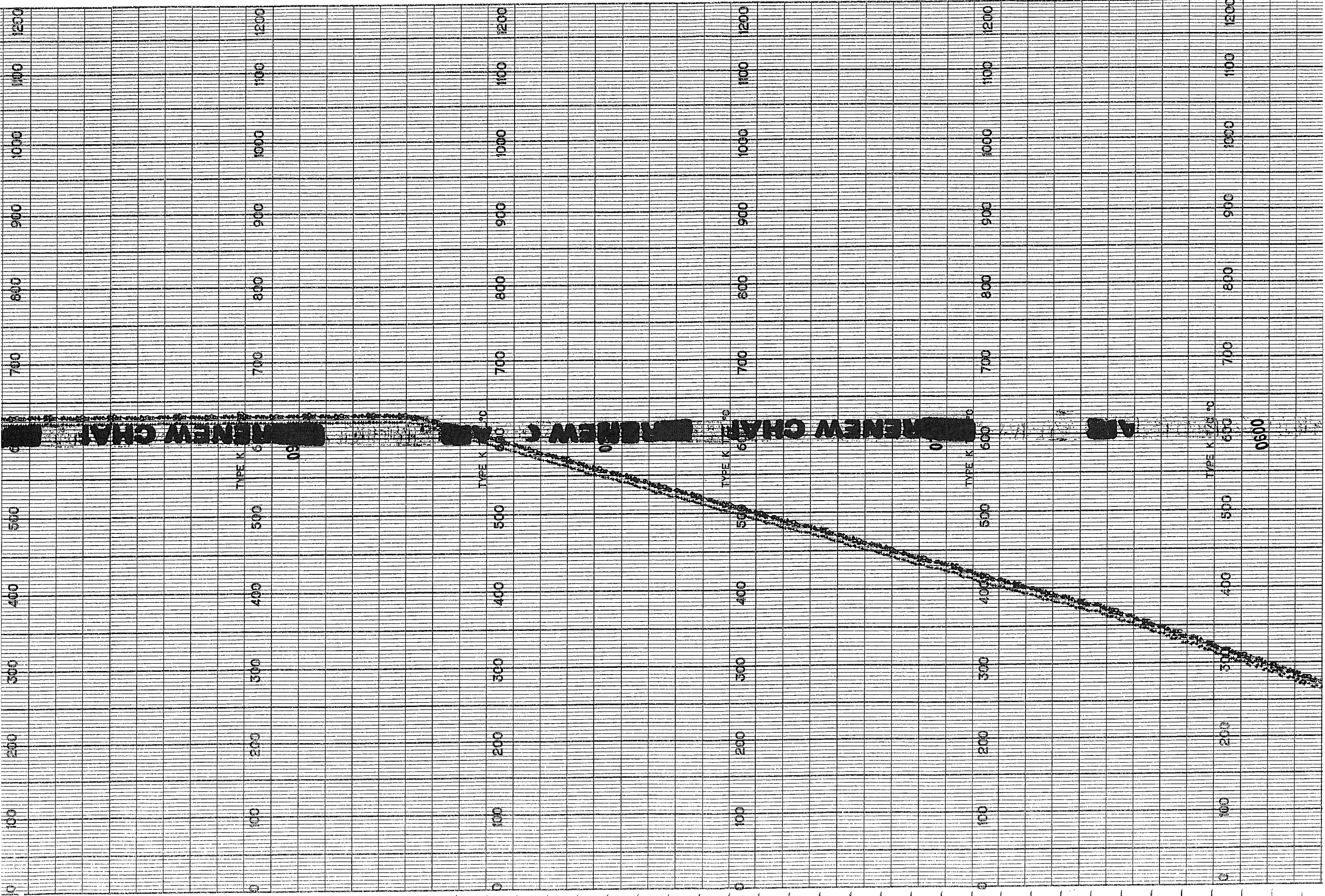
TYPE K TYPED

0 100 200 300 400 500 600 700

0 100 200 300 400 500 600 700 800 900 1000 1100 1200

0 100 200 300 400 500 600 700 800 900 1000 1100 1200

0 100 200 300 400 500 600 700 800 900 1000 1100 1200



HYDRO TEST REPORT

Hydro Test Pressure

1080 psig

Date

Oct 30, 2012

Serial Number

12-052

Start Time

0800

Pressure Gauge #1

SR#

GLF-2000-17

| | Reading | Q.C Initials | Witness Initials | Other |
|---|---------|--------------|------------------|-------|
| 1 | 1110 | DM | KM | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Pressure Gauge #2

SR#

GLF-2000-14

| | Reading | Q.C Initials | Witness Initials | Other |
|---|---------|--------------|------------------|-------|
| 1 | 1100 | DM | KM | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Test Passed



signature

Time Ended

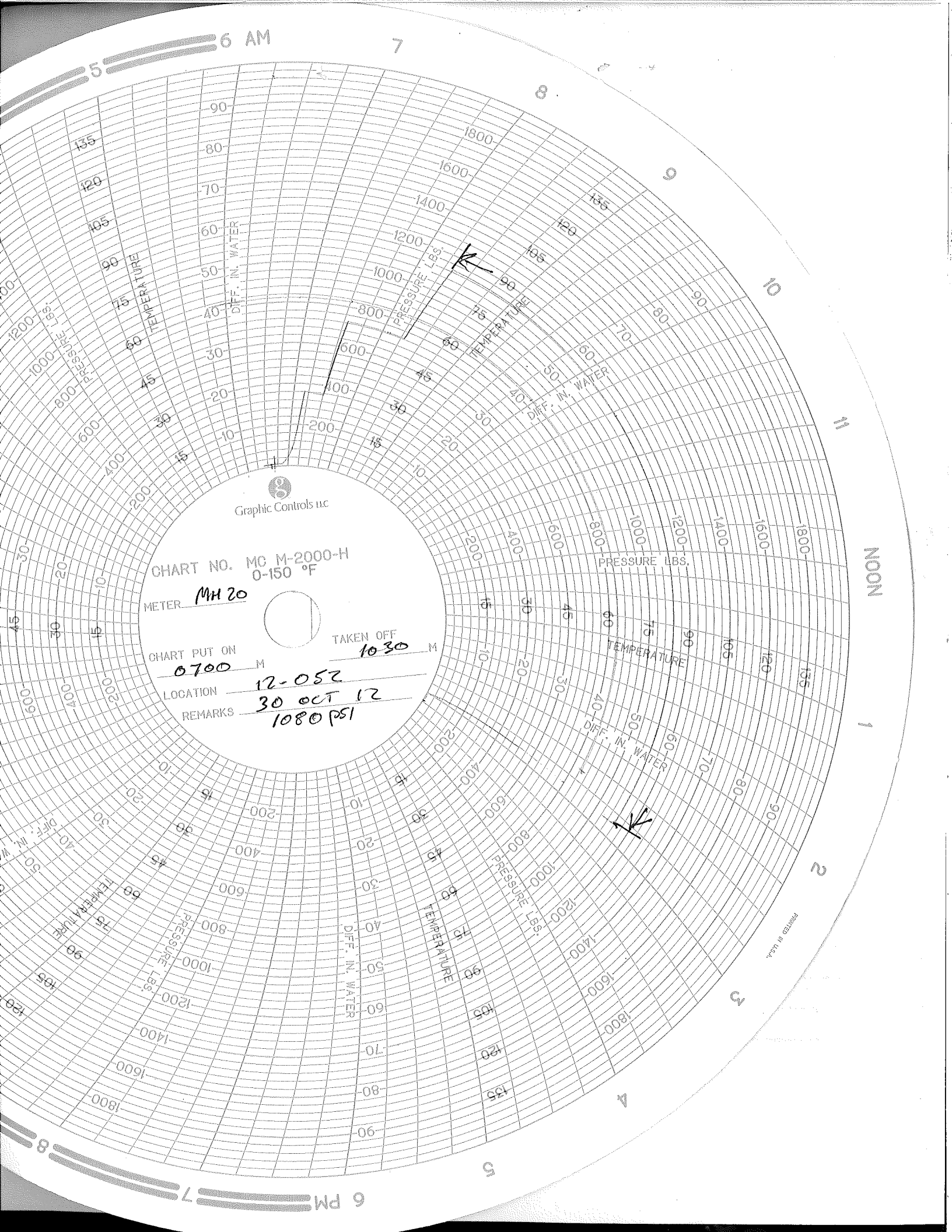
1030

Test Failed

Comments:

Rechecked # 20





Graphic Controls inc

CHART NO. MC M-2000-H
0-150 °F

METER MH 20

CHART PUT ON 0700 M

TAKEN OFF 1030 M

LOCATION 12-052

REMARKS 30 OCT 12
1080 PSI

NOON

1

2

3

4

5

6 PM

7

5

6 AM

7

8

9

10

11

PRINTED IN U.S.A.



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Wika Pressure Gauge*

IDENTIFICATION NO.: *GF-2000-17*

CALIBRATION INTERVAL: *Nearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|------------------------|-----------------------------|-------------------------|-------------------------|
| | <i>* See attached for</i> | <i>Previous Records</i> | |
| <i>Dec. 12/07</i> | <i>[Signature]</i> | <i>*</i> | <i>Dec. /08</i> |
| <i>January 12/09</i> | <i>[Signature]</i> | | <i>Jan. /10</i> |
| <i>January 5/10</i> | <i>[Signature]</i> | | <i>Jan. 5/11</i> |
| <i>JANUARY 18 2011</i> | <i>[Signature]</i> | | <i>JANUARY 18 2012</i> |
| <i>January 16/12</i> | <i>[Signature]</i> | | <i>January 16 /13</i> |
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Calibration Requirements and Instructions:



4137

CALIBRATION REPORT

Date Jan 16 2012

Scheduled P.M. Yes No

Medicine Hat, AB
Phone: (403) 529-6559
Fax: (403) 526-3249

Calgary, AB
Phone (403) 219-0488
Fax: (403) 230-0218

Claresholm, AB
Phone (403) 625-5299
Fax: (403) 625-5220

Swift Current, SK
Phone (306) 773-5555
Fax: (306) 773-5445

Lloydminster, AB
Phone (780) 875-0069
Fax: (780) 875-0677

Location Global Flow

Description of Services Pres gauge verification

Tag # GLF-2000-17

Range 0-2000Psi

Make/Model Wika

Instrument Condition good

Calibration Equipment Used Falcon digital gauge S/N 30240 0-5000Psi

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 995 | 50 | 1000 | 995 |
| 75 | 1500 | 1495 | 75 | 1500 | 1495 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments _____

Calibration Equipment Traceable
to a National Standard
DJ

Dean Fardnick

Hours

Technician



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Wika Pressure Gauge*

IDENTIFICATION NO.: *GLF-2000-14*

CALIBRATION INTERVAL: *Nearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|--------------------|--|-------------------|-------------------------|
| | <i>* see attached for previous records</i> | | |
| <i>Dec. 12/07</i> | <i>Jim Dugan</i> | <i>*</i> | <i>Dec. 108</i> |
| <i>May. 23/08</i> | <i>Jim Dugan</i> | <i>-</i> | <i>May 109.</i> |
| <i>May 5/09</i> | <i>W</i> | <i>-</i> | <i>May 5/10</i> |
| <i>April 16/10</i> | <i>W</i> | <i>-</i> | <i>April 16/11</i> |
| <i>APR. 14/11</i> | <i>CL</i> | <i>-</i> | <i>APRIL/12</i> |
| <i>May 3/12.</i> | <i>Jim</i> | <i>-</i> | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

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Toll Free: 1.866.219.7373

0358

Scheduled P.M. Yes No

Location REDCLIFF AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEANED / VERIFIED GAGE

Tag # GLF-2000-M

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD (CONNECTION THREAD HAVE SMALL DAMAGE)

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-42372

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED GOOD ✓

Calibration Equipment Traceable to a National Standard

D1

Hours

Technician

D. EDWARDS



CALIBRATION REPORT

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Toll Free: 1.866.219.7373

CR 1483

CUSTOMER/PRODUCER: GLOBAL FLOW INC. DATE: JULY 31, 2012

LOCATION: PROCESS EQUIPMENT REDCLIFF AB

Form with fields: TUBE & SIZE, UPSTR., DOWNSTR., ORIFICE METER, MAKE, SERIAL NO., ZERO READING, PEN ARC, INKING SYSTEM

Table with columns: DIFFERENTIAL, STATIC, ATMOS. PRESS., TEMPERATURE RECORDER. Includes rows for REFERENCE INPUT, DWG, and REFERENCE TEMP.

Form with fields: ORIFICE FITTING, CALIBRATION PROCEDURE & REMARKS, MAKE, TYPE, PLATE SIZE, PLATE CONDITION, TYPE CONN.

Table with columns: PARTS INSTALLED, TOTAL PARTS, TOTAL CHARGES

INSPECTOR SIGNATURE, NAME, DATE

COMPANY REP. SIGNATURE, NAME, DATE

HYDRO TEST REPORT

HYDRO TEST MUST BE SIGNED ON TO BEGIN ONCE AT TEST PRESSURE

Hydro Test Pressure 1080 psi

Date Feb 5 2013

Serial Number 12-050, 12-055

Start Time 10:15 am

Pressure Gauge #1

SR# GLF-2000-14

| | Reading | Q.C Initials | Witness Initials | Owner | Other |
|---|---------|--------------|------------------|-------|-------|
| 1 | 1100 | AM | U | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Pressure Gauge #2

SR# GLF-2000-18

| | Reading | Q.C Initials | Witness Initials | Owner | Other |
|---|---------|--------------|------------------|-------|-------|
| 1 | 1120 | AM | U | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Test Passed Time Ended 1:00 pm
signature

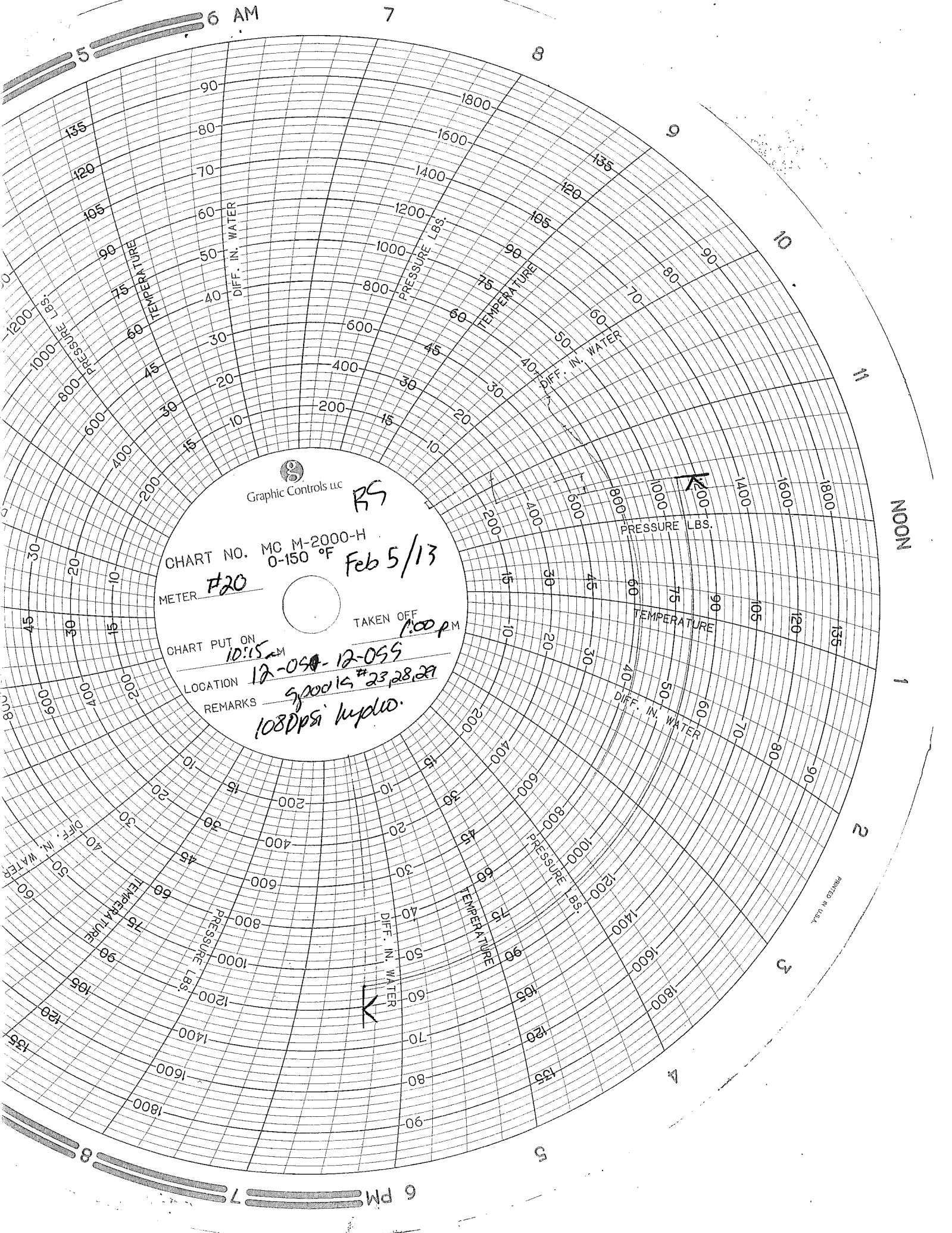
Test Failed Comments: Rec. #20

N/A Yes No

Chart Recorder
 Split hydro
 Gauge Checked

N/A Yes No

Confirm Test Pressure
 Pre-Hydro P&ID Check



5 6 AM

7

8

9

10

11

NOON

1

2

3

4

5

6 PM 7 8



CHART NO. MC M-2000-H
 0-150 °F
 METER #20
 TAKEN OFF 1:00 P.M.
 CHART PUT ON 10:15 AM
 LOCATION 12-05A-12-05S
 REMARKS 5000 IS #23,28,29
 108Dpsi hydro.
 Feb 5/13

PRINTED IN U.S.A.



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Mika Pressure Gauge*

IDENTIFICATION NO.: *GLF-2000-14*

CALIBRATION INTERVAL: *Nearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|--------------------|--|-------------------|-------------------------|
| | <i>* see attached for previous records</i> | | |
| <i>Dec. 12/07</i> | <i>Jim Dugan</i> | <i>*</i> | <i>Dec. 108</i> |
| <i>May. 23/08</i> | <i>Jim Dugan</i> | <i>-</i> | <i>May 109.</i> |
| <i>May 5/09</i> | <i>W</i> | <i>-</i> | <i>May 5/10</i> |
| <i>April 16/10</i> | <i>W</i> | <i>-</i> | <i>April 16/11</i> |
| <i>APR. 14/11</i> | <i>CL</i> | <i>-</i> | <i>APRIL/12</i> |
| <i>May 3/12.</i> | <i>Jim</i> | <i>-</i> | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

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Toll Free: 1.866.219.7373

0358

Scheduled P.M. Yes No

Location REDCLIFF AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEANED / VERIFIED GAGE

Tag # GLF-2000-M

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD (CONNECTION THREAD HAVE SMALL DAMAGE)

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-42372

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED GOOD ✓

Calibration Equipment Traceable to a National Standard

D1

Hours

Technician

D. EDWARDS



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Wika Pressure Gauge*

IDENTIFICATION NO.: *GIF-2000-18*

CALIBRATION INTERVAL: *Yearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|-----------------------|--|-------------------|-------------------------|
| | <i>* see attached for Previous Records</i> | | |
| <i>February 20/08</i> | <i>Jim P...</i> | <i>*</i> | <i>February 20/09</i> |
| <i>March 5/09</i> | <i>hi</i> | | <i>March 5/10</i> |
| <i>April 16/10</i> | <i>ly</i> | | <i>April 16/11</i> |
| <i>APRIL 14/11</i> | <i>[Signature]</i> | | <i>APRIL 14/12</i> |
| <i>May 3/12</i> | <i>Jim</i> | | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

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Toll Free: 1.866.219.7373

0367

Scheduled P.M. Yes No

Location REDCLIFF, AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEAN / VERIFY GAUGE

Tag # GLF-2000-18

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-423322

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED (GOOD)

Calibration Equipment Traceable to a National Standard

D4

1
Hours

D. EMMUNSON
Technician



CALIBRATION REPORT

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CR 1483

CUSTOMER/PRODUCER: GLOBAL FLOW INC. DATE: JULY 31, 2012

LOCATION: PROCESS EQUIPMENT REDCLIFF AB

Form with fields: TUBE & SIZE, UPSTR., DOWNSTR., ORIFICE METER, MAKE (BARTON), RANGE (7000PSI), DIFF, FOUND, LEFT, LINE PRESS, CLOCK SPEED, SERIAL NO. (MH-20), ZERO READING (ADJ), PEN ARC (ADJ), INKING SYSTEM (NEW GRN)

Table with columns: DIFFERENTIAL, STATIC, ATMOS. PRESS., TEMPERATURE RECORDER. Includes rows for REFERENCE INPUT, METER OUTPUT, DWG, and RECORDER RANGE (0-150°F).

Form with fields: ORIFICE FITTING, CALIBRATION PROCEDURE & REMARKS (CRYSTAL DIGITAL DEADWEIGHT 2262-423322), MAKE, TYPE, PLATE SIZE, PLATE CONDITION, TYPE CONN.

Table with columns: PARTS INSTALLED, TOTAL PARTS, TOTAL CHARGES. Includes handwritten entry: GRN PEN.

INSPECTOR SIGNATURE: [Signature] NAME: DUSTIN EDWARDS DATE: JULY 31, 2012

COMPANY REP. SIGNATURE: _____ NAME: _____ DATE: _____

HYDRO TEST REPORT

HYDRO TEST MUST BE SIGNED ON TO BEGIN ONCE AT TEST PRESSURE

Hydro Test Pressure 1080 psig

Date Mar 21/2013

Serial Number 12-052-1

Start Time _____

Pressure Gauge #1

SR# 2000-18

| | Reading | Q.C Initials | Witness Initials | Owner | Other |
|---|---------|--------------|------------------|-------|-------|
| 1 | 1080 | AM | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Pressure Gauge #2

SR# 2000-14

| | Reading | Q.C Initials | Witness Initials | Owner | Other |
|---|---------|--------------|------------------|-------|-------|
| 1 | 1080 | AM | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

Test Passed AM Time Ended 8:30'
signature

Test Failed Comments: _____

N/A Yes No

Chart Recorder

Split hydro

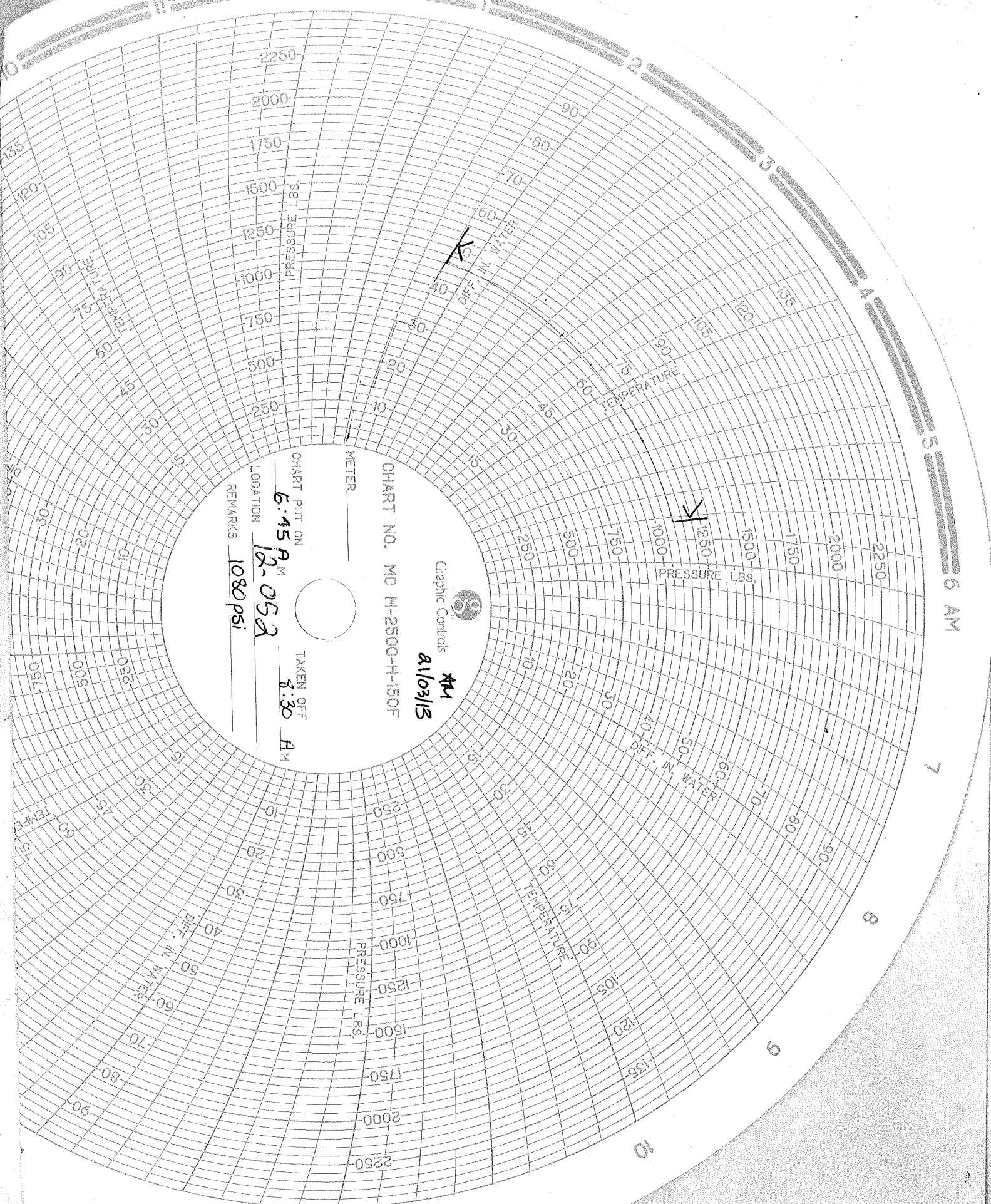
Gauge Checked


N/A Yes No

Confirm Test Pressure

Pre-Hydro P&ID Check

MIDNIGHT



Graphic Controls  **AM**
 CHART NO. MC M-2500-H-150F
 8/103/13
 METER _____
 CHART PUT ON 6:45 AM
 LOCATION 12-052
 TAKEN OFF 8:30 AM
 REMARKS 1080 psi

DIFF. IN WATER
 40
 60

PRESSURE LBS.
 1000
 1250
 1500

6 AM

NOON



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Mika Pressure Gauge*

IDENTIFICATION NO.: *GIF-2000-14*

CALIBRATION INTERVAL: *Nearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|--------------------|--|-------------------|-------------------------|
| | <i>* see attached for previous records</i> | | |
| <i>Dec. 12/07</i> | <i>Jim Dugan</i> | <i>*</i> | <i>Dec. 108</i> |
| <i>May. 23/08</i> | <i>Jim Dugan</i> | <i>-</i> | <i>May 109.</i> |
| <i>May 5/09</i> | <i>W</i> | <i>-</i> | <i>May 5/10</i> |
| <i>April 16/10</i> | <i>W</i> | <i>-</i> | <i>April 16/11</i> |
| <i>APR. 14/11</i> | <i>CL</i> | <i>-</i> | <i>APRIL/12</i> |
| <i>May 3/12.</i> | <i>Jim</i> | <i>-</i> | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

Automation • Controls • Process Equipment

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Toll Free: 1.866.219.7373

0358

Scheduled P.M. Yes No

Location REDCLIFF AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEANED / VERIFIED GAGE

Tag # GLF-2000-M

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD (CONNECTION THREAD HAVE SMALL DAMAGE)

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-42372

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED GOOD ✓

Calibration Equipment Traceable to a National Standard

D1

Hours

Technician

D. EDWARDS



EQUIPMENT CALIBRATION LOG

EQUIPMENT DESCRIPTION: *Wika Pressure Gauge*

IDENTIFICATION NO.: *GIF-2000-18*

CALIBRATION INTERVAL: *Yearly Max.*

| Calibration Date | Calibration Record Verified | Date of First Use | Calibration Expiry Date |
|-----------------------|--|-------------------|-------------------------|
| | <i>* see attached for Previous Records</i> | | |
| <i>February 20/08</i> | <i>Jim P...</i> | <i>*</i> | <i>February 20/09</i> |
| <i>March 5/09</i> | <i>hi</i> | | <i>March 5/10</i> |
| <i>April 16/10</i> | <i>ly</i> | | <i>April 16/11</i> |
| <i>APRIL 14/11</i> | <i>[Signature]</i> | | <i>APRIL 14/12</i> |
| <i>May 3/12</i> | <i>Jim</i> | | <i>May 3/13</i> |
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Calibration Requirements and Instructions:



CALIBRATION REPORT

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Toll Free: 1.866.219.7373

0367

Scheduled P.M. Yes No

Location REDCLIFF, AB

Date MAY 3, 2012

Division PROCESS EQUIPMENT

Description of Services CLEAN / VERIFY GAUGE

Tag # GLF-2000-18

Range 0-2000 PSI

Make/Model WIKA

Instrument Condition GOOD

Calibration Equipment Used CRYSTAL DIGITAL DEADWEIGHT 2262-423322

| As Found | | | As Left | | |
|----------|-------|--------|---------|-------|--------|
| % | Input | Output | % | Input | Output |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 500 | 500 | 25 | 500 | 500 |
| 50 | 1000 | 1000 | 50 | 1000 | 1000 |
| 75 | 1500 | 1500 | 75 | 1500 | 1500 |
| 100 | 2000 | 2000 | 100 | 2000 | 2000 |

Parts Used/Comments CLEANED / VERIFIED (GOOD)

Calibration Equipment Traceable to a National Standard

D4

1
Hours

D. EDMUNDSON
Technician



CALIBRATION REPORT

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CR 1483

CUSTOMER/PRODUCER: GLOBAL FLOW INC. DATE: JULY 31, 2012

LOCATION: PROCESS EQUIPMENT REDCLIFF AB

Form with fields: TUBE & SIZE, UPSTR., DOWNSTR., ORIFICE METER, MAKE (BARTON), RANGE (7000PSI), DIFF, FOUND, LEFT, LINE PRESS, CLOCK SPEED, SERIAL NO. (MH-20), ZERO READING (ADJ), PEN ARC (ADJ), INKING SYSTEM (NEW GRN)

Table with columns: DIFFERENTIAL, STATIC, ATMOS. PRESS., TEMPERATURE RECORDER. Includes rows for REFERENCE INPUT, METER OUTPUT, DWG, and TEMP. with handwritten values.

Form with fields: ORIFICE FITTING, CALIBRATION PROCEDURE & REMARKS (CRYSTAL DIGITAL DEADWEIGHT 2262-423322), MAKE, TYPE, PLATE SIZE, PLATE CONDITION, TYPE CONN.

Table with columns: PARTS INSTALLED, TOTAL PARTS, TOTAL CHARGES. Includes handwritten entry: GRN PEN.

INSPECTOR SIGNATURE: [Signature] NAME: DUSTIN EDWARDS DATE: JULY 31, 2012

COMPANY REP. SIGNATURE: _____ NAME: _____ DATE: _____



U
W
RT-1
HT

CERTIFIED BY: Global Flow Inc.

SERIAL NO. 12-052-1 YEAR 2012

MAWP 720 PSI kPa AT 130 °F °C
MAEWP _____ PSI kPa AT _____ °F °C
MDMT -20 °F °C AT 720 PSI kPa

| C.A. | | CRN | TAG |
|-------|--------|---------------|----------------|
| 0.125 | in. mm | V2315.2134 | |
| HEAD | THK | 0.5625 in. mm | MAT. SA516-70N |
| SHELL | | 0.625 in. mm | |

(A)623885



GlobalFlow

Redcliff, Alberta
(403) 504-0911

CERTIFIED MILL TEST REPORT

B The Best Value -
Price, Quality, Service
All The Time.

LOG NO. F0000000033561 Page 2 of 5

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 08/31/2012

CUSTOMER
ORDER NO.: 4891772-00

BONNEY ORDER NO. B000127898

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|--------------|----------|---------|---|
| 5 7559497 | 6 | 58405 | 14 -12 X 6 XS A105N WELD B SA/A105N Al 0.025 C 0.160 Cb 0.002 Co 0.006 Cr 0.120 Cu 0.170 Mn 1.030 Mo 0.020 N 0.008 Ni 0.070 P 0.007 S 0.016 Si 0.230 V 0.034 CE(Long Formula) = 0.38 T/S(PSI) 87,000 Y/S(PSI) 38,400 EL(%) 55.00 RA(%) 73.00 Brinell 156 BHN 156 BHN |
| 6 7551576 | 200 | 58662 | 12 -6 X 3/4 3000 A105N THRD T SA/A105N Al 0.022 C 0.220 Co 0.002 Cr 0.030 Cu 0.050 Mn 1.050 Mo 0.000 N 0.003 Nb 0.013 Ni 0.020 P 0.006 S 0.020 Si 0.210 V 0.003 CE(Long Formula) = 0.41 T/S(PSI) 81,366 Y/S(PSI) 53,373 EL(%) 31.00 RA(%) 56.00 Brinell 163 BHN 163 BHN |
| 7 7551584 | 125 | 58392 | 36 -14 X 3/4 3000 A105N THRD T SA/A105N C 0.200 Cb 0.000 Co 0.002 Cr 0.040 Cu 0.100 Mn 1.010 Mo 0.010 Ni 0.020 P 0.009 S 0.020 Si 0.180 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 74,000 Y/S(PSI) 48,800 EL(%) 32.00 RA(%) 69.00 Brinell 163 BHN 163 BHN |
| 7551584 | | 58337 | 36 -14 X 3/4 3000 A105N THRD T SA/A105N Al 0.022 C 0.210 Cb 0.000 Co 0.002 Cr 0.040 Cu 0.080 Mn 1.060 Mo 0.000 N 0.006 Nb 0.012 Ni 0.030 P 0.008 S 0.017 Si 0.190 V 0.004 CE(Long Formula) = 0.40 T/S(PSI) 81,250 Y/S(PSI) 51,875 EL(%) 31.00 RA(%) 64.20 Brinell 156 BHN 153 BHN |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht
Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2

CERTIFIED MILL TEST REPORT

B® The Best Value -
Price, Quality, Service
All The Time.

LOG NO. F0000000033561 Page 5 of 5

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 08/31/2012

**CUSTOMER
ORDER NO.:** 4891772-00

BONNEY ORDER NO. B000127898

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS: |
|------|----------|---------|--|
|------|----------|---------|--|

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
3. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
7. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht
Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2

CERTIFIED MILL TEST REPORT



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LOG NO. F00000000032056 Page 3 of 5

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 07/25/2012

**CUSTOMER
ORDER NO.:** 4891646-00

BONNEY ORDER NO. B000125493

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

| ITEM | QUANTITY | LOT NO. | GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS. |
|---------|----------|---------|---|
| 7551797 | 7 | 58193 | 3 X 11/2 3000 A105N THRD T SA/A105N Al 0.020 C 0.200 Co 0.004 Cr 0.030 Cu 0.090 Mn 1.070 Mo 0.010 N 0.005 Nb 0.014 Ni 0.030 P 0.007 S 0.019 Si 0.180 V 0.004 CE(Long Formula) = 0.40 T/S(PSI) 71,875 Y/S(PSI) 50,000 EL(%) 36.10 RA(%) 65.15 Brinell 132 BHN 137 BHN |
| 7551924 | 8 | 58531 | 36 -20 X 2 3000 A105N THRD T SA/A105N Al 0.028 C 0.200 Co 0.002 Cr 0.050 Cu 0.020 Mn 1.030 Mo 0.010 N 0.003 Nb 0.012 Ni 0.020 P 0.008 S 0.019 Si 0.240 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 71,875 Y/S(PSI) 48,125 EL(%) 33.10 RA(%) 63.00 Brinell 130 BHN 132 BHN |
| 7552017 | 9 | 58664 | 6 X3 3000 A105N THRD T SA/A105N Al 0.028 C 0.200 Co 0.003 Cr 0.030 Cu 0.100 Mn 1.050 Mo 0.000 Nb 0.015 Ni 0.020 P 0.007 S 0.020 Si 0.220 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 73,579 Y/S(PSI) 49,805 EL(%) 29.00 RA(%) 64.24 Brinell 132 BHN 132 BHN |
| 7550024 | 10 | 58257 | 4-31/2X2 3M A105N SOCK S SA/A105N Al 0.023 C 0.200 Cb 0.000 Co 0.003 Cr 0.040 Cu 0.170 Mn 1.040 Mo 0.010 N 0.005 Nb 0.013 Ni 0.040 P 0.008 S 0.019 Si 0.200 V 0.004 CE(Long Formula) = 0.40 T/S(PSI) 71,125 Y/S(PSI) 48,775 EL(%) 34.90 RA(%) 67.25 Brinell 132 BHN 132 BHN |

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Kylee Ruiz
Kylee Ruiz
QUALITY PROCESS MANAGER

CMTR: REV2

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CUSTOMER
ORDER NO.: 4891646-00

BONNEY ORDER NO. B000125493

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5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

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|------|----------|---------|--|
|------|----------|---------|--|

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by

Kylee Ruiz

Kylee Ruiz
QUALITY PROCESS MANAGER

CMTR: REV2

Purchaser: **CCTF CORPORATION**

INSPECTION CERTIFICATE

TO EN10204 3.1

Thai Benkan Co., Ltd.



58 Soi Watkrumai, Bangkrum, Prapadaeng,
Samuprakarn, 10130 Thailand.

E-No. **MC-685** Purchase Order No. **4890904** Job No.

D M Y Certificate No. **01092012 T-2012200659**

| No. | MFG. No. | Specification for Material | | Specification for Inspection | | Visual Examination | Dimensional Inspection |
|-----|----------|----------------------------|----------|------------------------------|----------------------|--------------------|------------------------|
| | | Product & Size | Quantity | Heat Treatment (Note 1) | Hardness Actual Data | | |
| 1 | 12F00018 | 90 EL WPB 2 S80 | 78/200 | A | HB : 130 - 160 | 7510900 | |
| 2 | 12E00018 | 90 EL WPB 6 S80 | 62/200 | A | HB : 120 - 160 | 7511035 | |
| 3 | 12F00023 | 90 EL WPB 6 S80 | 48/200 | A | HB : 120 - 160 | 7511035 | |
| 4 | 11P00065 | 90 ES WPB 2 S80 | 50 | A | HB : 130 - 160 | 7511450 | |
| 5 | 12C00053 | 90 EL WPB 2 S160 | 50 | A | HB : 130 - 160 | 7515146 | |

| Material Heat No. | Chemical Composition % | | | | | | | | | | | Tension Test #2 | | E | |
|-------------------|------------------------|----|----|-----|----|----|----|----|----|---|----|-----------------|-----|-----|----|
| | C | Si | Mn | P | S | Cr | Ni | Cr | Mo | V | Nb | CE | YS | | TS |
| 1 | 973132 | 16 | 19 | 77 | 13 | 5 | 14 | 11 | 20 | 5 | 0 | 36 | 339 | 522 | 31 |
| 2 | 354779 | 19 | 20 | 83 | 17 | 4 | 4 | 5 | 11 | 2 | 0 | 36 | 291 | 469 | 35 |
| 3 | 21305 | 18 | 23 | 86 | 10 | 1 | 7 | 26 | 6 | 4 | 3 | 37 | 277 | 446 | 44 |
| 4 | J6K2576 | 12 | 28 | 127 | 12 | 4 | 2 | 2 | 11 | 0 | 0 | 36 | 341 | 489 | 57 |
| 5 | J1KC269 | 20 | 20 | 84 | 13 | 4 | 1 | 2 | 3 | 3 | 1 | 35 | 309 | 491 | 58 |

| Specification | Chemical Composition % | | | | | | | | | | | Tension Test #2 | | E |
|---------------|------------------------|----|----|---|---|----|----|----|----|---|----|-----------------|-----|-----|
| | C | Si | Mn | P | S | Cr | Ni | Cr | Mo | V | Nb | CE | YS | |
| Min. | X | X | X | X | X | X | X | X | X | X | X | X | | |
| Max. | | | | | | | | | | | | | 240 | 415 |

(Note 1) A : Hot formed with final temperature between 620°C-980°C Air Cooling N : Normalizing 910°Cx0.5 HR Air Cooling *N : Normalizing 910°Cx0.5 HR Air Cooling (Specification for material made from plate) S : Stress-Relieving 675°Cx0.5 HR Air Cooling
 Note for WPB: For each reduction of 0.10%, below the specified carbon maximum an increase of 0.06% manganese above the specified maximum will be permitted up to a maximum of 1.35%
 The range was manufactured stamped tested and inspected in accordance with the specification, and was found to meet the requirements

CE = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
 MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY:
 We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
 Form TZ-6A/3

Quality Assurance Manager
 Thai Benkan Co., Ltd.
 Rungkrong Kampran



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INOSSIDABILI

SEDE AMMINISTRATIVA E STABILIMENTO:

29861 CESANA BRIANZA (LC) - Italy
 Via G. Pirelli, 28
 Tel. +39 031 655441
 Fax +39 031 655149
 quality.metalfar@ms.com

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

4891089-00

| | |
|--|----------------------------|
| CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE | |
| Certif. N. 2150 | Del/Dated 03.05.2012 |
| DDT / Del Note N. 1704 | Del/Dated 27.04.2012 |
| FORGED FLANGES & FITTINGS LTD | |
| CASTLE HOUSE - STATION ROAD | |
| ENS 1PE NEW BARNET/HERTFORD... | |
| GB | 5407, 53 AVENUE |
| GB | T68 3062 EDMONTON, ALBERTA |
| CA | |

Page 3 - 7

| COD. COL. COLATA | POS. | VS. ORDINE | Q.TA' | DESCRIZIONE | DIM. IN ACC. A | VSIVO E DIMENS. |
|---|----------|---|------------------|-------------------------|----------------------|-----------------|
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | DIM. ACCORDANCE TO | VIS. & DIMENS. |
| 1230720 | 056 | 3832/CCTF EDM | 258,00 | WIN 300 RF 3" STD A105N | ASME/ANSI B16.5-2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | C% S% Mn% P% C% Ni% Mo% Ti% Cu% V% Nb% N% Al% C.E.% | | | | |
| ASTM A105 (LADLE) | | 0,195 0,230 0,940 0,010 0,012 0,090 0,050 0,010 0,018 0,090 0,002 0,002 0,000 0,025 0,381 | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA |
| SECT. mm2 | LUNG. mm | YIELD POINT | TENSILE STRENGTH | ELONGATION | REDUCTION OF AREA | HARDNESS |
| 126,60 | 50,80 | Nim2 >=0,5% | Nim2 >= | % >= | % >= | HBW |
| | | 1 | 340,0 | 517,0 | 58,0 | 156,0 - 159,0 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | | |

| COD. COL. COLATA | POS. | VS. ORDINE | Q.TA' | DESCRIZIONE | DIM. IN ACC. A | VSIVO E DIMENS. |
|---|----------|---|------------------|-------------------------|----------------------|-----------------|
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | DIM. ACCORDANCE TO | VIS. & DIMENS. |
| 1447/11 | 064 | 3832/CCTF EDM | 50,00 | WIN 300 RF 2" 160 A105N | ASME/ANSI B16.5-2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | C% S% Mn% P% C% Ni% Mo% Ti% Cu% V% Nb% N% Al% C.E.% | | | | |
| ASTM A105 (LADLE) | | 0,188 0,240 1,060 0,002 0,002 0,070 0,080 0,024 0,020 0,100 0,003 0,002 0,000 0,025 0,396 | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA |
| SECT. mm2 | LUNG. mm | YIELD POINT | TENSILE STRENGTH | ELONGATION | REDUCTION OF AREA | HARDNESS |
| 126,60 | 50,80 | Nim2 >=0,5% | Nim2 >= | % >= | % >= | HBW |
| | | 1 | 346,0 | 557,0 | 58,0 | 166,0 - 170,0 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | | |

| COD. COL. COLATA | POS. | VS. ORDINE | Q.TA' | DESCRIZIONE | DIM. IN ACC. A | VSIVO E DIMENS. |
|---|----------|---|------------------|-------------------------|----------------------|-----------------|
| HEAT CODE HEAT | ITEM | YOUR REFERENCE | Q.TY | DESCRIPTION | DIM. ACCORDANCE TO | VIS. & DIMENS. |
| 564447 | 080 | 3832/CCTF EDM | 12,00 | WIN 600 RF 12" 80 A105N | ASME/ANSI B16.5-2009 | SATISFACTORY |
| MATERIALE / MATERIAL | | C% S% Mn% P% C% Ni% Mo% Ti% Cu% V% Nb% N% Al% C.E.% | | | | |
| ASTM A105 (LADLE) | | 0,190 0,240 1,030 0,004 0,011 0,090 0,050 0,010 0,020 0,070 0,010 0,001 0,000 0,029 0,392 | | | | |
| PROVETA / TEST SPECIMEN | FORMA | SVERNAMENTO | ROTTURA | ALLUNGAMENTO | CONTRAZIONE | DUREZZA |
| SECT. mm2 | LUNG. mm | YIELD POINT | TENSILE STRENGTH | ELONGATION | REDUCTION OF AREA | HARDNESS |
| 126,60 | 50,80 | Nim2 >=0,5% | Nim2 >= | % >= | % >= | HBW |
| | | 1 | 356,0 | 568,0 | 58,0 | 168,0 - 172,0 |
| MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO | | | | | | |
| ASTM/A5M E A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 | | | | | | |
| TRATTAMENTO TERMICO / HEAT TREATMENT | | | | | | |
| NORMALIZED AT 920 C - COOLED IN STILL AIR | | | | | | |

| | | | | | | | |
|---|--|----------------------------|--|----------------------------|--|-----------------------|--|
| NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION | | UFFICIO CONTROLLO QUALITA' | | ENTE UFFICIALE DI COLLAUDO | | MARCHIO PRODUZIONE | |
| NOTES MATERIAL IN ACCORDANCE WITH MADE MR-075/2003 ISO 15156-2009 | | QUALITY CONTROL DEPARTMENT | | INSPECTION AUTHORITY | | MANUFACTURER'S SYMBOL | |
| | | <i>L. Corti</i> | | <i>L. Corti</i> | | | |

CLIENTE / Customer / Client
CGT CORPORATION (ONTARIO)
 4151 NORTH SERVICE RD.
 UNIT 2
 BRIMLEYTON, ONTARIO
 L7L 6K6 - CANADA

CERTIFICADO DE INSPECCION
 Inspection Certificate - Certificat de Reception
 FECHA: 24/01/2012 N.º 144978
 Date: 24/01/2012 No. 144978

OH EN 10204 / 3.1
 ISO 10474 / 3.1
 HOJA: 3
 Page: 3



PRODUCTO **FLANGES**
 Article - Produit
 NORMAS APLICABLES **ASME B1.6.47.08**
 Requirements - Normes Applicables
 MATERIAL CORRESPONDIENTE **ASTMA1025N-10**
 Material Correspondant - Qualité **ASME SA105N-10**
 MODO DE FUSION (?) **NACE MR-01-75ISO15156-2-08 & MR-01-0307**
 Steel Making - Elaboracion de Hierro
 E = Elec. V = Originao basico

SU PEDIDO N.º **4029796-00**
 Your Order No. **4029796-00**
 Votre Cde. N.º

DE of - de **16/12/2011**
 DEPARTAMENTO **QUALITY ASSURANCE**
 Department

Certified acc. PED 9723/EC-AD2900-W0
 by TOV Rheinland
 N.º 01 202 EQ 02 7443
 MARCA DEL FABRICANTE
 Mark of factory
 Marque du fabricant

89986
 Bº Zubillaga, 3 - Apart. 14
 20060 OLATU (Gipuzkoa) SPAIN
 Tel. 34 - 943 780582
 Fax. 34 - 943 781808
 E-mail: ulma@unimapping.com

| PARTIDA Item Code | CANTIDAD Quantity | DESCRIPCION Description | REMARKS Observations | COLADA N.º Heat No. N.ºCoulée | RESISTENCIA Yield strength Rm, N/mm² | ESTIRACION Elongation A5, % | RESILIE NCVIA Impact test, Joules | ACERA Acoustic | DUREZA Hardness HB |
|-------------------|-------------------|-----------------------------|----------------------|-------------------------------|--------------------------------------|-----------------------------|-----------------------------------|----------------|--------------------|
| 18 753541-4 | 100 | THR 3/4 150LB RF A105N | NE | 497A1 | 518 | 320 | 58.20 | 30.70 | 150 158 |
| 22 753467-1 | 11 | WIN 6 300LB STD40 RF A105N | NE | 387T1 | 514 | 302 | 28.30 | 28.30 | 149 158 |
| 22 753467-1 | 1 | WIN 6 300LB STD40 RF A105N | NE | 892T1 | 510 | 302 | 53.20 | 28.70 | 149 158 |
| 23 753910-1 | 25 | WIN 1/2 300LB S160 RF A105N | NE | 892T0 | 518 | 316 | 59.50 | 31.00 | 150 157 |
| 25 753501-5 | 5 | WIN 3 300LB S160 RF A105N | NE | 892T0 | 519 | 303 | 52.00 | 28.40 | 149 157 |
| 26 753502-3 | 1 | WIN 4 300LB S160 RF A105N | NE | 277T1 | 519 | 307 | 52.70 | 28.40 | 150 157 |
| 26 753502-3 | 4 | SV 1/2 300LB S160 RF A105N | NE | 327T1 | 519 | 323 | 28.60 | 32.60 | 142 147 |
| 27 753003-2 | 8 | SV 1/2 300LB S160 RF A105N | NE | 1159T1 | 496 | 323 | 58.40 | 31.70 | 149 156 |
| 27 753003-2 | 4 | SV 1/2 300LB S160 RF A105N | NE | 210A0 | 516 | 320 | | | |

COMPOSICION QUIMICA - STEEL MAKERS LADLE ANALYSIS - ANALYSE CHIMIQUE

| Heat No. N.ºCoulée | C % | Si % | Mn % | P % | S % | Cr % | Ni % | Mo % | Nb % | V % | Cu % | Al % | Ti % | N % | Ceq % |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1199T1 | 0.180 | 0.280 | 0.930 | 0.008 | 0.004 | 0.080 | 0.100 | 0.006 | 0.002 | 0.008 | 0.070 | 0.030 | 0.000 | 0.000 | 0.367 |
| 210A0 | 0.240 | 0.270 | 0.970 | 0.010 | 0.014 | 0.080 | 0.100 | 0.010 | 0.002 | 0.003 | 0.240 | 0.030 | 0.000 | 0.000 | 0.396 |
| 227T0 | 0.180 | 0.270 | 0.940 | 0.010 | 0.014 | 0.080 | 0.130 | 0.020 | 0.003 | 0.001 | 0.320 | 0.030 | 0.000 | 0.000 | 0.376 |
| 329T0 | 0.180 | 0.280 | 0.930 | 0.015 | 0.016 | 0.080 | 0.110 | 0.020 | 0.004 | 0.001 | 0.340 | 0.030 | 0.000 | 0.000 | 0.380 |
| 327T1 | 0.200 | 0.280 | 0.930 | 0.015 | 0.015 | 0.080 | 0.110 | 0.020 | 0.004 | 0.001 | 0.380 | 0.030 | 0.000 | 0.000 | 0.387 |
| 387T1 | 0.180 | 0.190 | 0.980 | 0.022 | 0.023 | 0.090 | 0.120 | 0.020 | 0.004 | 0.001 | 0.380 | 0.030 | 0.000 | 0.000 | 0.376 |
| 497A1 | 0.180 | 0.250 | 0.990 | 0.010 | 0.010 | 0.090 | 0.110 | 0.020 | 0.004 | 0.001 | 0.250 | 0.030 | 0.000 | 0.000 | 0.391 |
| 627A0 | 0.210 | 0.260 | 0.940 | 0.010 | 0.005 | 0.120 | 0.120 | 0.010 | 0.001 | 0.002 | 0.220 | 0.030 | 0.000 | 0.000 | 0.399 |
| 682T1 | 0.190 | 0.190 | 0.950 | 0.013 | 0.012 | 0.090 | 0.100 | 0.020 | 0.003 | 0.001 | 0.310 | 0.030 | 0.000 | 0.000 | 0.373 |

Observations

Observations

EL INSPECTOR
 Works Inspector - L'inspecteur



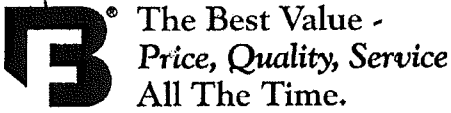
Las dimensiones y la condición superficial se hallaron satisfactorias.
 Dimension and surface condition were found acceptable.
 Les dimensions et états de surfaces sont satisfaisants.
 Las muestras citadas cumplen las normas aplicables.
 Manufacturing requirements are satisfied.
 Les normes applicables sont respectées.

12-052-013

CERTIFIED MILL TEST REPORT

LOG NO. F0000000031496 Page 2 of 4

BONNEY FORGE CORPORATION
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com



CUSTOMER: CCTF CORPORATION

DATE 07/11/2012

CUSTOMER ORDER NO.: 4891593-00

BONNEY ORDER NO. B000124681

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

Table with 4 columns: ITEM, QUANTITY, LOT NO., GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS. Contains 4 rows of material test data for A105N THRD T.

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by Meloney Specht
Meloney Specht
QUALITY PROCESS MANAGER

CMTR: REV2

CERTIFIED MILL TEST REPORT



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LOG NO. F0000000031496

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BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

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CUSTOMER: CCTF CORPORATION

DATE 07/11/2012

CUSTOMER

BONNEY ORDER NO. B000124681

ORDER NO.: 4891593-00

SHIP TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.
EDMONTON AB T6B 3G2
Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

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by

Meloney Specht

QUALITY PROCESS MANAGER

CMTR: REV2

Contract No.: 2110001441
 L/C NO.: 0FAHD5-00367
 P.O. NO.: PO.2481995-OR-2100-A
 Name of Customer: CE FRANKLIN

DESCRIPTION: SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE.
 TOTAL: 12287 CBM, 42 BUNDLES, 88.529MT, 2506.41FT

HENGYANG VALIN STEEL TUBE CO., LTD
 MILL TEST REPORT
 Date: MAY 28, 2010
 Page: 2/2

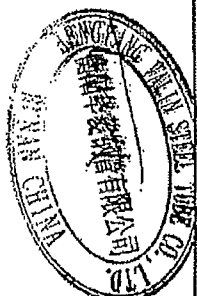
ADD: 10 Dalixin Road, Agyang City, Hunan, China
 Tel and Fax: +86 733 8873739 8872942
 CABLE: 93
 421001

SPEC: ASTM A53B (SEAMLESS CARBON STEEL PIPE) MR-0103/SS (CSA Z245.1 GRADE 290 CATEGORY 1)
 CHEMICAL COMPOSITION: NO. 104-5-31

| NO. | BATCH NO. | HEAT NO. | STEEL GRADE | SIZE | BUNDLES | PIECES | FEET | QUANTITY (MT) | ACTUAL WEIGHT (MT) | CHEMICAL COMPOSITION % | | | | | | | | | | | |
|-----|-----------|----------|--------------|--------------|---------|--------|---------|---------------|--------------------|------------------------|-------|-------|-------|------|------|------|-------|--------|-------|-------|-------|
| | | | | | | | | | | C | Mn | P | S | CU | NI | CR | MO | V | Ti | B | Nb |
| 8 | 904301425 | 1021164V | B/X42/GR 290 | 2*0.218*20FT | 4 | 176 | 3522.31 | 8.036 | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.024 | 0.0002 | 0.030 | 8.178 | 0.310 |
| 9 | 904401815 | 1022686V | B/X42/GR 290 | 2*0.218*20FT | 11 | 459 | 9186.02 | 20.958 | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.024 | 0.0002 | 0.030 | 8.08 | 0.310 |
| 11 | 905101807 | 1022169V | B/X42/GR 290 | 3*0.438*20FT | 7 | 257 | 5143.37 | 17.684 | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.024 | 0.0002 | 0.030 | 8.75 | 0.310 |
| 12 | 904101307 | 1022706V | B/X42/GR 290 | 3*0.438*20FT | 4 | 152 | 3041.39 | 14.904 | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.024 | 0.0002 | 0.030 | 8.75 | 0.310 |
| 8 | | | | | | | | | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.024 | 0.0002 | 0.030 | 8.08 | 0.310 |
| 9 | | | | | | | | | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.024 | 0.0002 | 0.030 | 8.75 | 0.310 |
| 11 | | | | | | | | | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.024 | 0.0002 | 0.030 | 8.75 | 0.310 |
| 12 | | | | | | | | | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.024 | 0.0002 | 0.030 | 8.75 | 0.310 |
| 10 | | | | | | | | | | 0.009 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.025 | 0.0002 | 0.028 | 8.52 | 0.315 |
| 11 | | | | | | | | | | 0.009 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.025 | 0.0002 | 0.028 | 8.52 | 0.315 |
| 12 | | | | | | | | | | 0.008 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.022 | 0.0002 | 0.031 | 8.75 | 0.311 |
| 9 | | | | | | | | | | 0.008 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.022 | 0.0002 | 0.031 | 8.75 | 0.311 |
| 8 | | | | | | | | | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 11 | | | | | | | | | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 12 | | | | | | | | | | 0.008 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.022 | 0.0002 | 0.031 | 8.75 | 0.311 |
| 9 | | | | | | | | | | 0.008 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.022 | 0.0002 | 0.031 | 8.75 | 0.311 |
| 10 | | | | | | | | | | 0.009 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.025 | 0.0002 | 0.028 | 8.52 | 0.315 |
| 11 | | | | | | | | | | 0.009 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.025 | 0.0002 | 0.028 | 8.52 | 0.315 |
| 12 | | | | | | | | | | 0.008 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.022 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 9 | | | | | | | | | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 11 | | | | | | | | | | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 12 | | | | | | | | | | 0.011 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.022 | 0.0001 | 0.028 | 8.75 | 0.311 |
| 9 | | | | | | | | | | 0.011 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.022 | 0.0001 | 0.028 | 8.75 | 0.311 |
| 11 | | | | | | | | | | 0.010 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 12 | | | | | | | | | | 0.010 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 9 | | | | | | | | | | 0.011 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 11 | | | | | | | | | | 0.011 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 12 | | | | | | | | | | 0.012 | 0.003 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 9 | | | | | | | | | | 0.012 | 0.003 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 11 | | | | | | | | | | 0.010 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 12 | | | | | | | | | | 0.010 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 8 | 65250 | 50025 | 50025 | 35 | N/A | N/A | N/A | N/A | N/A | 0.010 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 9 | 67425 | 50025 | 50025 | 38.5 | N/A | N/A | N/A | N/A | N/A | 0.011 | 0.002 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 10 | 68150 | 50025 | 50025 | 41 | N/A | N/A | N/A | N/A | N/A | 0.012 | 0.003 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 11 | 63800 | 47125 | 47125 | 45 | N/A | N/A | N/A | N/A | N/A | 0.010 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |
| 12 | 65975 | 51475 | 51475 | 38.5 | N/A | N/A | N/A | N/A | N/A | 0.010 | 0.001 | 0.051 | 0.021 | 0.03 | 0.01 | 0.01 | 0.023 | 0.0001 | 0.028 | 8.58 | 0.306 |

- REMARKS:
- We hereby certify that this certificate of quality is issued and signed by the manufacturer.
 - We hereby certify that the properties described herein meet the requirement of the above spec.
 - We hereby certify that this certificate is issued accordance with EN 10204.3.1/DIN 50049.3.1B AND NACE MR-0175/MR-0103/15156-2(REGION 3)
 - TYPE: P-Product analysis L-Label analysis;
 - ORIGIN: MADE IN CHINA
 - *I = In/C

Reviewed to Section VIII Div. 1 & addenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirement UG-90 (b),(6)



0.477
 0.476
 0.481

Date: 2010/5/28
 By: [Signature]

Benteler SteelTube GmbH
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 Deutschland
 Tel.: +49 5254 31-0 Fax: +49 5254 13866

POB 2" Sch 1608A106B HRC PO# 7588
 Heat # 562896 110 FT STOCK
 2419 1711a

BENTELER
 SteelTube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
 INSPECTION CERTIFICATE EN 10204-3.1
 CERTIFICAT DE RECEPTION EN 10204-3.1
 EN 10204:2005-01

Dokument-Nr.: 65-619321/001/P

Patr-Nr.:
 Inspection No.:
 No. du certificat:

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Benteler SteelTube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland
 CCTF - Edmonton
 a Division of Enpro LTD.
 5407-53 Ave. NW
 EDMONTON, AB T6B 3G2
 KANADA

Kunden-Bestell-Nr.: BST 10-5255 / CCTF 488826-00
 Purchase Order No.:
 No. de commande du client:
 Benteler Auftrags-Nr.: 1558011
 Benteler Order No.:
 No. de commande Benteler:
 Versandanzügen-Nr.: 6598210
 Dispatch Note No.:
 No. d'avis d'expédition:
 Produkt: NAHTLOSE STAHLROHRE
 Product: SEAMLESS STEEL TUBES
 Produkt: TUBES D'ACIER SANS SOUDURE
 Hersteller:
 Manufacturer:
 Producteur:
 Herstellerzeichen:
 Manufacturer's brand:
 Marque du producteur:
 Stempel des Abnahmebeauftragten: WA
 Stamp of the inspection representative:
 Poinçon du contrôleur:
 Stahlschmelzungsverfahren: ELEKTROSTAHL
 Steelmaking process: ELECTRIC FURNACE
 Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

Lieferbedingungen: ASME SA-106, ASME Section II Part A Edition 2007 Addenda 2009b, S5, API Specification 5L
 Terms of delivery: Forty-Fourth Edition, October 2007, ISO 3183:2007, PSL 1, incl. ADDENDUM 2, ASTM-A 106-2008, S6, CSA
 Conditions de livraison: Standard Z245.1-07 Category 1, Sour Service, NACE MR0175/ISO 15156-1:2001, NACE MR0175/ISO 15156-2:2003

Maße - Toleranzen: ASME B36.10M-2004, ASME SA-530, ASME Section II Part A Edition 2010, ASTM-A 530-2004a

Dimensions-tolérances:
 Dimensions-tolérances: GRADE 290, GRADE B, GRADE X 42

Stahlsorte:
 Steel grade: Hot rolled

Lieferzustand: Hot rolled
 Delivery condition:
 État de livraison:
 Produktkennzeichnung: see attachment product marking
 Product marking:
 Marquage du produit:

| Pos. | Stück | Maße | Länge | Gewicht | Schmelzen-Nr. | Prüfdruck | Rohr-Nr.-Gruppe | Vielfachlängen |
|-------|---------|-------------------------------------|--------------|-----------|---------------|------------------|------------------------|---------------------|
| Item | Number | Dimensions | Length | Weight | Heat No. | Test Pressure | Tube number group | Multiple lengths |
| Poste | Nombrre | Dimensions | Longueur | Poids | No. de coulée | Pression d'essai | Série de no. des tubes | Longueurs multiples |
| 0004 | 199 | 2" NPS * Sched. 80 20 FT - 22 FT | 4356,23 feet | 22009 lbs | 563062 | 3000 PSI | 5 | |

2520400

Benteler Stahl/Tube GmbH
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ABNAHMEPRÜFZEUGNIS EN 10204-3.1
 INSPECTION CERTIFICATE EN 10204-3.1
 CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 65-619321/001/P
 Document No.:
 No. du document:

Prüf-Nr.:
 Inspection No.:
 No. du certificat:

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 Page:
 Page:

| Pos. | Stück | Maße | Item | Number | Dimensions | Poste | Nombre | Dimensions | Länge | Length | Longueur | Gewicht | Weight | Poids | Schmelzen-Nr. | Heat No. | No. de coulée | Prüfdruck | Test pressure | Pression d'épreuve | Rohr-Nr.-Gruppe | Tube number group | Vielfachlängen | Multiple lengths | Longueurs multiples | |
|------|-------|---|------|--------|------------|-------|--------|------------|---------|--------|----------|---------|--------|-------|---------------|----------|---------------|-----------|---------------|--------------------|-----------------|-------------------|----------------|------------------|---------------------|--|
| 0005 | 97 | 2 ^o NPS * Sched. 160 20 FT - 22 FT | | | | | | | 2120,01 | 15968 | 562896 | 3000 | 5 | | | | | 3000 | 5 | | | | | | | |
| 0006 | 73 | 2 ^o NPS * XXS 20 FT - 22 FT | | | | | | | 1594,32 | 14478 | 562896 | 3000 | 5 | | | | | 3000 | 5 | | | | | | | |
| 0007 | 73 | 2 1/2 ^o NPS * Sched. 80 20 FT - 22 FT | | | | | | | 1597,34 | 12372 | 562614 | 3000 | 5 | | | | | 3000 | 5 | | | | | | | |
| 0008 | 29 | 3 ^o NPS * XXS 20 FT - 22 FT | | | | | | | 634,28 | 11852 | 562896 | 3000 | 5 | | | | | 3000 | 5 | | | | | | | |

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

| Pos. | Schmelzen-Nr. | C | SI | MN | P | S | CR | MO | NI | CU | V | NB | TI | B |
|------|---------------|-------|-------|------|-------|-------|------|------|------|------|-------|-------|-------|--------|
| 0004 | 563062 | 0,129 | 0,180 | 0,75 | 0,015 | 0,003 | 0,16 | 0,03 | 0,09 | 0,14 | 0,002 | 0,010 | 0,002 | 0,0001 |
| 0005 | 562896 | 0,138 | 0,200 | 0,77 | 0,017 | 0,004 | 0,14 | 0,05 | 0,09 | 0,12 | 0,002 | 0,001 | 0,001 | 0,0003 |
| 0006 | 562896 | 0,138 | 0,200 | 0,77 | 0,017 | 0,004 | 0,14 | 0,05 | 0,09 | 0,12 | 0,002 | 0,001 | 0,001 | 0,0003 |
| 0007 | 562614 | 0,130 | 0,200 | 0,81 | 0,011 | 0,004 | 0,14 | 0,02 | 0,09 | 0,11 | 0,002 | 0,010 | 0,002 | 0,0001 |
| 0008 | 562896 | 0,138 | 0,200 | 0,77 | 0,017 | 0,004 | 0,14 | 0,05 | 0,09 | 0,12 | 0,002 | 0,001 | 0,001 | 0,0003 |

- Formel: $CE IIV=C+(Mn/6)+((Cr+Mo+V)/5)+((Cu+Ni)/15) \leq 0,40\%$
- Formel: $CEV=C+F*((Mn/6)+(Si/24)+(Cu/15)+(Ni/20)+((Cr+Mo+V+Nb)/5)+(S*B)) \leq 0,40$
- Formel: $Mn/Cs \leq 3/1$
- Formel: $Cr+Cu+Mo+Ni+V \leq 1,00\%$

Formelergebnisse / Formula results / Résultats des formules

| Pos. | Schmelzen-Nr. | 1. Formel | 2. Formel | 3. Formel | 4. Formel |
|------|---------------|-----------|-----------|-----------|-----------|
| 0004 | 563062 | 0,308 | 0,279 | 5,814 | 0,422 |

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ABNAHMEPRÜFZEUGNIS EN 10204-3.1
 INSPECTION CERTIFICATE EN 10204-3.1
 CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 65-619321/001/P
 Document No.:
 No. du document:

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 Inspection No.:
 No. du certificat:

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Formelergebnisse / Formula results / Résultats des formules

| Pos. | Schmelzen-Nr | 1. Formel | 2. Formel | 3. Formel | 4. Formel |
|-------|---------------|------------|------------|------------|------------|
| Item | Heat No. | 1. Formula | 2. Formula | 3. Formula | 4. Formula |
| Poste | No. de coulée | 1. Formule | 2. Formule | 3. Formule | 4. Formule |
| 0005 | 562896 | 0,319 | 0,299 | 5,580 | 0,402 |
| 0006 | 562896 | 0,319 | 0,299 | 5,580 | 0,402 |
| 0007 | 562614 | 0,311 | 0,282 | 6,231 | 0,362 |
| 0008 | 562896 | 0,319 | 0,299 | 5,580 | 0,402 |

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

| Pos. | Schmelzen-Nr. | C | SI | MN | P | S | CR | MO | NI | CU | V | NB | TI | B |
|-------|---------------|-------|-------|------|-------|-------|------|------|------|------|-------|-------|-------|--------|
| Item | Heat No. | | | | | | | | | | | | | |
| Poste | No. de coulée | | | | | | | | | | | | | |
| 0004 | 563062 | 0,130 | 0,190 | 0,76 | 0,015 | 0,003 | 0,15 | 0,03 | 0,09 | 0,13 | 0,002 | 0,010 | 0,002 | 0,0001 |
| 0004 | 563062 | 0,130 | 0,180 | 0,77 | 0,016 | 0,003 | 0,16 | 0,03 | 0,08 | 0,14 | 0,002 | 0,010 | 0,001 | 0,0002 |
| 0005 | 562896 | 0,140 | 0,200 | 0,79 | 0,015 | 0,003 | 0,15 | 0,05 | 0,09 | 0,13 | 0,002 | 0,001 | 0,002 | 0,0002 |
| 0005 | 562896 | 0,130 | 0,200 | 0,78 | 0,015 | 0,003 | 0,14 | 0,06 | 0,09 | 0,13 | 0,002 | 0,001 | 0,002 | 0,0002 |
| 0006 | 562896 | 0,140 | 0,200 | 0,79 | 0,015 | 0,003 | 0,14 | 0,06 | 0,08 | 0,12 | 0,002 | 0,001 | 0,002 | 0,0002 |
| 0006 | 562896 | 0,150 | 0,200 | 0,78 | 0,015 | 0,003 | 0,14 | 0,05 | 0,08 | 0,12 | 0,002 | 0,002 | 0,001 | 0,0002 |
| 0007 | 562614 | 0,130 | 0,190 | 0,81 | 0,010 | 0,004 | 0,13 | 0,03 | 0,09 | 0,11 | 0,002 | 0,010 | 0,002 | 0,0001 |
| 0007 | 562614 | 0,130 | 0,190 | 0,81 | 0,011 | 0,004 | 0,13 | 0,02 | 0,09 | 0,11 | 0,002 | 0,010 | 0,002 | 0,0001 |
| 0008 | 562896 | 0,130 | 0,200 | 0,79 | 0,016 | 0,003 | 0,15 | 0,05 | 0,09 | 0,13 | 0,002 | 0,001 | 0,001 | 0,0002 |
| 0008 | 562896 | 0,140 | 0,200 | 0,78 | 0,016 | 0,004 | 0,15 | 0,06 | 0,09 | 0,12 | 0,002 | 0,001 | 0,002 | 0,0002 |

- Formel: $CE \leq C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) \leq 0,40 \%$
- Formel: $CEV = C + F + ((Mn/6) + (Si/24) + (Cu/15) + (Ni/20) + ((Cr + Mo + V + Nb)/5) + (S/B)) \leq 0,40$
- Formel: $Mn/C_s = 3/1$
- Formel: $Cr + Cu + Mo + Ni + V \leq 1,00 \%$

Reviewed to 2010 Section II Part A & 116 addenda
 MTR reviewed as per requirements in SA-20
 Thickness checked as per requirements UG-90-(b). (6)
 Heat No. 116 Chemicals Properties
 Date: 07/19/12 By: MB

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ABNAHMEPRÜFZEUGNIS EN 10204-3.1 **Document-Nr.:** 65-619321/001/P **Blatt:** 4 / 7
INSPECTION CERTIFICATE EN 10204-3.1 **Document No.:** **Page:**
CERTIFICAT DE RECEPTION EN 10204-3.1 **No. du document:** **Prüf-Nr.:** **Page:**
Inspection No.: **Page:**

Formelergebnisse / Formula results / Résultats des formules

| Pos. | Schmelzen-Nr Heat No. | 1. Formel 1. Formula | 2. Formel 2. Formula | 3. Formel 3. Formula | 4. Formel 4. Formula |
|------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 0004 | 563062 | 0,307 | 0,279 | 5,846 | 0,402 |
| 0004 | 563062 | 0,311 | 0,282 | 5,923 | 0,412 |
| 0005 | 562896 | 0,326 | 0,306 | 5,642 | 0,422 |
| 0005 | 562896 | 0,315 | 0,284 | 6,000 | 0,422 |
| 0006 | 562896 | 0,325 | 0,305 | 5,642 | 0,402 |
| 0006 | 562896 | 0,331 | 0,317 | 5,200 | 0,392 |
| 0007 | 562614 | 0,310 | 0,282 | 6,230 | 0,362 |
| 0007 | 562614 | 0,308 | 0,280 | 6,230 | 0,352 |
| 0008 | 562896 | 0,316 | 0,286 | 6,076 | 0,422 |
| 0008 | 562896 | 0,326 | 0,305 | 5,571 | 0,422 |

Prüfergebnisse / Test results / Résultats des essais

Die Rohre sind auf Dichtheit geprüft durch: **Hydrostatic test: acc. to CSA Z245.1, holding time min 5 seconds, Test** **PASSED**
The tubes have been submitted to a leak tightness test by: **pressure/Time-record**

Die Rohre wurden zerstörungsfrei geprüft: **ET-Test: acc. to CSA Z245.1; for imperfections; drilled hole: 3,20 mm** **PASSED**
Les tubes ont passé un contrôle d'étanchéité par: **ET-Test: acc. to CSA Z245.1; for imperfections; drilled hole: 3,20 mm**

Les tubes ont passé un essai non destructif:

Augensichtkontrolle: **PASSED** **Biegeversuch:** **PASSED** **Maßkontrolle:** **PASSED**
Visual inspection: **Bending test:** **Dimensions examination:**
Examen visuel: **Essai de cintrage:** **Vérification des dimensions:**
 Pos. / Item / Poste: 0004, 0005, 0006

Ringfalversuch: **PASSED**
Flammring test:
Essai d'aplatissement:
 Pos. / Item / Poste: 0007, 0008

Reviewed to 2010 Section II Part A & 11g addenda
 NTR reviewed as per requirements in SA-20
 Thickness checked as per requirements UG-90-(b), (c)
 Heat No. 0719/12 Chemicals ✓ Properties ✓
 Date: 07/19/12 By: MA

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Deutschland
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BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1 Dokument-Nr.: 65-619321/001/P Blatt: 5 / 7
INSPECTION CERTIFICATE EN 10204-3.1 Document No.: Page: 7
CERTIFICAT DE RECEPTE EN 10204-3.1 No. du document: Page: 7

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.
The sampling was carried out on multiple lengths.
L'échantillonnage était réalisé aux longueurs multiples.

Reviewed to 2010 Section II Part A & 116 addenda
MTR reviewed as per requirements in SA-20
Thickness checked as per requirements (UG-90-(b) (6))
Heat No. 071912 Chemicals Properties
Date: 07/19/12 By: ppp Re/Rm
Einschnürung Re/Rm
Arao reduction Re/Rm
Coefficient de striction Re/Rm

| Zugversuch Streifenprobe / Tensile test Strip test specimen / Essai de traction Bande découpée sur tube | | Streckgrenze Yield strength | | Zugfestigkeit Tensile strength | | Dehnung Elongation | |
|---|---------------------------|-----------------------------|---------------------------------------|--------------------------------|----------------------------------|----------------------|-------|
| Pos. | Proben-Nr. / Specimen No. | Schmelzen-Nr. / Heat No. | Probenabmessung / Specimen dimensions | Streckgrenze / Yield strength | Zugfestigkeit / Tensile strength | Dehnung / Elongation | Re/Rm |
| Item | Specimen No. | Heat No. | Dimensions de l'éprouv. | Limite élastique | Résistance à la traction | Allongement | Re/Rm |
| Anforderungen Requirements | | | | | | | |
| | | | mm | MPa | MPa | % | Re/Rm |
| Exigences | | | | MIN 290 | 415-625 | MIN 30 | |
| 0004 | 000001 | 563062 | 19,00 X 5,55 | 347 | 483 | 36 | |
| 0005 | 000001 | 562896 | 19,00 X 9,40 | 318 | 461 | 40 | |
| 0006 | 000001 | 562896 | 19,00 X 11,30 | 306 | 465 | 40 | |
| 0007 | 000001 | 562614 | 19,00 X 7,05 | 327 | 477 | 39 | |
| 0008 | 000001 | 562896 | 25,40 X 15,10 | 293 | 454 | 46 | |

Härteprüfung / Hardness test / Essai de dureté

| Pos. | Proben-Nr. / Specimen No. | Schmelzen-Nr. / Heat No. | Härte / Hardness | HRC | HB | HV | HRB | HBW |
|-----------------------------------|---------------------------|--------------------------|------------------|--------|----|----|-----|-----|
| Item | Specimen No. | Heat No. | Hardness | Dureté | | | | |
| Anforderungen Requirements | | | | | | | | |
| Exigences | | | | | | | | |
| MAX 200 | | | | | | | | |
| 0004 | 000001 | 563062 | 146 | | | | | |
| 0004 | 000002 | 563062 | 147 | | | | | |
| 0004 | 000003 | 563062 | 147 | | | | | |
| 0005 | 000001 | 562896 | 134 | | | | | |
| 0005 | 000002 | 562896 | 133 | | | | | |
| 0005 | 000003 | 562896 | 134 | | | | | |
| 0006 | 000001 | 562896 | 137 | | | | | |

Benteler Steel/Tube GmbH
 Postfach 13 40
 33043 Padernborn
 Deutschland
 Tel.: +49 5254 81-0 Fax: +49 5254 13666



ABNAHMEPRÜFZEUGNIS EN 10204-3.1 Dokument-Nr.: 65-619921/001/P Blatt: 8 / 7
 INSPECTION CERTIFICATE EN 10204-3.1 Document No.: Page:
 CERTIFICAT DE RECEPTION EN 10204-3.1 No. du document: Page:

Härteprüfung / Hardness test / Essai de dureté

| Pos. | Proben-Nr. | Schmelzen-Nr. | Härte | HRC | HB | HV | HRB | HBW |
|---------------|--------------|---------------|----------|--------|-----|----|-----|-----|
| Item | Specimen No. | Heat No. | Hardness | Dureté | | | | |
| Anforderungen | | | | | | | | |
| Requirements | | | | | | | | |
| Exigences | | | | | | | | |
| 0006 | 000002 | 562896 | | | 135 | | | |
| 0006 | 000003 | 562896 | | | 137 | | | |
| 0007 | 000001 | 562614 | | | 142 | | | |
| 0007 | 000002 | 562614 | | | 141 | | | |
| 0007 | 000003 | 562614 | | | 143 | | | |
| 0008 | 000001 | 562896 | | | 140 | | | |
| 0008 | 000002 | 562896 | | | 144 | | | |
| 0008 | 000003 | 562896 | | | 142 | | | |

Restmagnetismus / Demagnetize / Démagnétiser

demagnetized tubes; 1 measurement per 4 hours on both tube ends Two readings 180° apart around the circumference. Average value max 3.0 Millitesla (24 A/cm), individual value max 3.5 Millitesla (28 A/cm)

Vermerk / Remark / Remarque

Pos. / Item / Poste: 0004, 0005, 0006, 0005, 0005, 0006, 0005, 0006

NACE Standard: Hardness acc. to NACE MR0175/ISO 15156: HRC max 22., The material meets the requirements of NACE MR0103; Certificate remarks: Sour Service, The Material is Aluminium deoxygenized and inclusion shape controlled with Calcium-Silicon treatment, This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-07 meets the requirement for micro hardness of max. 248 HV 500 gf., No weld repair has been carried out; Bend test: mandrel diameter 12D; Bending angle: 90°

Pos. / Item / Poste: 0007, 0008, 0008, 0008

NACE Standard: Hardness acc. to NACE MR0175/ISO 15156: HRC max 22., The material meets the requirements of NACE MR0103; Certificate remarks: Sour Service, The Material is Aluminium deoxygenized and inclusion shape controlled with Calcium-Silicon treatment, This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-07 meets the requirement for micro hardness of max. 248 HV 500 gf., No weld repair has been carried out

Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254.13669

BENTELER
Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1 Dokument-Nr.: 65-619321/001/P Prüf-Nr.:
INSPECTION CERTIFICATE EN 10204-3.1 Document No.: No. du document: Inspection No.:
CERTIFICAT DE RECEPTION EN 10204-3.1 No. du document: No. du certificat:

Beiblatt Produktkennzeichnung / Attachment product marking / Supplément marquage du produit

| Pos. | Produktkennzeichnung | Blatt: 7 / 7 |
|-------|----------------------|--------------|
| Baum | Produktkennzeichnung | Page: 7 / 7 |
| Poste | Marquage du produit | |

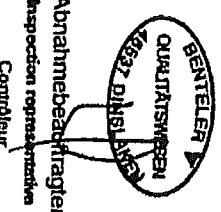
0004, 0005, 0006, 0007, 0008

FS: BENTELER Z.245.1-07 - ISO 3183 - A 106-S6 - SA-106-S5 SL-0151 API SIGN 1210 PSL1 B/X42/290 SS HEAT-NO. TEST
PRESSURE NDE DIMENSIONS TUBES-LENGTH FEET WA GERMANY P.O. 4888826-00

AEZ = Außenbeschichtung, Etching ink marking, Gravure à l'acide, IJK = Farbmarkenzeichnung, colour marking, marquage par couleur, IS = Farbstanzmarkenzeichnung, point marking, marquage par poinçonnage, SO = Farbstanzmarkenzeichnung, Colour ink marking, Impression à jet d'encre de c
| LK = Laserkennzeichnung, Laser marking, Marquage laser | PKL = Elektrodenkennzeichnung, tag marking, marquage sur électrode | PS = Prägnatempel, die stamp, marquage par poinçonnage | TS = Tintenstrahlkennzeichnung, Ink jet sovery marking, impression à jet d'encre

Verkäufer(in) / Salesman/ woman in charge / Personne chargée : Mr Storm, Tel.: 05254/81-4274, Fax: 4289

Dinslaken, 23.12.2010, TEL.: 02064.623-537 FAX: 02064.623-539



Abnahmebeauftragter
Inspection representative
Contrôleur

DR. BASEL KEITA / Theil
Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechts gültig.
We certify that the supplied products comply with the order specification. This document was prepared by means of electronic data processing and is valid without signature.
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.

Rec 13/11/12
 ASE 24" SCH STD (.375) SA53B
 NT: 377
 QM: 21
 P/B# 8175
 MRC



HUIYUO CITY STEEL PIPE
 INDUSTRIAL CO., LTD

MILL TEST CERTIFICATE

Add: Cishan Village, Tanggang District, Huidean City,
 Issuing from new: China Test code: 12514/3
 Tel: 86-429-2058666 Fax: 86-429-2058333

Contract NO.: 567/4645069-00

Standard: ASTM A53(2007) GR.B/ASME SA 53(2004) GR. B/API 5L(2007)B

Description: E.R.W. STEEL PIPE, ASTM A53, GR. B/ASME SA 53 GR.B/API 5 LB.STD. BLACK LACQUER BEVELED END

Certificate No.: 201203064
 Date of Issue: Mar 20, 2012

Shipping Mark: P-O 567/4645069-00 VANCOUVER

2510219

| NPS | Dimension | | | Type | Quantity | | Heat Number | Chemical Composition | | | | | | | | | | | Mechanical Properties | | | | | Hydro Test 1000 KPa | NDT | Seam Heat Treated | Appearance and Dimension | | | |
|-----|-----------|------------|--------------|------|----------|-----|-------------|----------------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-----------------------|-------|-------------|-------------|---------------------|---------------------------|-----|----------------------|--------------------------------|-----------|------------------------------|----|
| | OD in | Wall in | Length FT | | MT | Bds | | Pcs | C | SI | Mn | P | S | Cu | Cr | Ni | Mo | V | Ti | Nb | Y.S. MPa | T.S. MPa | Weld T.S. MPa | | | | | El 2in | Band 12D 90° 17D, C | OK |
| 24 | 24.000 | 0.375 | 21 | BPE | 18/047 | 20 | 20 | 112005666 | 0.15 | 0.10 | 0.35 | 0.017 | 0.006 | 0.017 | 0.019 | 0.007 | 0.001 | 0.004 | 0.001 | 0.001 | 322 | 436 | 474 | 46.6 | | OK | 4600 | OK | OK | OK |

We hereby certify that the material described has been manufactured, inspected and tested in accordance with above standard & specification, and satisfied with the requirements.

QC Manager:

朱子成

Reviewed to: 2010 Section II Part A & 1/2 addenda
 NTR reviewed as per requirements in SA-20

Heat No. 09/2012
 Date: 09/2012
 By: A

Thickness checked as per requirements UG-90.(b) (6)
 Chemicals Properties



MATERIAL RECEIVING REPORT

RECORD OF ACTUAL CODE REQUIRED MARKINGS
[Note: The markings required by the material specification are described in the material specification and the general specification for the product form]

| MATERIAL TRACKING NUMBER | VERIFIED THICKNESS / PRODUCT | DIAMETER | QUANTITY | RECORD OF ACTUAL CODE REQUIRED MARKINGS | SUPPLIER | P.O. NUMBER | JOB NUMBER | RECEIVER INITIAL/DATE |
|--------------------------|------------------------------|----------|--|---|----------|-------------|------------|-----------------------|
| 61092 | 24" | 1 | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | Edmonton | 7539 | 12-052 | Oct 16/12 | |
| | | | HT# M40636 FA21990909 | Exhanger | | | | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.693 | 24" | 1 | HT# 69701 5709 70608 | " | 7539 | 12-052 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.692 | 24" | 1 | HT# M42511 FA21933901 | " | 7539 | 12-053 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.693 | 24" | 1 | HT# M42507 FA21954103 | " | 7539 | 12-053 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.699 | 24" | 1 | HT# M39072 FA21991102 | " | 7539 | 12-054 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.701 | 24" | 1 | HT# 99701 5709 70608 | " | 7539 | 12-054 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.701 | 24" | 1 | HT# SE01244 PC 78158603 | " | 7539 | 12-055 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.701 | 24" | 1 | HT# M40639 FA21990809 | " | 7539 | 12-055 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.701 | 24" | 1 | HT# SF01244 PC 78158603 | " | 7539 | 12-056 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |
| 0.689 | 24" | 1 | HT# M40636 FA21990909 | " | 7539 | 12-056 | Oct 16/12 | |
| | | | SE Head 24" OD X 0.685" ID Min 0.5685" min 0.516" ID | " | | | | |



edmonton exchanger
& manufacturing ltd.

CERTIFICATE OF COMPLIANCE

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780.468.6722 • QC fax 780.466.4668 • sales fax 780.466.5155

Customer GLOBALFLOW INC. PO 7539 Work Order C95961 Date 2012/10/11 CofC# 36422 Page 1 of 1

| Item# | Description | Qty | Heat# | Required Min Thk | Recorded Min Thk | Form. Proc. |
|----------|--|-----|--------------------|------------------|------------------|-------------|
| H95961-4 | HEAD(S) - Semi-Elliptical 2:1 - 0.6250" NOM (0.5625" MIN) X 24" OD (Material Spec: SA 516-70 Normalized) | 1 | M39072-FA21991102 | 0.5625" | 0.5950" | 1 |
| | | 2 | M40636-FA21990902 | 0.5625" | 0.5950" | 1 |
| | | 2 | SF01244-PC78158603 | 0.5625" | 0.5950" | 1 |
| | | 2 | G9701-570270628 | 0.5625" | 0.5860" | 1 |
| | | 1 | M42507-FA21954103 | 0.5625" | 0.5950" | 1 |
| | | 1 | M42511-FA21933901 | 0.5625" | 0.5950" | 1 |
| | | 1 | M40639-FA21990802 | 0.5625" | 0.5950" | 1 |

Forming Procedure:

1. Hot Formed @ 1650F/899C and Air Cooled

Supplementary Requirements

Normalized Material Identification Marking:

'MT' indicates normalized by the mill per ASME Code Section II, Part A, SA 20, Paragraph 13.1.1.

'GMT' indicates normalized by Edmonton Exchanger per ASME Code Section II, Part A, SA 20, Paragraph 13.1.2.

'GT' indicates normalized by Edmonton Exchanger per ASME Code Section VIII Division 1, UG-85 or ASME Code Section I, PG-77.4.

The item(s) listed above comply with the requirements of ASME Code Section I, PG-29, PG-81 and ASME Code Section VIII, Division 1, UCS-79(d), UG-79 & UG-81. All welders and procedures are qualified to ASME Code Section IX. Material being supplied conforms to the latest ASME Code Section II, Part A, 2010 Edition, Addenda July 1, 2011.

Supplementary Examination - Items



CERTIFICATE OF COMPLIANCE

MTR List

edmonton exchanger
& manufacturing ltd.

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780.468.6722 • QC fax 780.466.4668 • sales fax 780.466.5155

Customer GLOBALFLOW INC. PO 7539 Work Order C95961 Date 2012/10/11 CofC# 36422 Page 1 of 1

Email to kim.insko@globalflowinc.com

| MTR ID | Pages | Heat# | Thickness | Material Grades |
|--------|-------|--------------------|-----------|-----------------|
| 16148 | 6 | SF01244-PC78158603 | .625" | SA 516-70 N |
| 16365 | 14 | G9701-570270628 | .625" | SA 516-70 N |
| 16865 | 5 | M39072-FA21991102 | .625" | SA 516-70 N |
| | | M40636-FA21990902 | .625" | SA 516-70 N |
| | | M40639-FA21990802 | .625" | SA 516-70 N |
| | | M42507-FA21954103 | .625" | SA 516-70 N |
| | | M42511-FA21933901 | .625" | SA 516-70 N |

| Heat# | Material Grades | MTR ID |
|--------------------|-----------------|--------|
| G9701-570270628 | SA 516-70 N | 16365 |
| M39072-FA21991102 | SA 516-70 N | 16865 |
| M40636-FA21990902 | SA 516-70 N | 16865 |
| M40639-FA21990802 | SA 516-70 N | 16865 |
| M42507-FA21954103 | SA 516-70 N | 16865 |
| M42511-FA21933901 | SA 516-70 N | 16865 |
| SF01244-PC78158603 | SA 516-70 N | 16148 |

POSCO Mill Test Certificate/검사증명서

Certificate No./증명서번호: 110526-PPSA-002-007
Date of Issue/발행일자: May, 30, 2011

Order No./계약번호: 0004662618

PO No./주문번호: E10776
(ASME2010EDITION)

Commodity/품명: HR STEEL PLATE(EN10204 3.1)



Supplier/주문자: DAE WOO INTERNATIONAL CORP
Customer/고객사: EDMONTON EXCHANGER

Spec & Type/규격: ASME SA516-70 AND SA 20(ASME2010EDITION)

| Size/치수 | Product No. 제품번호 | Quantity 수량 | Weight (kg) (LBS) | Heat No. 제강번호 | Position 위치 | Tensile/인장시험 Y.P. TS EL (KSI) (%) | Impact/충격시험 Yield: 50F Energy: SF (FT-LBS) (%) | Chemical Composition/화학성분 (%) C Si Mn P S Cr Ni B Cu Mo Nb Ti V S _{total} |
|--------------------|---------------------|----------------|-------------------------|------------------|----------------|---|---|---|
| 0.625"X120.5"X480" | PB0353901-3903 | 3 | 13,950 30,753 | SB99286 | T | 54.2 78.3 27 | 1:125 2:135 3:116 A:125 | L 1760 334 1148 66 13 2 24 1 86 Tr 1 2 20 26 P 1783 337 1139 77 14 3 22 2 76 2 2 1 17 27 |
| 0.625"X120.5"X480" | PB03211701-1703 | 3 | 13,950 30,753 | SB99292 | T | 54.1 78.0 27 | 1:136 2:130 3:132 A:133 | L 1854 346 1163 77 26 2 26 1 92 Tr 1 1 21 47 P 1816 354 1155 87 26 2 26 1 107 Tr 1 1 20 49 |
| 0.625"X120.5"X480" | PB03603101-3102 | 2 | 9,300 20,502 | SB99292 | T | 53.5 80.4 28 | 1:117 2:142 3:111 A:123 | L 1854 346 1163 77 26 2 26 1 92 Tr 1 1 21 47 P 1816 354 1155 87 26 2 26 1 107 Tr 1 1 20 49 |
| 0.625"X120.5"X480" | PC78306401-6402 | 2 | 9,300 20,502 | SF01244 | T | 54.0 79.6 25 | 1:138 2:176 3:145 A:153 | L 1802 348 1151 69 23 2 24 Tr 92 Tr 1 1 20 36 P 1730 341 1119 65 20 1 24 95 1 1 18 38 |

Surveyor To: **M.S. JANG**

POSCO Pohang Works, 5 Dongchon-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do, 790-785, Korea

Chief of material testing section: **Mann Soo, Jang**

* Position: T: Top, M: Middle, B: Bottom
* Transverse Test: Direction: Transverse, Gauge Length: 200mm (Rectangle)
* YP Method: 0.2% off-set
* Impact Test: Direction: 1/4T Longitudinal
* T.L.R.(Trans Longitudinal Ratio)
* Division - L:Ladle Analysis, P:Products Analysis
* Chemical Composition Unit: -2x1/100, -3x1/1000, -4x1/10000, -5x1/100000
* T: It is within the standard range and include trace element.
* Supply Condition: As-Rolled unless otherwise Heat Treated.

A) This material was produced under a quality system manual Rev.7 dated Sept.12,2008 and PQG01 Rev.0 dated JUL.01,2009, audited and approved by customer as conforming to the requirements of ASME Sec. III, NCA-3800 and/or KEPIC MINA, SNA4301.
B) No repair welding was performed to the products.
C) The product numbers listed on this test report identifies the material.
We hereby certify that the material herein has been made and tested in accordance with the above.
This material is fine grained steel.
This Certificate is issued according to EN10204 3.1.
This Mill Test Certificate cannot be copied for any purpose.

POSCO Mill Test Certificate/검사증명서

Certificate No./증명서번호: 110526-PPSA-002-008
Date of Issue/발행일자: May, 30, 2011

Order No./계약번호: 0004662618

PO No./주문번호: 10776

Commodity/품명: HR STEEL PLATE(EN10204 3.1)

Supplier/주문사: DAE WOO INTERNATIONAL CORP
Customer/고객사: EDMONTON EXCHANGER

Spec & Type/규격: ASME SA516-70 AND SA 20(ASME2010EDITION)

| Size/치수 | Product No. 제품번호 | Quantity 수량 | Weight (kg) (LBS) | Heat No. 제강번호 | Position 위치 | Tensile YS (KSI) | Tensile TS (%) | Impact Char. Temp. V-notch (FT-LBS) (%) | Chemical Composition 화학성분 (%) | |
|--------------------|---------------------|----------------|-------------------------|------------------|----------------|------------------------|----------------------|---|---|---|
| 0.625"x120.5"x480" | PC78158601-8603 | 3 | 13,950 30,753 | SF01244 | T | 53.5 | 77.2 | 28 | A-122 1-153 2-154 3-146 A-151 | L 1802 348 1451 69 23 2 24 24 92 Tr 1 1 20 36 P 1730 341 1419 65 20 1 24 24 95 1 1 18 38 |
| 0.625"x120.5"x480" | PC78158501-8503 | 3 | 13,960 30,753 | SF01244 | T | 52.8 | 78.3 | 27 | A-126 2-152 3-150 A-143 | L 1802 348 1451 69 23 2 24 24 92 Tr 1 1 20 36 P 1730 341 1419 65 20 1 24 24 95 1 1 18 38 |
| 0.625"x120.5"x480" | PC78159001-9003 | 3 | 13,950 30,753 | SF01244 | T | 52.6 | 78.6 | 29 | A-132 1-126 2-152 3-150 A-143 | L 1802 348 1451 69 23 2 24 24 92 Tr 1 1 20 36 P 1730 341 1419 65 20 1 24 24 95 1 1 18 38 |
| 0.625"x120.5"x480" | PC78144401-4403 | 3 | 13,950 30,753 | SF01244 | T | 52.6 | 78.5 | 27 | A-133 1-135 2-150 | L 1802 348 1451 69 23 2 24 24 92 Tr 1 1 20 36 P 1730 341 1419 65 20 1 24 24 95 1 1 18 38 |

Surveyor To: 10/2011

Date: 10/2011

By: W

M.S. JANG

Chief of material testing section Man Soo, Jang

POSCO Pohang Works, 5 Dongchon-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do, 790-785, Korea



* Position: T: Top, M: Middle, B: Bottom
* Tensile Test Direction: Transversal, Gauge Length: 200mm (Rectangular)
* YP Method: 0.2% off-set
* Impact Test Direction: 1/4T Longitudinal, T.L.R (Trans Longitud Rate)
* T.L.R (Trans Longitud Rate)
* Division - L: Lade Analysis, P: Products Analysis
* Chemical Composition Unit: 2x1/100, 3x1/1000, 4x1/10000, 5x1/100000
* R reviewed as per requirements in test certificate is issued according to EN10204 3.1.
* Tr: It is within the standard range and include trace element.
* Thickness checked as per requirements in test certificate is issued according to EN10204 3.1.
* Supply Condition: As-Rolled unless otherwise Heat Treated

Reviewed to: 2010 Section II Part A
This material was produced under a quality system manual Rev. Z dated Sept. 12, 2008 and PQG01 Rev. 0 dated Jul. 01, 2006 audited and approved by customer as conforming to the requirements of ASME Sec. III, NCA-3800 and (or) KEPIC MINA SNA4300.
No repair welding was performed on the products.
The product numbers listed on this test report identifies the material.
We hereby certify that the material herein has been made and tested in accordance with the above.

POSCO Mill Test Certificate/검사증명서

Certificate No./증명서번호: 110526-PPSA-002-009
Date of Issue/발행일자: May, 30, 2011

Order No./계약번호: 0004662618

PO No./주문번호: E10776

Supplier/주문자: DAE WOO INTERNATIONAL CORP

Commodity/품명: HR STEEL PLATE(EN10204 3.1)

Customer/고객사: EDMONTON EXCHANGER

Spec & Type/규격: ASME SA516-70 AND SA 20(ASME2010EDITION)

| Size/치수 | Product No. 제품번호 | Quantity 수량 | Weight 중량 (kg) (LBS) | Heat No. 제강번호 | Position 위치 | Tensile/인장시험 Yield TS (KSI) Elongation EL (%) | Impact/충격시험 V-Mech. -secF Energy - J (FT-LBS) (%) | Chemical Composition/화학성분(%) C Si Mn P S Cr Ni Cu Mo Nb Ti V Sol-A |
|-------------------|---------------------|----------------|----------------------------|------------------|----------------|---|--|---|
| 0.625x120.5"x480" | PC78094504-1502 | 2 | 9,300 20,502 | SF01246 | T | 52.1 78.3 28 | A155 1:112 2:117 3:122 | 1770 352 1457 64 24 2 25 92 Tr 1 1 2 19 35 1808 348 1142 60 23 2 25 95 1 1 1 18 30 |
| 0.625x120.5"x480" | PC78882501 | 1 | 4,650 10,251 | SF01249 | T | 53.2 79.2 30 | A117 1:131 2:136 3:130 | 1768 354 1150 64 19 1 24 94 Tr 1 1 1 20 37 1799 349 1130 65 20 1 25 99 1 1 1 18 35 |
| 0.75x96.5"x480" | PC78112101 | 1 | 4,467 9,848 | SF01246 | T | 53.1 79.3 28 | A133 1:177 2:189 3:121 | 1770 352 1157 61 24 2 25 92 Tr 1 1 2 19 35 1808 348 1142 60 23 2 25 95 1 1 1 18 30 |
| 0.75x96.5"x480" | PC78112801-2309 | 3 | 13,401 29,544 | SF01251 | T | 51.2 75.7 32 | A36 1:142 2:136 | 1752 361 1139 49 18 1 24 90 Tr 1 1 1 20 42 1750 341 1138 43 20 1 24 67 Tr 1 1 1 18 46 |

Position - T: Top, M: Middle, B: Bottom.
Tensile Test: Direction: Transversal, Gauge Length: 200mm(Repeatability).
Yield Method: 0.2% offset.
Impact Test: Direction: 1/4" Longitudinal.
T.L.R.(Trans Longitude Ratio).
Division - L: Ladle Analysis, P: Products Analysis.
Chemical Composition Unit: -2x1/1000, -3x1/1000, -4x1/10000, -5x1/100000.
T: It is within the standard range and include trace element.
Supply Condition: As-Rolled unless otherwise Heat Treated.

Surveyor To: *A.S. JANG*

POSCO Pohang Works, 5 Dongchon-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do, 790-785, Korea

Chief of material testing section: *Man Soo, Jang*

POSCO Mill Test Certificate/검사증명서

Certificate No./증명서번호 : 110526-PPSA-002-021
 Date of Issue/발행일자 : May, 30, 2011

Order No./계약번호: 0904662618

PO No./주문번호: E10776
 (ASME2010EDITION)

Supplier/주문자: DAE WOO INTERNATIONAL CORP.

Commodity/품명: HR STEEL PLATE(EN10204 3.1)

Customer/고객사: EDMONTON EXCHANGER

Spec & Type/규격: ASME SA516-70 AND SA-20(ASME2010EDITION)

| Size/치수 | Product No. 제품번호 | Quantity 수량 | Weight 중량 (kg) (LBS) | Heat No. 제강번호 | P O S I T I O N | Tensile/인장시험 YP TS EL (KSI) (%) | Impact/충격시험 V-notch: 250F Energy: SF (FT-LBS) (%) | P I S T I O N | Chemical Composition/화학성분(%) |
|--------------------------|----------------------------|----------------|----------------------------|------------------|--------------------------------------|---|--|---------------------------------|------------------------------|
| *** Sub Total (100%) *** | HEAT TREATMENT: Normalized | 6 | 53,910 (kg) | | | 118,848 (LBS) | | | |
| *** Lot Total *** | | 186 | 934,360 (kg) | | | 2,059,881 (LBS) | | | |
| *** Grade Total *** | | 186 | 934,360 (kg) | | | 2,059,881 (LBS) | | | |
| *** Grand Total *** | | 186 | 934,360 (kg) | | | 2,059,881 (LBS) | | | |



* Position - T: Top, M: Middle, B: Bottom
 * Tensile Test: Direction: Transversal, Gauge Length: 200mm(Reckangular),
 YP Method: 0.2% off-set
 * Impact Test: Direction: 1/4T Longitudinal,
 T.L.R(Trans Longitude Ratio)
 * Division - L:Ladle Analysis, P:Product's Analysis
 * Chemical Composition Unit: -2x1/100, -3x1/1000, -4x1/10000, -5x1/100000
 * T: It is within the standard range and include trace element.
 * Supply Condition: As-Rolled unless otherwise Heat Treated.

A) This material was produced under a quality system manual Rev.7, dated Sept.12,2008 and PQG01 Rev.0 dated Jul.01,2005 audited and approved by customer as conforming to the requirements of ASME Sec. III, NCA-3800 and (or) KEPIC MINA/SVA4300.
 B) No repair welding was performed to the products.
 C) The product numbers listed on this test report identifies the material
 -We hereby certify that the material herein has been made and tested in accordance with the above This material is fine grained steel.
 Test Certificate is issued according to EN10204 3.1.
 * This Mill Test Certificate cannot be copied for any purpose.

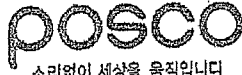
Surveyor To:

M.S. JANG

POSCO Pohang Works, 5 Dongchon-dong, Nam-gu, Pohang-si, Gyeongsangbuk-do, 790-785, Korea

Chief of material testing section Man Soo, Jang





소리없이 세상을 움직입니다
www.posco.co.kr

(135-777), POSCO Center 892, Daechi 4-dong, Gangnam-gu, Seoul, Korea, Gangnam P.O. Box 777
Tel (82-2) 3457 - 0783 / Fax (82-2) 3457 - 1980 / Sender : Jae. Hak. Ok

To : EDMONTON EXCHANGER GROUP OF COMPANIES
(5545 89 STREET EDMONTON ALBERTA CANADA T6E 5W9)

Attn.: MR. ERNEST REIMER

Cc :

Subject : Confirmation letter for Nb, Mo, B composition for Order No.

This letter is to certify that the chemical composition of Nb, Mo, B as marked "Tr" on the Mill Test Certificates for steel plates supplied to Edmonton Exchanger with order no. 0004662755, 0004662755, 0004662618 means the following :

| Order No. | Heat No. | C (%) | Mo(%) | Nb (%) | B (ppm) |
|--|----------|--------|-------|--------|---------|
| 0004662755 0004662755 0004662618 | SB04895 | 0.1736 | 0.01 | 0.001 | 1 |
| | SB04900 | 0.1775 | 0.01 | 0.001 | 1 |
| | SB04806 | 0.1769 | 0.01 | 0.001 | 1 |
| | SB04905 | 0.1703 | 0 | 0.001 | 1 |
| | SB05798 | 0.1757 | 0 | 0.001 | 1 |
| | SB99286 | 0.176 | 0 | 0.001 | 1 |
| | SB99292 | 0.1854 | 0 | 0.001 | 1 |
| | SF01244 | 0.1802 | 0 | 0.001 | 0 |
| | SF01246 | 0.177 | 0 | 0.001 | 0 |
| | SF01249 | 0.1768 | 0 | 0.001 | 0 |
| SF01251 | 0.1762 | 0 | 0.001 | 0 | |

If you have any further problems in this project, please do not hesitate and contact us.

Tel : 82-2-3457-0783, M.P : 82-10-2841-8336

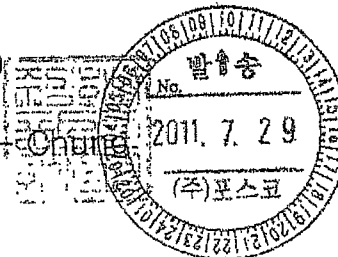
Thanks in advance with best regards.

Yours sincerely,

Date : 29th . July . 2011

POSCO

CEO Joon Yang





**DAEWOO
INTERNATIONAL**

100-753 서울 중구 남대문로 5가 84-11 (연세재단 세브란스빌딩) 중앙사서함 2810호

C.P.O Box 2810 Seoul 100-753, Korea TEL : 753-2114 / FAX : 753-9489

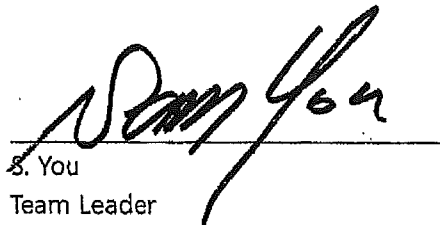
September 15, 2011

ATTN : Edmonton Exchanger
C.C. : To whom it may concern

Subject : POSCO Plate SA516 Grade 70 for Pressure Vessel Quality

This letter is written to certify that POSCO/Daewoo guarantee the test coupon and the plate is normalized, and thereon its chemical & mechanical properties are same as shown in Mill Test Certificate provided by POSCO for Edmonton Exchanger P.O. No. 10776. Our shipment complies with our requirement.

Best Regards,



S. You

Team Leader

Plate Team, Plate & Wire Rod Division

Daewoo International Corporation



注文者

HANWA CO., LTD.

注文参照番号 229-68511010

契約番号 1-831-H1-5-9-A101

商品名 HOT ROLLED STEEL PLATES

規格 ASME SA-516 GRADE 70-E10

文書番号 DOCUMENT No.

需要家 EDMONTON EXCHANGER GROUP OF C-

CUSTOMER OMPANIES

日本製鋼所株式会社
Nippon Steel Corporation
鋼材検査証明書
INSPECTION CERTIFICATE

(AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1)

需要家管理番号 CUSTOMER'S CONTROL No. 1001

発行年月日 DATE OF ISSUE: 2011-09-09

証明書番号 CERTIFICATE No.: P-16084

頁数: 56

本社 〒100-8071 東京都千代田区丸の内二丁目6番1号
FIELD OFFICE 2-6-1, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071, JAPAN
営業製造所 〒299-4141 千葉県君津市若津1番地
KAMITSUWORKS 1, KAMITSU, KAMITSU-CITY, CHIBA-PREF. 299-4141 JAPAN

Table with columns: DIMENSION, QUANTITY, MASS, CAST No., TEST No., PLATE No., TENSILE TEST, ELONGATION, IMPACT TEST, CHEMICAL COMPOSITION. Includes rows for dimensions 0.625 X 120.5 X 480 and 0.625 X 120.5 X 480.

注釈 NOTES: 1. Location Orientation 位置・方向, 2. 試験方向 Through Thickness, R:45 Deg, 3. 方向 Longitudinal Axis, 4. 試験方法 引張試験, 5. 試験機 引張試験機, 6. 試験速度 2mm/min, 7. 試験温度 室温, 8. 試験片形状 Rectangular, 9. 試験片寸法 長さx幅x厚さ, 10. 試験片位置 試験片は板の中央に位置する。

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

検査部長 菅野 隆夫
Head of Department
PLATE QUALITY CONTROL DEPT.
KAMITSUWORKS



注 文 者 : HAWWA CO., LTD.
 注文番号 : 228-68511010
 契約番号 : 1-831-H1-5-9-A101
 商 品 名 : HOT ROLLED STEEL PLATES
 規 格 : ASME SA-516 GRADE 70-E10

新日本製鐵株式会社
 Nippon Steel Corporation
 鋼 材 検 査 証 明 書
 INSPECTION CERTIFICATE

本 社 : 〒100-8071 東京都千代田区丸の内二丁目6番1号
 HEAD OFFICE : 2-6-1, MARUNOUCHI, CHIYOMA-KU, TOKYO 100-8071, JAPAN
 君 津 製 鐵 所 : 〒299-1141 千葉県君津市君津1番地
 KIMITSUWORKS : 1, KIMITSU, KIMITSU-CITY, CHIBA-PREF. 299-1141, JAPAN
 証 明 書 番 号 : P-16084
 発行年月日 : 2011-09-09
 検査員 : 1001
 検査員番号 : P-16084
 検査員名 : 58

AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3-1)
 EDINGTON EXCHAWGER GROUP OF C- 需要家管理番号 : E3001P0701 E07
 OMPANIES 需要家管理番号 : 1001

| 寸 法 DIMENSION mm, inch, feet | 厚 度 THICKNESS | 質 量 MASS KG | 製 鋼 番 号 CAST No. TEST No. | 製 品 番 号 PLATE No. | 引 張 試 験 TENSILE TEST | | 沖 撃 試 験 IMPACT TEST | | 化 学 成 分 CHEMICAL COMPOSITION% | | 硬 度 HARDNESS | | | | | | | | | | |
|------------------------------------|------------------|-------------------|---------------------------------|---------------------------|-------------------------|-----------------|------------------------|-------------|----------------------------------|-----|-----------------|----|-----|----|----|----|----|------|--------|----|-------------------------------|
| | | | | | 引張強さ T.S. KSI | 伸び E.L. % | 平均値 AVG | 個々値 EACH | C | Si | Mn | P | S | Al | Ni | Cr | Mo | Nb | V | Ti | 残余 元素 Total Residual |
| 0.625" X 120.5" X 480" | 06 | 4654 | G9702 44704 | TESTED-PL 570270655TC1 | 53 | 76 | 29 | 307 | 304 | 148 | 15 | 37 | 143 | 7 | 2 | 2 | 2 | 0.12 | 0.3640 | 0 | 4.0 |
| 0.625" X 120.5" X 480" | 06 | 13962 | G9702 44704 | FROM 570270656TC1 | 53 | 76 | 29 | 307 | 304 | 148 | 15 | 37 | 143 | 7 | 2 | 2 | 2 | 0.12 | 0.3640 | 0 | 4.0 |
| 0.625" X 120.5" X 480" | 06 | 4654 | G9702 44705 | TESTED-PL 570270639TC1 | 53 | 76 | 30 | 315 | 299 | 147 | 15 | 37 | 143 | 7 | 2 | 2 | 2 | 0.12 | 0.3640 | 0 | 4.0 |

注 釈 NOTES
 ※1 Location Orientation 位置 - 方向, T: 頂部 Top, B: 底部 Bottom, L: 圧延方向 Longitudinal, C: 横方向 Transverse, Z: 板厚方向 Through Thickness, R: 45° 方向 45Deg to the Longitudinal Axis
 ※2 C.L: 橋式伸張ゲージ長径, A: 50mm 平形試験片 Rectangular, B: 50mm 平形試験片 Round, C: 70mm 平形試験片 Rectangular, D: 70mm 平形試験片 Round, E: 80mm 平形試験片 Rectangular, F: 80mm 平形試験片 Round, G: 200mm, H: 2", I: 8", J: 565, S: K: 4/50
 ※3 R.A: 繰り入れ率, Yield Ratio, ※4 A: 合格 Acceptable, ※5 F: 標準試験片 FULL SIZE, 2: 2.5mm, 3: 3.2mm, 4: 4.3mm, 5: 5.0mm, 6: 6.6mm, 7: 7.5mm, 8: 8.6mm, 9: 製品厚厚 Plate Thickness, ※6 P: 製品分析 Product Analysis
 ※7 N: 標準 Normalized, Q: 焼入れ Quenched, T: 焼戻し Tempered, CR: Coriolis Rolled, N1 C: NiC Process/RMC Process, CL C: CMC Process/TMC Process, A R: As Rolled, FM R: FMC Process/TMC Process, NR: Normalized/Heated
 SH: 衝撃試験 Shear Fracture, CF: 脆性破壊試験 Crystallinity Fracture, LE: 脆性破壊試験 Crystallinity Fracture, AGS: 水素脆性試験 Austenite Grain Size, FGS: フェライト粒度 Ferrite Grain Size, SR: Stress-Relieved/Post Weld Heat Treatment

上記注文品は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。
 WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN
 MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

君津製鐵所厚板管理グループ
 Head of Department
 PLATE QUALITY CONTROL DEPT.
 KIMITSUWORKS
 検査員
 検査員番号
 検査員名



注 文 者 : HANWA CO., LTD.
 SHIPPER :
 注文者照会番号 : 228-68511010
 REFERENCE No. :
 契約番号 : 1-831-HT-5-9-A101
 CONTRACT No. :
 商 品 名 : HOT ROLLED STEEL PLATES
 COMMODITY :

新日本製鐵株式會社
 Nippon Steel Corporation
 鋼材検査証明書
 INSPECTION CERTIFICATE

本 社 : 〒100-8071 東京都千代田区丸の内二丁目6番1号
 HEAD OFFICE : 2-6-1, MARUJICHU, CHUOHU-TU, TOKYO 100-8071, JAPAN
 倉庫 壱 號 所 : 〒299-4141 千葉県君津市壱津一番地
 KANISUJWORKS : 1, KANITSU, KANITSU-CITY, CHIBA-PREF, 299-4141 JAPAN

規格 : ASME SA-516 GRADE 70-F10
 文 書 番 号 :
 DOCUMENT No. :

需要家 : EDMONTON EXCHANGER GROUP OF C-
 CUSTOMER : OMPANLES

発行年月日 : 2011-09-09
 DATE OF ISSUE : 1001
 証明書番号 : P-16084
 CERTIFICATE No. :
 頁 : 59
 2***DM*****
 *****CEW***
 E3001P0701 E07

| 寸 法 DIMENSION mm, inch, feet | 厚 度 THICKNESS | 質 量 MASS KG | 製鋼番号 CAST No. | 製品番号 PLATE No. | 引張試験 TENSILE TEST | | 衝撃試験 IMPACT TEST | | 化 学 成 分 CHEMICAL COMPOSITION % | | | | | | | | | | | | | | | | | | |
|------------------------------------|------------------|-------------------|-------------------------|-------------------|----------------------|----------------|--------------------------|-----|-----------------------------------|-----|----|----|-----|----|----|---|----|----|---|------|---|---|---|---|---|------|--------|
| | | | | | 引張強さ T.S. KSI | 伸び EL. % | 2V-50F FT. LB EACH | AVG | C | SI | Mn | P | S | CU | NI | Q | Mo | Nb | V | TRAI | | | | | | | |
| 0.625" X 120.5" X 480" | 06 | 13962 | G9702FERROM 44705 | 570270642 | 53 | 76 | 30 | 299 | 315 | 147 | 15 | 37 | 143 | 7 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0.12 | 0.3640 |
| 0.625" X 120.5" X 480" | 06 | 4654 | G9702TESTED-PL 44706 | 570270659 | 55 | 76 | 28 | 300 | 291 | 154 | 15 | 37 | 143 | 7 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0.12 | 0.3640 |
| 0.625" X 120.5" X 480" | 06 | 13962 | G9702FERROM 44706 | 570270662 | 55 | 76 | 28 | 300 | 291 | 154 | 15 | 37 | 143 | 7 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0.12 | 0.3640 |

注 釈 NOTES :
 ※1 Location Orientation 位置・方向, T: 縦部 Top, B: 底面 Bottom, L: 延方向 Longitudinal, C: 横方向 Transverse, Z: 板厚方向 Through Thickness, R: 45° 方向 45Deg. to the Longitudinal Axis
 ※2 G.L. 端点距離 Gage Length, A: 50mm 平形板試験片 Rectangular, B: 50mm 文形板試験片 Round, C: 70mm 平形板試験片 Rectangular, D: 70mm 文形板試験片 Round, E: 80mm 平形板試験片 Rectangular, F: 80mm 文形板試験片 Round, G: 200mm, H: 27.1: 8", J: 5.65/So, K: 4/So
 ※3 R.A.: 絞り Reduction of Area, Y.R.: 引張比 Yield Ratio, ※4 A: 合格 Acceptable, ※5 F: 標準規格 Full Size, 2: 2.5mm, 3: 3.2mm, 4: 3.9mm, 5: 5.0mm, 6: 5.7mm, 7: 7.5mm, 8: 6.7mm, 9: 製品板厚 Plate thickness, ※6 P: 製造方法 Product Analysis, ※7 N: 焼入れ Normalized, Q: 焼入れ+焼戻し Tempered, C.R.: 連続処理 Process, G.L.C.: G.L.C. Process/TMG Process, A.R.: As Rolled, T.M.R.: TM/R Process/TMG Process, N.R.: Normalizing/Rolled
 S.H.: 延ばり割断 Shear Fracture, C.F.: 脆性延断 Fracture, L.E.: 側面膨張 Lateral Expansion, A.C.S.: オーステナイト相 Austenite Grain Size, F.G.S.: フォワード相 Forward Heat Treatment
 上記注記は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

品質管理課
 Head of Department
 鋼材検査部
 PLATE QUALITY CONTROL DEPT.
 KANITSUWORKS
 品質管理課
 Head of Department
 鋼材検査部
 PLATE QUALITY CONTROL DEPT.
 KANITSUWORKS



注 文 者 : HANWA CO., LTD.
 SHIPPER :
 注文者照合番号 : 228-68511010
 REFERENCE No.:
 契約番号 : 1-831-H1-5-9-AT01
 CONTRACT No.:
 商 品 名 : HOT ROLLED STEEL PLATES
 COMMODITY :
 規 格 : ASME SA-516 GRADE 70-E10
 SPECIFICATION :
 文 書 番 号 : EDMONTON EXCHANGER GROUP OF C-
 DOCUMENT No. : CUSTOMER COMPANIES

新日本製鐵株式會社
 Nippon Steel Corporation
 鋼材検査証明書
 INSPECTION CERTIFICATE

(AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1)
 需要家管理番号 : E3001P0701 E07
 需要家管理番号 :
 CUSTOMER CONTROL No. :
 発行年月日 : 2011-09-09
 DATE OF ISSUE : 1001
 証明書番号 : P-16084
 CERTIFICATE No. :
 発行年月日 : 2011-09-09
 DATE OF ISSUE : 1001
 2**DM****
 ****CEW**

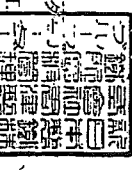
本 社 : 〒100-8071 東京都千代田区丸の内二丁目6番1号
 住 所 : 〒2-6-1, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071, JAPAN
 HEAD OFFICE :
 〒299-1401 千葉県君津市君津一番地
 君津製鐵所 :
 KIMITSU WORKS : 1, KIMITSU, KAMITSU-CITY, CHIBA-PREF. 299-1411 JAPAN

| 寸 法 DIMENSION mm, inch, feet | 厚 度 THICKNESS | 質 量 MASS KG | 鋼 牌 番 号 CAST No. | 試 験 番 号 TEST No. | 製 品 番 号 PLATE No. | 引 張 試 験 TENSILE TEST | | | 衝 撃 試 験 IMPACT TEST | | | 化 学 成 分 CHEMICAL COMPOSITION % | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|------------------|-------------------|---------------------|---------------------|----------------------|-------------------------|-------------|---------------|------------------------|-------------|-----|-----------------------------------|----|----|-----|----|----|----|----|----|---|-----|-----|---|---|---|---|---|---|---|------|--------|--------|
| | | | | | | 引張強さ T.S. | 伸長率 E.L. | 断面収縮率 R.G. | 2V - 50F FT. LB. | AVG EACH | C | Si | Mn | P | S | CU | Ni | Cr | Mo | Nb | V | TAI | TAI | | | | | | | | | | |
| 0.625" X 120.5" X 480" | 06 | 4654 | G9702 | 44707 | TESTED-PL | 54 | 76 | 26 | TLF287 | 291 | 287 | 152 | 15 | 37 | 143 | 7 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0.12 | 0.3640 |
| 0.625" X 120.5" X 480" | 06 | 4654 | G9702 | 44707 | TESTED-PL | 54 | 76 | 26 | TLF287 | 291 | 287 | 152 | 15 | 37 | 143 | 7 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0.12 | 0.3640 | |

注 意 事 項 : Location Orientation 位置・方向, T: 頂部 Top, B: 底部 Bottom, L: 延び方向 Longitudinal, C: 直り方向 Transverse, Z: 板厚方向 Through Thickness, R: 45° 方向 45Deg. to the Longitudinal Axis
 鋼 牌 番 号 : G9702
 試 験 番 号 : 44707
 製 品 番 号 : TESTED-PL
 引 張 試 験 : T.S. 54, E.L. 76, R.G. 26
 衝 撃 試 験 : 2V-50F FT.LB. AVG EACH 287, 152
 化 学 成 分 : C 0.15, Si 3.7, Mn 14.3, P 7, S 2, Cu 2, Ni 2, Cr 2, Mo 2, Nb 2, V 2, TAI 0.12, TAI 0.3640

注 文 者 認 可 : 鋼材検査証明書
 新日本製鐵株式會社
 Nippon Steel Corporation
 君津製鐵所
 KIMITSU WORKS
 〒299-1401 千葉県君津市君津一番地
 1, KIMITSU, KAMITSU-CITY, CHIBA-PREF. 299-1411 JAPAN

君津製鐵所 検査管理グループ
 Head of Department
 PLATE QUALITY CONTROL DEPT.
 KIMITSU WORKS



上記注文品は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。
 WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN
 MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

검사 증명서 MILL TEST CERTIFICATE



당진제철소: 충남 당진시 송악읍 고대리 167-32
Gosae-Ri, Songyeok-Eup, Dangjin, Chungnam, Korea

주문번호
Order No.
: F120300040

품명
Commodity
: Hot Rolled Steel Plate

제품규격
Specification
: ASME SA516-70 MT LTV

고객사
Customer
: EDMONTON STEEL PLATE

주문자
Contractor
: HYUNDAI CORPORATION

증명서 번호
Certificate No.
: 20120331-PS-061-006

발행일자
Date of Issue
: 2012-03-31

단위
Unit
: 2. x 100 3. x 1,000
4. x 10,000 5. x 100,000

| 제품차수 Dimension | 수량 Quantity | 중량 Weight (LBS) | 제강번호 Heat No. | 제품번호 Product No. | 인장시험 Tensile Test | | | | | | | | 충격시험 Impact Test V-Notch -50.8 °F | | 화학성분 Chemical Composition(%) | | | | | | | | | | | | | | | | | | |
|------------------------|----------------|-----------------------|------------------|---------------------|----------------------|-----------|-----------|--------------|-----------|-----------|---|-------------------|--|-------|---------------------------------|---|-------|-----|-------|-----|----|----|----|---|----|-----|---|--------------------|-----|---|---|----|-----|
| | | | | | YP (KSI) | TS (%) | EL (%) | YP-EL (%) | FA (%) | YR (%) | N | Energy [F-Lbs] | SF (%) | C | Mn | P | S | Cr | Ni | B | Ca | Cu | Mg | N | Nb | Ti | V | S ₄ -AI | CEQ | | | | |
| 0.500" x 120.5" x 480" | 1 | 8,203 | M89072 | FA21991503 | 54.3 | 78.3 | 28 | | | | | | | 1-224 | | L | 1,544 | 332 | 1,116 | 178 | 27 | 19 | 20 | 2 | 27 | 141 | 0 | 24 | 14 | 1 | 2 | 36 | 402 |
| | | | | | | | | | | | | | | 2-218 | | C | 1,489 | 336 | 1,103 | 151 | 24 | 19 | 19 | 2 | 33 | 135 | 0 | 34 | 13 | 1 | 2 | 35 | 393 |
| | | | | | | | | | | | | | | 3-212 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | A-218 | | | | | | | | | | | | | | | | | | | |

*** Slab Total(001) *** 21 172,263(LBS)

** Heat Treatment: Normalized : 1634.0°F 28 Min.

| 0.625" x 120.5" x 480" | 1 | 10,251 | M42511 | FA21933901 | T | 54.1 | 77.8 | 28 | | | | | | 1-129 | | L | 1,477 | 309 | 1,216 | 119 | 28 | 18 | 19 | 4 | 38 | 135 | 0 | 37 | 14 | 2 | 2 | 31 | 408 |
|------------------------|---|--------|--------|------------|---|------|------|----|--|--|--|--|--|-------|--|---|-------|-----|-------|-----|----|----|----|---|----|-----|---|----|----|---|---|----|-----|
| | | | | | | | | | | | | | | 2-236 | | C <th>1,532</th> <th>318</th> <th>1,237</th> <th>128</th> <th>28</th> <th>18</th> <th>19</th> <th>2</th> <th>38</th> <th>138</th> <th>0</th> <th>41</th> <th>15</th> <th>1</th> <th>2</th> <th>32</th> <th>418</th> | 1,532 | 318 | 1,237 | 128 | 28 | 18 | 19 | 2 | 38 | 138 | 0 | 41 | 15 | 1 | 2 | 32 | 418 |
| | | | | | | | | | | | | | | 3-220 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | A-195 | | | | | | | | | | | | | | | | | | | |

Position - T:Top, M:Middle, B:Bottom

* Tensile test - Direction:Longitudinal, Gauge length:200mm (Rectangular), YP method : 0.2% off-set

* Impact test - Direction:Longitudinal, Size:10mmX10mm, SF:Shear fracture

* Division - C:Check analysis, L:Ladle analysis

ALL MATERIALS HAVE BEEN PRODUCED AS PER ASME SECTION II PART A SA 516-70 MT LTV + SA20 AS WELL AS SECTION VIII DIV.1 - 2010 EDITION.

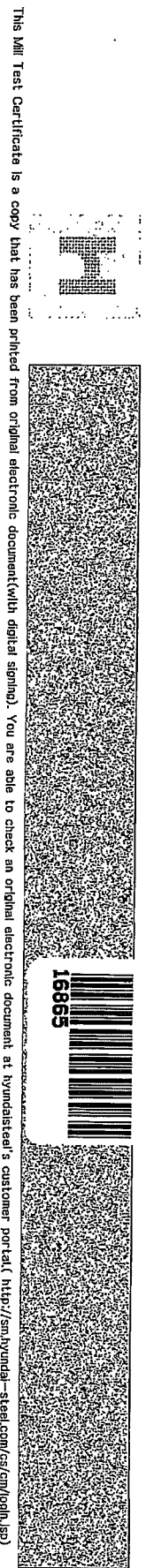
The plate is fully killed and fine grained steel. Basic oxygen process and Vacuum degassing process were applied.

Applicable Code is ASME Section II Part A 2010 Edition. The Certificate has been issued in compliance with EN 10204 (2004) 3.1.

상기의 제품은 검사외 결과 차등된 규격에 합격한 것을 증명합니다.
WE HEREBY CERTIFY THAT THE MATERIAL HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND THE REQUIREMENTS

Signature: **S. B. Park**

SUPERVISOR TO: CHIEF OF QUALITY ASSURANCE TEAM



This Mill Test Certificate is a copy that has been printed from original electronic document (with digital stamp). You are able to check an original electronic document at <http://sm.hyundai-steel.com/csf/cm/qlph.jsp>

검사증명서

MILL TEST CERTIFICATE



당진제철소: 충청 당진시 송악읍 고대리 167-32
Gochok-ri, Songgok-Eup, Dangjin, Chungnam, Korea

주문번호 : F120300040
Order No.

품명 : Hot Rolled Steel Plate
Commodity

제품규격 : ASME SA516-70 MT LTV
Specification

고객사 : EDMONTON STEEL PLATE
Customer
주문처 : HYUNDAI CORPORATION
Contractor

증명서 번호 : 20120331-PS-061-007
Certificate No.
발행일자 : 2012-03-31
Date of Issue

| 제품차수 Dimension | 수량 Quantity | 중량 Weight (LBS) | 제강번호 Heat No. | 제품번호 Product No. | T | 인장시험 Tensile test | | | | | | 충격시험 Impact Test V-Notch-50J | | 화학성분 Chemical Composition(%) | | | | | | | | | | | | 단위 Unit | | | | | | | |
|------------------------|----------------|-----------------------|------------------|---------------------|---|----------------------|------|-----------|--------------|-----------|-----------|------------------------------------|--------------------|---------------------------------|---|----|-------|-----|-------|-----|----|----|----|----|----|---------|---|----|----|----------------|-----|----|-----|
| | | | | | | YP (KSI) | TS | EL (%) | YF-EL (%) | FA (%) | YR (%) | N | Energy (Ft-Lbs) | SF (%) | C | Si | Mn | P | S | Cr | Ni | B | Ca | Cu | Mo | Nb | N | Ti | V | S ₄ | CEQ | | |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954101 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954102 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954103 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954104 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954105 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954106 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954107 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954108 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954109 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954110 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954111 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954112 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954113 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954114 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954115 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954116 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954117 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954118 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954119 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.722 | 301 | 1.220 | 127 | 26 | 19 | 18 | 3 | 38 | 128 | 0 | 37 | 14 | 9 | 2 | 28 | 434 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | MA2507 | FA21954120 | T | 54.6 | 81.0 | 27 | | | | | | 1:116 | | L | 1.846 | 286 | 1.204 | 118 | 26 | 18 | 18 | 2 | 39 | 127 | 0 | 35 | 13 | 8 | 2 | 28 | 442 |

* Position - F:Top, M:Middle, B:Bottom
* Tensile test - Direction: Transverse, Gauge length: 200mm (Rectangular), YP method : 0.2% off-set
* Impact test - Direction: Longitudinal, Size: 10mmX10mm, SF: Shear fracture
* Division - C: Check analysis, L: Ladle analysis

* ALL MATERIALS HAVE BEEN PRODUCED AS PER ASME SECTION II PART A SA 516-70 MT LTV + SA 20 AS WELL AS SECTION VIII DIV.1 - 2010 EDITION.
* The plate is fully killed and fine grained steel. Basic oxygen process and Vacuum degassing process were applied.
* Applicable Code is ASME Section II Part A 2010 Edition. The Certificate has been issued in compliance with EN 10204 (2004) 3.1.

상기의 제품은 검사 결과 지정된 규격에 합격한 것을 증명합니다.
THE ABOVE MATERIAL HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND THE REQUIREMENTS

Reviewed to: 2010 Section II Part A & B
MTR reviewed as per requirements in SA-20
Thickness checked as per requirements UG-90(b) (3)

Heat No. 1025112
Chemicals
By: W

Signature: S.B. Park
SUPERVISOR TO: CHEF OF QUALITY ASSURANCE TEAM

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검사증명서

MILL TEST CERTIFICATE



당진제철소: 충청남도 서산시 송악읍 고대리 167-32
Gosong-ri, Songgok-Eup, Dangjin, Chungnam, Korea

주문번호 : F120300040
Order No.

품명 : Hot Rolled Steel Plate
Commodity

제품규격 : ASME SA516-70 MT LTV
Specification

고객사 : EDMONTON STEEL PLATE
Customer
주문자 : HYUNDAI CORPORATION
Contractor

증명서 번호 : 20120331-PS-061-009
Certificate No.
발행일자 : 2012-03-31
Date of Issue

| 제품치수 Dimension | 수량 Quantity | 중량 Weight (LBS) | 재질번호 Head No. | 제품번호 Product No. | 인장시험 Tensile Test | | | | | | 충격시험 Impact Test V-notch -50.8 | | 화학성분 Chemical Composition(%) | | | | | | | | | | | | | | | | | | | | |
|------------------------|----------------|-----------------------|------------------|---------------------|----------------------|-----------|-----------|--------------|-----------|-----------|--------------------------------------|--------------------|---------------------------------|-------|----|-------|-------|-------|-------|-----|----|----|----|----|-----|-----|----|--------------------|-----|---|----|-----|-----|
| | | | | | YS (KSI) | TS (%) | EL (%) | YR-EL (%) | RA (%) | YR (%) | N | Energy (Ft-Lbs) | SF (%) | C | Si | Mn | P | S | Cr | Ni | B | Ca | Cu | Mo | Nb | Ti | V | S _{total} | CEQ | | | | |
| 0.625" x 120.5" x 480" | 1 | 10,251 | M89072 | FA21891102 | T | 53.5 | 76.3 | 28 | | | | | | 1:228 | 9 | L | 1.544 | 332 | 1,116 | 178 | 27 | 19 | 20 | 2 | 27 | 141 | 0 | 24 | 14 | 1 | 2 | 36 | 402 |
| 0.625" x 120.5" x 480" | 1 | 10,251 | M89072 | FA21891101 | T | 52.3 | 76.8 | 29 | | | | | | 2:225 | C | 1,542 | 339 | 1,114 | 159 | 23 | 19 | 19 | 1 | 30 | 137 | 0 | 34 | 13 | 1 | 2 | 34 | 400 | |
| 0.625" x 120.5" x 480" | 1 | 10,251 | M89072 | FA21891103 | T | 52.3 | 76.8 | 29 | | | | | | 3:225 | L | 1,544 | 332 | 1,116 | 178 | 27 | 19 | 20 | 2 | 27 | 141 | 0 | 24 | 14 | 1 | 2 | 36 | 402 | |
| | | | | | | | | | | | | | | A:233 | C | 1,456 | 342 | 1,093 | 172 | 28 | 19 | 19 | 2 | 32 | 138 | 0 | 31 | 12 | 1 | 2 | 36 | 398 | |
| | | | | | | | | | | | | | | A:233 | L | 1,544 | 332 | 1,116 | 178 | 27 | 19 | 20 | 2 | 27 | 141 | 0 | 24 | 14 | 1 | 2 | 36 | 402 | |
| | | | | | | | | | | | | | | 2:225 | C | 1,456 | 342 | 1,093 | 172 | 28 | 19 | 19 | 2 | 32 | 138 | 0 | 31 | 12 | 1 | 2 | 36 | 398 | |
| | | | | | | | | | | | | | | 3:225 | C | 1,456 | 342 | 1,093 | 172 | 28 | 19 | 19 | 2 | 32 | 138 | 0 | 31 | 12 | 1 | 2 | 36 | 398 | |
| | | | | | | | | | | | | | | A:233 | L | 1,544 | 332 | 1,116 | 178 | 27 | 19 | 20 | 2 | 27 | 141 | 0 | 24 | 14 | 1 | 2 | 36 | 402 | |
| | | | | | | | | | | | | | | A:233 | C | 1,456 | 342 | 1,093 | 172 | 28 | 19 | 19 | 2 | 32 | 138 | 0 | 31 | 12 | 1 | 2 | 36 | 398 | |

Sub Total(Q2) 14 143,514(LBS)

* Position - T:Top, M:Middle, B:Bottom
* Tensile test - Direction: Transverse, Gauge length: 200mm (Rectangular), YP method : 0.2% of -set
* Impact test - Direction: Longitudinal, Size: 10mmX10mm, SF: Shear fracture
* Division - C: Check analysis, L: Table analysis

ALL MATERIALS HAVE BEEN PRODUCED AS PER ASME SECTION II PART A SA 516-70 MT LTV + SA 20 AS WELL AS SECTION VIII DIV.1 - 2010 EDITION.
The plate is fully killed and fine grained steel. Basic oxygen process and Vacuum degassing process were applied.
Applicable Code is ASME Section II Part A 2010 Edition. The Certificate has been issued in compliance with EN 10204 (2004) 3.1.

Reviewed to: 2010 Section II Part A S. B. Park
MTR reviewed as per requirements in SA-20
Thickness checked as per requirements UG-90.(b) (6)
Heat No. V.T. 0.6999 Chemicals V
Date: 10/28/12 By: A Properties V
Signature: S. B. Park
SUPERVISOR TO: CHIEF OF QUALITY ASSISTANCE TEAM

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MATERIAL RECEIVING REPORT

RECORD OF ACTUAL CODE REQUIRED MARKINGS
(Note: The markings required by the material specification are described in the material specification and the general specification for the product form)

| MATERIAL TRACKING NUMBER | VERIFIED THICKNESS / PRODUCT | DIAMETER | QUANTITY | RECORD OF ACTUAL CODE REQUIRED MARKINGS <small>(Note: The markings required by the material specification are described in the material specification and the general specification for the product form)</small> | SUPPLIER | P.O. NUMBER | JOB NUMBER | RECEIVER INITIAL/DATE |
|--------------------------|------------------------------|----------|----------|--|----------|-------------|------------|-----------------------|
| | 0.636 | 24" | 1 | Shell 24" OD X 0.636" WDM X 5'-6" Long S1516-70W | Edmonton | 7539 | 12-053 | Oct-11/12 |
| | 0.636 | 24" | 1 | HT# 360216 90939 | Edmonton | 7539 | 12-053 | KL |
| | 0.653 | 24" | 1 | Shell 24" OD X 0.635" WDM X 5'-0" Long S1516-70W | " | 7539 | 12-053 | Oct-11/12 |
| | 0.653 | 24" | 1 | HT# G 7082 3707805 | " | 7539 | 12-053 | KL |
| | 0.651 | 24" | 1 | Shell 24" OD X 0.635" WDM X 5'-0" Long S1516-70W | " | 7539 | 12-054 | Oct-11/12 |
| | 0.651 | 24" | 1 | HT# G 7082 3707805 | " | 7539 | 12-054 | KL |
| | 0.637 | 24" | 1 | Shell 24" OD X 0.635" WDM X 5'-0" Long S1516-70W | " | 7539 | 12-055 | Oct-11/12 |
| | 0.637 | 24" | 1 | HT# 360216 90939 | " | 7539 | 12-055 | KL |
| | 0.634 | 24" | 1 | Shell 24" OD X 0.635" WDM X 5'-0" Long S1516-70W | " | 7539 | 12-056 | Oct-11/12 |
| | 0.634 | 24" | 1 | HT# 360216 90939 | " | 7539 | 12-056 | KL |



edmonton exchanger
& manufacturing ltd.

CERTIFICATE OF COMPLIANCE

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780.468.6722 • QC fax 780.466.4668 • sales fax 780.466.5155

Customer GLOBALFLOW INC. po 7539 Work Order C95961 Date 2012/09/27 CofC# 36149 Page 1 of 1

| Item# | Description | Qty | Heat# | Weld Proc. | Form. Proc. |
|------------|--|-----|-----------------|------------|-------------|
| S95961-3-1 | SHELL(S) - 0.6250" NOM X 24" OD X 60" (Material Spec: SA 516-70 Normalized) | 1 | G7022-370780515 | WP600 | 4 |
| S95961-3-2 | SHELL(S) - 0.6250" NOM X 24" OD X 60" (Material Spec: SA 516-70 Normalized) | 1 | G7022-370780515 | WP600 | 4 |
| S95961-3-3 | SHELL(S) - 0.6250" NOM X 24" OD X 60" (Material Spec: SA 516-70 Normalized) | 1 | 360216-90939 | WP600 | 4 |
| S95961-3-4 | SHELL(S) - 0.6250" NOM X 24" OD X 60" (Material Spec: SA 516-70 Normalized) | 1 | 360216-90939 | WP600 | 4 |
| S95961-3-5 | SHELL(S) - 0.6250" NOM X 24" OD X 60" (Material Spec: SA 516-70 Normalized) | 1 | 360216-90939 | WP600 | 4 |

Forming Procedure:
4. Cold Formed

Supplementary Requirements

Normalized Material Identification Marking:

'MT' indicates normalized by the mill per ASME Code Section II, Part A, SA 20, Paragraph 13.1.1.

'GMT' indicates normalized by Edmonton Exchanger per ASME Code Section II, Part A, SA 20, Paragraph 13.1.2.

'GT' indicates normalized by Edmonton Exchanger per ASME Code Section VIII Division 1, UG-85 or ASME Code Section I, PG-77.4.

The item(s) listed above comply with the requirements of ASME Code Section I, PG-80 and ASME Code Section VIII, Division 1, UCS-79(d), UG-79 & UG-80. All welders and procedures are qualified to ASME Code Section IX. For tacking carbon steel items, roundbar used is 1018 Cold Rolled. Material being supplied conforms to the latest ASME Code Section II, Part A, 2010 Edition, Addenda July 1, 2011.

Supplementary Examination - Items



CERTIFICATE OF COMPLIANCE

MTR List

edmonton exchanger
& manufacturing ltd.

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780.468.6722 • QC fax 780.466.4668 • sales fax 780.466.5155

Customer GLOBALFLOW INC. PO 7539 Work Order C95961 Date 2012/09/27 CofC# 36149 Page 1 of 1

Email to kim.insko@globalflowinc.com

| MTR ID | Pages | Heat# | Thickness | Material Grades |
|--------|-------|-----------------|-----------|-----------------|
| 16263 | 9 | 360216-90939 | .625" | SA 516-70 N |
| 16910 | 11 | G7022-370780515 | .625" | SA 516-70 N |

| Heat# | Material Grades | MTR ID |
|-----------------|-----------------|--------|
| 360216-90939 | SA 516-70 N | 16263 |
| G7022-370780515 | SA 516-70 N | 16910 |

RM System Certification as per ISO 9001



DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

| | | | |
|---|--|---|-------|
| A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 | A10 Advice of dispatch No./ Date of dispatch | A08 Manufacturer's order/ A03 Certificate No. | Sheet |
| INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 | 392117-24.06.11 | 364358-001 | 1/... |
| MATERIAL TEST REPORT (MTR) | | | |

| | | | | |
|---------------------------------|----------------|-----------------------|-----------|------------------|
| A05 Established inspecting body | A06 Purchaser | EDMONTON STEEL, EDMON | A07.1 No. | ED10563-01010-ER |
| DH | Final receiver | EDMONTON STEEL, EDMON | A07.2 No. | |
| Steel design | | SA516-70 | SA20-S5 | |

| | | |
|-----------------------------|---------------|--------------------------|
| B03 Any suppl. requirements | ASME-III-A:10 | DIL-HUE-2:R31-2010-11-22 |
|-----------------------------|---------------|--------------------------|

B01-B99 Description of the product

| B04 Item No. | B08 Number of places | B09 Thickness | B10 Width | B11 Length | B12 Theoretical mass | B04 Product condition | B07.2 Heat No. | B07.1 Rolled plate No./ Test No. | A09 Purchaser article number |
|--------------|----------------------|---------------|-----------|------------|----------------------|-----------------------|----------------|----------------------------------|------------------------------|
| INCH | | | | | | | | | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360216 | 90937-01 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360216 | 90937-02 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360216 | 90937-03 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360216 | 90938-01 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360216 | 90938-02 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360216 | 90939-01 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360216 | 90939-02 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360217 | 95161-01 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360217 | 95161-02 | |
| 01 | 1 | 0,6250 | 96,50000 | 480,00000 | 3724 | N | 360217 | 95161-03 | |
| ** | 10 | | | | 37240 | | | | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90950-01 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90950-02 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90950-03 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90951-01 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90951-02 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90952-01 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90952-02 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90952-03 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90953-01 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360214 | 90953-02 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360216 | 90940-01 | |
| 02 | 1 | 0,6250 | 120,50000 | 480,00000 | 4650 | N | 360216 | 90940-02 | |

Z01Z02Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.



Manufacturer's mark

B. BALDAUF
Test House Manager

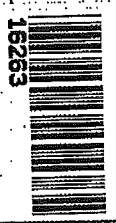


Inspector's stamp

AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

Date 24.06.11

BM 1



16263

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)



DILLINGER HÜTTE

| | | | |
|---|--|--|-------|
| A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 | A10 Advice of dispatch No./ Date of dispatch | A08/ Manufacturer's order/ A03 Certificate No. | Sheet |
| INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 | 392117-24.06.11 | 364358-001 | 2/... |

| | | | | | | | |
|---------------------------------|--|--------------------------|--|------------------|--|------------------------------|--|
| MATERIAL TEST REPORT (MTR) | | A06 Purchaser | | A07.1 No. | | A09 Purchaser article number | |
| A05 Established inspecting body | | EDMONTON STEEL, EDMON | | ED10563-J1010-ER | | B01 Product | |
| DH | | EDMONTON STEEL, EDMON | | A07.2 No. | | HOT ROLLED PLATES | |
| B02/ Steel design. | | SA516-70 | | SA20-S5 | | | |
| B03 Any suppl. requirements | | ASME-IT-A:10 | | | | | |
| | | DIL-HUE-2:R31-2010-11-22 | | | | | |

| B01-B99 Description of the product | | | | | | | | | |
|------------------------------------|----------------------|---------------|-----------|------------|----------------------|--------------------------------|----------------|----------------------------------|------------------------------|
| B14 Item No. | B08 Number of pieces | B09 Thickness | B10 Width | B11 Length | B12 Theoretical mass | B04 Product delivery condition | B07.2 Heat No. | B07.1 Rolled plate No./ Test No. | A09 Purchaser article number |
| INCH | | | | | | | | | |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90940-03 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90941-01 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90941-02 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90941-03 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90942-01 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90942-02 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90942-03 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90943-01 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90943-02 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90943-03 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90944-01 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90944-02 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90944-03 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90945-01 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90945-02 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90945-03 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90946-01 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90946-02 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90946-03 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90947-01 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90947-02 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90947-03 |
| 02 | 1 | 0,6250 | x | 120,50000 | x | 480,00000 | N | 360216 | 90948-01 |

| | | | | |
|---------------------|-----------|--|--|---------------|
| A04 | Z01Z02Z03 | We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order. | AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department | A01 |
| | | | | |
| Manufacturer's mark | | B. BAUDAUF Test House Manager | Inspector's stamp | Date 24.06.11 |

QM-System: Certification as per ISO 9001

Ehäufigungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillingergroup.com/certificate)



DILLINGER HÜTTE

| | | | |
|---|--|--|-------|
| A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 | A10 Advice of dispatch No./ Date of dispatch | A08/ Manufacturer's order/ A03 Certificate No. | Sheet |
| INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 | 392117-24.06.11 | 364358-001 | 3/... |
| MATERIAL TEST REPORT (MTR) | | | |

| | | | | |
|---------------------------------|----------------|-----------------------|-----------|------------------|
| A06 Established inspecting body | A06 Purchaser | EDMONTON STEEL, EDMON | A07.1 No. | ED10563-J1010-ER |
| DH | Final receiver | EDMONTON STEEL, EDMON | A07.2 No. | |
| SA20-SS | | | | |
| HOT ROLLED PLATES | | | | |

| | | |
|-----------------------------|--|--|
| B02/ Steel design | SAS16-70 | |
| B03 Any suppl. requirements | ASME-11-A:10 DIL-HUE-2:R31-2010-11-22 | |

| B01-B99 Description of the product | | | | | | | | | |
|------------------------------------|----------------------|---------------|-------------|------------|----------------------|--------------------------------|----------------|----------------------------------|------------------------------|
| B14 Item No. | B08 Number of pieces | B09 Thickness | B10 Width | B11 Length | B12 Theoretical mass | B04 Product delivery condition | B07.2 Heat No. | B07.1 Rolled plate No./ Test No. | A09 Purchaser article number |
| | | | INCH | | KG | | | | |
| 02 | 1 | 0,6250 x | 120,50000 x | 480,00000 | 4650 | N | 360216 | 90948-02 | |
| 02 | 1 | 0,6250 x | 120,50000 x | 480,00000 | 4650 | N | 360216 | 90948-03 | |
| 02 | 1 | 0,6250 x | 120,50000 x | 480,00000 | 4650 | N | 360216 | 90949-01 | |
| 02 | 1 | 0,6250 x | 120,50000 x | 480,00000 | 4650 | N | 360216 | 90949-02 | |
| 02 | 1 | 0,6250 x | 120,50000 x | 480,00000 | 4650 | N | 360216 | 90949-03 | |
| ** | 40 | | | | 186000 | | | | |
| *** | 50 | | | | 223240 | | | | |

B04 Product delivery condition

ITEM NO.: 01-02
 N: HT: 1670 GR.F +36 -27 GR.F
 SOAKING TIME TO ATTAIN THE TARGET TEMPERATURE OVER THE WHOLE SECTION: 1-1,75 MIN/MM (25-45 MIN/INCH)
 COOLING IN STILL AIR

B06 Marking of the product

ITEM NO.: 01-02
 STEEL DESIGNATION SAS16 70 MFLVY SAS16 60 MFLTV
 HEAT NO. / TRADEMARK / ROLLED PLATE NO.-TEST NO. / INSPECTOR'S STAMP

B07-B99 Further information about the product

ITEM NO.: 01-02
 THICKNESS REDUCTION RATIO >= 3,0 IS FULLFILLED (CF. A/SA20 PAR. 5.3)

| | | | | | |
|----------------------------|--|--|--------------------------|---------------|------|
| <p>Manufacturer's mark</p> | Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order. | <p>B. BALDAUF Test House Manager</p> | <p>Inspector's stamp</p> | Date 24.06.11 | BM 1 |
| | AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department | | | | |

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

| | | | |
|--|--|---|----------------|
| A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 | A10 Advice of dispatch No./ Date of dispatch 392117-24.06.11 | A08/ Manufacturer's order/ A03 Certificate No. 364358-001 | Sheet 4/... |
|--|--|---|----------------|


| | | | |
|---------------------------------------|---|-------------------------------|-----------------------|
| A05 Established inspecting body DH | A06 Purchaser EDMONTON STEEL, EDMON EDMONTON STEEL, EDMON | A07.1 No. ED10563-J1010-ER | A07.2 No. A072 No. |
|---------------------------------------|---|-------------------------------|-----------------------|

| | | |
|--|--|---------|
| B02/ Steel design. B03 Any suppl requirements | SA516-70 ASME-11-A:10 DIL-HDE-2:R31-2010-11-22 | SA20-S5 |
|--|--|---------|

| C10-C29 Tensile test | | | | | | | | | | | | |
|----------------------|----------------|---------------------------|--------------------------------|------|-----|-----|------|------|------|-----|--------------|----------|
| B14 Item No. | B07.2 Heat No. | B07.1 Rollplate/ Test No. | B05 Reference (heat) treatment | C01 | C02 | C03 | C10 | C11 | C12 | C13 | A % Lb=9M | C14-C15 |
| 01 | 360216 | 90937 | | K1 Q | Q | RT | RP02 | 50,2 | 75,4 | | 30 | |
| 01 | 360216 | 90938 | | K1 Q | Q | RT | | 49,9 | 75,1 | | 27 | |
| 01 | 360216 | 90939 | | K1 Q | Q | RT | | 51,8 | 76,0 | | 25 | VT 0.636 |
| 01 | 360217 | 95161 | | K1 Q | Q | RT | | 50,6 | 75,4 | | 29 | 0.637 |
| 02 | 360214 | 90950 | | K1 Q | Q | RT | | 54,2 | 76,6 | | 29 | 0.637 |
| 02 | 360214 | 90951 | | K1 Q | Q | RT | | 51,6 | 76,9 | | 28 | 0.634 |
| 02 | 360214 | 90952 | | K1 Q | Q | RT | | 51,8 | 76,1 | | 30 | |
| 02 | 360214 | 90953 | | K1 Q | Q | RT | | 51,6 | 77,1 | | 28 | |
| 02 | 360216 | 90940 | | K1 Q | Q | RT | | 52,2 | 76,4 | | 27 | |
| 02 | 360216 | 90941 | | K1 Q | Q | RT | | 52,2 | 76,6 | | 28 | |
| 02 | 360216 | 90942 | | K1 Q | Q | RT | | 52,6 | 76,4 | | 27 | |
| 02 | 360216 | 90943 | | K1 Q | Q | RT | | 53,1 | 76,6 | | 26 | |
| 02 | 360216 | 90944 | | K1 Q | Q | RT | | 52,1 | 76,3 | | 27 | |
| 02 | 360216 | 90945 | | K1 Q | Q | RT | | 52,5 | 76,9 | | 28 | |
| 02 | 360216 | 90946 | | K1 Q | Q | RT | | 52,5 | 76,7 | | 27 | |
| 02 | 360216 | 90946 | | K1 Q | Q | RT | | 52,6 | 76,7 | | 27 | |
| 02 | 360216 | 90945 | | K1 Q | Q | RT | | 52,2 | 76,3 | | 26 | |
| 02 | 360216 | 90947 | | K1 Q | Q | RT | | 52,2 | 76,3 | | 26 | |
| 02 | 360216 | 90948 | | K1 Q | Q | RT | | 52,5 | 76,7 | | 26 | |
| 02 | 360216 | 90949 | | K1 Q | Q | RT | | 52,5 | 76,9 | | 26 | |

Reviewed to 2010 Section II Part A & 2011a addenda
MTR reviewed as per requirements in SA 01
Thickness checked as per requirement in SA 01
Chemicals: _____
Date: 26 Oct 11 By: [Signature]

| | | |
|-----|--|-----|
| A04 | Z01Z02Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order. | A01 |
|-----|--|-----|



AG der Dillinger Hüttenwerke
 Postfach 1580, D-66748 Dillingen/Saar
 Inspection department

B. BALDAUF
 Test House Manager
 Inspector's stamp
 Date 24.06.11
 BM 1

QM-System: Certification as per ISO 9001

Erklärungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillingerg.de/certificate)



DILLINGER HÜTTE

| | | | |
|--|--|--|----------------------------------|
| A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR) | A10 Advice of dispatch No./ Date of dispatch 392117-24.06.11 | A08 Manufacturer's order/ A03 Certificate No. 364358-001 | Sheet 5/... |
| A05 Established inspecting body DH | A06 Purchaser Final receiver | A07.1 No. ED10563-J1010-ER | B01 Product HOT ROLLED PLATES |
| B02 Steel design SA516-70 | EDMONTON STEEL, EDMON EDMONTON STEEL, EDMON | A07.2 No. SA20-S5 | |
| B03 Any suppl. requirements | ASME-IT-A:10 DII-HUE-2:R31-2010-11-22 | | |

| C30-C39 Hardness test | | | | | | | | | |
|-----------------------|-------------------|----------------------------------|-----------------------------------|-----|---------|---------------------|-----------------------|---------------------------------|----------------------|
| B14 Kern- No. | B07.2 Heat No. | B07.1 Rol./plate/ Test No. | B05 Reference (heat) treatment | C01 | C02/C01 | C03 Temp. GRP | C30 Method of test | C35 C31 Individual values | C32 Mean value |
| 01 | 360216 | 90937 | | K1 | 0 | RT HBW 10/3000 | HB 147 | 149 | 148 |
| 01 | 360216 | 90938 | | K1 | 0 | RT HBW 10/3000 | HB 150 | 153 | 153 |
| 01 | 360216 | 90939 | | K1 | 0 | RT HBW 10/3000 | HB 154 | 153 | 154 |
| 01 | 360217 | 95161 | | K1 | 0 | RT HBW 10/3000 | HB 152 | 153 | 150 |
| 02 | 360214 | 90950 | | K1 | 0 | RT HBW 10/3000 | HB 151 | 152 | 153 |
| 02 | 360214 | 90951 | | K1 | 0 | RT HBW 10/3000 | HB 152 | 153 | 152 |
| 02 | 360214 | 90952 | | K1 | 0 | RT HBW 10/3000 | HB 152 | 153 | 153 |
| 02 | 360214 | 90953 | | K1 | 0 | RT HBW 10/3000 | HB 154 | 154 | 153 |
| 02 | 360216 | 90940 | | K1 | 0 | RT HBW 10/3000 | HB 150 | 150 | 150 |
| 02 | 360216 | 90941 | | K1 | 0 | RT HBW 10/3000 | HB 150 | 150 | 149 |
| 02 | 360216 | 90942 | | K1 | 0 | RT HBW 10/3000 | HB 154 | 154 | 153 |
| 02 | 360216 | 90943 | | K1 | 0 | RT HBW 10/3000 | HB 154 | 154 | 154 |
| 02 | 360216 | 90944 | | K1 | 0 | RT HBW 10/3000 | HB 154 | 155 | 155 |
| 02 | 360216 | 90945 | | K1 | 0 | RT HBW 10/3000 | HB 150 | 151 | 150 |
| 02 | 360216 | 90946 | | K1 | 0 | RT HBW 10/3000 | HB 150 | 151 | 151 |
| 02 | 360216 | 90947 | | K1 | 0 | RT HBW 10/3000 | HB 151 | 152 | 151 |
| 02 | 360216 | 90948 | | K1 | 0 | RT HBW 10/3000 | HB 150 | 153 | 151 |
| 02 | 360216 | 90949 | | K1 | 0 | RT HBW 10/3000 | HB 152 | 152 | 152 |

| | | |
|---------------------|--|--|
| A04 | Z01VZ02I203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order. | A01 |
| | | |
| Manufacturer's mark | R. BALDAUF Test House Manager | AG der Dillingerg Hüttenwerke Postfach 1580, D-66748 Dillingerg/Saar Inspection department |
| | Inspector's stamp | Date 24.06.11 |
| | | BW 1 |

QIM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)



DILLINGER HÜTTE

| | | | | | | |
|-----------------------------------|---|--|-----------------------|---|---|----------------------------------|
| A02 | INSPECTION CERTIFICATE 3.1 | AS PER EN 10204:2004 | A10 | Advice of dispatch No./ Date of dispatch | A08/ Manufacturer's order/ A03 Certificate No. | Sheet |
| | INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 | | | 392117-24.06.11 | 364358-001 | 6/.... |
| MATERIAL TEST REPORT (WTR) | | | | | | |
| A05 | Established inspecting body | A06 Purchaser | EDMONTON STEEL, EDMON | A07.1 No. | ED10563-J1010-ER | |
| DH | | Final receiver | EDMONTON STEEL, EDMON | A07.2 No. | | B01 Product HOT ROLLED PLATES |
| B02 | Steel design. | SAS16-70 | | | SA20-SS | |
| B03 | Any suppl. requirements | ASME-II-A:10 DIL-HUE-2:R31-2010-11-22 | | | | |

C40-C49 Impact test

| B14 Item No. | B07.2 Heat No. | B07.1 Rollplate/ Test No. | B05 Reference (heat) treatment | C01 | C02 | C03 | C04 | C41 | C40 | C44 | C46 | C45 | C42 | C43 |
|--------------|----------------|---------------------------|--------------------------------|-----|-------|------|---------------------|--------------------|----------------|--------|--------------------------------|------------|-----|-----|
| | | | | | Temp. | Grp. | Width of test piece | Type of test piece | Testing method | Energy | Individual values AV=FT,1BF | Mean value | | |
| 01 | 360216 | 90937 | | K1 | LV | -51 | | CHP-V | | AV 192 | 162 | 198 | 184 | |
| 01 | 360216 | 90938 | | K1 | LV | -51 | | CHP-V | | AV 113 | 190 | 136 | 146 | |
| 01 | 360216 | 90939 | | K1 | LV | -51 | | CHP-V | | AV 145 | 125 | 125 | 132 | |
| 01 | 360217 | 95161 | | K1 | LV | -51 | | CHP-V | | AV 122 | 117 | 127 | 122 | |
| 02 | 360214 | 90950 | | K1 | LV | -51 | | CHP-V | | AV 111 | 113 | 118 | 114 | |
| 02 | 360214 | 90951 | | K1 | LV | -51 | | CHP-V | | AV 87 | 122 | 112 | 107 | |
| 02 | 360214 | 90952 | | K1 | LV | -51 | | CHP-V | | AV 112 | 122 | 85 | 106 | |
| 02 | 360214 | 90953 | | K1 | LV | -51 | | CHP-V | | AV 104 | 125 | 119 | 116 | |
| 02 | 360216 | 90940 | | K1 | LV | -51 | | CHP-V | | AV 179 | 150 | 195 | 175 | |
| 02 | 360216 | 90941 | | K1 | LV | -51 | | CHP-V | | AV 131 | 204 | 134 | 156 | |
| 02 | 360216 | 90942 | | K1 | LV | -51 | | CHP-V | | AV 108 | 114 | 128 | 117 | |
| 02 | 360216 | 90943 | | K1 | LV | -51 | | CHP-V | | AV 123 | 162 | 183 | 156 | |
| 02 | 360216 | 90944 | | K1 | LV | -51 | | CHP-V | | AV 137 | 127 | 96 | 113 | |
| 02 | 360216 | 90945 | | K1 | LV | -51 | | CHP-V | | AV 204 | 141 | 141 | 162 | |
| 02 | 360216 | 90946 | | K1 | LV | -51 | | CHP-V | | AV 100 | 131 | 134 | 122 | |
| 02 | 360216 | 90947 | | K1 | LV | -51 | | CHP-V | | AV 147 | 134 | 111 | 131 | |
| 02 | 360216 | 90948 | | K1 | LV | -51 | | CHP-V | | AV 93 | 182 | 205 | 160 | |
| 02 | 360216 | 90949 | | K1 | LV | -51 | | CHP-V | | AV 142 | 187 | 182 | 170 | |

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.



Manufacturers' mark

B. BALDAUF
Test House Manager



Inspector's stamp Date 24.06.11

AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

BM 1

A01

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillingер.de/certificate)

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004

INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

MATERIAL TEST REPORT (MTR)

A10 Advice of dispatch No./
Date of dispatch
392117-24.06.11

A08/ Manufacturer's order/
A03 Certificate No.
364358-001

Sheet
7/...

A06 Established inspecting body

A06 Purchaser

EDMONTON STEEL, EDMON A07.1 No. ED10563-J1010-ER

DH

Final receiver

EDMONTON STEEL, EDMON A07.2 No.

B02/ Steel design SA516-70

ASME-III-A:10

DIL-HDE-2:R31-2010-11-22

SA20-S5

B01 Product
HOT ROLLED PLATES

C70-C99 Chemical composition % - Heat analysis

| Heat | C70 | C | SI | MN | P | S | N | CU | MO | NI | CR | V | NB | SN | TI |
|--------|-----|--------|--------|--------|-------|--------|--------|--------|-------|--------|-------|-------|-------|-------|-------|
| B07.2 | | | | | | | | | | | | | | | |
| Heat | | | | | | | | | | | | | | | |
| 360214 | Y | 0,178 | 0,376 | 1,17 | 0,010 | 0,0011 | 0,0073 | 0,038 | 0,011 | 0,046 | 0,034 | 0,000 | 0,001 | 0,001 | 0,002 |
| 360216 | Y | 0,178 | 0,373 | 1,20 | 0,010 | 0,0008 | 0,0081 | 0,033 | 0,011 | 0,048 | 0,025 | 0,000 | 0,000 | 0,001 | 0,002 |
| 360217 | Y | 0,175 | 0,373 | 1,18 | 0,009 | 0,0005 | 0,0060 | 0,031 | 0,011 | 0,053 | 0,034 | 0,000 | 0,000 | 0,001 | 0,002 |
| B07.2 | | | | | | | | | | | | | | | |
| Heat | | | | | | | | | | | | | | | |
| 360214 | Y | 0,0000 | 0,0022 | 0,032 | | | | | | | | | | | |
| 360216 | Y | 0,0000 | 0,0017 | 0,036 | | | | | | | | | | | |
| 360217 | Y | 0,0000 | 0,0014 | 0,046 | | | | | | | | | | | |
| B07.2 | | | | | | | | | | | | | | | |
| Heat | | | | | | | | | | | | | | | |
| 360214 | | FO-02= | 0,39 | FO-51= | 0,001 | FO-55= | 0,13 | FO-78= | 0,05 | FO-91= | 6,6 | | | | |
| 360216 | | FO-02= | 0,39 | FO-51= | 0,000 | FO-55= | 0,12 | FO-78= | 0,04 | FO-91= | 6,7 | | | | |
| 360217 | | FO-02= | 0,39 | FO-51= | 0,000 | FO-55= | 0,13 | FO-78= | 0,05 | FO-91= | 6,7 | | | | |

C94 Heat analysis Carbon equivalent / Alloying restrictions

C95 Ladle treatment

ITEM NO.: 01-02


HEAT OF THE INDICATED ITEM: VACUUM DEGASSED / SULPHIDE SHAPE CONTROL


C95 Further information about ladle treatment


ITEM NO.: 01-02

CALCIUM TREATED

A04 201202203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

 Manufacturer's mark

 B. BALDAUF Test House Manager

 Inspector's stamp

Date 24.06.11

AG der Dillingener Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

A01

QM-System: Certification as per ISO 9001



DILLINGER HÜTTE

Erklärungen siehe Rückseite/Esplications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004

INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991

MATERIAL TEST REPORT (MTR)

A10 Advice of dispatch No./
Date of dispatch
392117-24.06.11

A08/ Manufacturer's order/
A03 Certificate No.
364358-001

Sheet
8/...

A06 Established inspecting body A06 Purchaser EDMONTON STEEL, EDMON A07.1 No. ED10563-T1010-ER
DH Final receiver EDMONTON STEEL, EDMON A07.2 No.

B01 Product
HOT ROLLED PLATES

B02 Steel design: SA516-70
B03 Any suppl. ASME-III-A:10
requirements DIL-HVE-2:R31-2010-11-22 SA20-SS

C70-C99 Chemical composition % - Product analysis

| Heat | Test No. | C | SI | MN | P | S | N | CU | MO | NI | CR | V | NB | SN | TI |
|--------|----------|-----|--------|--------|-------|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| B07.2 | B07.1 | C01 | | | | | | | | | | | | | |
| 360214 | 90952 | K1 | 0,178 | 0,375 | 1,17 | 0,009 | 0,0012 | 0,0083 | 0,036 | 0,011 | 0,047 | 0,033 | 0,001 | 0,002 | 0,001 |
| 360216 | 90942 | K1 | 0,173 | 0,376 | 1,20 | 0,010 | 0,0005 | 0,0076 | 0,030 | 0,048 | 0,023 | 0,001 | 0,001 | 0,000 | 0,001 |
| 360217 | 95161 | K1 | 0,176 | 0,381 | 1,19 | 0,009 | 0,0006 | 0,0070 | 0,030 | 0,011 | 0,051 | 0,027 | 0,000 | 0,001 | 0,000 |
| B07.2 | B07.1 | C01 | | | | | | | | | | | | | |
| Heat | Test No. | B | CA | AL-T | | | | | | | | | | | |
| 360214 | 90952 | K1 | 0,0001 | 0,0022 | 0,030 | | | | | | | | | | |
| 360216 | 90942 | K1 | 0,0000 | 0,0015 | 0,035 | | | | | | | | | | |
| 360217 | 95161 | K1 | 0,0000 | 0,0014 | 0,038 | | | | | | | | | | |

C94 Product analysis Carbon equivalent / Alloying restrictions

| Heat | Test No. | FO-02= | FO-51= | FO-55= |
|--------|----------|--------|--------|--------|
| 360214 | 90952 | K1 | 0,39 | 0,003 |
| 360216 | 90942 | K1 | 0,39 | 0,002 |
| 360217 | 95161 | K1 | 0,39 | 0,001 |

C94 Carbon equivalent formula / Alloying restrictions

FO-02 = C + (Mn/6) + (CR+MO+V) / 5 + (NI+CU) / 15

FO-51 = V +NB

FO-55 = CU+MO+NI+CR

FO-78 = CR+MO

FO-91 = Mn/C

сделано в 21.06.11
 (9) (9) 06-01 стеновые панели по проекту 1102
 02-А в стеновых панелях по проекту 1102
 02-А в стеновых панелях по проекту 1102

A04 Z01Z02Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

AG der Dillinger Hüttenwerke
 Postfach 1580, D-66748 Dillingen/Saar
 Inspection department

B. BALDAUF
 Test House Manager

AG der Dillinger Hüttenwerke
 Postfach 1580, D-66748 Dillingen/Saar
 Inspection department

Date 24.06.11

QM-System: Certification as per ISO 9001



DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

| | | |
|--|--|--|
| A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR) | A10 Advice of dispatch No./ Date of dispatch 392117-24.06.11 | A08 Manufacturer's order/ A03 Certificate No. 364358-001 Sheet 9 |
| A05 Established inspecting body DH Final receiver EDMONTON STEEL, EDMON | A06 Purchaser EDMONTON STEEL, EDMON A072 No. ED10563-J1010-ER | B01 Product HOT ROLLED PLATES |
| B02 Steel design SA516-70 B03 Any suppl. ASME-IT-A:10 requirements DIL-HUE-2:R31-2010-11-22 | SA20-S5 | |

D01 Marking and identification, surface appearance, shape and dimensional properties

ITEM NO.: 01-02
 RESULT OF MARKING, SURFACE, SHAPE AND DIMENSIONS: NO REMARKS
 SURFACE AS PER ASME-SA20
 THICKNESS AS PER ASME-SA20
 LENGTH AND WIDTH AS PER ASME-SA20
 FLATNESS AS PER 1/2-ASME-SA20



A04 2011/2022/03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.



AG der Dillinger Hüttenwerke
 Postfach 1580, D-66748 Dillingen/Saar
 Inspection department

B. BALDAUF
 B. BALDAUF
 Test House Manager



Inspector's stamp Date 24.06.11

注文者 : HANWA CO., LTD.
 注文参照番号 : 228-68511120
 契約番号 : 2-831-H1-5-5-A101
 商品名 : HOT ROLLED STEEL PLATES

新日本製鋼所株式会社
 Nippon Steel Corporation
鋼材検査証明書
INSPECTION CERTIFICATE

規格 : ASME SA-516 GRADE 70-E10-A11
 文書番号 : EDMONTON EXCHANGER GROUP OF C-
 DOCUMENT No. : OMPANIES
 需要家管理番号 : CUSTOMERS CONTROL No.

本 社 : 〒100-8071 東京都千代田区丸の内二丁目6番1号
 HEAD OFFICE : 〒2-6-1, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071, JAPAN
 君津製鐵所 : 〒239-1401 千葉県君津市君津一番地
 KIMISUWORKS : 〒1-KIMISU, KAMITSU-CITY, CHIBA-PREF. 299-1141 JAPAN
 証明書番号 : P-19850
 発行年月日 : 2012-05-14
 DATE OF ISSUE : 1001
 頁 : 22
 CERTIFICATE No. : P-19850
 2**DM****
 *****CE***
 E3001P0702 E07

| 寸法 | 法 | 数量 | 質量 | 製造番号 | 製品番号 | 引張試験 | | 衝撃試験 | | 化学成分 | | | | | | | | | | | | | | | |
|------------------------|---|----|-------|----------------|---------------------------|------|----|--------|-----|------|-------|-----|-----|---|----|----|----|----|----|---|----|---|---|------|--------|
| | | | | | | 引張強さ | 伸率 | 平均値 | 個々値 | C | SI | Mn | P | S | CU | NI | CR | MO | Nb | V | TM | | | | |
| mm, inch, feet | | | KG | CAST No. | PLATE No. | Y.S. | EL | 2V-50F | 個々値 | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| 0.625' X 120.5' X 480' | | 1 | 465.4 | G7021 17400 | TESTED-PL 370780506TC1 | 54 | 77 | 291 | 292 | 290 | 15.39 | 3.9 | 142 | 7 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0.12 | 0.3539 |
| 0.625' X 120.5' X 480' | | 1 | 465.4 | G7021 17400 | TESTED-PL 370780507TC1 | 53 | 77 | 277 | 271 | 275 | 15.39 | 3.9 | 142 | 7 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0.12 | 0.3539 |

注釈 NOTES: ※1 Location Orientation 位置・方向, T: 頂部 Top, B: 底部 Bottom, L: 延延方向 Longitudinal, C: 垂直方向 Transverse, Z: 板厚方向 Through Thickness, R: 45° 方向 45Deg. to the Longitudinal Axis
 ※2 GL: 鋼丸面鋼 Gage length, A: 50mm 平形試験片 Rectangular, B: 70mm 平形試験片 Rectangular, C: 70mm 平形試験片 Rectangular, D: 70mm 平形試験片 Rectangular, E: 80mm 平形試験片 Rectangular, F: 80mm 平形試験片 Rectangular, G: 200mm, H: 2', I: 8', J: 5.65x/50, K: 4/50
 ※3 RA: 酸処理 Production of Area, Y: R: 酸処理 Yield Ratio, A: 合格 Acceptable, ※5 LF: 焼付板 FULL SIZE, 2: 2.5mm, 3: 3.3mm, 4: 3.33mm, 5: 5.0mm, 6: 6.67mm, 7: 7.5mm, 8: 6.7mm, 9: 鋼板厚 Plate Thickness, ※6 P: 製品分析 Product Analysis, 製品 Temperature
 ※7 N: 焼付 Normalized, Q: 焼入 Quenched, T: 焼戻し Tempered, CR: Control Rolled, N: N.C.: N/C Process/TMC Process, A: R: As Rolled, T: M/R: TMR Process/TMC Process, N: R: Normalizing Rolled
 ※8 引張試験面 Shear Fracture, C: F: 断端微面率 Crystallinity Fracture, L: E: 組織出 Lateral Expansion, A: O: オートテンテン度 Austenite Grain Size, F: O: オートテンテン度 Ferrite Grain Size, S: R: Stress Relieved Post-Meld Heat Treatment

上記注文品は鋼材指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。
 WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

君津製鐵所 検査課 検査員 加藤 隆夫
 Head of Department
 PLATE QUALITY CONTROL DEPT.
 KIMISUWORKS
 検査員 加藤 隆夫
 検査員 加藤 隆夫



注 文 者 : HANWA CO., LTD.
 注文者照合番号 : 228-68511120
 契約番号 : 2-831-H1-5-5-AT01
 商 品 名 : HOT ROLLED STEEL PLATES

新日本製鐵株式會社
 Nippon Steel Corporation
 鋼材検査証明書
 INSPECTION CERTIFICATE

本 社 : 〒100-8071 東京都千代田区丸の内二丁目6番1号
 HEAD OFFICE : 2-6-1, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071, JAPAN
 君 津 製 鐵 所 : 〒299-1141 千葉県君津市君津I番地
 KIMITSU WORKS : 1, KIMITSU, KIMITSU-CITY, CHIBA-PREF. 299-1141 JAPAN

規 格 : ASME SA-516 GRADE 70-E10-A11
 文 書 番 号 : EDMONTON EXCHANGER GROUP OF C- 需要家管理番号 :
 DOCUMENT No. : CUSTOMER : OHPANIES
 (AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1)
 発行年月日 : 2012-05-14
 DATE OF ISSUE : 1001
 2**DM****
 *****CEW**
 E3001P0702 E07

| 寸 法 DIMENSION mm, inch, feet | 厚 度 THICKNESS mm | 質 量 MASS KG | 製 品 番 号 PLATE No. | 製 脚 番 号 CAST No. TEST No. | 引 張 試 験 TENSILE TEST | | 沖 撃 試 験 IMPACT TEST | | 化 学 成 分 CHEMICAL COMPOSITION % | | | | | | | | | | | | | | | | |
|------------------------------------|------------------------|-------------------|----------------------|---------------------------------|-------------------------|------------------|------------------------|--------------|-----------------------------------|------|----|----|-----|---|----|----|---|----|------|----|-----|-------|-------|----|---|
| | | | | | 引張強さ T.S. KSI | 伸長率 E.L. % | 平均値 AVG | 個々値 EACH | C | Si | Mn | P | S | Q | Ni | Cu | B | Ti | Mo | Nb | V | TaI | N | As | |
| 0.625" X 120.5" X 480" | 05 | 4654 | 370780520T01 | G7022 17428 | 53 | 76 | 28 | 25.9 24.1 | 26.7 | 15.3 | 16 | 40 | 143 | 6 | 2 | 1 | 2 | 1 | 0.11 | 0 | 3.9 | 0.014 | 0.284 | 0 | 0 |
| 0.625" X 120.5" X 480" | 05 | 4654 | 370780529T01 | G7098 19683 | 53 | 76 | 28 | 28.4 25.5 | 28.0 | 15.3 | 15 | 37 | 143 | 9 | 2 | 2 | 2 | 1 | 0.13 | 0 | 4.0 | 0.014 | 0.284 | 0 | 0 |
| 0.625" X 120.5" X 480" | 05 | 13962 | 370780530T01 | G7098 19683 | 53 | 76 | 28 | 28.4 25.5 | 28.0 | 15.3 | 15 | 37 | 143 | 9 | 2 | 2 | 2 | 1 | 0.13 | 0 | 4.0 | 0.014 | 0.284 | 0 | 0 |

注 意 事 項 :
 ※1 Location Orientation 位置: 方向, T: 頂面 Top, B: 底面 Bottom, L: 圧延方向 Longitudinal, C: 横方向 Transverse, Z: 板厚方向 Through Thickness, R: 45° 方向 45Deg. to the Longitudinal Axis
 ※2 CL 板長短縮 Gage-length, A: 50mm 半形板状物 Redangular, B: 70mm 半形板状物 Redangular, D: 70mm 半形板状物 Redangular, E: 80mm 半形板状物 Redangular, F: 80mm 半形板状物 Redangular, G: 200mm, H: 211, I: 8, J: 5.65, K: 4, So
 ※3 RA: 板厚 Reduction of Area, YR: 降伏点 Yield Point, A: 合格 Acceptable, ※5 LF: 降伏点 Yield Point, SIZE, 2: 25mm, 3: 3.5mm, 4: 3.5mm, 5: 5.0mm, 6: 6.67mm, 7: 7.5mm, 8: 6.7mm, 9: 製品板厚 Plate Thickness, ※6 P: 製品板厚 Product Analysis, 温度 Temperature
 ※7 N: 焼却 Normalized, Q: 焼き入れ Quenched, T: 焼戻し Tempered, C-R: Contained Roll, N: C: NiC Process/TMC Process, C: L: C: C Process/TMC Process, A: B: As Rolled, T: M: R: TMR Process/TMC Process, N: R: Normalizing/Rolled
 SH: 連続焼結 Shear Fracture, C-F: 連続焼結 Shear Fracture, Crystalinity Fracture, L: E: 連続焼結 Shear Fracture, Austenite Grain Size, F: G: S: T: 連続焼結 Ferrite Grain Size, S: R: Stress-Relieved/Post Weld Heat Treatment

上記注文品は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。
 WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN
 MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

君津製鐵所 検査管理グループ
 Head of Department
 PLATE QUALITY CONTROL DEPT.
 KIMITSU WORKS
 2012年5月14日
 検査員 佐藤 隆夫



日本製鋼所株式会社
Nippon Steel Corporation

鋼材検査証明書
INSPECTION CERTIFICATE

本社 東京千代田区丸の内二丁目6番1号
支店 大阪府大阪市東淀川区西2丁目1番1号
営業所 千葉県市川市産津1番地
KIMITSU WORKS 1, KIMITSU, KIMITSU-CITY, CHIBA-PREF, 299-1141 JAPAN

注文者: HANWA CO., LTD.
注文者照会番号: 228-68511120
契約番号: 2-831-HI-5-5-A101
商品名: HOT ROLLED STEEL PLATES

規格: ASME SA-516 GRADE 70-F10-A11
文書番号: EDMONTON EXCHANGER GROUP OF C-
DOCUMENT No.: OMPALES

需要家: EDMONTON EXCHANGER GROUP OF C-
CUSTOMERS: OMPALES

需要家管理番号: E3001P0792 E07

(AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1)

発行年月日: 2012-05-14
証明書番号: P-19850
PAGE: 64
DATE OF ISSUE: 1001
*****CEW*****

| 寸法 DIMENSION mm, inch, feet | 数量 QTY | 質量 MASS KG | 製鋼番号 CAST No. TEST No. | 製品番号 PLATE No. | 引張試験 TENSILE TEST | | | 衝撃試験 IMPACT TEST | | | 化学成分 CHEMICAL COMPOSITION % | | | | | | | | | | | | | | | |
|-----------------------------------|-----------|------------------|------------------------------|---------------------------|----------------------|----------|-------------|---------------------|------------|-------------|--------------------------------|----|-----|---|---|----|----|----|------|------|------|----------|----------|---------|---------|--|
| | | | | | 引張強さ T.S. | 伸び EL | 断面収縮率 RA | 2V - 50F FT-LB | 平均値 AVG | 個々値 EACH | C | Si | Mn | P | S | Cl | Ni | Cr | Mo | Nb | V | 残余 Cu | 残余 Al | 残余 S | 残余 P | |
| 2.250' X 121' X 480' | 16 | 16809 | G6688 13552 | TESTED-PL 370781604TCH | 52 | 76 | 35 | 244 | 244 | 146 | 16 | 38 | 140 | 9 | 2 | 1 | 1 | 2 | 0.11 | 0.30 | 0.40 | | | | | |
| | 16 | 16809 | G6688 13552 | TESTED-PL 370781604TCH | 50 | 76 | 38 | 242 | 244 | 147 | 16 | 38 | 140 | 9 | 2 | 1 | 1 | 2 | 0.11 | 0.30 | 0.40 | | | | | |
| TOTAL | 240 | 1355684 | | | | | | | | | | | | | | | | | | | | | | | | |

注釈 NOTES: 1. Location Orientation 位置・方向, 2. 頭部 Top, 3. 底部 Bottom, 4. 圧延方向 Transverse, 5. 延方向 Through Thickness, 6. R: 45° 方向 45Deg. to the longitudinal Axis
2. CL 偽造品検査用 Gauge Length, A: 50mm 平形試験片 Rectangular, B: 50mm 丸形試験片 Round, C: 200mm 平形試験片 Round, D: 200mm 丸形試験片 Round, E: 80mm 平形試験片 Rectangular, F: 80mm 丸形試験片 Round, G: 1.5g, J: 1.5g, K: 4.4g
3. RA: 絞り Reduction of Area, YR: 降伏比 Yield Ratio, 4. A: 合格 Acceptable, 5. F: 試験片 FULL SIZE, 2: 2.5mm, 3: 3.2mm, 4: 3.2mm, 5: 5.0mm, 6: 6.67mm, 7: 7.5mm, 8: 6.7mm, 9: 製品板厚 Plate Thickness, 6: P: 硬度分析 Product Analysis
7. N: 表面 Normalized, Q: 焼入れ Quenched, T: 焼戻し Tempered, CR: Controlled Rolled, NI: G: NICKEL Process, CL: G: CMC Process, AR: As Rolled, TMR: TMR Process, NR: Normalizing Rolled
SH: 塑性状態 Shear Fracture, CF: 脆性状態 Brittle Fracture, L: E: 焼戻し Lateral Expansion, AG: S: オートテンサイト処理 Austenite Grain Size, J: C: S: オートテンサイト処理 Ferrite Grain Size, S: N: Stress Relieved Post Weld Heat Treatment

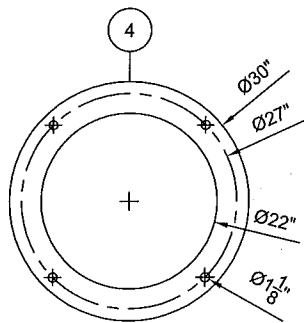
上記注文品は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。
WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

品質保証所 検査部長 山崎 浩二
Head of Department
PLATE QUALITY CONTROL DEPT.
KIMITSU WORKS

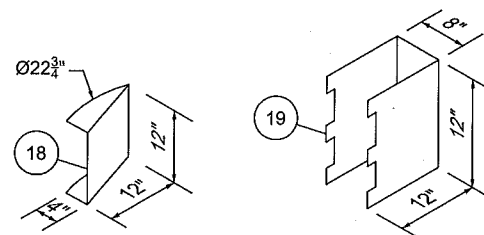


BILL OF MATERIALS

| ITEM | DESCRIPTION | MATERIAL | LENGTH | QTY. | HEAT NUMBER |
|------|---|-----------|----------|------|-------------|
| 1 | S.E. HEAD, 24"OD X 0.625" NOM (0.5625" MIN) | SA516-70N | | 2 | |
| 2 | SHELL, 24"OD X 0.625" NOM. | SA516-70N | 60" | 1 | |
| 3 | SKIRT, 24"OD X 0.375" NOM. | SA53B | 17-5/8" | 1 | |
| 4 | BASE RING, 30"OD X 22"ID X 1/2" | A36/44W | | 1 | |
| 5 | RFWN, 3" 300 ANSI SCH. 160 | SA105N | | 2 | |
| 6 | PIPE, 3" SCH. 160 (0.438") BOE | SA106B | 3-3/16" | 1 | |
| 7 | PIPE, 3" SCH. 160 (0.438") BOE | SA106B | 4-1/4" | 1 | |
| 8 | RFWN, 2" 300 ANSI SCH. 160 | SA105N | | 1 | |
| 9 | PIPE, 2" SCH. 160 (0.344") BOE | SA106B | 4-1/4" | 1 | |
| 10 | PIPE, 2" SCH. 160 (0.344") BOE | SA106B | 5-1/8" | 1 | |
| 11 | PIPE, 2" SCH. 160 (0.344") BOE | SA106B | 15" | 1 | |
| 12 | WELD 90 ELBOW, 2" SCH. 160 LR | SA234WPB | | 1 | |
| 13 | TOL, 2" 3M X 36" - 20" RUN SIZE | SA105N | | 4 | |
| 14 | TOL, 3/4" 3M X 36" - 14" RUN SIZE | SA105N | | 3 | |
| 15 | TOL, 1/2" 3M X 36" - 10" RUN SIZE | SA105N | | 1 | |
| 16 | NAME PLATE BRACKET | A36/44W | | 1 | |
| 17 | VESSEL NAMEPLATE | ALUMINUM | | 1 | |
| 18 | INLET DIVERTER - PLATE, 3/16" (SEE DETAIL) | A36/44W | | 1 | |
| 19 | FLOAT HOOD - PLATE, 3/16" (SEE DETAIL) | A36/44W | | 1 | |
| 20 | DEMISTER, 22-3/4"Ø X 4"TK X 9LB, 1 PIECE, NO GRID | 316SS | | 1 | |
| 21 | FLAT BAR, 1/4" X 1" | A36/44W | 22 3/8" | 4 | |
| 22 | FLAT BAR, 1/4" X 1" | A36/44W | 19 3/16" | 4 | |
| 23 | EXPANDED METAL - FLAT, 3/4" X 9LB | A36/44W | | A/R | |



BASE PLATE

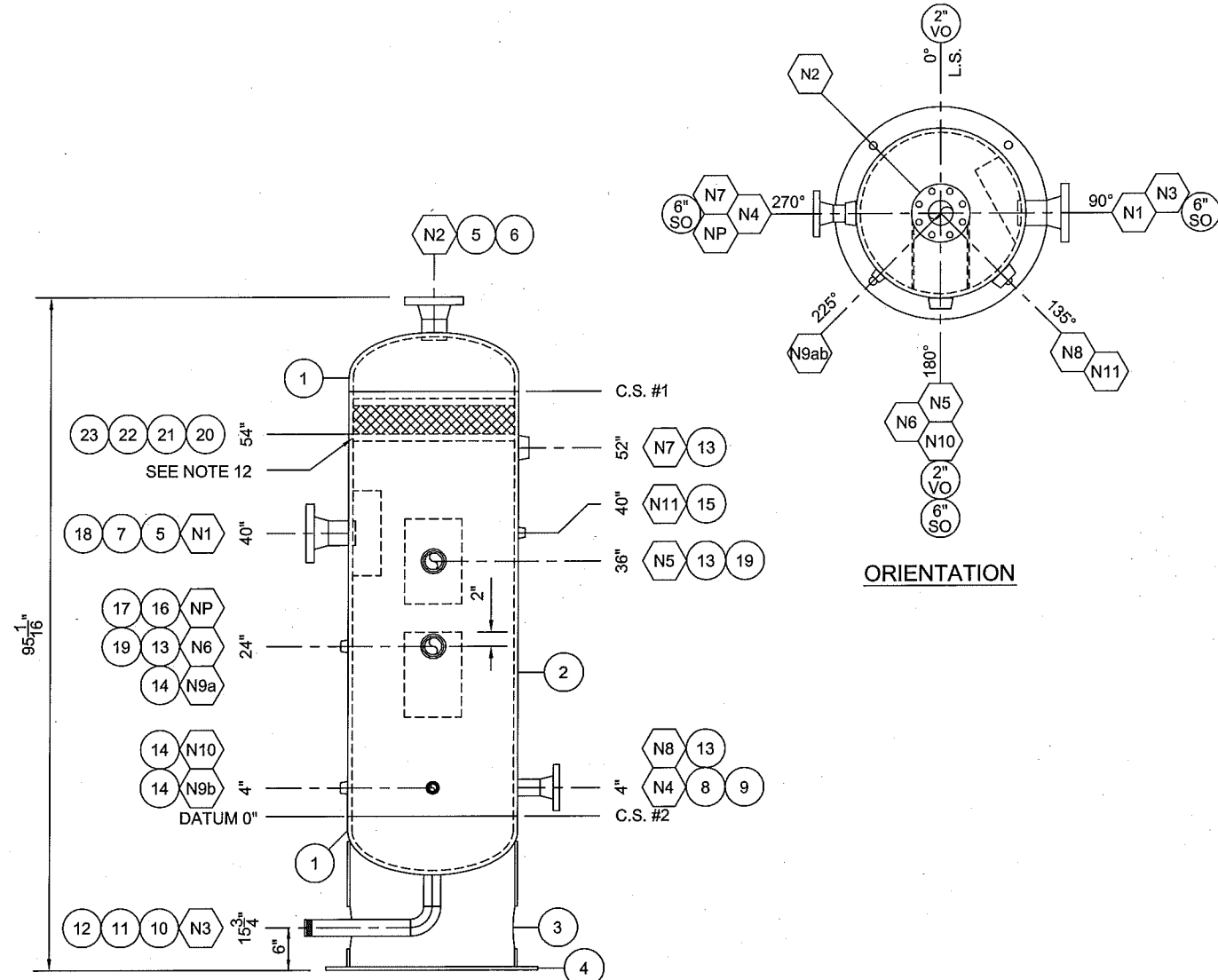


INLET DIVERTER
N.T.S.

FLOAT HOOD
N.T.S.

| MAXIMUM HOLE SIZES | | |
|--------------------|--------|--------|
| CPLG/TOL | 2" | 2.125" |
| CPLG/TOL | 1-1/2" | 1.650" |
| CPLG/TOL | 1-1/4" | 1.410" |
| CPLG/TOL | 1" | 1.065" |
| CPLG/TOL | 3/4" | 0.800" |
| CPLG/TOL | 1/2" | 0.590" |

| WELD DETAIL 1 | WELD DETAIL 2 | WELD DETAIL 3 | WELD DETAIL 4 | WELD DETAIL 5 | WELD DETAIL 6 | WELD DETAIL 7 | WELD DETAIL 8 | WELD DETAIL 9 | WELD DETAIL 10 | WELD DETAIL 11 | WELD DETAIL 12 | WELD DETAIL 13 | WELD DETAIL 14 | WELD DETAIL 15 | WELD DETAIL 16 | WELD DETAIL 17 | WELD DETAIL 18 |
|---|---|---|--|--|--|--|--|--|--|--|--|--|---|--|---|--|--|
| WPS ROOT: GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS ROOT: GF-1N R1 GF-3N R1 F&C: GF-1N R1 | WPS GF-1N R1 OR GF-3N R1 | WPS GF-1N R1 OR GF-3N R1 | WPS GF-1N R1 OR GF-3N R1 | WPS GF-1N R1 OR GF-3N R1 | WPS GF-1N R1 |
| | | | | | | | | | | | | | | | | | |
| LONG SEAM (WITHOUT BACKING) R=1/8" (±1/16") a=60° (±15°) h=1/16" (±1/16") | CIRC SEAM (WITHOUT BACKING) R=1/8" (±1/16") a=60° (±15°) h=1/16" (±1/16") | 3:1 TRANSITION R=1/8" (±1/16") a=60° (±15°) h=1/16" (±1/16") | R=1/8" (±1/16") a=75° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=40° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=40° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=40° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=40° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=40° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=40° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=40° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=40° (±15°) h=1/8" (±1/16") | R=1/8" (±1/16") a=MIN. 30° h=1/16" (±1/16") | TYPICAL SHIRT & BASE RING ATTACHMENT WELD | TYPICAL NON-PRESSURE ATTACHMENT WELD (INTERNAL) | TYPICAL NON-PRESSURE ATTACHMENT WELD (INTERNAL, DAVIT ARM) | TYPICAL NON-PRESSURE ATTACHMENT WELD (INTERNAL) | TYPICAL NON-PRESSURE ATTACHMENT WELD (LIFTING LUGS) |



ELEVATION
DIMENSIONS REFERENCED FROM DATUM UNLESS OTHERWISE SHOWN

| NOZZLE NUMBER | NUMBER REQ'D | NOZZLE SIZE | NOZZLE RATING | TYPE OF SERVICE | OD OF NOZZLE NECK | PROJECTION | | REPAD SIZE (OD x THK.) | WELD DETAIL | FILLET WELD SIZE | | | BILL OF MATERIAL ITEM NUMBER | ADDITIONAL REMARKS |
|---------------|--------------|-------------|---------------|-----------------|-------------------|------------|-----------|------------------------|-------------|------------------|---|----------|------------------------------|--------------------|
| | | | | | | OUTSIDE | INSIDE | | | A | B | C | | |
| N1 | 1 | 3" | 300 ANSI | INLET | 3.500" | 6" | 3/8" MIN. | | 4,5 | 7/8" | | 5,7 | | |
| N2 | 1 | 3" | 300 ANSI | GAS OUTLET | 3.500" | 5" | 3/8" MIN. | | 4,5 | 7/8" | | 5,6 | INSPECTION | |
| N3 | 1 | 2" | SCH. 160 | DRAIN | 2.375" | 6" | FLUSH | | 5 | 1/4" | | 10,11,12 | | |
| N4 | 1 | 2" | 300 ANSI | LIQUID OUTLET | 2.375" | 6" | MIN. | | 4,5 | 1/4" | | 8,9 | | |
| N5 | 1 | 2" | 3000 PSI | HLSD | TOL | | | | 12 | 3/8" | | 13 | | |
| N6 | 1 | 2" | 3000 PSI | LC | TOL | | | | 12 | 3/8" | | 13 | | |
| N7 | 1 | 2" | 3000 PSI | PSV | TOL | | | | 12 | 3/8" | | 13 | | |
| N8 | 1 | 2" | 3000 PSI | INSPECTION | TOL | | | | 12 | 3/8" | | 13 | | |
| N9ab | 2 | 3/4" | 3000 PSI | LG | TOL | | | | 12 | 3/8" | | 14 | | |
| N10 | 1 | 3/4" | 3000 PSI | TI | TOL | | | | 12 | 3/8" | | 14 | | |
| N11 | 1 | 1/2" | 3000 PSI | PI | TOL | | | | 12 | 3/8" | | 15 | | |

GENERAL NOTES

1. QUALITY CONTROL PROGRAM NUMBER IS AQP-1464
2. WELDING PROCEDURE REGISTRATION NUMBER IS WP-2843.2
3. ALL FITTINGS TO CONFORM TO THE LATEST ASME CODES; B16.5 (2009), B16.9, B16.11
4. MTR'S ARE REQUIRED FOR ALL WELDED PRESSURE ATTACHMENTS (PLATE, PIPE, WELD FITTINGS)
5. VESSEL (S) TO BE THOROUGHLY CLEANED INSIDE & OUTSIDE, FREE FROM LOOSE SCALE & FOREIGN MATTER
6. ALL OPENINGS SHALL BE COVERED FOR SHIPPING
7. ALL BOLT HOLES TO STRADDLE NATURAL CENTER LINES UNLESS OTHERWISE NOTED
8. GENERAL DEVIATION TOLERANCE IS +/- 1/8"
9. OVERALL LENGTH TOLERANCE IS +/- 1/4"
10. ANGULAR TOLERANCE IS +/- 1°
11. INSIDE & OUTSIDE OF NOZZLE TO BE ROUNDED PER UG-76(C)
12. DEMISTER SUPPORT BARS TO BE INSTALLED ON 4" CENTERS

EXTERNAL PAINTING & PREP.

SURFACE PREP (EXT): SSPC-SP6
 PRIMER (EXT): RUST-OLEUM QUICK DRY ENAMEL
 TOP COAT (EXT): RUST-OLEUM ENAMEL
 TOP COAT THICKNESS (EXT): DFT OF 1.5-2.0 MILS
 TOP COAT COLOR: LIGHT MACHINE GRAY
 INSULATION: .
 JACKET: .
 BANDING: .

INTERNAL COATING

SURFACE PREP (INT.): .
 TOP COAT (INT.): .
 TOP COAT THICKNESS (INT): .

| REV. | DATE | DESCRIPTION | BY | CHKD | APP'D |
|------|----------|-------------------------|----|------|-------|
| 1 | 03/15/13 | AS BUILT | DB | | |
| 0 | 09/27/12 | ISSUED FOR CONSTRUCTION | DB | | |

ASME SECTION VIII DIV. 1, 2010 ED. 2011a ADD.

| | |
|--|---------------------------------------|
| CRN: V2315.2134 | SERIAL NO. (s): 12-052-01 |
| M.A.W.P.: 720 PSIG (4964 kPa) AT +130°F (+54°C) | |
| M.D.M.T.: -20°F (-29°C) AT 720 PSIG (4964 kPa) | |
| IMPACT TESTING EXEMPT PER UG20f (1-5) | |
| VESSEL TYPE: VERTICAL | P.W.H.T.: 1150°F FOR 60 MINUTES |
| RADIOGRAPHY: RT-1 | CIRC. SEAM: FULL LONG SEAM: FULL |
| JOINT EFFICIENCY: CIRC. SEAM: 1.00 LONG SEAM: 1.00 | |
| NOZZLE RADIOGRAPHY: N/A | UT: N/A |
| C.A.: 1/8" | HYDROSTATIC TEST: 936 PSIG (6454 kPa) |
| VOLUME: 15.90 ft ³ (0.45 m ³) | WEIGHT (DRY): 1500 lb (680 kg) |



PennWest Exploration

CUSTOMER: PennWest Exploration TITLE / PROJECT: 3" INLET (10 WELLS) / 4" HEADER 24"OD X 60" S/S X 720 PSI AB SOUR TEST SEPARATOR PKG

DRAWING NAME: VESSEL QUANTITY: 1 PACKAGE SERIAL NO. (S): 12-052-01

JOB NO.: 12-052 DRAWN BY: D. BRYAN DATE: 09/14/12

REV. NO.: 1 PAGE NO.: 1 OF 1 SCALE: 1/2"=1'-0" DRAWING NO.: 12-052-VESSEL