AB-40 (Side A) 2005/01

BOILERS AND PRESSURE VESSELS REPAIR AND ALTERATION REPORT

(A) #: 218010

OWNER EQUIP NO.: 1390

REPAIR ☑ and/or ALTERATION ☐ Partial ☐ Final ☑

1. **Name and Address of Organization** doing Repair/Alteration Complete O.I. Feild Services
   Box 29 Acme AB. T0M 0A0 AQP No. & Expiry Date 21059 July 06-2006
   Location of Installation 16-30-31-24 W4
2. **Name of Owner** EOG Resources Canada Inc.
   Address Box 1479 Drumheller AB
3. **Boiler/Pressure Vessel Description** Treater CRN 482650.
   Manufacturer's Name ABAX Serial No. UW12D83
4. **Design Conditions:**
   a) Vessel/Shellside/Boiler: Max Allowable Working Press. 50 Min/Max Design Temp 200 /
   b) Jacket/Tubeside: Max Allowable Working Press. 50 Min/Max Design Temp 200 /
5. **Description of defects** (location and types of deterioration that resulted in the repair/alteration).
   Pitting in sides at top of water level
6. **ASME Code Edition and Addenda** used for work: ASME Sect. _____ Year _____ Addenda _____
7. **Repair/Alter. Description of Work.** Step by step description of repair/alteration method, attach additional sheets as needed.

   Note 1: Repair/Alteration Procedure to be accepted by ABSA SCO prior to start of work.

   face up side of treater over Pits
   Welding overlay.
8. **Material** - List any material used in repair/alteration and any base material welded on:

Item	Mat'l Spec.	Thick/Sch	Diam	Item	Mat'l Spec.	Thick/Sch	Diam
Shell/Drum				Heads/ Ends			
Tubeshe				Tubes			
Nozzles				Flanges/Fitting		Class	

9. **Welding Procedure** – Alberta Registration Number WP-1672.2 WPS Numbers used: PW3
10. **Heat Treatment:** Bake Out (Temp./Time) / hr Preheat Temp 50°C Post Weld HT (Temp./Time) /
11. **Non Destructive Examination** (Specify type and extent).
    Magnetic Particle - All weld overlay areas.
    Ultrasonic Thickness - Sos Dome floor - .225

The information you provide is necessary only for the administration of the programs as required by the Alberta Safety Codes Act and Regulations in the Boiler Discipline.

Water leg lower elbow. Outlet Nozzle

AB-40 (Side B) 2005/01

(A) #: 218010 **OWNER EQUIP. NO.** _____

12. **Pressure Test** Vessel/Boiler/Shellside Tubeside/Jacket
    a) Hydrostatic _____ _____ _____
    b) Other Test _____ _____ _____

13. **Welded Replacement Parts:** Attached are Manufacturer's Partial Data Reports or Repair/Alteration Reports properly identified and signed by Authorized Inspectors for the following items of this report: (Welded parts supplied by others).

14. **Responsibility Owner/Client.** Identify below items that the owner/client has assumed responsibility for. **Note (2)**

    a) Design Submission Owner b) Repair/Alteration Procedure: _____ c) Material Control _____
    d) Welding Control _____ e) NDE Owner f) Heat Treatment _____ g) Pressure Test _____

    Note 2: Owner/client must have a valid Alberta Quality Program (AQP), for the scope of work, to assume responsibility for function c, d, e, f, or g.

15 **REMARKS:** _____

16. **CERTIFICATE OF COMPLIANCE**

We certify that the statements made in this Report are correct and that all design, material, construction and workmanship on this repair/alteration conform to the requirements of the Alberta Safety Codes Act and Regulations.

a) For all items except for items identified in 14:	b) For items identified in 14 only:
COMPLETE OILFIELD SERVICES LTD. (Repair/Alteration Organization Name)	_____ (Owner/Client Organization Name)
21059 (AQP Number & Expiry Date)	_____ (AQP Number & Expiry Date)
Nancy P May 09/05 (Signature & Date)	_____ (Signature & Date)
NANCY PIEPKE (Print Name)	_____ (Print Name)

17. DATE WORK WAS COMPLETED: May 11/05

18. **CERTIFICATE OF INSPECTION**

I have inspected the repairs and/or alterations described in this report. To the best of my knowledge this work has been done in accordance with the Safety Codes Act and Regulations.

a) **Owner-User Inspection Certification (Field Only)** (Required when Owner-User Inspects the work under their ABSA Authorized Owner-User Quality Program).	b) **ABSA Safety Codes Officer Certification** (when work is inspected by ABSA).
JULY 07. 2006 Owner-User AQP# & Expiry Date	
May 11/05 Owner User In-Service Inspector Signature & Date	Greg Sutton May 11/05 ABSA SCO Signature & Date
JEFF GRABKE Owner-User In-Service Inspector Name (Please Print)	Greg Sutton Print Name
PESL-000240 Owner-User In-Service Inspector ABSA Cert #	

Report Received by ABSA SCO _____ Date _____

A 218010
Oct 17/84
DCG

FORM U- MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
(Alternative Form for Single Chamber, Completely Shop-Fabricated Vessels Only)
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by ABAX ENERGY SERVICES LTD. 5929 6th St. N.E. CALGARY, AB T2K 5R5
(Name and address of manufacturer)

2. Manufactured for BUMPER DEVELOPMENT CORP. 300 - 5th Avenue S.W. CALGARY, ALBERTA
(Name and address of purchaser)

3. Location of installation LSD 16-30-31-24 W4M
(Name and address)

4. Type VERT. TANK | 1390 | F-1446.2 | 1390B501 | ------ | 10/84
(Horiz. or vert., tank) | (Mfgr's serial No.) | (CRN) | (Drawing No.) | (Nat'l. Bd. No.) | (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 1983 (Year)

to WINTER 1983 (Addenda (Date)) | ------ (Code Case Nos) | ------ (Special Service per U-1(e)(2))

6. Shell: SA-516-70 (Matl. (Spec. No., Grade)) | 6.4mm .250" (Nom. Thk. (in.)) | NIL (Corr. Allow. (in.)) | 3035mm 9' - 11.5" (Diam. I.D. (ft. & in.)) | 1984mm 35' - 6" (Length (overall) (ft. & in.))

7. Seams: DBL BUTT WELDED (Long. (Welded, Dbl., Sngl., Lap, Butt)) | SPOT (R.T. (Spot or Full)) | 85 (Eff. (%)) | ---- (H.T. Temp. (°F)) | ---- (Time (hr)) | DBL BUTT WELDED (Girth (Welded, Dbl., Sngl., Lap, Butt)) | SPOT (R.T. (Spot, Partial, or Full)) | 3 (No. of Courses)

8. Heads: (a) Matl. SA-516-70 (Spec. No., Grade) (b) Matl. SA-516-70 (Spec. No., Grade)

	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	8.48mm	NIL	-----	----	2:1	------	-----	-----	CONCAVE
(b)	BOTTOM	.333"	NIL	-----	----	2:1	------	-----	-----	CONCAVE

If removable, bolts used (describe other fastenings) ---- (Matl., Spec. No., Gr., Size, No.)

9. MAWP 345kPa 50 psi at max. temp. 93°C 200 °F
Min. temp. (when less than -20°F) ---- °F. Hydro., pneu., or comb. test pressure 518 kPa 75 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Matl.	Thk.	Reinforcement Matl.	How Attached	Location
CRUDE INLET	1	114.3mm	RFWN	SA-106-B	6mm	NONE	WELDED	SHELL
OIL OUTLET	1	88.9mm	RFWN	SA-106-B	5.5mm	NONE	WELDED	SHELL
WATER OUT	1	88.9mm	RFWN	SA-106-B	5.5mm	NONE	WELDED	SHELL
DRAIN	1	60.3mm	RFWN	SA-106-B	5.5mm	NONE	WELDED	BTM HEAD

11. Supports: Skirt YES (Yes or no) Lugs 2 (No.) Legs --- (No.) Other BASE RING (Describe) Attached WELDED TO BTM HEAD (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: ---- (Name of part, item number, Mfg'r's name and identifying stamp)

VOLUME: 70.62 m^3

TREATER

CERTIFICATE OF SHOP 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 Code for Pressure Vessels, Section VIII, Division 1. "U" Certificate of Authorization No. 14941 expires DEC. 28, 19 84

Date Oct. 17/84 Co. name ABAX ENERGY SERVICES LTD. (Manufacturer) Signed Karl-H. Schutt (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by ABAX ENERGY SERVICES LTD. at CALGARY.

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 LABOUR have inspected the component described in this Manufacturer's Data Report on Oct 17, 19 84, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his 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 17/84 Signed D.G. Sears (Authorized Inspector) Commissions ---- (Nat'l Board (incl. endorsements), State, Prov. and No.)

(12/82)

This form (E00117) may be obtained from the Order Dept., ASME, 345 E. 47th St., New York, N.Y. 10017

Ⓐ218010

MANUFACTURERS' DATA REPORT SUPPLEMENTARY SHEET

As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

CERTIFIED &

1. Manufactured by ABAX ENERGY SERVICES LTD. 5929 6th St. N.E. CALGARY, AB T2K5R5
(Name and Address of Manufacturer)

2. Manufactured for BUMPER DEVELOPMENT CORP. 300 - 5th Avenue S.W. CALGARY, AB.
(Name and Address of Purchaser)

3. Location of Installation LSD 16-30-31-24 W4M
(Name and Address)

4. Type VERT. (Horiz. Vert.) TANK (Tank, etc.) Vessel No. 1390 (Mfgr. Serial) F-1446.2 (CRN) 13903501 (DWR)

Year Built 10/84

PURPOSE	NO.	DIAM. OR SIZE	TYPE	MATL	NOM. THICK	REINFORCEMENT MATL	HOW ATTACHED	LOCATION
TI	1	26.7mm	CPLG	SA-105	N.A.	NONE	WELDED	SHELL
TC	1	33.4mm	CPLG	SA-105	N.A.	NONE	WELDED	SHELL
H T S D	1	33.4mm	CPLG	SA-105	N.A.	NONE	WELDED	SHELL
LG	4	26.7mm	CPLG	SA-105	N.A.	NONE	WELDED	SHELL
GAS OUT PSV	1	60.3mm	RFWN	SA-106-B	5.5mm	NONE	WELDED	TOP HEAD
MANWAY	4	457.2mm	FF	SA-106-B	9.5mm	SA-516-70	WELDED	SHELL

Date Oct. 17/84 ABAX ENERGY SERVICES LTD. Signed Karl H. Schutz
Manufacturer

Date Oct 17/84
Authorized Inspector's Signature P C Sears Commissions
Province & Number

ABSA
Alberta Boilers Safety Association
#200, 4208 - 97 Street
Edmonton, Alberta, Canada T6E 5Z9
Tel: (780) 437-9100 / Fax: (780) 437-7787

May 30, 2003

Bryan Piepke
COMPLETE OILFIELD SERVICES LTD
BOX 29
ACME, AB T0M 0A0

Dear Bryan Piepke,

The welding procedures received on May 15, 2003 are accepted for registration as follows:

Reg. No. : WP-1672.2 **Accepted on:** May 30, 2003
Tracking No. : 2003-03365
Reg Type : New Design
Spec. No. : PW-3

Registered under owner / manufacturer name COMPLETE OILFIELD SERVICES LTD

Please note the acceptance of the registration does not allow the use of this welding procedure in the construction, modification, or repair of any boiler, pressure vessel, pressure piping system or fitting in Alberta unless the contractor/manufacturer has registered a Quality Control system for such work with ABSA.

Welding procedures, which specify impact testing, have been accepted in accordance with A.S.M.E. Section IX only. Other A.S.M.E. Code Sections may have additional requirements respecting impact testing.

An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

Enclosed are stamped prints for your reference.

Sincerely,

R. Roseberg

ROSEBERG, BOB, P. Eng.
Design Survey Engineer

WELDING PROCEDURE SPECIFICATION NO.: PW-3

WELDING PROCEDURE QUALIFICATION RECORD NO. (S): PQ2

QUALIFIED FOR

Base Metal (Typical): P1 to P1 (SA 36, SA 106 Gr. B, SA 105, SA 516 Gr. 70, etc.)
Process(es): SMAW **Weld Types:** GROOVE & FILLET
Position: ALL POSITIONS **Diameter:** ALL DIAMETERS
Filler Metal: E6010, E6011, E7018, E7018-1

BASE METAL CONDITIONS & THICKNESS RANGE QUALIFIED:

STANDARD APPLICATIONS AS WELDED

ASME B31.1	1.6 to 19.1 mm (0.063 to 0.750 in.) inclusive
ASME B31.3	1.6 to 19.1 mm (0.063 to 0.750 in.) inclusive
ASME SECT. VIII, DIV.1	1.6 to 19.1 mm (0.063 to 0.750 in.) inclusive

ALBERTA BOILERS SAFETY ASSOCIATION
PROVINCE OF ALBERTA
SAFETY CODES ACT
WELDING PROCEDURE

Reg. No. WP 1673.2
Spec No. PW-3
Weld Process SMAW
Matl. Gr. P No. 1 to P No. 1
Elec. Gr. F No. 3+4 A No. 1
Th. Qual. For 19.1 mm PWHT NO

Yr. 03 Mo. 05 Day 30 Signed
R. ROSEBERG, P.ENG.
WELDING SPECIALIST

PROVINCIAL REGISTRATION

QW-482 WELDING PROCEDURE SPECIFICATION (WPS)

Complete Oilfield Services Ltd.
Welding Procedure Specification No. PW-3 Date May 8, 2003
Supporting PQR No. (s) PQ2
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 F3: With or without F4: With metal or weld metal backing
Retainers Not required

BASE METALS (QW-403)

P-Number P1 To P-Number P1
Thickness Range: Groove 1.6 to 19.1 mm (0.063 to 0.750 in.) inclusive
Fillet All base metal thicknesses
Pipe Diameter Ranges: Groove All diameters
Fillet All diameters
Deposited Weld Metal (Per Pass) 12.7 mm (0.500 in.) maximum

FILLER METALS (QW-404)

Specification No. (SFA)	SFA 5.1	SFA 5.1
AWS No. (Class)	E6010, E6011	E7018, 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	4.8 mm (0.188 in.) max.	14.3 mm (0.562 in.) max.
Fillet	All fillet sizes	All fillet sizes

POSITION (QW-405)

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

PREHEAT (QW-406)

Preheat Temperature (Minimum) 10°C (50°F)
Interpass Temperature (Maximum) 371°C (700°F)
Preheat Maintenance 10°C 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.

WPS NO. PW-3

POST WELD HEAT TREATMENT (QW-407)

Temperature Range: None — Time Range: N/A

ELECTRICAL CHARACTERISTICS (QW-409)

Current: Direct — Polarity: Reverse, electrode positive
Amps: See Table #1 — Volts: See Table #1
Maximum Heat Input: N/A

TECHNIQUE (QW-410)

String or Weave: Either — Travel Speed: See Table #1
Initial & Interpass Cleaning: Brushing, chipping or grinding as required
Method of Back Gouging: Air carbon arc, back-grind as required
Multiple or Single Pass Per Side: Either
Multiple or Single Electrodes: Single
Peening: Not permitted

TABLE 1 - WELDING PARAMETERS

Process	Filler Metal	Diameter mm (in.)	Current Type & Polarity	Amperage Range	Voltage Range	Travel Speed mm/min. (i.p.m.)
SMAW	E6010 / E6011	2.4 (3/32)	DCRP	50 - 100	18 - 28	38 - 300 (1.5 - 12)
SMAW	E6010 / E6011	3.2 (1/8)	DCRP	60 - 140	19 - 30	38 - 350 (1.5 - 14)
SMAW	E6010 / E6011	4.0 (5/32)	DCRP	115 - 250	21 - 31	50 - 400 (2.0 - 16)
SMAW	E7018 / E7018-1	2.4 (3/32)	DCRP	60 - 110	18 - 24	38 - 300 (1.5 - 12)
SMAW	E7018 / E7018-1	3.2 (1/8)	DCRP	90 - 150	19 - 26	38 - 350 (1.5 - 14)
SMAW	E7018 / E7018-1	4.0 (5/32)	DCRP	110 - 220	21 - 28	50 - 400 (2.0 - 16)
SMAW	E7018 / E7018-1	5.0 (3/16)	DCRP	160 - 320	22 - 30	75 - 500 (3.0 - 20)
SMAW	E7018 / E7018-1	5.5 (7/32)	DCRP	240 - 340	23 - 32	125 - 550 (5.0 - 22)
SMAW	E7018 / E7018-1	6.4 (1/4)	DCRP	275 - 360	23 - 32	125 - 550 (5.0 - 22)

Note: Size of electrode, filler metal, number of passes, voltage, amperage, and travel speed will vary with position, joint thickness, joint type etc.

WPS NO. PW-3

TYPICAL JOINT DESIGNS

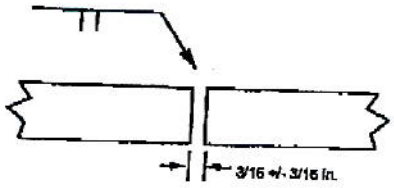


Figure 1
Single Square Butt

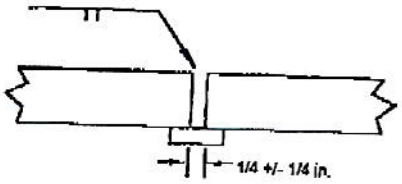


Figure 2
Single Square Butt with Backing Strip

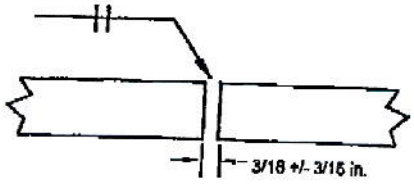
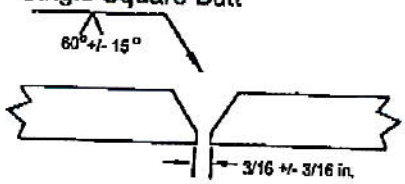
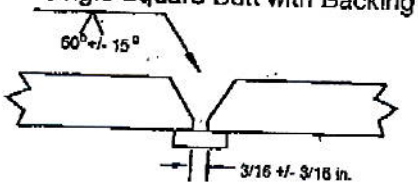


Figure 3
Double Square Butt





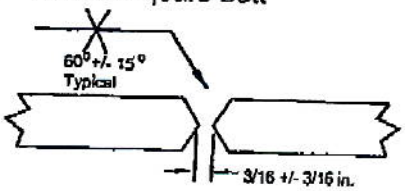


Figure 4
Single Vee Butt

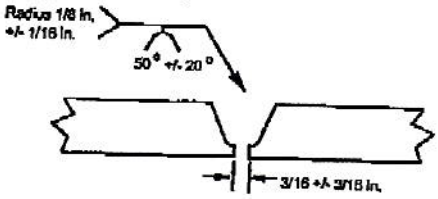


Figure 5
Single Vee Butt with Backing Strip

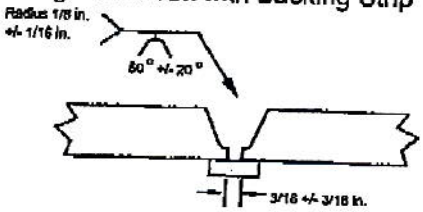


Figure 6
Double Vee Butt

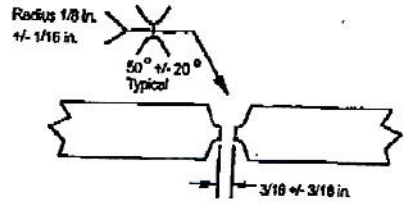


Figure 7
Single U Butt

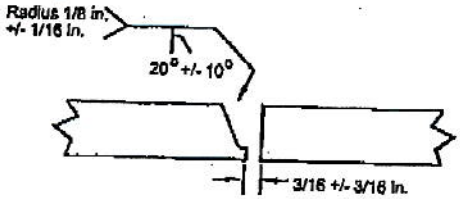


Figure 8
Single U Butt with Backing Strip

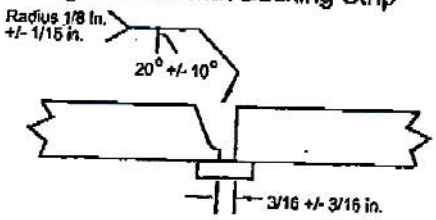


Figure 9
Double U Butt

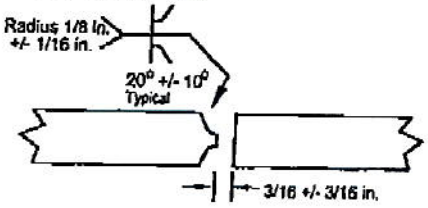


Figure 10
Single J Butt

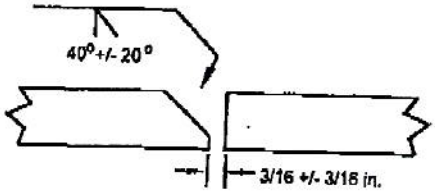


Figure 11
Single J Butt with Backing Strip

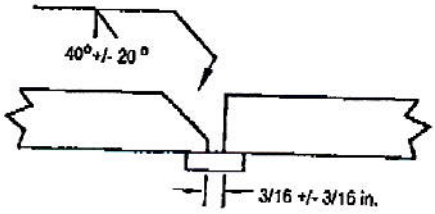
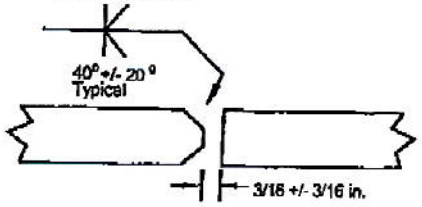


Figure 12
Double J Butt



ure 13
Single Bevel Butt

Figure 14
Single Bevel Butt with Backing Strip

Figure 15
Double Bevel Butt

Or as per the joint design on the approved construction drawing.

QW-483 WELDING PROCEDURE RECORD (PQR)

Complete Oilfield Services Ltd.

Procedure Qualification Record No. PQ2 Date April 27, 1993
PQR Revision(s) Format update, editorial, and company name change, formerly Piepke's Welding Ltd., May 8, 2003 (PQR originally certified by Laverne Piepke, May 3, 1993)
Welding Procedure Specification No. PW-3
Welding Process(es) SMAW Type(s) Manual

JOINTS (QW-402)

Type Butt joint, single vee groove, see next page

BASE METALS (QW-403)

Material Spec. SA 333 to SA 350 Type or Grade Gr. 6 to Gr. LF2
P-No. P1 To P-No. P1 Thickness 9.53 mm (0.375 in.)
Diameter 168.3 mm (6.625 in.) O.D. Other ---

FILLER METALS (QW-404)

Specification No. (SFA)	SFA 5.1	SFA 5.1
AWS No. (Class)	E6010	E7018-1
Filler Metal F-No.	F3	F4
Filler Metal A-No.	A1	A1
Size of Electrode	See attached sketch	
eposited Weld Metal Thickness	2.4 mm (0.094 in.)	7.14 mm (0.281 in.)

POSITION (QW-405)

Position of Groove 5G
Weld Progression Upward

PREHEAT (QW-406)

Preheat Temperature 10°C (50°F) Interpass Temp. (Max.) 232°C (450°F)

POSTWELD HEAT TREATMENT (QW-407)

Temperature None Time N/A

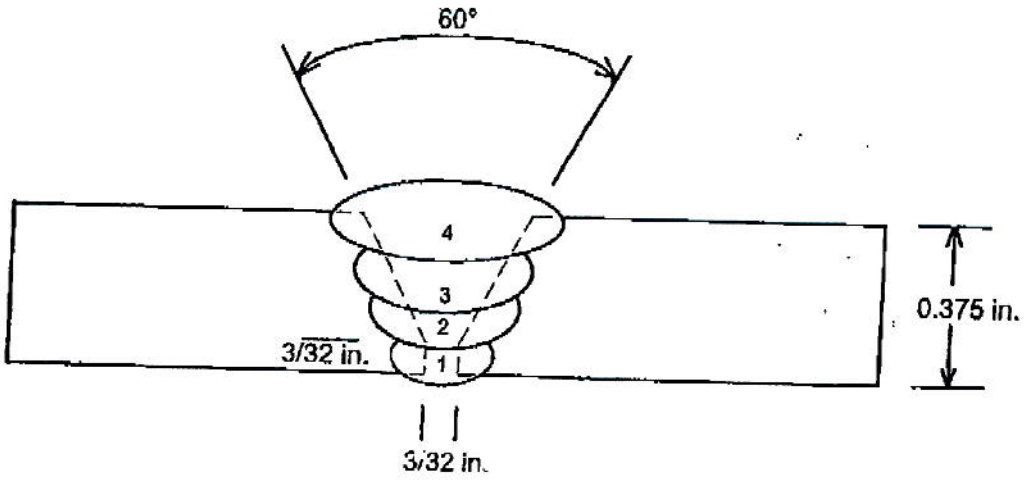
ELECTRICAL CHARACTERISTICS (QW-409)

Current Direct Polarity Reverse, electrode positive
Amps See next page Volts See next page
Heat Input N/A

TECHNIQUE (QW-410)

String or Weave Both Travel Speed See next page
Multiple or Single Pass Per Side Multipass from groove side
Multiple or Single Electrodes Single

PQR NO. PQ2



Pass	Process	Filler Metal	Diameter mm (in.)	Current & Polarity	Amperage Range	Voltage Range	Travel Speed mm/min. (i.p.m.)
1	SMAW	E6010	3.2 (1/8)	DCRP	70 - 95	25 - 27	90 (3.5)
2	SMAW	E7018-1	2.4 (3/32)	DCRP	85 - 110	21 - 24	75 (3.0)
3	SMAW	E7018-1	3.2 (1/8)	DCRP	110 - 140	21 - 24	75 (3.0)
4	SMAW	E7018-1	3.2 (1/8)	DCRP	110 - 135	21 - 24	70 (2.75)

PQR NO. PQ2

TENSILE TEST (QW-150)

Specimen No.	Width mm (in.)	Thickness mm (in.)	Area Sq. mm (Sq. In.)	Ultimate Load N (lbs.)	Ultimate Stress MPa (psi)	Character & Fracture Location
T1	19.0	8.41	160	80 200	501	Partial Cup & Cone
	(0.748)	(0.331)	(0.248)	(18,050)	(72,700)	Parent Metal (P1, Grp. 1)
T2	18.9	8.48	160	81 700	511	Partial Cup & Cone
	(0.744)	(0.334)	(0.248)	(18,380)	(74,000)	Parent Metal (P1, Grp. 1)

GUIDED BEND TEST (QW-160)

Type & Figure No.	Result	Type & Figure No.	Result
QW-462.2, TSB - S1	Pass	QW-462.2, TSB - S3	Pass
QW-462.2, TSB - S2	Pass	QW-462.2, TSB - S4	Pass

OTHER TESTS

Rockwell Hardness Test, see attached laboratory test report, C93-289.5

Welders Name Allan Wallace Certificate File No. W-4588
Tests Conducted By Ludwig & Associates Ltd.
Laboratory Test No. C93-289.5

We hereby recertify that the statements in this record have been revised in accordance with paragraph QW-200.2 and that the test welds were prepared, welded and tested in accordance with the requirements of Section IX of the ASME Code.

Manufacturer COMPLETE OILFIELD SERVICES LTD.,
Formerly Piepke's Welding Ltd.

Date May 12, 2003 Signed

LUDWIG & ASSOCIATES LTD.
Welding Consulting and Engineering

15th Anniversary

LABORATORY TEST REPORT

Laboratory Test Number C93-289.5 Date April 29, 1993

Customer: Name Piepke's Welding Ltd.

Address Box 356, Acme, Alberta T0M A0A

Attention Laverne Piepke

PQR Number PQ2 Thermal Condition As Welded

Material SA 333 Grade 6 to SA 350 Grade LF2

Thickness 9.53 mm (0.375 in.) Size 168.3 mm (6.625 in.) O.D.

TENSILE TEST

Sample Number	T1		T2	
Width mm (in.)	19.0	(0.748)	18.9	(0.744)
Thickness mm (in.)	8.41	(0.331)	8.48	(0.334)
Area sq. mm (sq. in.)	160	(0.248)	160	(0.248)
Ult. Load N (lbs.)	80 200	(18,050)	81 700	(18,380)
UTS MPa (psi.)	501	(72,700)	511	(74,000)
Fracture Type	Partial Cup & Cone		Partial Cup & Cone	
Fracture Location	P1,Grp.1 Base Metal		P1,Grp.1 Base Metal	

GUIDED-BEND TEST

Sample Width 9.53 mm (0.375 in.) Sample Thickness 9.53 mm (0.375 in.)

Plunger Size 38.1 mm (1.500 in.) Yoke Size 60.3 mm (2.375 in.)

Type	Side Bend	Side Bend	Side Bend	Side Bend
Sample Number	S1	S2	S3	S4
Results	Pass	Pass	Pass	Pass

We certify the test results in this report and that the above specimen(s) were prepared and tested in accordance with the requirements of ASME Section IX, 1992 edition and latest addenda.

Laboratory Test Conducted By: Pat Voisin

Pat Voisin, E.T.T. / Steve Rieberger, C.E.T.

4027 - 14 Street S.E., CALGARY, ALBERTA T2G 3K6 PHONE: (403) 262-7072 FAX: (403) 266-3169
7925 Davies Road, EDMONTON, ALBERTA T6E 4N1 PHONE: (403) 468-3030 FAX: (403) 468-3032

LUDWIG & ASSOCIATES LTD.
Welding Consulting and Engineering

15 ANNIVERSARY

LABORATORY TEST REPORT

Laboratory Test Number C93-289.5 Date April 29, 1993

Customer: Name Piepke's Welding Ltd.

Address Box 356, Acme, Alberta T0M A0A

Attention Laverne Piepke

PQR Number PQ2 Thermal Condition As Welded

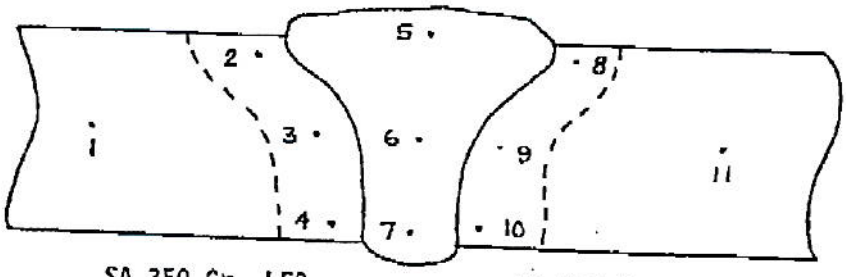
Material SA 333 Grade 6 to SA 350 Grade LF2

Thickness 9.53 mm (0.375 in.) Size 168.3 mm (6.625 in.) O.D.

HARDNESS TEST

Type of Test: Rockwell Scale: "B" scale

Instrument Type: Newage Digital Versitron



1) 80.6 HRB	5) 86.7 HRB	9) 83.1 HRB
2) 83.5 HRB	6) 84.2 HRB	10) 82.6 HRB
3) 83.2 HRB	7) 85.3 HRB	11) 80.8 HRB
4) 81.4 HRB	8) 83.0 HRB	

We certify the test results in this report and that the above specimen(s) were prepared and tested in accordance with the requirements of ASTM E18-92.

Laboratory Test Conducted By: Pat Voisin

Pat Voisin, E.T.T. / Steve Rieberger, C.E.T.

4027 - 14 Street S.E., CALGARY, ALBERTA T2G 3K6 PHONE: (403) 262-7072 FAX: (403) 266-3169
7925 Davies Road, EDMONTON, ALBERTA T6E 4N1 PHONE: (403) 468-3030 FAX: (403) 468-3032

Alberta
MUNICIPAL AFFAIRS

ABSA

17774

Grade "B" Pressure Welder's Certificate of Competency

This is to certify that Marty Pighin
having complied with provisions of the Safety Codes Act, is authorized to engage in pressure welding in accordance with the prescribed Regulations.

Dated at Edmonton
March 19, 2004

W-22092
File no.

Chief Inspector and Administrator

012/921150

59116A

JOURNEYMAN CERTIFICATE

THIS IS TO CERTIFY THAT
MARTY PIGHIN
HAS COMPLETED AN ALBERTA APPRENTICESHIP PROGRAM AND HAVING ACHIEVED THE STANDARDS ESTABLISHED UNDER THE ALBERTA APPRENTICESHIP AND INDUSTRY TRAINING ACT, IS HEREBY AUTHORIZED TO WORK IN THE TRADE AS A JOURNEYMAN AND TO USE THE TITLE CERTIFIED JOURNEYMAN

WELDER

EFFECTIVE DATE
March 12th, 2004

ISSUE DATE
March 17th, 2004

DR. LYLE OBERG
MINISTER OF LEARNING

SHIRLEY DUL, EXECUTIVE DIRECTOR OF APPRENTICESHIP & INDUSTRY TRAINING

PERFORMANCE QUALIFICATION

Process(es) SMAW SMAW Materials (P.No.) P1

Filler Metal (F.No.) F3 F4 Min. Diameter 1.00" O.D.

Max. Deposited Weld Metal 0.168" 0.684" Position(s) Qualified All

Backing with or without with Backing Gas N/A

Progression UPHILL UPHILL

June 18, 2006
P.Q. Expiry Date

Welding Examiner Signature

F-00097
Certification No.

LUDWIG & ASSOCIATES LTD.

A.O.Q.P. No. 7106

Calgary Edmonton

WELDER PERFORMANCE QUALIFICATION CARD

Name: Marty Pighin File No. W-22092

This card is issued pursuant to the Safety Codes Act and the Pressure Welders' Regulations. The performance qualification is in accordance with Section IX of the ASME Code and subject to the limitations on the reverse side.

June 18, 2004
Date of Test

Welder's Signature

Steve Rieberer
Welding Examiner (Print/type)

Card No. C 7888

PERFORMANCE QUALIFICATION

Process(es) SMAW SMAW Materials (P.No.) P1

Filler Metal (F.No.) F3 F4 Min. Diameter 2.875"O.D

Max. Deposited Weld Metal .188" welded Position(s) Qualified All

Backing with or without with Backing Gas N/A

Progression Uphill Uphill

Aug. 12, 2005 — P.Q. Expiry Date

Welding Examiner Signature — Certification No. WB00105

LUDWIG & ASSOCIATES LTD. A.O.Q.P. No. 7106

Calgary Edmonton

WELDER PERFORMANCE QUALIFICATION CARD

Name: Allan Wallace File No. W-4588

This card is issued pursuant to the Safety Codes Act and the Pressure Welders' Regulations. The performance qualification is in accordance with Section IX of the ASME Code and subject to the limitations on the reverse side.

August 12, 2003 — Date of Test

Allan Wallace — Welder's Signature

Troy Lanz — Welding Examiner (Print/type)

Card No. C 7367

PERFORMANCE QUALIFICATION C 8511

Process(es) SMAW SMAW Materials (P.No.) P1

Filler Metal Group (F.No.) F3 F4 Min.Outside Diameter 1.0in.O.D

Max. Deposited Weld Metal .188" .500" Position(s) Qualified All

Backing with or without with Backing Gas N/A

Progression Downhill Uphill

Sept 9, 2006 — P.Q. Expiry Date

John Krabbe — Welding Examiner Signature

E-00240 — Examiner File No.

LUDWIG & ASSOCIATES LTD. A.O.Q.P. No. 7106 (c)

Materials and Welding Engineering

WELDER PERFORMANCE QUALIFICATION CARD

Name: Allan Wallace ABSA File No. W-4588

This card is issued pursuant to the Alberta Safety Codes Act and the Pressure Welders Regulation. The performance qualification is in accordance with Section IX of the ASME Code and subject to the limitations on the reverse side

Sept 9, 2004 — Date of Test

Allan Wallace — Signature of Welder or Machine Operator

Jake Krabbe — Welding Examiner (Print/type)

Card No. C 8511

PERFORMANCE QUALIFICATION C 8510

Process(es) SMAW SMAW Materials (P.No.) P1

Filler Metal Group (F.No.) F3 F4 Min.Outside Diameter 1.0in.O.D

Max. Deposited Weld Metal .188" .684" Position(s) Qualified All

Backing with or without with Backing Gas N/A

Progression Uphill Uphill

Sept 9, 2006 — P.Q. Expiry Date

John Krabbe — Welding Examiner Signature

E-00240 — Examiner File No.

LUDWIG & ASSOCIATES LTD. A.O.Q.P. No. 7106 (c)

Materials and Welding Engineering

WELDER PERFORMANCE QUALIFICATION CARD

Name: Allan Wallace ABSA File No. W-4588

This card is issued pursuant to the Alberta Safety Codes Act and the Pressure Welders Regulation. The performance qualification is in accordance with Section IX of the ASME Code and subject to the limitations on the reverse side

Sept 9, 2004 — Date of Test

Allan Wallace — Signature of Welder or Machine Operator

Jake Krabbe — Welding Examiner (Print/type)

Card No. C 8510

PERFORMANCE QUALIFICATION

Process(es) SMAW SMAW Materials (P.No.) P1
Filler Metal (F.No.) F3 F4 Min. Diameter 1.0" O.D.
Max. Deposited Weld Metal .188 .684 Position(s) Qualified ALL
Backing Gas N/A
Progression
Sept. 2 2005
P.Q. Expiry Date Welding Examiner Signature CWG00105 Certification No.

LUDWIG & ASSOCIATES LTD. A.Q.Q.P. No. 7106
Calgary Edmonton
WELDER PERFORMANCE QUALIFICATION CARD
Name: Craig Hannah File No. CW-17928
This card is issued pursuant to the Safety Codes Act and the Pressure Welders' Regulations. The performance qualification is in accordance with Section IX of the ASME Code and subject to the limitations on the reverse side.
Date of Test Sept. 2, 2003
Welder Signature
Welding Examiner (Print/type) Card No. C 7404

012/461403 32290A

JOURNEYMAN CERTIFICATE

THIS IS TO CERTIFY THAT
CRAIG LLEWELLYN HANNAH
HAS COMPLETED AN ALBERTA APPRENTICESHIP PROGRAM AND HAVING ACHIEVED THE STANDARDS ESTABLISHED UNDER THE ALBERTA APPRENTICESHIP AND INDUSTRY TRAINING ACT, IS HEREBY AUTHORIZED TO WORK IN THE TRADE AS A JOURNEYMAN AND TO USE THE TITLE CERTIFIED JOURNEYMAN

WELDER

EFFECTIVE DATE July 26th, 1999
ISSUE DATE August 11th, 1999

DR. LYLE OBERG, MINISTER OF LEARNING
SHIRLEY DAL, EXECUTIVE DIRECTOR OF APPRENTICESHIP & INDUSTRY TRAINING

Craig H

A.G.Q.P. No. 7106 (c)

LUDWIG & ASSOCIATES LTD.
Materials and Welding Engineering

WELDER PERFORMANCE QUALIFICATION CARD

Name: Lloyd Prohl ABSA File No. W-14085

This card is issued pursuant to the Alberta Safety Codes Act and the Pressure Welders Regulation. The performance qualification is in accordance with Section IX of the ASME Code and subject to the limitations on the reverse side.

Sept 16, 2004 — Lloyd Prohl
Date of Test — Signature of Welder or Machine Operator

Jake Krabbe — C 8541
Welding Examiner (Print/type) — Card No.

PERFORMANCE QUALIFICATION C 8541

Process(es)	Smaw	Smaw	Materials (P.No.) P1
Filler Metal Group (F.No.)	F3	F4	Min.Outside Diameter 1.0in.O.D.
Max. Deposited Weld Metal	.188"	.500"	Position(s) Qualified All
Backing	with or without	with	Backing Gas N/A
Progression	Uphill	Uphill	

Sept 16, 2006 — Jake Krabbe — E00240
P.Q. Expiry Date — Welding Examiner Signature — Examiner File No.

A.O.G.P. No. 7108 (c)

LUDWIG & ASSOCIATES LTD.
Materials and Welding Engineering

WELDER PERFORMANCE QUALIFICATION CARD

Name: Todd Piepke ABSA File No. w-20208

This card is issued pursuant to the Alberta Safety Codes Act and the Pressure Welders Regulation. The performance qualification is in accordance with Section IX of the ASME Code and subject to the limitations on the reverse side.

Dec 31, 2004 — Date of Test

Signature of Welder or Machine Operator

Troy Lanz — Welding Examiner (Print/type)

Card No. C 8061

PERFORMANCE QUALIFICATION C 8061

Process(es)	SMAW	SMAW	Materials (P.No.)	P1	
Filler Metal Group (F.No.)	F3	F4	Min.Outside Diameter	1.0"	
Max. Deposited Weld Metal	.188"	.684"	Position(s) Qualified	ALL	
Backing	with or without	with	Backing Gas	N/A	
Progression	uphill	uphill			

Dec 31/2006 — P.Q. Expiry Date

Welding Examiner Signature

E0905 — Examiner File No.

CANSPEC U 12890

ULTRASONIC TESTING REPORT

PAGE: 1 OF: 2

DATE: 10 MAY 05

CLIENT: EOG RESOURCES P.O. NO.

LOCATION: TWINING. JOB NO. 306-0005099

ITEM TESTED: VERTICAL TREATER. (H) 21810 CRN: 4B265U S/N UW12D83

ACCEPTANCE STANDARD: CUSTOMER INFO

TECHNIQUE DETAILS

1. PROCEDURE NO.: UT-0017

2. ULTRASONIC EQUIPMENT:

MANUFACTURER: KRAUTKRAMER TYPE: USN52R SERIAL NO.: 09WC0 CALIBRATION DATE: DEC 04

3. COUPLANT MANUFACTURER:

MANUFACTURER: WHITE GREASE TYPE:

4. CALIBRATION BLOCK(S): .500 STEP WEDGE SERIAL NUMBERS V32875

	SCAN TYPE (Degrees)	PROBE TYPE (single/dual)	TRANSFER VALUE	FREQUENCY	CRYSTAL SIZE	PRIMARY REFERENCE RESPONSE (dB) (%)	SCANNING SENSITIVITY (dB)	RANGE CALBRATION (mm/inches)
1	0°	DUAL	0	5.0	1/4"	100%	43dB.	.500
2								
3								
4								

INSPECTION RESULTS

WATER COLUMN OUTLET NUZZLE MINIMUM THICKNESS .184"

WATER COLUMN OUTLET 90° ELBOW MINIMUM THICKNESS .175"

GAS DOME FLOOR NOM. THICKNESS .225 IN.

SIGNATURES

CLIENT: (PRINT)

TECHNICIAN (SIGN): KM (PRINT) K. GOULET

ASSISTANT (SIGN): (PRINT)

DTR # A124240 VEHICLE # 151

CGSB ☐ SNT # ☐ # 1259

QO ☐ ASS'T ☐

(Client Representative signature indicates acceptance of reports and results, and acknowledgement of hours worked.)

TERMS AND CONDITIONS: REFER TO OPPOSITE SIDE FOR SCOPE OF SERVICES AND STANDARD OF CARE.

WHITE - CLIENT COPY CANARY - OFFICE COPY PINK - TECHNICIAN COPY GOLD - OFFICE COPY

ISO 9002

MAGNETIC PARTICLE TESTING REPORT M- 33783

CANSPEC

Page 2 of 2

Client: EOG Resources
Attention:
Address: Twining
Project: MPI Vertical Treater
Item Tested: (A) 218U10 CAN: 48265V S/N WW12D83

Date: 10 MAY 05
Canspec Job #: 306-0005699
PO/WO #:
Work Location:
Acceptance:
Standard: ASME VIII Div I App 6
Procedure #: MTD014
Technique #: #1 & #3

Job Description

Part #:
Material: Carbon Steel
Scope:

Test Details

Method Dry ☐ Wet ☐ Fluorescent ☐ Non Fluorescent ☐

Particle Brand: Magnaflux Product No. 14A & 7HF
Particle Colour: Grey ☐ Red ☐ Black ☐ ☐
Suspension: Water ☐ Oil ☐ Not Applicable ☐
Contrast Paint: Magnaflux Product No. WCP II
Mag. Time 3-5 seconds Demag. Required Yes ☐ No ☐

Yoke ☐ Coil ☐ Head ☐ Conductor Bar ☐
Current AC ☐ DC ☐
MT Instrument: Magnaflux 8704 S/N 2396
Calibration Date: Aug 05
Black Light Type: Spectronics S/N 5175
Calibration Due Date: Daily

Test Surface

Surface Condition As Ground ☐ As Welded ☐ Machined ☐ Shot Blasted ☐ Clean Bare Metal ☐

The Technique has been demonstrated over a Painted Surface: Yes ☐ Not Applicable ☐

Surface Temperature < 57°C/135°F ☐ 57°C/135°F to 316°C/600°F ☐ >316°C/600°F ☐

Results

Inspection was carried out on all weld overlay areas.

All Rejectable indications were removed and re-inspected.

There are no Remaining Rejectable Weld Indications.

Item	Comments	Accept	Reject

Signatures

Refer to opposite side for scope of services and standard of care

Client Representative: _____ Print _____ Signature DTR # A124240

Technician (Sign): _____ _____

Print Name: K. Gowler (1st Technician) Mike Farr (2nd Technician/Assistant)

CGSB Level II SNT Level II CGSB Level _____ SNT Level _____

CGSB Registration # 1274 CGSB Registration # _____

WHITE - CLIENT COPY CANARY - OFFICE COPY PINK - TECHNICIAN COPY GOLD - OFFICE COPY

AITEC (WESTERN) INC.
2507 - 84 Avenue, Edmonton, Alberta T6P 1K1
Phone (780) 417-7777 Fax: (780) 417-1185

ISO 9001

N.D.E. EXAMINATION REPORT

MT ☐ PT ☐ 12333

CLIENT: K. D.G. RESOURCES

INVOICE ADDRESS:

WORK LOCATION: 16-30-31-24 W4 TWINING BATT.

STANDARD/AITEC PROCEDURE: MT - 2

ACCEPTANCE STANDARD: CLIENT INFO: ASME SECT VIII DIV. APPL; DIV. 1

EXAMINATION OF: WELDS ON FIRE TUBE 20" x 10'; FOR TREATER

(A) 218010 SR# 1390 CRN# F-IVU6.2

JOB NO.: 12463

DEPT. CODE:

DATE: MAY 5/05

P.O. NO.:

W.O. NO.:

PAGE: 1 OF 2

SURFACE: ☑ As Ground ☐ Machined ☐ Shot Blasted ☑ Base Metal ☑ Painted ☐ As Welded

TEST EQUIPMENT & MATERIALS:

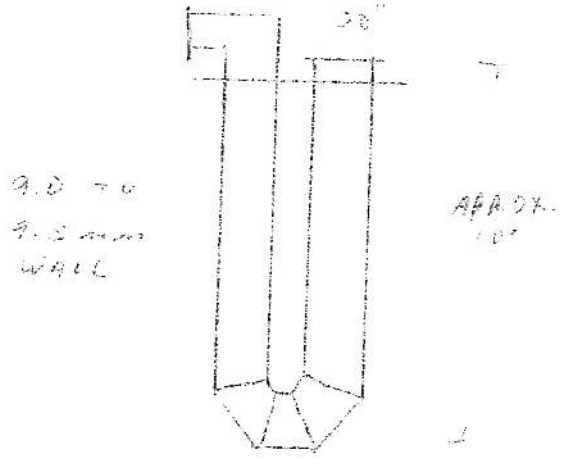
Examination Temperature 5 °C

EQUIPMENT		Serial No.
☑ Hand Yoke	FERROUS	6343
☐ Perm Magnet		
☐ Coil		
☐ Blacklight		
☐ Alloy Analyzer		
☐ Hardness Tester		
☐ Other		

TECHNIQUE		
MPI	LPI	
☐ AC	☐ Water Washable	
☑ DC	☐ Post Emulsified	
☐ Continuous	☐ Solvent Removable	
☐ Residual		
	Dwell Time ____ min	
	Developer Time ____ min	

TEST MEDIUM	
☑ MFG/Type/Batch #	MAGNAFLUX
☑ Wet	7HK 04600A
☐ Dry	
☑ Colour Contrast	WCP2 03007K
☐ Fluorescent	
☐ Penetrant Dye	
☐ Other	

- M.P.I. OF WELDS ON FIRE TUBE
- NO REPORTABLE INDICATIONS FOUND.
- WELDS ACCEPTABLE TO CODE



A.M.		P.M.		TOTAL HOURS	KILOMETERS
TIME IN	TIME OUT	TIME IN	TIME OUT	S.T. hrs.	100
7:30				O.T. hrs.	

SUBSISTENCE	
MAN DAY	OT / MEALS

CONSUMABLES
1 - CAN

TECHNICIAN(S)

Interpretation is in accordance with the above mentioned standards, to the best of my professional ability.

Print: T. TODD CGSB / SNT Level: II Reg. No.: 4056 Sign:

Ass't: CGSB / SNT Level: Reg. No.: Sign:

The above representation is a professional opinion, final interpretation is the responsibility of the client. I have reviewed and am in full agreement with the contents of this report.

Client Representative: (Print) Sign:

AITEC (WESTERN) INC.

2507 - 84 Avenue, Edmonton, Alberta T6P 1K1
Phone (780) 417-7777 Fax: (780) 417-1185

ULTRASONIC EXAMINATION REPORT

UT - 4481

CLIENT: E. O. G. RESOURCES

INVOICE ADDRESS:

WORK LOCATION: 16-20-31-24 W4

STANDARD / AITEC PROCEDURE: 0°

ACCEPTANCE STANDARD: CLIENT SPEC

EXAMINATION OF: FIRE TUBE WALL THICKNESS

(A) 219.0 ID SA 1390 GRADE X-144L.2

JOB NO.: 12463

DEPT. CODE:

DATE: MAY 8/05

P.O. NO.:

W.O. NO.:

PAGE 2 OF 2

SURFACE: ☐ As Ground ☐ Machined ☑ Shot Blasted ☐ Base Metal ☑ Painted ☐ As Welded

ULTRASONIC EQUIPMENT:

Instrument: KRAUTKRAMER Model: DMS Serial No.: 70 15 15 Cal. Date: DEC 29/04

Cal. Blks: 2, 4, 6, 8, 10, 9 mm TO 25mm Couplant: UTX Transfer Value: 53 (dB)

Scanning Limitation:

TRANSDUCER ANGLE	FREQUENCY	CRYSTAL SIZE	PRIMARY REFERENCE RESPONSE (dB) (%)	SCANNING SENSITIVITY (dB)	RANGE CALIBRATION (mm)
0°		3/8"	85%	53	2 mm TO 25mm

- RANDOM THICKNESSES TAKEN ALONG AROUND FIRE TUBE.

- THICKNESS FROM 9.0 mm TO 9.5 mm

A.M.		P.M.		TOTAL HOURS	KILOMETERS
TIME IN	TIME OUT	TIME IN	TIME OUT	S.T. hrs.	
				O.T. hrs.	

SUBSISTENCE	
MAN DAY	OT / MEALS

CONSUMABLES

TECHNICIAN(S)

Interpretation is in accordance with the above mentioned standards, to the best of my professional ability.

Print: T. TODD CGSB / ASNT Level: II Reg. No.: 4056 Sign:

Ass't: CGSB / ASNT Level: Reg. No.: Sign:

The above representation is a professional opinion, final interpretation is the responsibility of the client. I have reviewed and am in full agreement with the contents of this report.

CANSPEC

VISUAL INSPECTION REPORT

Tel: (403) 291-3126
Fax: (403) 250-1015

VISUAL INSPECTION REPORT

Report No. A-002701

☐ Installation ☒ External ☒ Internal

Date:	August 31, 2004	Job#:	307-0001579
Inspected by:	Doug Davey	Inspector's Job#:	
Client:	EOG Resources Ltd.		
Owner:	EOG Resources Ltd.		
Region:			
Area:	Three Hills		
Facility:	Twining	Location/LSD:	16-30-31-24 W4M
Service:	☒ Sweet ☐ Sour ☐ Other:		
Description:	☒ Vessel ☐ Exchanger ☐ Tank ☐ Furnace ☐ Boiler		
Unit#:		Equip#:	
Equip Name:	Treater		
Jurisdiction #:	0218010	CRN:	F1446.2
Manufacturer	ABAX		
Year Built:	1984	S/N#	

☐ Photographed Photo ID#: _____ Approx. Size: Volume:

PSV Data:	☐ Isolation valve(s) installed	☐ Car-sealed open	
Inlet Size: 1.5"	Outlet Size: 2"	Capacity: 509	CRN:

Set P	Tag#	Manufacturer	S/N	Serv. Co.	Serv. Date
345 kPa		Farris	CE20654KA	CVS	09/05

Components:	MDMT	Design T	MAWP	Outside Dia. (OD)
Shell Side:		93°C	345 kPa	
Tube Side:				
Other: _____				

	Material:	Nominal t/ Gauge	CA	Retire t	UT TML	Lowest t	t OK?		RT	Sgl/Dbl Weld	E%
Shell:							☐ Y	☐ N	3		
Head:							☐ Y	☐ N			
Channel:							☐ Y	☐ N			
Tube:							☐ Y	☐ N			
Other: _____							☐ Y	☐ N			

Orientation:	☐ Horiz. ☒ Vertical	Foundation: ☐ Concrete ☐ Gravel ☐ Timber ☒ Steel ☐ Other:		Condition:
Support:	☐ Saddle	☐ Seal-welded	☐ Free to move	Condition:
	☒ Skirt	☒ Free of debris	Comment:	Condition: Acceptable
	☐ Hangers	☐ Secure	Comment:	Condition:
	☐ Other: _____	Specify:		Condition:
Overall:	General Condition:			Electrical grounding: ☐ Direct ☐ Indirect ☐ None
Ext. Surface:	☒ Painted ☐ Insulated ☐ Fire-proofed ☐ Cladded ☐ Other: _____			Condition: Acceptable
Ext. Fixtures:	☒ Ladder ☐ Platform(s) ☐ Other: _____			Condition:
Int. Surface	☒ Coated ☐ Lined ☐ Thermal sprayed ☐ Cladded ☐ Welded overlay			Condition: Acceptable
Int. Fixtures	☐ Baffle ☐ Float ☐ Impingement plate ☐ Weir ☐ Vortex Breaker			Condition:
Nozzles:	☒ Manway/Port	Size: 18"	☐ Davit arm present ☐ Davit arm greased	☐ Double nutted Condition:
	☒ Reinforcement pads used	☒ Weep holes present		Comment: Acceptable
	☒ Piping well supported	☒ Joining as per code		Comment: Acceptable
Piping:	☒ PSV Piping:	☒ Drains properly	☒ Well-coated	Comment: Acceptable
	☒ Inlet Piping:	☒ Free from leaks	☐ Well-coated	Comment: Acceptable
	☒ Outlet Piping:	☒ Free from leaks	☐ Well-coated	Comment: Acceptable
	☒ Drain Piping:	☒ Free from leaks	☐ Well-coated	Comment: Acceptable
	☒ Instrumentation Piping:	☒ Free from leaks/kinks		Comment: Acceptable
	☒ Process fluid identified:	☒ Flow direction marked		Comment: Acceptable
Valves:	☒ Manual isolation valve:	☒ Free from leaks		Comment: Acceptable
	☒ Automated control valve:	☒ Free from leaks		Comment: Acceptable
	☒ Vents and drains plugged	Comment: Acceptable		
Gauges:	☒ Pressure	Condition: Acceptable		
	☒ Temperature	Condition: Acceptable		
Sight Glass	☐ Fluid level	Reading:	Condition:	

Recommended Actions:	NCR#:
1) Assess corrosion on section of shell in hay section to determine short term corrosion rate. Determine t-min once data is collected.	
Survey area in October 2004.	
2) Conduct repairs Spring 2005.	

Additional notes on continuation page: ☒ Report No. 001410 Signature of Inspector: _____

Equipment is suitable for continued service: ☒ Received by: (print) _____

Inspector Certificate No. API5360 / ABSA 000038 Received by: (sign) _____

Terms and conditions: refer to opposite side for scope of services and standard of care.

White: Canspec Copy Yellow: Client Copy Pink: Field Copy Golden Rod: Inspector Copy

CANSPEC

VISUAL INSPECTION REPORT

Tel: (403) 291-3126
Fax: (403) 250-1015

CONTINUATION PAGE of Report No. A-002701 | **Report No.** | **B-001410**

☐ Installation ☒ External ☒ Internal

A#: 0218010	S/N#:	or Other:

Bottom Head
Coated with Devoe 253 up to 18" above head to shell seam. No holidays detected. Coating is in good condition.

Hay Section
General scale build-up above tray. Corrosion evident on the west side. A UT scan was done and a grid set up. Lowest readings found 0.151". Original was thickness 0.250" to 0.099" wall loss. UT readings will be taken in October to determine STR. Report attached.
Tray was covered with sludge and scale. Scale on east side of shell. Corrosion evident underneath. UT readings taken - average 0.280" Lowest - 0.141".
Require MFG. data report to calculate t-min.

Gas Section
No evidence of corrosion noted. Welds were in good condition. Top head is in acceptable condition.

All manways are coated with Devoe 253. Coating condition is acceptable.

Firetube was sandblasted and visually inspected. Tube is in good condition. Black on white M.P.I. was perfomed on all external butt welds and fillet welds. No indications noted.

Vessel to be put on 1 year interval.

Recommended Actions:	NCR#:
1) Assess corrosion on section of shell in hay section to determine short term corrosion rate. Determine t-min once data is collected.	
Survey area in October 2004.	
2) Conduct repairs Spring 2005.	

Additional notes on continuation page: ☐ Report No. B-
Equipment is suitable for continued service: ☒

Signature of Inspector:
Received by: (print)
Received by: (sign)

ULTRASONIC INSPECTION REPORT

Date: OCTOBER 27 / 2004	UET-0001	ECHO JOB #:	Page 1 of 2

CLIENT: EOG RESOURCES CANADA

LOCATION: 16-30-31-24W4 TWINNING BATTERY | PROJECT: TREATER A#218010

ITEMS EXAMINED: 1" X 1" GRID ON WEST SIDE OF TREATER

PROCEDURE: UT-1 SECTION 8 | CLIENT PO # / JOB #/ AFE:

ACCEPTANCE CRITERIA: CLIENT EVALUATION | SPECIFICATION: ASME V ART. 5

EQUIPMENT / S/N / CAL. DATE: EPOCH IV / 40194604 / MAY 7 / 04

CAL. BLOCK(#'S): 1/2" STEP BLOCK | COUPLANT: UT-X | CABLE LENGTH: 70"

TEST PIECE: ☐ | REF. REFLECTOR: Type: ☐ Size: 1.5 Depth: | Response Ht: 80%FSH

THICKNESS: ☒ | SHEAR WAVE: ☐ | LAMINATION: ☐

	ANGLE	WAVE	FREQ	SIZE	MFG.	S/N	RANGE	Ref. db	Scan db	TL db
1	O DEG	LONG	7.5 MHZ	0.250"	KBA	4575	8.000"	66	+6	72
2	60 DEG	SHEAR	2.5 MHZ	0.250"	P.M.	95380	5.000"	58	+6	64
3	70 DEG	SHEAR	2.5 MHZ	0.250"	P.M.	95380	5.000"	59	+6	65
4										

TEST RESULTS

AN ULTRASONIC SCAN WAS DONE ON A 1" BY 1" GRID ON THE WEST SIDE OF TREATER A#218010 AS REQUESTED BY CLIENT. GRID IS LOCATED JUST ABOVE THE TRAY LEVEL AT THE MANWAY. SEE PAGE 2 FOR GRID THICKNESS READINGS.

RANDOM SCANS WERE ALSO DONE ON THE EAST SIDE OF TREATER AS DONE DURING PREVIOUS SURVEY. (ATTENTION GIVEN TO LOW AREAS MARKED PREVIOUS).

AVG. – 0.280"

MIN. – 0.139"

NOTE: INCLUSIONS WERE NOTED THROUGHOUT SCANNED AREA OF SHELL

STAMP

EDWIN TYMENSEN
CGSB #11424
CGSB UT II, MT II

Regular Hours	7
Overtime Hours	
Sub / Man Day	
Kilometers	300
Misc. Charges	

Client Representative: DOUG DAVEY

Technician:

Assistant:

Echo NDE Inc., Red Deer, Alberta
Ph: (403) 347-7042 • Fax: (403) 347-7052 • echonde@telus.net

EOG RESOURCES CANADA

16-30-31-24W4

TREATER A# 218010

Report UET - 0001

Page 2 of 2

1" x 1" Grid on West Side of Treater

Shell Nominal = 0.250in

Reading less than Nominal

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	0.295in	0.316in	0.265in	0.304in	0.291in	0.300in	0.320in	0.311in	0.316in	0.312in	0.303in	0.311in	0.315in	0.312in	0.292in	0.319in	0.253in	0.285in	0.308in	0.310in
2	0.297in	0.301in	0.262in	0.307in	0.318in	0.283in	0.286in	0.298in	0.307in	0.289in	0.315in	0.257in	0.280in	0.298in	0.279in	0.308in	0.278in	0.315in	0.311in	0.305in
3	0.305in	0.291in	0.280in	0.306in	0.309in	0.214in	0.301in	0.314in	0.285in	0.292in	0.289in	0.286in	0.317in	0.281in	0.286in	0.285in	0.264in	0.290in	0.318in	0.288in
4	0.307in	0.308in	0.292in	0.253in	0.288in	0.227in	0.260in	0.293in	0.257in	0.268in	0.264in	0.320in	0.310in	0.263in	0.259in	0.266in	0.271in	0.298in	0.284in	0.263in
5	0.308in	0.314in	0.271in	0.317in	0.264in	0.198in	0.261in	0.228in	0.212in	0.267in	0.244in	0.253in	0.289in	0.252in	0.279in	0.229in	0.282in	0.264in	0.288in	0.304in
6	0.281in	0.309in	0.308in	0.226in	0.196in	0.266in	0.257in	0.245in	0.251in	0.293in	0.237in	0.267in	0.282in	0.282in	0.263in	0.283in	0.286in	0.299in	0.293in	0.283in
7	0.293in	0.297in	0.291in	0.305in	0.296in	0.247in	0.245in	0.284in	0.278in	0.288in	0.265in	0.273in	0.258in	0.272in	0.304in	0.304in	0.285in	0.286in	0.288in	0.291in
8	0.286in	0.282in	0.286in	0.271in	0.273in	0.281in	0.278in	0.271in	0.295in	0.298in	0.292in	0.250in	0.270in	0.277in	0.282in	0.285in	0.312in	0.265in	0.258in	0.273in
9	0.285in	0.265in	0.266in	0.275in	0.271in	0.277in	0.292in	0.277in	0.281in	0.279in	0.278in	0.283in	0.267in	0.282in	0.273in	0.279in	0.268in	0.263in	0.249in	0.287in
10	0.277in	0.261in	0.254in	0.249in	0.266in	0.272in	0.279in	0.279in	0.267in	0.276in	0.286in	0.261in	0.269in	0.285in	0.281in	0.275in	0.285in	0.285in	0.275in	0.272in
11	0.258in	0.273in	0.259in	0.282in	0.261in	0.292in	0.280in	0.269in	0.276in	0.276in	0.275in	0.283in	0.276in	0.274in	0.283in	0.271in	0.288in	0.285in	0.288in	0.288in
12	0.274in	0.248in	0.272in	0.273in	0.280in	0.257in	0.272in	0.282in	0.272in	0.267in	0.279in	0.281in	0.269in	0.283in	0.287in	0.295in	0.282in	0.296in	0.291in	0.282in
13	0.294in	0.289in	0.291in	0.261in	0.288in	0.298in	0.256in	0.278in	0.265in	0.247in	0.274in	0.272in	0.279in	0.293in	0.283in	0.263in	0.282in	0.295in	0.288in	0.279in
14	0.326in	0.333in	0.244in	0.337in	0.325in	0.327in	0.255in	0.253in	0.308in	0.257in	0.238in	0.294in	0.249in	0.248in	0.263in	0.257in	0.240in	0.282in	0.258in	0.297in
15	0.318in	0.318in	0.323in	0.313in	0.317in	0.318in	0.320in	0.318in	0.320in	0.319in	0.318in	0.328in	0.317in	0.321in	0.320in	0.331in	0.325in	0.299in	0.317in	0.258in
16	0.312in	0.319in	0.318in	0.315in	0.312in	0.314in	0.321in	0.314in	0.319in	0.317in	0.317in	0.317in	0.316in	0.322in	0.317in	0.317in	0.321in	0.314in	0.318in	0.317in
17	0.313in	0.320in	0.318in	0.311in	0.317in	0.319in	0.315in	0.315in	0.322in	0.318in	0.317in	0.315in	0.318in	0.318in	0.325in	0.325in	0.319in	0.318in	0.324in	0.317in
18	0.313in	0.320in	0.318in	0.317in	0.319in	0.314in	0.317in	0.316in	0.317in	0.321in	0.325in	0.323in	0.320in	0.325in	0.319in	0.325in	0.324in	0.318in	0.318in	0.325in
19	0.314in	0.312in	0.317in	0.318in	0.315in	0.320in	0.314in	0.315in	0.320in	0.318in	0.319in	0.318in	0.317in	0.324in	0.318in	0.320in	0.319in	0.323in	0.317in	0.323in

CANSPEC

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VISUAL INSPECTION REPORT

Report No. A- 010108

Type of Inspection: ☐ Installation ☑ External ☐ Internal Page 1 of 1

Date:	NOV 16 04	Job#:	307-0002979
Inspected By:	~~JOHNABEE~~	Inspector's Job#:	
Client:	EOG RESOURCES		
Owner:	" "		
Region:			
Area:	GHOST PINE		
Facility:		Location/LSD:	10-6-32-22W4M
Service:	☑ Sweet ☐ Sour ☐ Other:		
Description:	☑ Vessel ☐ Exchanger ☐ Tank ☐ Furnace ☐ Boiler		
Unit:		Equip:	P-340
Equip Name:	~~STOCK~~ TOWER ABSORBER		
Jurisdiction#:	106059	CRN:	A-9471.2
Manufacturer:	CESSCO		
	Serial No: PE-272	Year built:	1970

☑ Photographed Photo ID#: 229, 230, 231 Location of P.S.V.: VESSEL

Volume:		☐ PWHT			PSV Data:	☐ Isolation Valve(s) installed			☐ Car-sealed open			CRN:	
Zones:	MAWP	Des. T	MDMT	Op.P	Op.T	Set P	Tag#	Manufacturer	Serial No.	In	Out	Capacity	Serv. Co.	Serv. Date
Shell Side:	1440	100°F				~~1440~~ 1430 psi		IA-HOK	6240-38	1"	—	5144 SCFM	CVS	04/03
Tube Side:														
Other:														

Components:	Material	Nominal	CA	Retire t	UT TML	Lowest t	Acc	Ret	Dia	RT	Sgl/Dbl weld	E%	CalcTmin
Shell:	A-106-B	0.926"					☐	☐					
Head:	A-515-70	0.8125"					☐	☐					
Channel:							☐	☐					
Tube:							☐	☐					
Other:							☐	☐					

Orientation:	☐ Horiz. ☑ Vertical	Foundation: ☐ Concrete ☐ Gravel ☐ Timber ☑ Steel ☐ Other:		Condition: GOOD
Support:	☐ Saddle	☐ Seal-welded	☐ Free to move	Condition:
	☑ Skirt	☑ Free of debris	Comment:	Condition: ACCEPTABLE
	☐ Hangers	☐ Secure	Comment	Condition:
	☐ Other	Specify:		Condition:
Overall:	General Condition: ACCEPTABLE / VESSEL IS IDLE	☐ Dead Leg(s)	Electrical grounding: ☑ Direct ☐ Indirect ☐ None	
Ext. Surface:	☑ Painted ☐ Insulated ☐ Fire-proofed ☐ Cladded ☐ Other		Condition: ACCEPTABLE	
Ext. Fixtures:	☐ Ladder ☐ Platform(s) ☐ Other		Condition:	
Int. Surface:	☐ Coated ☐ Lined ☐ Thermal sprayed ☐ Cladded ☐ Welded overlay		Condition:	
Int. Fixtures:	☐ Baffle ☐ Float ☐ Impingement plate ☐ Weir ☐ Vortex Breaker		Condition:	
Nozzles:	☐ Manway/Port	Size:	☐ Davit arm present ☐ Davit arm greased ☐ Double nutted	Condition:
	☐ Reinforcement pads used	☐ Weep holes present	Comment:	
	☑ Piping well supported	☐ Joining as per code	Comment: IDLE	
Piping:	☐ PSV Piping:	☐ Drains properly	☑ Well-coated	Comment:
	☑ Inlet Piping:	☐ Free from leaks	☑ Well-coated	Comment:
	☑ Outlet Piping:	☐ Free from leaks	☑ Well-coated	Comment:
	☑ Drain Piping:	☐ Free from leaks	☑ Well-coated	Comment:
	☑ Intrumentation Piping:	☑ Free from leaks/kinks		Comment:
	☑ Process fluid Identified:	☑ Flow direction marked		Comment:
Valves:	☑ Manual Isolation Valve:	☐ Free from leaks		Comment:
	☑ Automated Control Valve:	☐ Free from leaks		Comment:
	☑ Vents and Drains plugged	Comment:		
Gauges:	☑ Pressure	Condition:		
	☑ Temperature	Condition:		
Sight Glass:	☑ Fluid Level	Condition:		Reading:

Recommended Actions:	NCR#:
* VESSEL IS IDLE / SHUT-IN WELL	

Summary Comment:

Additional notes on continuation page: ☐
Equipment is suitable for continued service: ☐
Report No. B -
Inspector Certificate No.: _____

Terms and Conditions: Refer to opposite side for scope of services and standard of care.

Quality Check: ☐ _____
Signature of Inspector: _____
Received by: (print) _____
Received by: (sign) _____

White – CANSPEC COPY Yellow – CLIENT COPY Pink – FIELD COPY Golden Rod – INSPECTOR'S COPY

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VISUAL INSPECTION REPORT

Report No. A- 010108

Type of Inspection: ☑ Installation ☑ External ☐ Internal Page 1 of 1

Date:	NOV 16 04	Job#:	307-0002979
Inspected By:	JNABBE	Inspector's Job#:	
Client:	EOG RESOURCES		
Owner:	" "		
Region:			
Area:	GHOST PINE		
Facility:		Location/LSD:	10-6-32-22W4M
Service:	☑ Sweet ☐ Sour ☐ Other:		
Description:	☑ Vessel ☐ Exchanger ☐ Tank ☐ Furnace ☐ Boiler		
Unit:		Equip:	P-340
Equip Name:	~~HEATER~~ TOWER ABSORBER		
Jurisdiction#:	106059	CRN:	A-9471.2
Manufacturer:	CESSCO		
	Serial No: PE-272	Year built:	1970

☑ Photographed Photo ID#: 229 230 231 Location of P.S.V.: VESSEL

Volume:		☐ PWHT			
Zones:	MAWP	Des. T	MDMT	Op.P	Op.T
Shell Side:	1440	100#			
Tube Side:					
Other:					

PSV Data: ☐ Isolation Valve(s) installed ☐ Car-sealed open CRN:

Set P	Tag#	Manufacturer	Serial No.	In	Out	Capacity	Serv. Co.	Serv. Date
~~1440~~ 1430	si	Anderson	6240-38	1"	—	5144 SCFM	CVS	04/03

Components:	Material	Nominal	CA	Retire t	UT TML	Lowest t	Acc	Ret	Dia	RT	Sgl/Dbl weld	E%	CalcTmin
Shell:	A-106-B	0.926"					☐	☐					
Head:	A-515-70	0.8125"					☐	☐					
Channel:							☐	☐					
Tube:							☐	☐					
Other:							☐	☐					

Orientation: ☐ Horiz. ☑ Vertical Foundation: ☐ Concrete ☐ Gravel ☐ Timber ☑ Steel ☐ Other: Condition: GOOD

Support:	☐ Saddle	☐ Seal-welded	☐ Free to move	Condition:
	☑ Skirt	☑ Free of debris	Comment:	Condition: ACCEPTABLE
	☐ Hangers	☐ Secure	Comment	Condition:
	☐ Other	Specify:		Condition:

Overall: General Condition: ACCEPTABLE / VESSEL IS IDLE ☑ Dead Leg(s) Electrical grounding: ☑ Direct ☐ Indirect ☐ None

Ext. Surface:	☑ Painted ☐ Insulated ☐ Fire-proofed ☐ Cladded ☐ Other	Condition: ACCEPTABLE
Ext. Fixtures:	☐ Ladder ☐ Platform(s) ☐ Other	Condition:
Int. Surface:	☐ Coated ☐ Lined ☐ Thermal sprayed ☐ Cladded ☐ Welded overlay	Condition:
Int. Fixtures:	☐ Baffle ☐ Float ☐ Impingement plate ☐ Weir ☐ Vortex Breaker	Condition:

Nozzles:	☐ Manway/Port Size:	☐ Davit arm present ☐ Davit arm greased ☐ Double nutted	Condition:
	☐ Reinforcement pads used	☐ Weep holes present	Comment:
	☑ Piping well supported	☐ Joining as per code	Comment: IDLE
Piping:	☐ PSV Piping:	☐ Drains properly ☑ Well-coated	Comment:
	☑ Inlet Piping:	☐ Free from leaks ☑ Well-coated	Comment:
	☑ Outlet Piping:	☐ Free from leaks ☑ Well-coated	Comment:
	☑ Drain Piping:	☐ Free from leaks ☑ Well-coated	Comment:
	☑ Intrumentation Piping:	☑ Free from leaks/kinks	Comment:
	☑ Process fluid Identified:	☑ Flow direction marked	Comment:
Valves:	☑ Manual Isolation Valve:	☐ Free from leaks	Comment:
	☑ Automated Control Valve:	☐ Free from leaks	Comment:
	☑ Vents and Drains plugged	Comment:	
Gauges:	☑ Pressure	Condition:	
	☑ Temperature	Condition:	
Sight Glass:	☑ Fluid Level	Condition:	Reading:

Recommended Actions: * VESSEL IS IDLE / SHUT-IN WELL NCR#:

Summary Comment:

Additional notes on continuation page: ☐
Equipment is suitable for continued service: ☐
Report No. B -
Inspector Certificate No.: _____
Terms and Conditions: Refer to opposite side for scope of services and standard of care.

Quality Check: ☐ _____
Signature of Inspector: _____
Received by: (print) _____
Received by: (sign) _____

White – CANSPEC COPY Yellow – CLIENT COPY Pink – FIELD COPY Golden Rod – INSPECTOR'S COPY

CANSPEC GROUP INC.
A Rockwood Company
1411 25 AVE N.E.
CALGARY, ALBERTA, CANADA T2E 7L6
TELEPHONE (403)291-3126 FAX (403) 250-1015

INVOICE

CUSTOMER NO:	JOB #:	DEPARTMENT:	INVOICE DATE:	INVOICE NUMBER:
20-EOG001	306-0008099	0306	05/26/2005	0752948-IN

BILL TO:
EOG RESOURCES
P.O. BOX 6210
DRAYTON VALLEY, AB T7A 1R7

RECEIVED
JUN 0 7 2005

REMIT TO:
CANSPEC GROUP INC
7450 18 STREET
EDMONTON, ALBERTA,
CANADA T6P 1N8

Attention: ACCOUNTS PAYABLE

CUSTOMER P.O.

AUTHORIZED BY: VANCE UTRI

VISUAL INSPECTION AND MT INSPECTION OF TREATER REPAIRS @ N. TWINING 16-30-31-24 W4M.

DESCRIPTION	QUANTITY	UNIT OF MEASURE	PRICE	AMOUNT
REPORT ASSISTANT	2.500	HOUR	52.000	130.00
NDE INSPECTION CREW	8.000	HOUR	116.000	928.00
NDE INSPECTION CREW - OT	2.000	HOUR	174.000	348.00
TECHNICIAN - OT	8.000	HOUR	105.000	840.00
INSPECTOR, FIELD - API 510&572	24.000	HOUR	73.000	1,752.00
INSPECTOR - API 510 & 572 OT	8.000	HOUR	109.500	876.00
KMS - FIELD VEHICLES	1,210.000	KM	0.850	1,028.50
OVERTIME MEAL	1.000	MEAL	20.000	20.00

EOG Resources - Attn: Accts Payable	
Subcode:	98207390
AFE #:	FAC000088
LSD:	
Approval:	Lloyd Wheeler

COPY

Net Invoice:	5,922.50
Less Discount:	0.00
GST (Reg #136541273RT0002)	414.58
(TVQ REG NO.1015195106):	0.00
Invoice Total:	**6,337.08**

TERMS: NET 30 DAYS. INTEREST OF 2% PER MONTH (24% PER ANNUM) CHARGED ON ALL OVERDUE ACCOUNTS
Disbursements not yet received will be invoiced at a later date.

MAGNETIC PARTICLE / LIQUID PENETRANT INSPECTION REPORT

Date:	**AUG. 31/04**	**M- CG-0025**	**Page 1 of 1**
CLIENT:	**E.O.G. RESOURCES CANADA**		
CONTRACTOR:			
LOCATION: 16-30-31-24W4M		PROJECT: FIRETUBE	
ITEMS EXAMINED:	**AS DESCRIBED BELOW**		
PROCEDURE:	**MT-3A**	CLIENT PO # / JOB #:	
ACCEPTANCE CRITERIA:	**ASME VIII DIV 1**	SPECIFICATION:	**ASME V**

SURFACE CONDITION

☑ Clean Base Metal ☐ As Ground ☐ Machined ☐ Shot Blast ☐ Painted ☑ Other: **SAND BLAST**

MPI METHOD

☑ AC ☐ DC ☐ HW Rectified ☑ Continuous ☐ Residual ☐ 12V ☑ 120V ☐ Other:

EQUIPMENT TYPE

☑ Yoke ☐ Coil ☐ Bench — Serial # & Calibration of Yoke : S/N-9566 / CAL. DATE 04/25/04

☐ Blacklight — Serial # & Calibration Light Intensity :

MPI MEDIUM

☐ Dry Colour: ☐ Wet ☐ Fluorescent ☑ Black on White

LPI METHOD

PRODUCT MANUFACTURER:

Penetrant:		S/N		☐ Vis	☐ Fluorescent	☐ Water Wash	☐ Post Emulsified	☐ Solvent Removable	
Developer:		S/N		☐ Wet	☐ Dry	☐ Nonaqueous			

TEST RESULTS

TWINING BATTERY, 16-30-31-24W4M

BLACK ON WHITE M.P.I. WAS PERFORMED ON ALL EXTERNAL BUTT WELDS AND FILLET WELDS OF A FIRETUBE AS REQUESTED BY THE CLIENT.

RESULTS:

NO DEFECTS WERE FOUND AT THE TIME OF INSPECTION. ALL WELDS EXAMINED ARE ACCEPTABLE AS PER CODE.

	STAMP	**Regular Hours** **SEE RPT#**
1-CAN PARTICLES	**CURTIS GRAHAM**	**Overtime Hours** **U-CG001**
1-CAN CONTRAST PAINT	**CGSB- RTII, MTII, PTII, UTI**	**Sub / Man Day**
	SNT-RTII, MTII, PTII,UTI	**Kilometers**
	#6560	**Misc. Charges**
Client Representative: DOUG DAVEY	Technician: CURTIS GRAHAM	ASSISTANT: DAVE HERNANDEZ

Echo NDE Inc., Red Deer, Alberta
Ph: (403) 347-7042 Fax: (403) 347-7052 echonde@telus.net

Alberta

LABOUR
General Safety Services Division
Boilers Branch

AFFIDAVIT OF MANUFACTURER

COVERING BOILER OR PRESSURE VESSEL

NO. -

PURCHASE ORDER No. .....

As Approved by the Boiler & Pressure Vessel Committee of the C.S.A.

Upon shipment of Boiler or Pressure Vessel this form fully and correctly filled in and attested to must be mailed to the office of the Chief Inspector in the province of installation in accordance with the regulations under the Act governing the construction and installation of boilers and pressure vessels, otherwise the use of same may be prohibited or the working pressure severely penalized.

1. Manufactured by BLACK, SIVALLS & BRYSON LIMITED, 6203-104 STREET, EDMONTON, ALBERTA (Name and Address of Manufacturer)
   Manufactured for CANGAS LTD., 3939-124 STREET, N.E., CALGARY, ALBERTA (Name and Address of Purchaser or Consignee)
   Ultimate owner SAME AS ABOVE (Name and Address)
   Location of installation THREE HILLS, ALBERTA (This address is essential)

2. Type of boiler or pressure vessel TREATER Mfg. Serial No. 77226-001
   Provincial Registration No. 6412.32 Drwg. No. 77226-001-1-1
   To be used for: (Air, Co_2, Propane, Ammonia, Steam, Hot Water, etc.) HYDROCARBONS

3. Dia. 72" O.D. Overall length 32'5" Cu. ft. capacity 846 Heating surface ..... sq. ft.

4. Were test reports checked on all plates used in the fabrication of this boiler or pressure vessel? YES
   Does all material meet A.S.M.E. Code requirements? YES
   A.S.M.E., A.S.T.M. or other material specification No. A-283-C/A-285-C Tensile strength 55,000/55,000

5. Fabrication to A.S.M.E. Code, Para. No. 1974 (year) Preheat ..... °F Postheat NO (Yes or No) X.R. SPOT (Spot or Complete)
   Are the following records on mfg's files? X-ray films YES Postweld heat procedure NONE
   Were X-ray films examined and found to meet Code requirements? YES

6. Welders employed upon boiler or pressure vessel.

Name of welders and Province or State in which qualified	Identifying Symbol	Date of last weld test	Qualified for welding under Code Para. UX	Name of Inspector supervising tests	National Board No.
D. O'DOWD	O	April /77	"	M. BOYCHUK	
H. SJARIF	S	March /77	"	E. BROSSEAU	
L. MIATELLO	M	Aug. /76	"	G. DOBBIE	
L. WOURMS	T. (AUTO)	Jan. /76	"	B. HURST	

   Does all welding on this vessel and the testing of coupons where required meet A.S.M.E. Code requirements? YES

7. Hydrostatic tests and Working Pressures.

NAME OF PART	Temperature of Testing Medium	Final test psi.	Maximum working pressure psi.	Maximum operating temperature degrees F.
ENTIRE VESSEL	60° F.	93	50	200° F.

   Did the hydrostatic tests fully conform to Code requirements? YES

8. Boiler rating, max-steaming capacity (rated B.T.U./hr. output for hotwater boilers) .....

9. SAFETY VALVES:

No. of valves	Maker's Name, Trade Mark or Type No.	Provincial Registration No.	Inlet Diameter	Seat Diameter	Set to relieve at psi.	Free discharge area	Capacity lbs. per hour
	TO BE INSTALLED						

   Does safety valve stamping, blow-down adjustment, etc., meet A.S.M.E. requirements? .....

Form 1709-22

10. Actual minimum stamping of the boiler or pressure vessel shall conform to the following and shall be reproduced here: **BOILERS (on attached plate for cast iron)**

Canadian Registration number ..... C.R.N. .....

National Board number (if manufactured in U.S.A.) ..... Nat. Bd. .....

Manufacturer and manufacturer's serial number ..... Sr. No. .....

Plate mfg's initials, spec. No. and tensile strength (Stelco, SA 285 etc.) ..... T.S. .....

Maximum working pressure ..... (for S and W if both) Max. W.P. ..... p.s.i. Temp. ..... °F.

Effective heating surface and year built (1967 etc.) ..... H.S. ..... Sq. Ft. 19.....

Initials of authorized shop inspector ....

PRESSURE VESSEL –

Canadian Registration number ..... C.R.N. 6412.3

National Board number (if manufactured in U.S.A.) ..... Nat. Bd. .....

Manufacturer and manufacturer's serial number ..... BS&B LIMITED Sr. No. 77226-001

Plate mfg's initials, spec. No. and tensile strength (Stelco, SA 285 etc.) A-283-C/A-285-C T.S. 55,000/55,000

Maximum working pressure and temperature ..... Max. W.P. 50 p.s.i. Temp. 200 °F.

....

Thickness of shell and heads ..... T.Shell .250" MIN. T.Heads .3125" MIN.

..... C.A. .0625

Code paragraph number and year built (1967 etc.) ..... U.W. 12 (b) 19 77

Initials of Authorized Shop Inspector .....

11. I HEREBY DECLARE that the foregoing statements, having reference to boiler or pressure Vessel bearing manufncturer's Serial No. 77226-001 built by BLACK, SIVALLS & BRYSON LIMITED of EDMONTON ALBERTA and completed on the 5 day of OCTOBER 19 77 are in all respects correct and true, and that the said boiler or pressure Vessel has been built in accordance with Provincial registered design No. 6412.2 and that it complies fully with the A.S.M.E. Code and regulations of the Province of Installation under the Act governing the construction of boilers and pressure vessels.

Sworn before me at EDMONTON
in the Province (or State) of ALBERTA
this 5 day of OCTOBER 19 77
R.J. Fuchs
A Commissioner for Oaths, J.P. or N.P.
My commission expires JULY 5, 1979

Signed [signature] Shop Foreman.
For BLACK, SIVALLS & BRYSON LIMITED
6203 - 104 STREET, EDMONTON, ALBERTA
Firm Name and Address.

12.

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, a duly authorized Inspector of Boilers and Pressure Vessels employed by THE PROVINCE of ALBERTA

do hereby certify that the foregoing statements are correct and that the material, construction and workmanship are in accordance with the A.S.M.E. Code.

Date October 5/77 Signed [signature] No. 8734
Provincial or National Board Inspector.

[signature]

ULTRASONIC INSPECTION REPORT

Date: AUG. 31/04	**U-CG001**	**Page 1 of 1**
CLIENT: E.O.G. RESOURCES CANADA		
LOCATION: 16-30-31-24W5M	PROJECT: U.T. CORROSION SURVEY	
ITEMS EXAMINED: VERTICAL TREATER		
PROCEDURE: UT 1 SECTION 8	CLIENT PO # / JOB #/	
ACCEPTANCE CRITERIA: CLIENT EVALUATION	SPECIFICATION: ASME V ART.5	
EQUIPMENT / S/N / CAL. DATE: KRAUTKRAMER DMS 2 S/N: 00YT4J CAL DATE: AUG. 25/04		
CAL. BLOCK(#'S): ½" STEP BLOCK	COUPLANT: UT-X	CABLE LENGTH: 48"
TEST PIECE: ☐	REF. REFLECTOR: S.D.H. Type: ☐ Size: 2mm Depth: 1/4	Response Ht: ☐ 80% FSH
THICKNESS: X	SHEAR WAVE:	LAMINATION: X

	ANGLE	WAVE	FREQ	SIZE	MFG.	S/N	RANGE	Ref. db	Scan db	TL db
1	0 Degree	Long.	5 MHz	.250"	Krautkramer	00YHI	1.000"	58db	+6	64
2										
3										
4										

TEST RESULTS

TREATER A#218010

*A U.T. SCAN WAS PERFORMED USING A GRID ON THE WEST SIDE OF THE TREATER AS REQUESTED BY THE CLIENT. THIS GRID WAS LOCATED JUST ABOVE THE TRAY LEVEL AT THE MANWAY . RESULTS OF THE SCAN ARE PRESENTED ON PAGE 2 OF THIS REPORT. READINGS ARE TO BE FURTHER EVALUATED BY CLIENT.

RANDOM SCANS WERE ALSO PERFORMED ON THE EAST SIDE OF THE TREATER AS REQUESTED.

AVG: 0.280"
LOW: 0.141"
THESE READINGS ARE TO BE FURTHER EVALUATED BY THE CLIENT.
*INCLUSIONS WERE ALSO NOTED THROUGHOUT SCANNED AREAS OF THE SHELL.

	STAMP **CURTIS GRAHAM** **CGSB RTII, MTII, PTII, UTI** **SNT RTII, MTII, PTII, UTI**	**Regular Hours** 8 **Overtime Hours** 2 **Sub / Man Day** **Kilometers** 300 **Misc. Charges**
Client Representative DOUG DAVEY	Technician: CURTIS GRAHAM	Assistant DAVE HERNANDEZ

Echo NDE Inc., Red Deer, Alberta
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TREATER A# 218010 (GRID), WEST SIDE

PAGE 2

From RPT# U-CG001

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	.280	.276	.276	.269	.274	.266	.277	.283	.286	.278	.278	.265	.290	.275	.277	.275	.236	.256	.240	.279
2	.271	.279	.254	.269	.278	.224	.257	.259	.276	.267	.256	.231	.256	.268	.250	.254	.265	.288	.267	.287
3	.273	.265	.248	.192	.267	.178	.267	.261	.246	.264	.250	.240	.261	.251	.252	.244	.245	.267	.244	.261
4	.276	.266	.250	.210	.289	.173	.225	.249	.232	.237	.245	.236	.260	.259	.233	.256	.239	.255	.249	.249
5	.276	.273	.253	.251	.165	.169	.222	.204	.185	.225	.224	.229	.215	.222	.241	.200	.245	.245	.256	.259
6	.262	.268	.251	.184	.167	.151	.226	.216	.210	.223	.215	.225	.245	.239	.205	.229	.250	.233	.253	.221
7	.276	.273	.258	.269	.255	.239	.213	.250	.256	.259	.247	.202	.235	.246	.215	.266	.259	.268	.267	.265
8	.260	.266	.249	.243	.235	.256	.247	.243	.265	.259	.248	.215	.246	.249	.251	.253	.267	.262	.239	.243
9	.252	.238	.234	.248	.225	.236	.249	.246	.249	.262	.246	.250	.239	.249	.243	.243	.239	.241	.227	.231
10	.250	.234	.232	.228	.230	.235	.220	.240	.241	.233	.244	.231	.233	.247	.243	.247	.240	.243	.239	.252
11	.235	.239	.231	.240	.232	.261	.237	.247	.248	.251	.244	.256	.258	.254	.259	.244	.259	.232	.237	.262
12	.243	.224	.231	.248	.232	.241	.236	.234	.253	.235	.246	.247	.246	.256	.261	.253	.252	.261	.257	.251
13	.231	.221	.211	.214	.207	.227	.230	.226	.244	.215	.218	.225	.268	.263	.251	.233	.258	.257	.252	.259
14	.260	.280	.283	.237	.236	.224	.231	.254	.246	.247	.236	.256	.227	.225	.224	.230	.222	.220	.227	.222
15	.302	.302	.301	.303	.304	.301	.303	.302	.303	.305	.305	.306	.306	.307	.311	.276	.265	.265	.249	.295
16	.302	.301	.300	.301	.302	.302	.301	.300	.302	.306	.304	.305	.307	.307	.307	.308	.306	.307	.307	.307
17	.300	.304	.304	.300	.304	.301	.301	.302	.302	.303	.305	.307	.307	.307	.307	.306	.307	.307	.307	.308
18	.300	.302	.299	.301	.302	.301	.300	.302	.301	.305	.306	.306	.309	.307	.307	.307	.307	.307	.308	.306
19	.301	.300	.300	.300	.301	.300	.300	.300	.301	.302	.305	.306	.305	.305	.306	.307	.304	.307	.306	.304

AITEC (WESTERN) INC.
ISO 9001
2507 - 84 Avenue, Edmonton, Alberta T6P 1K1
Phone (780) 417-7777 Fax: (780) 417-1185

MT ☑ PT ☐ 12333

N.D.E. EXAMINATION REPORT

CLIENT: E.D.G. RESOURCES

INVOICE ADDRESS:

WORK LOCATION: 16-30-31-24 W4 TWINING BATT.

STANDARD/AITEC PROCEDURE: MT-3

ACCEPTANCE STANDARD: CLIENT INFO; ASME SECT VIII APP 6; DIV 1;

EXAMINATION OF: WELDS ON FIRE TUBE; 20" x 10"; FOR TREATER

(A) 218010 SR# 1390 CRN# F-1446.2

JOB NO.: 12463
DEPT. CODE:
DATE: MAY 8/05
P.O. NO.:
W.O. NO.:
PAGE: 1 OF 2

SURFACE: ☑ As Ground ☐ Machined ☐ Shot Blasted ☑ Base Metal ☑ Painted ☑ As Welded

Examination Temperature 5 °C

TEST EQUIPMENT & MATERIALS:

EQUIPMENT		Serial No.
☑ Hand Yoke	FERRUS	6843
☐ Perm Magnet		
☐ Coil		
☐ Blacklight		
☐ Alloy Analyzer		
☐ Hardness Tester		
☐ Other		

TECHNIQUE		
MPI		LPI
☐ AC		☐ Water Washable
☑ DC		☐ Post Emulsified
☐ Continuous		☐ Solvent Removable
☐ Residual		

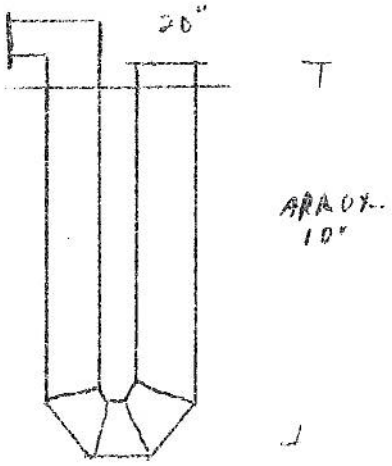
Dwell Time _____ min

Developer Time _____ min

TEST MEDIUM

☑ MFG/Type/Batch # MAGNAFLUX
☑ Wet 7HF 046028
☐ Dry
☑ Colour Contrast WCP 030076
☐ Fluorescent
☐ Penetrant Dye
☐ Other

- M.P.I. OF WELDS ON FIRE TUBE.
- NO RETECTABLE INDICATIONS FOUND.
- WELDS ACCEPTABLE TO CODE.



A.M.		P.M.		TOTAL HOURS	KILOMETERS
TIME IN	TIME OUT	TIME IN	TIME OUT	S.T. hrs.	
7:30				O.T. 5 hrs.	100

SUBSISTENCE	
MAN DAY	OT / MEALS

CONSUMABLES
1 - CAN

TECHNICIAN(S)

Interpretation is in accordance with the above mentioned standards, to the best of my professional ability.

Print: T. TODD CGSB / SNT Level: II Reg. No.: 4056 Sign: Ted Todd

Ass't: CGSB / SNT Level: Reg. No.: Sign:

The above representation is a professional opinion, final interpretation is the responsibility of the client. I have reviewed and am in full agreement with the contents of this report.

Client Representative: (Print) Sign: Daryl Byrd Date:

ULTRASONIC INSPECTION REPORT

Date: AUG. 31/04	U-CG001	Page 1 of 1

CLIENT: E.O.G. RESOURCES CANADA

LOCATION: 16-30-31-24W5M | PROJECT: U.T. CORROSION SURVEY

ITEMS EXAMINED: VERTICAL TREATER

PROCEDURE: UT 1 SECTION 8 | CLIENT PO # / JOB #/

ACCEPTANCE CRITERIA: CLIENT EVALUATION | SPECIFICATION: ASME V ART.5

EQUIPMENT / S/N / CAL. DATE: KRAUTKRAMER DMS 2 S/N: 00YT4J CAL DATE: AUG. 25/04

CAL. BLOCK(#'S): ½" STEP BLOCK | COUPLANT: UT-X | CABLE LENGTH: 48"

TEST PIECE: ☐ | REF. REFLECTOR: S.D.H. Type: ☐ Size: 2mm Depth: 1/4 | Response Ht: ☐ 80% FSH

THICKNESS: X | SHEAR WAVE: | LAMINATION: X

	ANGLE	WAVE	FREQ	SIZE	MFG.	S/N	RANGE	Ref. db	Scan db	TL db
1	0 Degree	Long.	5 MHz	.250"	Krautkramer	00YHI	1.000"	58db	+6	64
2										
3										
4										

TEST RESULTS

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STAMP		
CURTIS GRAHAM CGSB RTII, MTII, PTII, UTI SNT RTII, MTII, PTII, UTI	Regular Hours	8
	Overtime Hours	2
	Sub / Man Day	
	Kilometers	300
	Misc. Charges	

Client Representative DOUG DAVEY | Technician: CURTIS GRAHAM | Assistant DAVE HERNANDEZ

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