



QUALITY CONTROL REPORT

For

Canadian Sub-Surface Energy Services

By

TARA Oilfield Services Ltd.

P.O. Box 1389
Didsbury, Alberta T0M 0W0
Phone: 1-403-335-9158
Fax: 1-403-335-3403
Toll Free: 1-866-FAB-TARA
1-866-322-8272

JOB NUMBER
05-129C
3" Line Heater Bundles

Prepared By:
Nicole Normand, Q.C.I.
Date: March 14, 2006

EXHIBIT INDEX

<u>Exhibit #</u>	<u>Description:</u>
1.1	Copy of Certificate of Authorization
8.1	Contract Review
9.1	Pressure Piping Specification Sheet
11.9	Examination & Inspection Report
	Design Registration CRN #
12.1	Record of Qualification of Welding Personnel
	Weld Procedure Certificate
14.1	NDE Certifying Statement
	NDE Reports
15.1	Heat Treatment Records
	Heat Treatment Calibration Certificate
	Heat Treatment Charts
16.1	Hydrostatic Test Calibration Certificates
17.3	Hydrostatic Test Reports
	Hydrotest Calibration Certificates
	Hydrostatic Test Charts
	AB – 28 Manufacturer Data Report for Indirect Fired Coils
	Facimile of Nameplate
22.2	Completion of Construction Declaration (AB-81)
22.3	Construction Data Report for Piping Systems (AB-83)
	Drawings
	Material Test Reports



Certificate of Authorization

Quality Control Program

Expiry Date: **August 3, 2008**

Reg. No.: **AQP-1434**

This is to certify that:

TARA OILFIELD SERVICES LTD.

1805 - 19 STREET
DIDSBURY, ALBERTA

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

Construct ASME Section VIII-1 Pressure Vessels

**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**

Repair/Alter ASME Section VIII-1 Pressure Vessels

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



Dated at Edmonton, this 8th day of August, 2005

A handwritten signature in black ink, appearing to read "Selhan".

Chief Inspector and Administrator
Certificate No.: 4697

TARA OILFIELD SERVICES LTD.

CONTRACT REVIEW

Job Number: 05-129C

Date: September 15, 2005

Owner Company: Canadian Sub-Surface Energy Services

600#, 505 – 8th Ave. S.W. Calgary, AB T2P 1G2

Description of Job: 3" Line Heater Coils

RESPONSIBLE FOR QUALITY SYSTEM FUNCTIONS	OWNER	TARA OILFIELD SERVICES LTD.
Materials Receiving Inspection, Identification and Traceability	No	Yes
Welding Control	No	Yes
Heat Treatment Control	No	Yes
NDE Control	No	Yes
Pressure Test Control	No	Yes
Preparing and Retention of Quality Control Records	No	Yes

The Alberta Design, Construction and Installation of Boilers and Pressure Vessels Act. and 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.

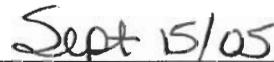
RESPONSIBLE FOR SUPPLY	OWNER	TARA Oilfield Services Ltd.
Material Control	X	Yes
Design Registration with ABSA	X	Yes
Drawing & Specifications	X	Yes
NDE	X	Yes
Heat Treatment	X	Yes

Owner's Representative: Dave Godlien

Date Contracted: September 15, 2005



QC Manager / QC Inspector



Date

EXHIBIT 9.1
TARA OILFIELD SERVICES LTD.
PRESSURE PIPING SPECIFICATION SHEET

(For Construction/Repair/Alteration of Pressure Piping Systems Less Than or Equal to 0.5 Cubic Meters, Aggregate Volume)

Owner: NABORS Production Services Ltd.

AQP:1434

Plant Location: Portable

Job #: **05-129C**

Material List				Piping Sketch (Reference attached drawings if appropriate) (Use for recording RT No's. & Welder Symbols)				
Item No.	Description	Mat'l Spec. & Grade	Sch./Rating	SEE ATTACHED DRAWINGS				
		SEE						
		ATTACHED						
		DRAWINGS						
Line No.	Design Pressure	Design Temp. Min. / Max.	Corr. All.	Code ASME B31.1/B31.3	Service (e.g., Normal, Cat. D, M, K)	Severe Cyclic Yes/No	Test Pressure	Test Medium
ALL	5000 psi	-50° F	Nil	B31.3	M	Yes	7500 psi	H2O

(Note: Pneumatic tests must have prior approval from ABSA.)

Welding Procedure Specification No's:

2081.2 TOS.2

Line No.	MT / PT Extent %	Radiography Extent %	Hardness Testing	Ultrasonic - Other NDE Description / Extent %	Other Requirements
ALL	N/A	50%	N/A	N/A	None

NDE Contractor: CANSPEC GROUP INC. Post Weld Heat Treatment Yes/N.A.: YES
Post Weld Heat Treatment Time/Temp.: 60min @ 1150° F PWHT Contractor: Continental Stress Relieving Ltd.

Approved by Owner: Dave Godlien Date: Sept. 15, 2005

Approved by Contractor: Martin Sheridan Date: Sept. 15, 2005

Comments: _____

WORK COMPLETED AND ACCEPTED (AB-83 completed)

Tara Oilfield Services Ltd. Signature: LL

Date: Sept 15/05

EXHIBIT 11.9
TARA OILFIELD SERVICES LTD.

EXAMINATION & INSPECTION REPORT
(INDIRECT FIRED HEATER COILS)

Job No.: 05-129C

Line Number: TLH-01

Drawing No.: 05-129-BDLS

Number of Coils:

16 (8 up - 8 down)

Location of Installation: Portable

OPERATION	QCM/Date	Owner Insp. / Date	ABSA Insp. / Date
1) Drawings Released <u>ABSA sign on</u>	<u>10-09/05</u>		<u>10-09/05</u>
2) Drawings Submitted to ABSA & CRN Number Issued	<u>10-12/19/05</u>	<u>T5045.2</u>	<u>* 10-09/05</u> FEB 28 2006
3) ABSA Safety Codes Officer Notified	<u>10-11/04</u>		
4) Welding Procedure Approved	<u>10-11/04</u> ✓		
5) Welding Personnel Qualified	<u>10-11/04</u> ✓		
6) Materials & Mtr's Checked	<u>10-10/15</u>		<u>* 10-09/05</u> FEB 28 2006
7) Visual Weld Inspection	<u>10-10/30</u>		<u>* 10-09/05</u> FEB 28 2006
8) Radiography & Other NDE	<u>10-10/30</u>		<u>* 10-09/05</u> FEB 28 2006
9) Postweld Heat Treatment	<u>10-02/27/06</u>		<u>* 10-09/05</u> FEB 28 2006
10) NDE & Heat Treatment Recorded	<u>10-10/19/05</u>		
11) Non Conformances Cleared	✓		
12) Deficiencies Cleared	✓		
13) Hydrostatic Test Gauges Checked	<u>10-02/28/06</u>	<u>W951</u> <u>W952</u>	
14) Hydrostatic Test Complete <u>7500 psi</u>	<u>10-03/01</u>		<u>* 10-09/05</u> MAR 01 2006
15) Manufacturers Data Report AB-28 Complete	<u>10-03/01</u>		<u>* 10-09/05</u> MAR 01 2006
16) Name Plate Stamped and Attached to Correct Heater Coil	<u>10-03/01</u>		<u>* 10-09/05</u> MAR 01 2006
17) As Built Drawings Accepted by Owner	✓		
18)			
19)			
20)			
21)			

* Denotes an A.I. Inspection Point

** Denotes an A.I. Hold Point

- All above examinations are mandatory and must be signed by Quality Control Personnel when applicable.
- Additional requirements may be added for any particular job at the request of the Customer or the QCM/QCI
- When the QCM has satisfied himself that all the above operations have been performed, he shall date and sign this form and retain a copy in the Job File.

Feb 28/06

Signature of Quality Control Manager

December 19, 2005

Attention: Leo Dussault
TARA OILFIELD SERVICES LTD
PO BOX 1389
DIDSBURY, AB T0M 0W0

Re: Design registration

The design submission, tracking number 2005-07996, originally received on October 12, 2005 was surveyed and accepted for registration as follows:

CRN : T5045.2 **Accepted on:** December 19, 2005
Reg Type: New Design
Drawing No.: 05-129-BDLS-1 Rev 1

Description	MAWP	Design Temperature	MDMT
Internal Pressure	34475 kPa	200 °C	-29 °C

An acceptance letter and a copy of the stamped drawing will be sent to you.
An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.
If you have any question don't hesitate to contact me by phone at (780) 433-0281 ext 331 or fax (780) 437-7787 or e-mail Liebl@absa.ca.

Sincerely,



LIEBL, ERICK, P. Eng.
Design Survey Engineer

DESIGN CALCULATION COVER SHEET

Page 1 of 4

Customer: Tara Projects	Vessel Description: 3" 5000psi Line Heater	Tag No.:
End User: Unknown	Vessel Serial No. TBA	CRN: Pending
P/O #	Year Built: 2005	A# Pending

The following calculations comply with Section VIII, Division 1 of the ASME Code

Code of Construction, 2004 ASME B31.3 Process Piping

This calculation uses allowable stresses in accordance with original allowable stresses.

Loadings per UG22 have been considered.

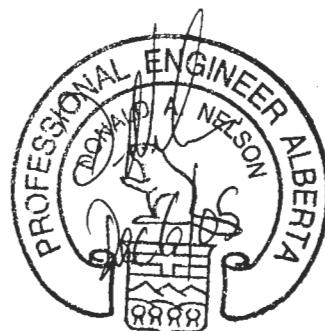
Calc #	Calc Rev #	# of Pages in this Calc	Calc Release Date	Drawing #	Dwg Rev #	Designed By (Initial & Date)
2005-302	0	4	Dec 6 2005	05-129-BDLS-1	1	<i>DA</i> Dec 6 2005

Record of Revisions

Calc Rev #	Drawing Rev #	Description of Revisions
0	1	Initial release. All drafting provided by Tara Projects.

Comments:

1. Calc is complete used Codecalc Design Software. The Module used is the Pipes and Pad element The line heater calc is the Header component. The branch component can be disregarded.
2. A-106B and A-333 Gr6 may be used interchangeably in this design. The calc lists A-106B
3. Please disregard the header reinforcement calc.



PVElite 2005 Licensee: NATIONAL ENGINEERING INC.
FileName : line heaters -----
Pipe&Pad Analysis : 3 x 5000 Item: 2 3:46p Dec 6, 2005

Input Echo, Pipe & Pad Item 2, Description: 3 x 5000

Design Internal Pressure P 5000.00 psig
Design Temperature ~~200.00~~ ^F
~~392~~ ^F

Header Material A-106 B
Header Allowable Stress Operating Sh 20000.00 psi
Header Allowable Stress Ambient Shcold 20000.00 psi
Header Material Type for Coeff. Y Ferritic Steel

Branch Material A-106 B
Branch Allowable Stress Operating Sb 20000.00 psi
Branch Allowable Stress Ambient Sbcold 20000.00 psi
Branch Material Type for Coeff. Y Ferritic Steel

	Header	Branch
Dimension Basis (Nominal or Actual)	Nominal	Nominal
Nominal -or- Actual Outside Diameter	3.0000	1.0000 in.
Basic Quality Factor for Long. Joints	E 1.00	1.00
Mill Tolerance	c 12.5	12.5 %
Corrosion Allowance	c 0.0625	0.0625 in.

Pipe Schedule (Header) SCH XX-STG
Pipe Schedule (Branch) SCH XX-STG

Angle Between Branch and Header beta 90.0000 Degrees
Does the Branch Penetrate a Header Weld No

Warnings or Error Messages for Pipe&Pad Analysis: 2

WARNING - Design Pressure, 5000.000, is greater than 3000 psi.

--- Internal Pressure Calculations for Header and Branch -----

	Header	Branch
Allowable Stress used in Calculations	20000.00	20000.00 psi
Allowable Stress at Ambient Temperature	20000.00	20000.00 psi
Actual Outside Diameter used in Calc.	3.500	1.375 in.
Nominal Thickness used in Calculations	0.600	0.358 in.
Coefficient of Effective Stressed Dia.	0.400	0.400

Required Thickness at Design Pressure 0.398 0.149 in.
Required Thickness + CA and Mill Tol. 0.526 0.242 in.

Max. Allowable Working Pressure (MAWP)	5910.54	9000.36	psig
MAWP, New (uncorroded) & Cold (ambient)	6818.18	11771.89	psig
Hydrotest Pressure	8865.82	13500.54	psig

--- Calculations for Required Branch Reinforcement -----

PVElite 2005 Licensee: NATIONAL ENGINEERING INC.

FileName : line heaters

Pipe&Pad Analysis : 3 x 5000

Item: 2 3:46p Dec 6, 2005

Height of Reinforcement Zone	L4	0.6269	in.
Effective Length removed from Pipe	d1	0.8135	in.
Half Width of Reinforcement Zone	d2	1.1200	in.
Required Reinforcement Area	A1	0.3236	in ²
Area Available in Header Wall	A2	0.0924	in ²
Area Available in Branch Wall	A3	0.1270	in ²
Area Available in Branch Weld	A4	0.1250	in ²
Total Area Available (A2+A3+A4+A4+A4)		0.3445	in ²
Estimated MAWP of Assembly		5096.97	psig

FORMULAS and SUBSTITUTIONS for B31.3 INTERSECTION CALCULATIONS :

$$th = (P * Dh)/2(Sh * QF + P * Yh)$$

$$th = (5000 * 3.5000)/2(20000 * 1.00 + 5000 * 0.40)$$

th = 0.398 in. Required thickness of header

$$tmh = (th + c) / Hmtr$$

$$tmh = (0.3977 + 0.0625) / 0.8750$$

tmh = 0.526 in. Reqd. thickness + CA + mill tolerance

$$tb = (P * Db)/2 (Sb * QF + P * Y)$$

$$tb = (5000 * 1.3150)/2 (20000 * 1.00 + 5000 * 0.40)$$

tb = 0.149 in. Required thickness of branch

$$tmb = (tb + c) / Bmtr$$

$$tmb = (0.1494 + 0.0625) / 0.8750$$

tmb = 0.242 in. Reqd. thickness + CA + mill tolerance

----- Pressure Results -----

$$Hpo = (Th*Hmtr-c)*2*Sh*He/(Dh-2*(Th*Hmtr-c)*Yh)$$

$$Hpo = (0.6000 * 0.875 - 0.063) * 2 * 20000 * 1.000 / (3.500 - 2 * (0.600 * 0.875 - 0.063) * 0.40)$$

Hpo = 5910.543 psig M.A.W.P., operation, header

$$Hpnc = (Th*Hmtr)*2*Shcold*He/(Dh-2*(Th*Hmtr)*HY)$$

$$Hpnc = (0.6000 * 0.875) * 2 * 20000 / (3.500 - 2 * (0.600 * 0.875) * 0.40)$$

Hpnc = 6818.182 psig M.A.W.P., New & Cold, header

$$Hph = (1.5 * Hpo * Shcold / Sh)$$

$$Hph = (1.5 * 5910.54 * 20000) / 20000)$$

Hph = 8865.815 psig Hydrotest Pressure, header

$$Bpo = (Tb*Bmtr-c)*2*Sb*Be/(Db-2*(Tb*Bmtr-c)*By)$$

$$Bpo = (0.3580 * 0.875 - 0.063) * 2 * 20000 * 1.000 / (1.315 - 2 * (0.358 * 0.875 - 0.063) * 0.40)$$

Bpo = 9000.360 psig M.A.W.P., operation, branch

$$Bpnc = (Tb*Bmtr)*2*Sbcold*Be/(Db-2*(Tb*Bmtr)*BY)$$

PVElite 2005 Licensee: NATIONAL ENGINEERING INC.
 FileName : line heaters
 Pipe&Pad Analysis : 3 x 5000 Item: 2 3:46p Dec 6, 2005

Bpnc = (0.3580 * 0.875) * 2 * 20000 * 1.000 /
 (1.315 - 2 * (0.358 * 0.875) * 0.40)
 Bpnc = 11771.892 psig M.A.W.P., New & Cold, branch

Bpht = (1.5 * Bpo * Sbcold / Sb)
 Bpht = (1.5 * 9000.36 * 20000) / 20000)
 Bpht = 13500.541 psig Hydrotest Pressure, branch

----- Area and Zone Results -----

L4 = The minimum of (L4th, L4tb)
 L4 = Minimum(1.156 , 0.627)
 L4 = 0.627 in. Height of reinforcement zone

d1 = (Db-2*(Tb*Bmtr-c))/Sin(beta)
 d1 = (1.32 - 2 * (0.3580 * 0.88 - 0.0625))/SIN(90.0)
 d1 = 0.813 in. Effective Length removed from pipe

d2d2 = (Tb*Bmtr-c) + (Th*Bmtr-c) + (d1/2)
 d2d2 = (0.358 * 0.875 - 0.0625) + (0.600 * 0.875 - 0.0625) +
 (0.813 / 2)
 d2d2 = 1.120 in. Candidate for d2 based on Tb + Th

d2 = The Min of (The Max of (d1, d2d2), Db)
 d2 = Min(Max(0.813 , 1.120), 3.500)
 d2 = 1.120 in. Half length of reinforcement zone

A1 = (th * d1 * (2 - Sin(α))
 A1 = (0.398 * 0.813 * (2 - Sin(90.0)))
 A1 = 0.324 in² Area required to be replaced

A2 = (2 * d2 - d1) * (Th * Hmtr - th - c)
 A2 = (2 * 1.120 - 0.813) * (0.600 * 0.875 - 0.398 - 0.063)
 A2 = 0.092 in² Area available in header

A3 = (2*L4*(Tb*Bmtr-tb-c)/Sin(α)
 A3 = (2 * 0.627 * (0.358 * 0.8750 - 0.149 - 0.063)/Sin(90.0)
 A3 = 0.127 in² Area available in branch

A4 = (Min(0.7 * Tb, Minthk) / 0.707) ** 2
 A4 = (Min(0.7 * 0.358 , 0.250) / 0.707) ** 2
 A4 = 0.125 in² Area available in branch weld

Welders Name (File Number)	Symbol	T.O.S. Proc. #	Process/ Method	Base Metals	"F" #	Backing	Min. O.D.	Deposit Thickness	Pos. Downhill	Uphill/ Solid	Cored/ Insert	Backing Gas	GTAW Current	GMAW X-Fer	Expiry Date
Doug Weigum (W-4123)	D	TOS-1&2	SMAW Manual	P1 P1	3 4	Optional No	1.0" 15.65mm	.188" .684"	All	Uphill	N/A	N/A	N/A	N/A	10/01/2006
Nicholas Vogel (W-21228)	U	TOS-1&2	SMAW Manual	P1 P1	3 4	Yes No	25mm	6.35mm	All	Uphill	N/A	N/A	N/A	N/A	05/13/2007
Ryan Zimmer (W-22692)	T	TOS-1&2	SMAW Manual	P1 P11	3 4	Yes No	2.5"	6mm	All	Uphill	N/A	N/A	N/A	N/A	07/22/2007
George Gannon (W-14190)	M	TOS-1&2	SMAW Manual	P1 P1	3 4	Optional With	1.0" N/A	.188" .684"	All	Uphill	N/A	N/A	N/A	N/A	08/07/2007
Martin Sheridan (W-17163)	S	TOS-1&2	SAW Manual	P1 GMAW SMAW FCAW	6 4 6 6	Optional With Optional With	2.875" Max. 1.0" .672"	.110" F, V .100" F, V	0-45, F Downhill	0-45, F Uphill	N/A	NO	N/A	SC	05/24/2007
									0-45, F Downhill	N/A	NO	N/A	N/A	SC	05/25/2007
									N/A	0-45, F Downhill	N/A	NO	N/A	N/A	05/27/2007

Welders Name (File Number)	Symbol	T.O.S. Proc. #	Process/ Method	Base Metals	"F" #	Backing	Min. O.D.	Deposit Thickness	Pos. Downhill	Uphill/ Downhill	Cored/ Solid	Insert	Backing Gas	GTAW Current	GMAW X-Fer	Expiry Date
Daniel Hill (W-5190)	H	TOS-1&2	SMAW	P1	3	Optional	1.0"	.188"	All	Uphill	N/A	N/A	N/A	N/A	N/A	01/10/2007
			Manual	P1	4			.684"								
Tim Smith (W-1841)	A	TOS-1&2	SMAW Manual	P1 P1	3 4	Optional	1.0"	.188" .684"	All	Uphill	N/A	N/A	N/A	N/A	N/A	08/29/2005
			SMAW Manual	P1 P1	3 4	Optional	1.0"	.104" 8.0"	All	Downhill Uphill	N/A	N/A	N/A	N/A	N/A	09/20/2006
Martin Sheridan (W-17163)	S	GTAW SMAW	P1	6	Optional 4	With	1.0"	.500" .372"	All	Uphill	N/A	N/A	N/A	N/A	N/A	05/13/2007
continued		GTAW SMAW	P1	6	Optional 4	With	25mm 12mm	6mm	All	Uphill	N/A	N/A	N/A	N/A	N/A	04/29/2007
Ron Rempel (W20370)	R	TOS1&2	SMAW	P1 P1	3 4	None	25mm	6.35mm 15.65mm	All	Uphill	N/A	N/A	N/A	N/A	N/A	04/01/2007

WELD PROCEDURE CERTIFICATE



Carls OILFIELD SERVICES LTD.

P.O. Box 99, Didsbury, Alberta TOM 0W0
Phone 403-335-9158 Cell 403-507-1482

WELDING PROCEDURE SPECIFICATION NO: TOS-2

WELDING PROCEDURE QUALIFICATION RECORD NO(S): PQ2, PQ3

QUALIFIED FOR

Base Metal (Typical): P1 Groups 1 & 2 to P1 Groups 1 & 2 (SA 333 Gr. 6,
SA 420 WPL6, SA 350 Gr. LF2, 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 & THICKNESS RANGE QUALIFIED:

NOTCH TOUGHNESS APPLICATIONS TO -46°C WITH P.W.H.T.

ASME B31.1	<u>3.2 to 25.4 mm (0.125 to 1.00 in.) inclusive.</u>
ASME B31.3	<u>3.2 to 25.4 mm (0.125 to 1.00 in.) inclusive.</u>
ASME SECT. VIII, DIV.1	<u>3.2 to 25.4 mm (0.125 to 1.00 in.) inclusive.</u>

ALBERTA BOILERS SAFETY ASSOCIATION	
PROVINCE OF ALBERTA	
SAFETY CODES ACT	
WELDING PROCEDURE	
Reg. No. WP	<u>2081-2</u>
Spec No.	<u>TOS-2</u>
Weld Process	<u>SMAW</u>
Matt. Gr. P No. 1 Gr. 1+2	to P No. 1 Gr. 1+2
Elec. Gr. F No. 3+4	A No. 1
Th. Qual. For 3.2 to 25.4 mm PWHT	<u>YES</u>
<u>CVN -46°C</u>	
11	Mo. 28 Day Signed
R. ROSEBERG, P.ENG.	
WELDING SPECIALIST	

PROVINCIAL REGISTRATION

EXHIBIT NO. 14.1

TARA OILFIELD SERVICES LTD.

CERTIFYING STATEMENT

Date: 10-Sept-05

I have reviewed the written practices, procedures, personnel records and certifications of:

Canspec Group Inc.
#6, 1313 – 44th Avenue N.E.
Calgary, Alberta

In my opinion, they comply, in all respects, with requirements of SNT-TC-1A. Canspec Group Inc. are appointed to perform (RT, UT, MT, and PT) Non-Destructive Examinations for Tara Oilfield Services Ltd.

Mr. Phil Smith is by this statement, appointd to act as the Level III person to be responsible for RT, MT, UT and PT Non-Destructive Examinations for TARA Oilfield Services Ltd.

Mr. Ken Growler, certified in RT, is by this statement appointed to act as the Level III examiner, in the absence of Mr. Smith, for TARA Oilfield Services Ltd.

Mr. Tim Griggs, certified in RT, MT, and PT, is by this statement appointed to act as the Level III examiner, in the absence of Mr. Smith, for TARA Oilfield Services Ltd.

In the absense of any of the above, Canspec can assign any of their SNT-TC-1A qualified personnel to be responsible for RT, MT, Ut and PT Non-Destructive Examinations for TARA Oilfield services Ltd.

Sept. 10, 2005



Leo Dussault, Quality Control Manager

Furnace Work Order

Client: TARA OILFIELD SERVICES LTD.
Address: P.O. BOX 1389
DIDSBURY, AB
T0M 0W0

Client Reference: P.O. : Leo
Furnace: 2

Date: Friday February 24, 2006
Phone: (403) 335-9158
Date Required: Monday February 27, 2006

Attention: MARTY SHERIDAN
Furnace Load: CF06-6213

Description		Quantity
Coil		1
Spools		5

Total Overtime Hours = 0	@ \$0.00	Per Hour = \$0.00
		Furnace Charges: \$600.00
		Other Charges(s): \$0.00
		 COST: \$600.00
		GST: \$42.00
		TOTAL COST: \$642.00

Heat Cycle (In Degrees Celsius)

Material: Carbon Steel (P1) <= 1" W/T Code: Customer Spec.
 Heat from Ambient to 425° at a Moderate Rate.
 Heat from 425° to 621° at 222° per Hour max.
 Soak at 621° +/- 14° for 1 Hours.
 Cool to 425° at 277° per Hour max.
 Cool from From 425° to at per Hour max.
 Air cool in furnace.

Comments:

NOTE: 1. An extra charge will apply for any additional supporting or blocking required.
 2. Customer will not hold Continental Stress Relieving Services Ltd. responsible for any damage or distortion caused by heat treatment process.

Thank you for the opportunity of quoting.
 Continental Stress Relieving Services Ltd.

Name: Aaron Thompson

Signed:





CONTINENTAL STRESS RELIEVING

RECORDING INSTRUMENTS

CERTIFICATE of CONFORMANCE

CERTIFIED BY: KINGSWAY SCIENTIFIC AND INDUSTRIAL INSTRUMENTS INC.

TEST NUMBER: B 6510

DATE OF CALIBRATION: Jan. 12/06

INSTRUMENT MFG. Chino
MODEL NUMBER: EA100-24S
SERIAL NUMBER: EA77C001
RECORDER NUMBER: R 29
CALIBRATION DUE: April 12/06

THIS INSTRUMENT HAS BEEN CALIBRATED AND IT IS WITHIN THE
MANUFACTURES SPECIFICATIONS.

REFERENCE STANDARDS

L&N MODEL 8686 SERIAL # 1768189 CERTIFICATION DATE: May 4/05

Hewlett Packard 3458A Ser. #2823A16911 CERTIFICATION DATE: Feb. 8/05

FLUKE 5520A CALIBRATOR Ser. #7990016 CERTIFICATION DATE: Feb. 24/05

CERTIFICATION DATE: _____

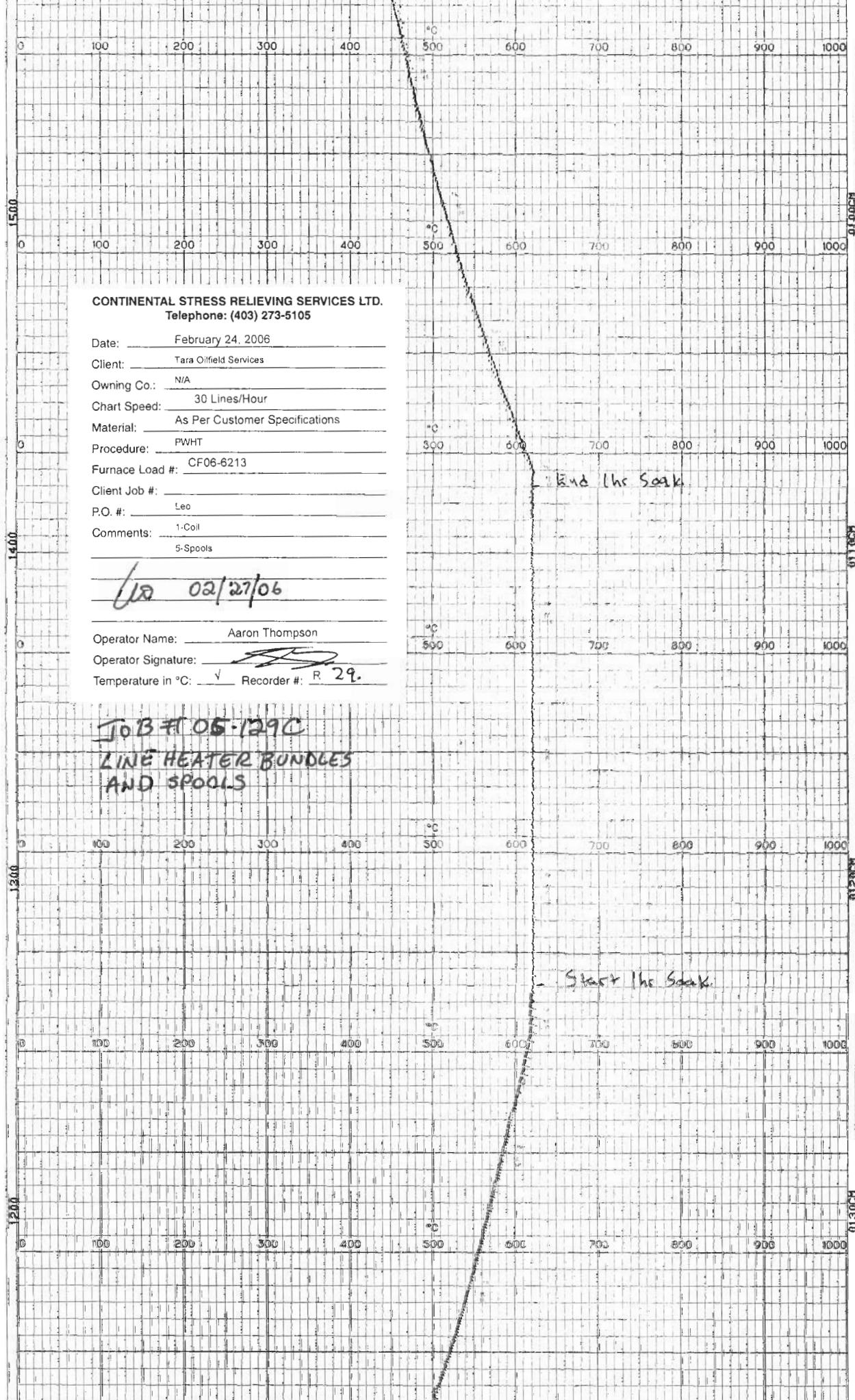
RE-CERTIFICATION DATE: Annually

THE CALIBRATION OF ALL STANDARDS AND MEASURING INSTRUMENTS USED IN THIS
CALIBRATION ARE TRACEABLE TO THE NATIONAL RESEARCH COUNCIL OF CANADA IN
OTTAWA OR TO THE NATIONAL BUREAU OF STANDARDS IN WASHINGTON, D.C.

KINGSWAY SCIENTIFIC & IND. INSTR. INC.

CALIBRATED BY:

SIGNATURE:





Red Deer Ltd.
6785 - 52nd Ave.
Red Deer, Alta., T4N 4K8

Ph. 343-2822, Fax: 347-1470
Email: info@kingsmeter.com
Web: www.kingsmeter.com

PRESSURE GAUGE CALIBRATION TEST CERTIFICATE

We certify that the gauge identified below has been tested and calibrated using precise test equipment and that this instrument is accurate to within 1/2% of its full scale reading.

MODEL & RANGE: 4" WIHA 10,000 / 69,000

GAUGE NO.: W952

This gauge meets all King's Meter Gauge Calibration Standards.

TEST GAUGE READINGS	GAUGE READINGS
<u>1000 PSE</u>	<u>1000 PSE</u>
<u>2000 "</u>	<u>2000 "</u>
<u>3000 "</u>	<u>3000 "</u>
<u>4000 "</u>	<u>4000 "</u>
<u>5000 "</u>	<u>5000 "</u>
<u>6000 "</u>	<u>6000 "</u>
<u>7000 "</u>	<u>7000 "</u>
<u>8000 "</u>	<u>8000 "</u>
<u>9000 "</u>	<u>9000 "</u>
<u>10,000 "</u>	<u>10,000 "</u>

TECHNICIAN: J.S. DATE: Oct 20, 2005

CERTIFICATE OF TRACEABILITY

PERMA-CAL GAUGE MODEL -100NTM18B21, S/N-010328005-01-001 CALIBRATED AGAINST
WIKA 342.11 15,000 S/N Z7003J0 CERTIFICATION #6432.

TRACEABLE TO N.I.S.T. (I.N.M.S)

Calibration Date: January 5, 2005, Expiry Date January 5, 2006



Red Deer Ltd.
6785 - 52nd Ave.
Red Deer, Alta., T4N 4K8

Ph. 343-2822, Fax: 347-1470
Email: info@kingsmeter.com
Web: www.kingsmeter.com

PRESSURE GAUGE CALIBRATION TEST CERTIFICATE

We certify that the gauge identified below has been tested and calibrated using precise test equipment and that this instrument is accurate to within 1/2% of its full scale reading.

MODEL & RANGE: 4" Wiha 10,000 / 68,000

GAUGE NO.: WX01

This gauge meets all King's Meter Gauge Calibration Standards.

TEST GAUGE READINGS

GAUGE READINGS

<u>1000 PSI</u>	<u>1000 PSI</u>
<u>2000 "</u>	<u>2000 "</u>
<u>3000 "</u>	<u>3000 "</u>
<u>4000 "</u>	<u>4000 "</u>
<u>5000 "</u>	<u>5000 "</u>
<u>6000 "</u>	<u>6000 "</u>
<u>7000 "</u>	<u>7000 "</u>
<u>8000 "</u>	<u>8000 "</u>
<u>9000 "</u>	<u>9000 "</u>
<u>10000 "</u>	<u>10000 "</u>

TECHNICIAN: J.S.

DATE: Oct 20-2005

CERTIFICATE OF TRACEABILITY

PERMA-CAL GAUGE MODEL -100NTM18B21, S/N-010328005-01-001 CALIBRATED AGAINST
WIKA 342.11 15,000 S/N Z7003J0 CERTIFICATION #6432.

TRACEABLE TO N.I.S.T. (I.N.M.S)

Calibration Date: January 5, 2005, Expiry Date January 5, 2006

TARA OILFIELD SERVICES LTD.

HYDROSTATIC TEST REPORT

Date: March 1, 2006

Job Number: 05-129C

Customer: Canadian Sub-Surface Energy Services

Description of Product: 5000psi Line Heater Bundles

Tests Conducted By: Warren Tersigni, Q.C.I. & Leo Dussault, QCM

Test Pressure: 7500psi Test Medium: H2O

Holding Time at Test Pressure: 60 minutes

Results: PASS AQP-1434

Owner's Inspector Witnessing Test: _____

Comments: _____

Leo

Leo Dussault, Q.C.M.

Signature of Owner's Inspector

Duane Sears ABSA

Signature of ABSA Safety Codes Officer (if applicable)

PARTIAL

 A# 537501

Manufactured By: TARA Oilfield Services Ltd. P.O. Box 1389 Didsbury, AB T0M 0W0

Manufactured For: Canadian Sub-Surface Energy Services #600, 505 - 8th Avenue S.W. Calgary, AB T2P 1G2

Ultimate Owner: Canadian Sub-Surface Energy Services #600, 505 - 8th Ave. S.W. Calgary AB

Location of Installation: Portable

Manufacturer's Serial No.	Construction Drawing No.	CODE: ASME B31.3		Year Built
05-129C	05-129-BDLS-1 Rev.1	Edition	2004	Addenda

CONSTRUCTION

Coil ID/Purpose	Design Pressure	Design Temp	Design Minimum Temp	Corrosion Allowance	Registered Drawing No.	CRN
a UPSTREAM COIL	34,475 kPa	200° C	-29° C	0.0625"	05-129-BDLS-1Rev.1	T5045.2
b DOWNSTREAM COIL	34,475 kPa	200° C	-29° C	0.0625"	05-129-BDLS-1Rev.1	T5045.2
c						
d						
e						

COIL

Tubes			End Closures				Openings		
			Return Bend		Flanges				
Mat'l Spec.	Diameter	Thickness	Mat'l Spec.	Thickness	Mat'l Spec.	Rating	Mat'l Spec.	Size/Type	Rating
a SA333-6 / SA106-B	3" NPS	.600"	SA234 GR. WPB	.600"	N/A	N/A			
b SA333-6 / SA106-B	3" NPS	.600"	SA234 GR. WPB	.600"	N/A	N/A			
c									
d									
e									

HEADERS/MANIFOLDS

Purpose	Size	Shell	Ends				Openings		
		Mat'l Spec.	Thickness	Mat'l Spec.	Thickness	No	Mat'l Spec	Size/Type	Rating
f									
g									

TEST PRESSURE, NDE, POSTWELD HEAT TREATMENT AND SIZE

Hydrostatic Test Pressure	Radiography (100% or % Random)	Other NDE (MT) (PT) (UT)	Postweld Heat Treatment		Overall Length	Heating Surface	Volume
			Temp.	Time			
a 51,710 kPa	100%	—	621° C	1 Hour	18 ft 7 in	—	0.4 m3
b 51,710 kPa	100%	—	621° C	1 Hour	18 ft 7 in	—	0.4 m3
c							
d							
e							
f							
g							

IMPACT TESTING: N/A

REMARKS: INDIRECT HEATER COIL SPECIFICATIONS ONLY UP TO HEAD PLATE. FLANGES NOT INCLUDED IN THIS DESIGN.

TOTAL VOLUME: 0.8 m3 FABRICATION DRAWING 05-129C-BDLS-1. REV 2.

CERTIFICATE OF COMPLIANCE

We certify that the statements in this report are correct and that all details of design, material, construction, and workmanship of this coil bundle are in accordance with the above Provincial Registered Design.

Date March 1, 2006 Signed


 (Representative)

For TARA OILFIELD SERVICES LTD.

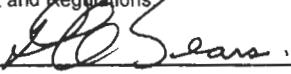
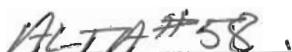

 (Manufacturer)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, a duly authorized Safety Codes Officer employed by ABSA has inspected the above Heater Coils and state that, to the best of my knowledge and belief, the construction is in accordance with the Alberta Safety Codes Act and Regulations.

Date March 1, 2006

Signed

W
HT
RT1



Manufactured & Certified by
TARA Oilfield Services Ltd.
DIDSBURY, ALBERTA

MANUF. SER. NO: 05-129 C

YR BUILT: 2006 **CRN:** T5045.2

COIL #1 **COIL #2**

MAWP (kPa)	<u>34,475</u>	<u>34,475</u>
@ TEMP. °C	<u>200°C</u>	<u>200°C</u>
NPS (In)	<u>3"</u>	<u>3"</u>
THKNS (mm)	<u>.600 "</u>	<u>.600 "</u>
MATERIAL	<u>SA 333 Gr.6</u>	<u>SA 333 Gr.6</u>
	<u>SA 106 Gr. B</u>	<u>SA 106 Gr. B</u>
XRAY	<u>100%</u>	<u>100%</u>
COR. ALL. (mm)	<u>0.0625"</u>	<u>0.0625"</u>
CODE	<u>B31.3</u>	<u>B31.3</u>
TEST PRESS. (kPa)	<u>51,710</u>	<u>51,710</u>
DRWG NO.:	<u>05-129C-BDLS-1</u>	
MDMT	<u>-29°C</u>	<u>PWHT</u> <u>621°C - 60 MIN.</u>

A 537501

COMPLETION OF CONSTRUCTION**DECLARATION**

NOTE: This declaration shall be completed and signed by the person responsible, in whole or in part, for the construction, installation, testing and inspection of the pressure piping system and forwarded to the Administrator/Chief Inspector.

(1) Owner of Plant: Canadian Sub-Surface Energy Services
600#, 505 - 8th Avenue S.W. Calgary, Alberta
(Name and Address)

(2) Engineer or Contractor: TARA Oilfield Services Ltd.
1805 - 19th Street Didsbury, Alberta
(Name and Address)

(3) Type of Plant: Line Heater Bundles

(4) Location of Plant: Portable
(Sec, TWP, Rge)

(5) Description of Pressure Piping System(s): 3" Sch XXH A333-GR6 & A106-GRB Pipe
with A234-GR WPB Fittings.

STATEMENT OF COMPLIANCE

I, the undersigned, declare that the described pressure piping system, approved under design registration number CRN# T5045.2, complies in all respects with the regulations for construction, installation, testing and inspection and that all applicable pressure piping test data reports have been delivered to the owner.


(Signature)Nicole Normand
(Print Name)Q.C.I.
(Title)March 13, 2006
(Date)TARA Oilfield Services LTD.
(Company)1805 - 19th Street
(Address)Didsbury, AB T0M 0W0
(City, Postal Code)

Partial Data Reports, properly identified and certified by ABSA-authorized contractors, as listed below are attached to and form part of this Data Report

No.	Line No.	Spool No.	Drg. No. (with Rev. No.)	Contractor (Name)	AQP No.	Expiry date

Remarks: Provide additional comments including noting any code work that was not performed by the ABSA-authorized contractor(s) supplying this document as a Partial Data Report but which must be completed by another ABSA-authorized contractor who assumes overall responsibility for conformance with the Safety Codes Act & Regulations and applicable ASME Codes, and who assures that all required code work is completed prior to putting the piping system into service.

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: _____

Subcontractor

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. 05-129C

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. 13, 2006 TARA Oilfield Services
Ltd.

Primary Contractor
Nicole Normand, Q.C.I. 

Print Authorized Representative's Name _____ Signature _____

CERTIFICATE OF INSPECTION

I, the undersigned, employed by _____ have inspected the piping job no. _____ described in this Construction Data Report and state that, to the best of my knowledge and belief, the Contractor has constructed this piping in accordance with the applicable Sections of the ASME Piping Codes and Province of Alberta Safety Codes Act and Regulations.

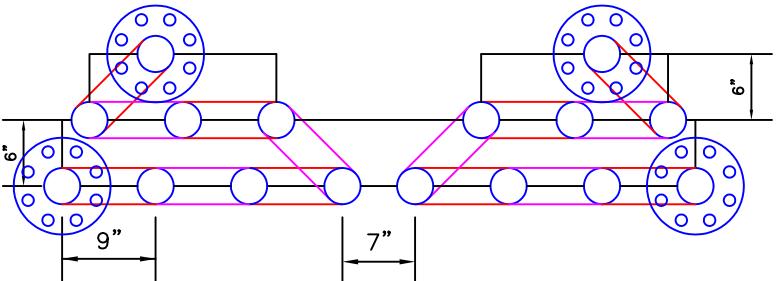
Date: _____

Date: _____

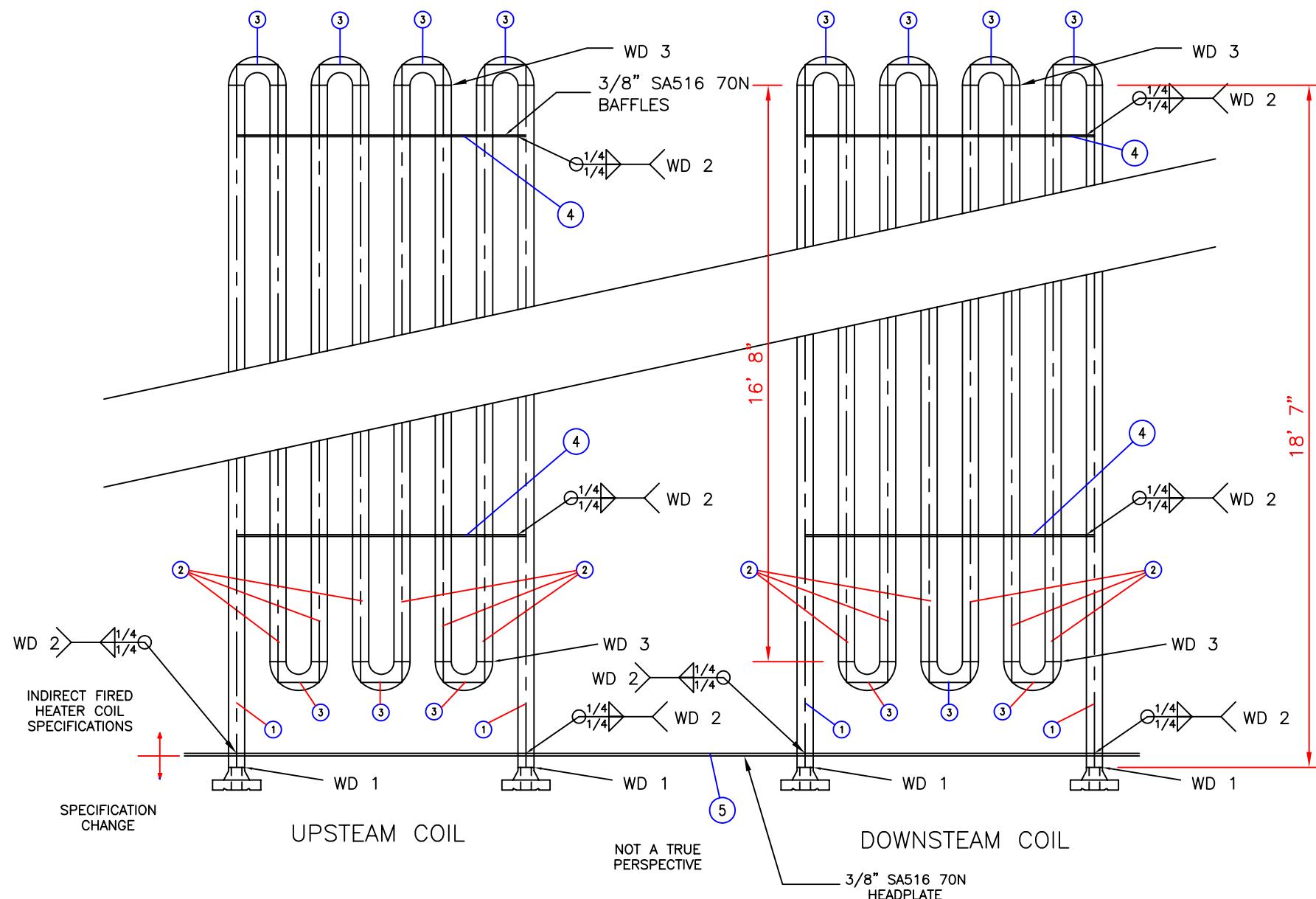
Name: _____ Sign.: _____

Print Owner's Inspector's Name _____ Owner's Inspector's Signature _____

ABSA Safety Codes Officer
(BOILER EXTERNAL PIPING ONLY)



ORIENTATION VIEW



BILL OF MATERIAL

PIPE					
MK	CUT LENGTH	SIZE	SCHEDULE	DESCRIPTION	MATERIAL
1	5664mm	3"	XXH	PIPE SMLS	A333 GR. 6 S
2	5080mm	3"	XXH	PIPE SMLS	A106 GR. B S
WELD FITTINGS					
MK	QTY	SIZE	SCHEDULE	DESCRIPTION	MATERIAL
3	6	3"	XXH	L.R. 180° RETURN BW	A234 WPB S
PLATE MATERIAL					
MK	QTY	SIZE	THICKNESS	DESCRIPTION	MATERIAL
4	4	13" x 57"	3/8"	PIPE SUPPORT/BAFFLES	SA516 70N S
5	2	72" RADIUS	3/8"	HEAD PLATE	SA516 70N S

GENERAL NOTES:

1. QUALITY CONTROL NUMBER: AOP. 1434
2. WELDING PROCEDURE REGISTRATION NUMBER: WP 2081.2
3. BAFFLE AND HEAD MATERIAL: SA 516-70N
4. ALL FITTINGS USED ARE REGISTERED WITH ABSA.
5. MEASUREMENT TOLERANCES ARE $1/16"$ (UNLESS SPECIFIED OTHERWISE)
6. ALL TACK WELDS WILL BE WELD PROCEDURE TOS-02
7. PSV IN OTHER PIPING.

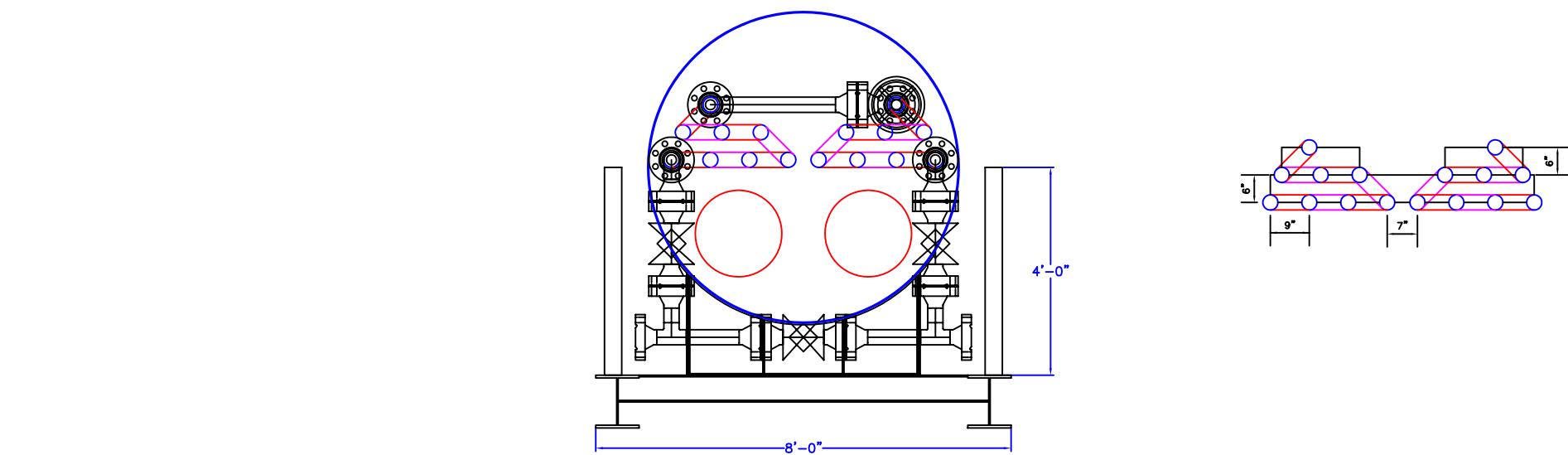
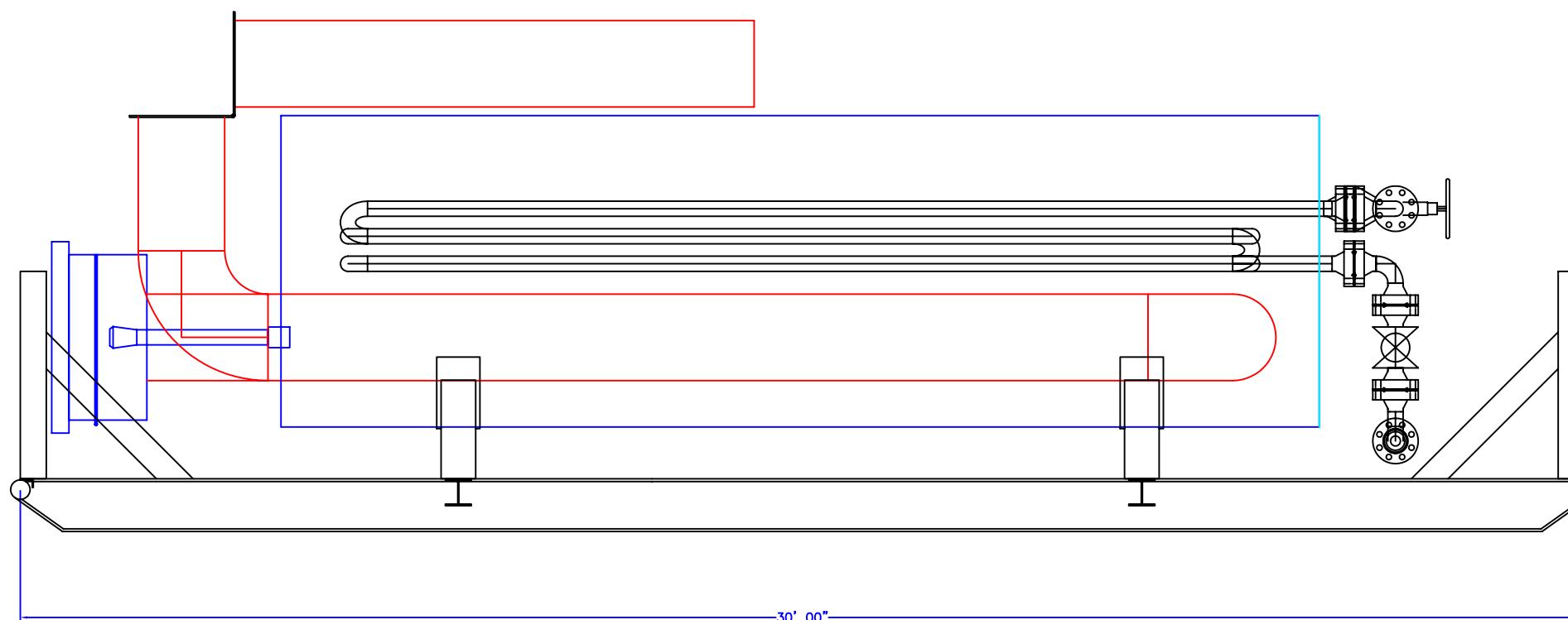
DESIGN SPECIFICATION:			
ASME B31.3	2004 EDITION		
Q.C.P.:	AQP-1434		
M.A.W.P.:	5000 PSI. (34,475kPa)		
M.D.M.T.:	-29°C	DESIGN TEMPERATURE:	200°C
CORROSION ALLOWANCE:	.0625"	VOLUME:	0.8 m ³
B31.3 SERVICE CATEGORY:	NORMAL SERVICE		
N.D.E.:	FULL RADIOPGRAPHY IN ACCORDANCE TO SEVERE CYCLIC		
HYDROTEST PRESSURE:	7500 PSI. (51,710kPa)	HYDROTEST HOLD TIME:	30 min.
HYDROTEST MEDIUM:	H ₂ O @ 50°F		
P.W.H.T. TEMP.:	621°C	HOLD TIME:	60 min.
WPS#:	TOS-2		

FLGs TO NOZZLE	ATTACHMENT WELD	FTGs TO PIPE
WD 1	WD 2	WD 3
WITHOUT BACKING	WITHOUT BACKING	WITHOUT BACKING
R = 1/8" (+/- 1/8")	R = 1/8" (+/- 1/8")	R = 1/8" (+/- 1/8")
a = 75° (+/- 15°)	a = 75° (+/- 15°)	a = 75° (+/- 15°)
h = 1/16" (+/- 1/16")	h = 1/16" (+/- 1/16")	h = 1/16" (+/- 1/16")

-	-	-	-
-	--	--	--
-	--	--	--
2	ADDED HEAT NUMBERS XRAY	02/24/06	LD
1	ADDED BAFFLES & HEAD PLATE	12/06/05	LD
0	FOR CALCULATIONS	12/01/05	LD

TARA PROJECTS	
TARA OILFIELD SERVICES LTD.	
1805 - 19th STREET DIDSBURY, ALBERTA	
LINE HEATER BUNDLES	-
LINE HEATER 129C	-
TARA JOB#:	05-129C
UNIT:	LH-02
DWG #:	05-129C-BDLS-1
DWG. BY:	L. DUSSAULT
DATE:	12/01/05
REV:	2





BILL OF MATERIAL

PIPE

MK	CUT LENGTH	SIZE	SCHEDULE	DESCRIPTION	MATERIAL	S/F
1	5664mm	3"	XXH	PIPE SMLS	A333 GR. 6	S
2	5080mm	3"	XXH	PIPE SMLS	A106 GR. B	S

WELD FITTINGS

MK	QTY	SIZE	SCHEDULE	DESCRIPTION	MATERIAL	S/F
3	6	3"	XXH	L.R. 180° RETURN BW	A234 WPB	S

PLATE MATERIAL

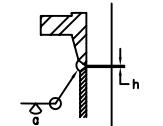
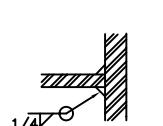
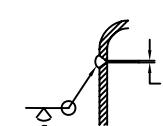
MK	QTY	SIZE	THICKNESS	DESCRIPTION	MATERIAL	S/F
4	4	13" x 57"	3/8"	PIPE SUPPORT/BAFFLES	SA516 70N	S
5	2	72" RADIUS	3/8"	HEAD PLATE	SA516 70N	S

GENERAL NOTES:

1. QUALITY CONTROL NUMBER: AQP. 1434
2. WELDING PROCEDURE REGISTRATION NUMBER: WP 2081.2
3. BAFFLE AND HEAD MATERIAL: SA 516-70N
4. ALL FITTINGS USED ARE REGISTERED WITH ABSA.
5. MEASUREMENT TOLERANCES ARE 1/16" (UNLESS SPECIFIED OTHERWISE)
6. ALL TACK WELDS WILL BE WELD PROCEDURE TOS-02
7. PSV IN OTHER PIPING.

DESIGN SPECIFICATION:

ASME B31.3 2004 EDITION	
Q.C.P.: AQP-1434	
M.A.W.P. : 5000 PSI. (34,475kPa)	
M.D.M.T. : -29°C	DESIGN TEMPERATURE: 200°C
CORROSION ALLOWANCE : .0625"	VOLUME: 0.8 m ³
B31.3 SERVICE CATEGORY : NORMAL SERVICE	
N.D.E. : FULL RADIOPGRAPHY IN ACCORDANCE TO SEVERE CYCLIC	
HYDROTEST PRESSURE : 7500 PSI. (51,710kPa)	HOLD TIME : 30 min.
HYDROTEST MEDIUM : H ₂ O @ 50°F	
P.W.H.T. TEMP. : 621°C	HOLD TIME : 60 min.
WPS# : TOS-2	

FLGs TO NOZZLE	ATTACHMENT WELD	FTGs TO PIPE
WD 1	WD 2	WD 3
		
WITHOUT BACKING	WITHOUT BACKING	WITHOUT BACKING
R = 1/8" (+/- 1/8")	R = 1/8" (+/- 1/8")	R = 1/8" (+/- 1/8")
a = 75° (+/- 15°)	a = 75° (+/- 15°)	a = 75° (+/- 15°)
h = 1/16" (+/- 1/16")	h = 1/16" (+/- 1/16")	h = 1/16" (+/- 1/16")

—	--	--	—
—	—	—	—
—	--	--	—
0	FOR APPROVAL	10/07/05	LD

TARA PROJECTS	
TARA OILFIELD SERVICES LTD.	
1805 – 19th STREET DIDSBURY, ALBERTA	
PHONE: 403-335-9158 FAX: 403-335-3404	

SKID LAYOUT	—								
LINE HEATER 129C	—								
TARA JOB#:	UNIT: LH-03	DWG #:	05-129C-BDLS-2	DWG. BY:	L. DUSSAULT	DATE:	10/07/05	REV:	0

BENTELER

Stahl/Rohr

Benteler Stahl/Rohr GmbH
Postfach 13 40
3043 Paderborn
Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254.13666

ABNAHMEPRÜFZEUGNIS EN 10204-3.1

INSPECTION CERTIFICATE EN 10204-3.1

CERTIFICAT DE RECEPTION EN 10204-3.1

EN 10204-1:2005-01

Benteler Stahl/Rohr GmbH - Postfach 1340 - 3043 Paderborn - Deutschland
Westlund - Edmonton
5105 - 75th Street
EDMONTON, AB T6E 5S5
KANADA

Dokument-Nr.: 65-262679/001/P

Document No.:

No. du document:

Kunden-Bestell-Nr.:

Purchase Order No.:

No. de commande du client:

Benteler Auftrags-Nr.:

Benteler Order No.:

No. de commande Benteler:

Versandanzeigen-Nr.:

Dispatch Note No.:

No. d'avis d'expédition:

Produkt: NAHTLOSE STAHLROHRE

Product: SEAMLESS STEEL TUBES

Produit: TUBES D'ACIER SANS Soudure

Prüf-Nr.: 1 / 9
Inspection No.:
No. du certificat:

Hersteller: Warmrohwerk Dinslaken
Manufacturer: ISO/TS 16948 (ISO 8001) DNV CERT-13765-2003
Produiteur: PED 97/23/EC TÜV CERT 07.202.4111/2/5001/1/H

Herstellerzeichen: 
Manufacturer's brand:
Marque du producteur:

Stempel des Abnahmbeauftragten: WA
Stamp of the inspection representative:
Timbre du contrôleur:

ELEKTROSTAHL

Stahlerschmelzungsverfahren:

Steelmaking process:

Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

CSA Standard Z245.1-02 Category 1, API Specification 5L Forty-Third Edition, March 2004, PSL 1, ASTM-A
106-2002a, S5, ASME SA-106, ASME Section II Part A Edition 2004, S5, NACE MR0175-03

CONFORMS
ASME
2004 EDITION
SECTION II PART A

Lieferbedingungen:
Terms of delivery:
Conditions de livraison:

GRADE 290, GRADE B, GRADE X 42
ASME B36.10M-1996, ASME SA-530, ASME Section II Part A Edition 2004, ASTM-A 530-2003
Hot rolled

Maße - Toleranzen:
Dimensions-tolerances:
Dimensions-tolérances:

Stahlsorte:
Steel grade:
Nuance d'acier:
Lieferzustand:
Delivery condition:
Etat de livraison:

Produktkennzeichnung:
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	Nombre	Dimensions	Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
		feet	feet	lbs		PSI	s	
00001	49	3" NPS * XXS 18 FT - 22 FT	1074,38	19703	526034	3000	5	
00002	16	3" NPS * XXS 38 FT - 42 FT	2520621 2520074	667,65	12330	735251	3000	5

Pos.	Stück	Maße	Item Number	Dimensions	Poste Nombre	Dimensions	feet	Length Longueur	Gewicht Weight Poids	Schmelzen-Nr. Heat No. No. de coulée	Prüfdruck Test pressure Pression d'épreuve	Rohr-Nr.-Gruppe Tube number group Série de no. des tubes	Vielfachlängen Multiple lengths Longueurs multiples
0003	12	4" NPS * XXS	32 FT - 36 FT	2520075				429, 36	11810	735325	3000	5	
0004	111	2" NPS * Sched. 160	18 FT - 22 FT	25200540				2383, 99	17840	735452	3000	5	
0005	50	3" NPS * Sched. 160	18 FT - 22 FT	25200559				1062, 20	15106	735264	3000	5	
0006	47	4" NPS * Sched. 160	18 FT - 22 FT	25200567				1004, 36	22615	735361	3000	5	
0007	617	2" NPS * Sched. 40	18 FT - 22 FT	2520057				13133, 10	47417	735198	3000	5	
0008	281	2" NPS * Sched. 80	18 FT - 22 FT	25200400				5554, 79	27972	735457	3000	5	
0008	489	2" NPS * Sched. 80	18 FT - 22 FT	25200400				9708, 56	48885	735546	3000	5	
0009	450	3" NPS * Sched. 40	18 FT - 22 FT	2520065				9370, 70	70993	526035	3000	5	

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.	C	Si	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Poste	Heat No.	No. de coulée												
0001	526034	0,130	0,220	0,82	0,007	0,003	0,12	0,04	0,14	0,21	0,002	0,010	0,003	0,0001
0002	735251	0,130	0,215	0,84	0,007	0,006	0,12	0,04	0,08	0,11	0,001	0,010	0,003	0,0001
0003	735325	0,130	0,200	0,82	0,010	0,004	0,14	0,05	0,10	0,13	0,001	0,010	0,003	0,0001
0004	735452	0,130	0,195	0,82	0,007	0,003	0,12	0,03	0,07	0,10	0,001	0,010	0,003	0,0001
0005	735264	0,130	0,215	0,82	0,008	0,003	0,11	0,04	0,13	0,21	0,002	0,010	0,003	0,0001
0006	735361	0,135	0,210	0,83	0,010	0,004	0,15	0,04	0,14	0,18	0,001	0,010	0,003	0,0001
0007	735198	0,130	0,220	0,83	0,008	0,006	0,11	0,04	0,10	0,14	0,001	0,010	0,004	0,0001
0008	735457	0,130	0,195	0,83	0,009	0,005	0,09	0,03	0,07	0,12	0,001	0,010	0,003	0,0001

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
 INSPECTION CERTIFICATE EN 10204-3.1
 CERTIFICAT DE RECEPTION EN 10204-3.1
 Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Blatt: 3 / 9
 Seite: Page:
 Seite: Page:
 Prüf-Nr.: Inspection No.:
 Dokument-Nr.: Document No.:
 No. du document:

Pos.	Schmelzen-Nr.	Heat No.	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	NB	Ti	B
Item		No. de coulée													
0008	735546	0,130	0,200	0,83	0,010	0,006	0,09	0,03	0,07	0,12	0,001	0,010	0,003	0,0001	
0009	526035	0,130	0,210	0,82	0,009	0,002	0,10	0,03	0,11	0,20	0,001	0,010	0,003	0,0001	

1. Formel: $CE = C + (Mn/6) + ((Cr+Mo+V)/5) + ((Cu+Ni)/15) <= 0,40\%$
2. Formel: $CEV = C + F^* ((Mn/6) + (Si/24) + (Cu/15) + (Ni/20) + ((Cr+Mo+V+Nb)/5)) + (5^*B) <= 0,40$
3. Formel: $Mn/C >= 3/1$
4. Formel: $Cr+Cu+Mo+Ni+V <= 1,00\%$

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
0001	526034	0,322	0,291	6,308	0,512
0002	735251	0,315	0,286	6,462	0,351
0003	735325	0,320	0,289	6,308	0,421
0004	735452	0,308	0,280	6,308	0,321
0005	735264	0,320	0,289	6,308	0,492
0006	735361	0,333	0,311	6,148	0,511
0007	735198	0,315	0,286	6,385	0,391
0008	735457	0,305	0,278	6,385	0,311
0008	735546	0,305	0,278	6,385	0,311
0009	526035	0,314	0,284	6,308	0,441

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	Heat No.	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	NB	Ti	B
Item		No. de coulée													
0001	526034	0,140	0,250	0,88	0,009	0,005	0,10	0,04	0,14	0,19	0,002	0,010	0,002	0,0004	
0001	526034	0,150	0,250	0,88	0,009	0,005	0,10	0,04	0,14	0,17	0,002	0,010	0,002	0,0002	

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.:

Document No.:

No. du document:

65-262679/001/P

Prüf-Nr.:

Inspection No.:

No. du certificat:

Blatt: 4 / 9
Page: 4 / 9
Page: 4 / 9

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmelzen-Nr.	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	NB	Ti	B
Tem	Heatt No.	Tem	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	NB	Ti	B
Poste	No. de coulée	Poste	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	NB	Ti	B
0002	735251	0,150	0,260	0,89	0,009	0,006	0,10	0,04	0,14	0,17	0,002	0,010	0,002	0,0003
0002	735251	0,150	0,250	0,88	0,009	0,005	0,10	0,04	0,14	0,17	0,002	0,010	0,002	0,0002
0003	735325	0,130	0,170	0,81	0,009	0,004	0,14	0,06	0,08	0,10	0,002	0,010	0,002	0,0001
0003	735325	0,130	0,170	0,81	0,009	0,004	0,14	0,06	0,08	0,10	0,002	0,010	0,002	0,0002
0004	735452	0,130	0,180	0,82	0,006	0,001	0,13	0,03	0,07	0,10	0,001	0,010	0,002	0,0001
0004	735452	0,130	0,180	0,81	0,006	0,001	0,13	0,03	0,07	0,10	0,001	0,010	0,002	0,0001
0005	735264	0,150	0,260	0,89	0,009	0,006	0,10	0,04	0,14	0,17	0,002	0,010	0,002	0,0003
0005	735264	0,150	0,250	0,88	0,009	0,005	0,10	0,04	0,14	0,17	0,002	0,010	0,002	0,0002
0006	735361	0,140	0,180	0,80	0,009	0,004	0,15	0,04	0,15	0,19	0,002	0,010	0,002	0,0002
0006	735361	0,140	0,180	0,81	0,009	0,004	0,15	0,04	0,15	0,20	0,002	0,010	0,002	0,0003
0007	735198	0,140	0,190	0,81	0,010	0,008	0,11	0,04	0,09	0,13	0,002	0,010	0,003	0,0003
0007	735198	0,130	0,200	0,81	0,010	0,006	0,11	0,04	0,10	0,13	0,002	0,010	0,003	0,0002
0008	735457	0,140	0,190	0,81	0,011	0,005	0,09	0,03	0,08	0,14	0,001	0,010	0,002	0,0002
0008	735457	0,140	0,190	0,82	0,011	0,005	0,09	0,03	0,08	0,14	0,002	0,010	0,002	0,0002
0008	735456	0,140	0,190	0,81	0,011	0,005	0,09	0,03	0,08	0,14	0,001	0,010	0,002	0,0002
0008	735456	0,140	0,190	0,82	0,011	0,005	0,09	0,03	0,08	0,13	0,001	0,010	0,002	0,0002
0009	526035	0,130	0,200	0,82	0,009	0,002	0,10	0,04	0,11	0,18	0,001	0,010	0,001	0,0001

1. Formel: $CE_{IW} = C + (Mn/6) + ((Cr+Mo+V)/5) + ((Cu+Ni)/15) <= 0,40\%$

2. Formel: $CE_V = C + F^* \cdot (Mn/6) + (Si/24) + (Cu/15) + (Ni/20) + ((Cr+Mo+V+Nb)/5) + (5 \cdot B) <= 0,40$

3. Formel: $Mn/C >= 3/1$

4. Formel: $Cr + Cu + Mo + Ni + V <= 1,00\%$

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

Formelergebnisse / Formulas results / Résultats des formules

Pos.	Schmelzen-Nr.	1. Formel	2. Formel	3. Formel	4. Formel	Formel
Item	Heat No.	1. Formula	2. Formula	3. Formula	4. Formula	Formula
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule	Formule
0001	526034	0,337	0,318	5,286	0,472	
0001	526034	0,346	0,332	5,867	0,452	
0002	735251	0,347	0,334	5,933	0,452	
0002	735251	0,346	0,332	5,867	0,452	
0003	735325	0,317	0,287	6,231	0,382	
0003	735325	0,317	0,287	6,231	0,382	
0004	735452	0,310	0,281	6,308	0,331	
0004	735452	0,309	0,280	6,231	0,331	
0005	735264	0,347	0,334	5,933	0,452	
0005	735264	0,346	0,332	5,867	0,452	
0006	735361	0,334	0,312	5,714	0,532	
0006	735361	0,337	0,314	5,786	0,542	
0007	735198	0,320	0,301	5,786	0,372	
0007	735198	0,311	0,282	6,231	0,382	
0008	735457	0,314	0,296	5,786	0,341	
0008	735457	0,316	0,298	5,857	0,342	
0008	735546	0,314	0,296	5,786	0,341	
0008	735546	0,315	0,297	5,857	0,331	
0009	526035	0,314	0,285	6,308	0,431	
0009	526035	0,314	0,285	6,308	0,431	

Dokument-Nr.: 65-262679/001/P

Document No.: No. du document:

Prüf-Nr.:
 Inspection No.:
 No. du certificat:

Blatt: 5 / 9
 Page:
 Page:

Prüfergebnisse / Test results / Résultats des essais

Die Rohre sind auf Dichtheit geprüft durch:
 The tubes have been submitted to a leak tightness test by:
 Les tubes ont passé un contrôle d'étanchéité par:

Hydrostatic test: acc. to CSA Z245.1, holding time min 5 seconds, Test
 pressure/Time-record

PASSED

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICATE DE RECEPTION EN 10204-3.1

Prüf-Nr.: 65-262679/001/P
 Dokument-Nr.: 65-262679/001/P
 Document No.: No. du document:
 No. du certificat:

Blatt: 6 / 9
 Page:
 Page:

PASSED
 Augensichtskontrolle:
 Visual inspection:
 Examen visuel:

PASSED
 Flügelalversuch:
 Flattening test:
 Essai d'aplatissement:
 The sampling was carried out on multiple lengths.
 L'échantillonage était réalisé aux longueurs multiples.

PASSED
 Biegeversuch:
 Bending test:
 Essai de cintrage:
 POS. / Item / Poste: 0001, 0002, 0003, 0005, 0006,
 0009

PASSED
 Maßkontrolle:
 Dimensions examination:
 Vérification des dimensions:

PASSED
 Flügelalversuch:
 Flattening test:
 Essai d'aplatissement:
 The sampling was carried out on multiple lengths.
 L'échantillonage était réalisé aux longueurs multiples.

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'échantillonage était réalisé aux longueurs multiples.

Zugversuch / Tensile test / Essai de traction

Pos.	Proben-Nr.	Schmelzen-Nr.	Probennahmung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung		
							Area reduction	Re/Rm	Re/Rm
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Area reduction	Re/Rm	Re/Rm	Re/Rm
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Re/Rm	Re/Rm	Re/Rm
Anforderungen			mm	ReH	Rm	A2"	1. Formel		
Requirements			Exigences	PSI	PSI	%	1. Formula		
0001	000001	526034	25, 40 X 15, 20	46557	69183	44, 00	1. Formule		
0001	000002	526034	25, 40 X 15, 20	46702	69038	45, 00	1. Formule		
0002	000001	735251	25, 00 X 15, 10	46122	67733	46, 00	1. Formule		
0002	000002	735251	25, 00 X 15, 10	46847	68603	44, 00	1. Formule		
0002	000003	735251	25, 40 X 15, 20	46702	69473	44, 00	1. Formule		
0003	000001	735325	25, 40 X 17, 10	46267	67588	48, 00	1. Formule		
0003	000002	735325	25, 40 X 17, 10	46257	66862	47, 00	1. Formule		
0004	000001	735452	19, 00 X 8, 70	48008	67153	41, 00	1. Formule		
0004	000002	735452	19, 00 X 8, 70	47717	68748	40, 00	1. Formule		
0005	000001	735264	25, 40 X 11, 10	46122	67878	44, 00	1. Formule		
0005	000002	735264	25, 40 X 11, 10	46412	69328	45, 00	1. Formule		

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1
Zugversuch / Tensile test / Essai de traction

 Dokument-Nr.: 65-262679/001/P
 Document No.: No. du document:
 Prüf-Nr.:
 Inspection No.:
 No. du certificat:

 Blatt: 7 / 9
 Page:
 Page:

Pos. Requirements Exigences	Proben-Nr. Specimen No. No. de l'éprouvette	Schmelzen-Nr. Heat No. No. de l'éprouvette No. de coulée	Probenabmessung Specimen dimensions Dimensions de l'éprouve.	Streckgrenze Yield strength Limit d'élasticité	Zugfestigkeit Tensile strength Résistance à la traction	Dehnung Elongation Allongement	Einschnürung Area reduction Coefficient de striction			Re/Rm Re/Rm Re/Rm
							ReH	Rm	Einschnürung Area reduction Coefficient de striction	
							mm	PSI	MIN 30	
0006	000001	735361	25,40 X 13,50	49,023	69,618	46,00				
0006	000002	735361	25,40 X 13,50	49,313	69,473	47,00				
0007	000001	735198	19,00 X 3,80	57,580	70,343	35,00				
0007	000002	735198	19,00 X 3,80	57,435	71,214	36,00				
0008	000001	735457	19,00 X 5,50	50,908	69,473	44,00				
0008	000002	735457	19,00 X 5,50	49,748	68,313	34,00				
0008	000001	735546	19,00 X 5,50	50,763	69,038	43,00				
0008	000002	735546	19,00 X 5,50	50,908	68,168	39,00				
0009	000001	526035	25,40 X 5,50	51,053	69,908	41,00				
0009	000002	526035	25,40 X 5,50	50,908	69,908	39,00				

Härteprüfung / Hardness test / Essai de dureté

Pos. Requirements Exigences	Proben-Nr. Specimen No. No. de l'éprouvette	Schmelzen-Nr. Heat No. No. de coulée	Härte Hardness Dureté	HRC			HRB
				HB	HV	HRB	
				MAX 200			
0001	000001	526034		138			
0002	000001	735251			138		
0002	000002	735251			139		
0002	000003	735251			138		
0003	000001	735325			139		
0004	000001	735452			135		
0005	000001	735264			138		

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1
Härteprüfung / Hardness test / Essai de dureté

Pos.	Proben-Nr.	Schmelzen-Nr.	Härte	Dokument-Nr.: 65-262679/001/P			Prüf-Nr.: 65-262679/001/P
Item	Specimen No.	Heat No.	Hardness	Document No.: No. du document:			Inspection No.: No. du certificat:
Poste	No. de l'éprouv.	No. de coulée	Dureté				
Anforderungen				HRC	HB	HV	HRB
Requirements							
Exigences							
0006	0 00001	73 53 61	MAX 200				
0007	0 00001	73 51 98		147			
0008	0 00001	73 54 57			146		
0008	0 00001	73 55 46				135	
0009	0 00001	52 60 35				136	
						156	

Restmagnetismus / Demagnetize / Démagnétiser

residual magnetic field intensity max 3.5 millitesla

Pos.	Ihr Zeichen	Kundenmaterial	Kundenbestell-Nr.
Item	Your reference	Customer's Material No.	Purchase Order No.
Poste	Votre référence	No. de matière du client	No. de commande du client
0001		P.O. 9199589-00	05-5385
0002		P.O. 9199589-00	05-5385
0003		P.O. 9199589-00	05-5385
0004		P.O. 9199589-00	05-5385
0005		P.O. 9199589-00	05-5385
0006		P.O. 9199589-00	05-5385
0007		P.O. 9199589-00	05-5385
0008		P.O. 9199589-00	05-5385
0009		P.O. 9199589-00	05-5385

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 65-262679/001/P
Document No.: No. du document:
Inspection No.: No. du certificat:
Prüf-Nr.: No. du certificat:
Blatt: 9 / 9
Page: 9 / 9

Vermerk / Remark / Remarque

Pos. / Item / Poste: 001, 0005, 0009, 0006, 0003, 0002, 0003, 0002, 0006, 0002, 0009, 0005, 0003, 0006
NACE Standard: hardness acc. to NACE Standard MR0175 HRC max 22. The material meets the requirements of NACE
MR0103; Certificate remarks: This is to confirm that the seamless linepipe supplied by Benteler and verified
to CSA Standard Z245.1-02 meets the requirement for micro hardness of max. 248 HV 500.

Pos. / Item / Poste: 0004, 0007, 0007, 0008, 0008, 0007, 0007, 0008, 0007, 0008
NACE Standard: hardness acc. to NACE Standard MR0175 HRC max 22. The material meets the requirements of NACE
MR0103; Certificate remarks: This is to confirm that the seamless linepipe supplied by Benteler and verified
to CSA Standard Z245.1-02 meets the requirement for micro hardness of max. 248 HV 500.; Bend test: mandrel
diameter 12D, bending angle 90 degree

Beispiel Produktkennzeichnung / Attachment product marking / Sennheiser markiert die Produkte

Pos. Item	Produktkennzeichnung
	Produktkennzeichnung

卷之三

RENTAL ED 7245.1 COC 51-PSI 1 A/SA-106 SF R/Y 42/290 HEAT-NO TEST PRESSURE DIMENSIONS WEIGHT CLASS WA GERMANY

P.O. 9199589-00
0004, 0005, 0006, 0007, 0008, 0009

BENTELER Z 245.1, SPEC. 5L-PSL, AISA-106 SS 8/X42/290 HEAT-NO. 103 | PRESSURE DIMENSIONS SCHEDULE WA GERMANY

Mr. Cookbook Tel: 02261101 1281 Fax: 1280

Dinslaken, 07.04.2005, TEL: 02064.623.574 FAX: 02064.623.575

Abnahmbeauftragter Inspection representative

JAN FREERKS / SCHEF
Confidant

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig. 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.



V&M VALLOURC & MANNESMANN TUBES
 (A01) V&M FRANCE
 10600 Saint-Saulve
 Rue Galibert 21n°4 - BP 2
 59380 Saint-Saulve FRANCE
 Tel.: 03.77.23.13.01
 fax: 03.77.23.15.63

(A02)

MATERIAL TEST REPORT

ISO 9001

INSPECTION CERTIFICATE EN 10204 3.1.B

(A03)REF: 26-05-13806 2/3
 (A08)N°V&M: LA099305

(A04) V&M FRANCE
 10600 Saint-Saulve

Tel.: 03.77.23.13.01

fax: 03.77.23.15.63

(C00)	(B08)	(C03)	width	thick.	sect.	(C11)	(C12)	(C13)
Test	Heat					V.S.	T.S.	Elong. 2"
MIN.						42000	60000	
MAX.								
BDM537	313617	22.0	mm	mm	mm ²	psi	psi	%
		15.2		319.81	43524	67172		43

(C40-C02-C41)
 ROCKWELL CHARDNESS < OR = 22 GUARANTEED(C40-C42-C43)
 CHARPY V LONGITUDINAL IMPACT TEST

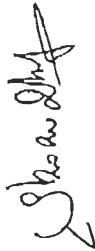
(C00)	(B08)	(C03)	width	height	sect.	E1	E2	E3	mean	shear1	shear2	shear3	shear4
Test	Heat												
MIN.						16	16	20	20	60	60	60	60
MAX.													
BDM537	313617	.51	10.00	10.00	0.80	129	124	138	120	85	80	65	77

(D01-D99)
 NONDESTRUCTIVE TESTS

test	test rate	specification	pressure	hold time	result
APPEARANCE & DIMENSIONS	100% LOT				OK
EDDY CURRENT TEST	100% LOT	CSA Z245.1			OK
HYDROSTATIC TEST	100% LOT		3000	5	OK

(C50-C51)
 TECHNOLOGICAL TESTS

test	result
FLATTENING TEST	OK

(A01)		MATERIAL TEST REPORT	
VALLOUREC & MANNESMANN TUBES		ISO 9001	
INSPECTION CERTIFICATE EN 10204 3.1.B		(A03) R&E: 76-05-138026 3 / 3 (A08) N°V&M: LA0993/05	
(A01)		(A02)	
 V&M VALLOUREC & MANNESMANN TUBES (A01) <i>Tables de St-Malo</i> rue du Général ZI n°4 - BP 2 59860 Sint-Servaas FRANCE (tel: 03.27.23.11.01) (fax: 03.27.23.11.63)		ISO 9001 (A03) 18/05/2005 <div style="border: 1px solid black; padding: 5px; display: inline-block;"> (A02) 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. </div> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> (A05) The authorized expert in Quality Control Section M. SKORUPKA  </div>	

HEAT NUMBER : 555932
 TRANS AM PIPING PRODUCTS - REV'D BY: *✓*
 Shipment/Seq #: S 5 - 1313 4

3" XXH LR 180 BW RETURN
 BENDS A234-WPB

Purchaser:
 需要者名

TRANS-AM PIPING
 PRODUCTS LTD.

BENEX No. Order No.
 番号 訂文番号

90-5559-32 CI-04-542

Product & Size
 品名 及び寸法

Specification for Inspection
 檢査規格

Visual Examination
 外観検査

Dimensional Inspection
 尺寸検査

Date: 日付
 M D Y
 年 月 日

DIN 50049/3.18
 TO EN 10204/3.18

Certificate No.
 認証番号

QC1: *Muse* DATE: 03/01/06
 管理部
 質量保証課
 Manager of Quality Assurance Section

INSPECTION CERTIFICATE 檢査証明書

BENKAN Benex Corporation 株式会社 ベネックス

KIRYU FACTORY 651 2-CHOME AIKI CHO 群馬県桐生市相生町2-651
 TEL (0277) 54-8146

KIRYU CITY GUNMA PREF. JAPAN 月 日 年

MAY 27, 2005 1290555932

MFG No. (Heat Identification No.) 製造番号	Specification for Material 材料規格	Specification for Inspection 検査規格	Visual Examination 外観検査	Dimensional Inspection 寸法検査
555932	SEAMLESS 180E(L) WPB 3 XXS Material Manufacturer 素材供給メーカー	Material Heat No. 製鋼番号	Product & Size 品名 及び寸法	Quantity 数量

NACE MR-01-75
(LATEST)

HARDNESS TEST
H.B.197MAX.

GOOD

Specification 規定値	Chemical Composition						*2 Tension Test								
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	CB	CEO*	YS	TS	E
× 100	×	×	×	×	×	×	×	×	×	×	X	XXXX	XXXXX	XXXX	%
Min.	10	29									100	1000	1000	1000	MPa
Max.	30	106	50	58	40	40	15	40	8	20	240	415	30		
	20	19	73	13	3	2	3	1	1	0	33	297	476	41	

MADE FROM SEAMLESS PIPE
 *CEO = C + MN/6 + (CR+MO+V)/5 + (NI+CU)/15

CARBON CONTENT : 0.23% MAX.
 HOT FORMED WITH FINAL TEMPERATURE
 BETWEEN 780°C AND 980°C. AIR COOLING.

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.

上記文品は御指定の規格を満足して製造され、その要求事項を満足していることを証明します。

* 1: The symbol "T" after wall thickness means mm as unit. 壁厚の後に示す "T" は mm 単位を意味します。

* 2: YS = Yield strength 耐引張り強さ TS = Tensile strength 引張り強さ E = Elongation 伸び

2004 EDITION
 SECTION II PART A

QC1: *Muse* DATE: 03/01/06
 管理部
 質量保証課
 Manager of Quality Assurance Section

Shimada

Trametal s.p.a.

Certificato di Collaudo/Inspection Certificate/Abnahmeprüfzeugnis EN 10204 3.1.B/Din 50049 3.1.B

Cliente/Customer/Kunde/Client

EDMONTON STEEL PLATE
Lamiere/Plates/Bleche/Toiles

SA516GR70N

STABILIMENTO: 33056 S. GIORGIO DI NOGARO (UD)
VIA E' FERMI, 44 - TEL. 0437/629889 (RIC. AUT.)
TELEFAX: 0437/629885 (RIC. AUT.)
SEDE LEGALE: 16121 GENOVA - VIA XII OTTOBRE, 2, 14° piano
CAP SOC. Eur. 10.320.000,00 I.V. - C.C.I.A.A. N.R.E.A. GE312155
P.IVA IT 11827130151 - C.F./R.I. 03026980106

Certificato/Certificate/Abnahmeprüfzeugnis/Certificat d'essai

104494 1-1 del 28/04/2005

Bozza 20504939 Del 08/04/2005

(1) G. allo stato naturale / in as rolled condition / im Walzstand ohne l'additif de laminage

(2) C: Cuone/Corne sample/Kantenscheibe/Pièce
P: Piatta/Plated surface/Mitplatte/face/Peau
D: Diversa/Diverse/Andere/autres

(3) 1= Test/Tropf/Kropf/émission
2=Find/Brechen/Fissure/émission

(4) C: Cuone/Corne sample/Kantenscheibe/Pièce
P: Piatta/Plated surface/Mitplatte/face/Peau
D: Diversa/Diverse/Andere/autres

(5) E=Electrolytic/Electrolytische/Electrique
L=Longitudinal/Longitudinale/Longitudinal
C=Continua/continuo/continuus
S=Sottocorti/Thickness/Dicke/épaisseur

Analisi Chimica di Colata / Chemical Analysis (heat) / Analyse Chimique

Colata	C	Mn	Si	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	Ti	B	Sn	C.Eq.
3S8381	0,2	1,08	0,28	0,007	0,002	0,01	0,04	0,03	0	0,031	0	0	0	0,028	0	0,373
3S8554	0,2	1,08	0,3	0,008	0,002	0,01	0,04	0,03	0	0,037	0	0	0	0,034	0	0,384
PS8690	0,2	1,04	0,3	0,017	0,004	0,06	0,02	0,05	0	0,03	0	0	0	0,033	0	0,375

Analisi Chimica di Prodotto / Product Analysis / Stuckanalyse / Analyse sur produit

Colata	C	Mn	Si	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	Ti	B	Sn	C.Eq.
3S8381	0,19	1,04	0,28	0,007	0,002	0,01	0,04	0,03	0	0,031	0	0	0	0,028	0	0,373
3S8554	0,19	1,06	0,3	0,008	0,002	0,01	0,04	0,03	0	0,037	0	0	0	0,034	0	0,384
PS8690	0,19	1,04	0,3	0,017	0,004	0,06	0,02	0,05	0	0,03	0	0	0	0,033	0	0,375

Analisi Chimica di Prodotto / Product Analysis / Stuckanalyse / Analyse sur produit

N° Lamiera/Plate/Blech/Toile	Lotto	N° Prova Versuchsn° Test N° D'essai	Dimensioni/Size/Größe/Dimension	(2)	(4)	(5)	Temp °C	ReH psi	Rm psi	A 2% %	Temp °F	Rp 02 psi	Z%	Piegatipo Form	Resilienza/Impact test/Kerbbruchzähigkeit/Traction (4)	KV ft/lbf	Media Average Mittelwerte Moyenne				
					(4)	(5)															
PS8690/07/01A	80289	MV98-2005	0,38x96x480	2	D	CC	+20	53,7	78,1	39				KV	L	-50	D	70	58	61	63,000
PS8690/07/02A	80289	0,38x96x480	2	D	CC	+20	53,7	78,1	39				KV	L	-50	D	70	58	61	63,000	
PS8690/07/04A	80289	0,38x96x480	2	D	CC	+20	53,7	78,1	39				KV	L	-50	D	70	58	61	63,000	
PS8690/01/08A	80289	0,38x96x480	2	D	CC	+20	53,7	78,1	39				KV	L	-50	D	70	58	61	63,000	
PS8690/03/05A	80289	0,38x96x480	2	D	CC	+20	53,7	78,1	39				KV	L	-50	D	70	58	61	63,000	
3S8381/07/04A	72938	MV99-2005	0,50x96x480	2	D	CC	+20	52,5	75,7	42				KV	L	-50	D	68	75	77	73,333
3S8381/07/05A	72938	0,50x96x480	2	D	CC	+20	52,5	75,7	42				KV	L	-50	D	68	75	77	73,333	
3S8381/06/02A	72938	0,63x96x480	2	D	CC	+20	51,5	74,7	41				KV	L	-50	D	57	57	65	59,667	
3S8554/07/03A	76238	MW02-2005	1,13x96x480	2	D	CC	+20	49,6	74,5	42				KV	L	-50	D	51	68	73	64,000

CERTIFICHIAMO che le lamiere elencate sono conformi alla prescrizione dell'ordine, che i controlli della marcaura, dell'aspetto superficiale e dimensionale hanno dato esito positivo.

WE CERTIFY that the above mentioned are consistent with the order prescriptions, marking, inspection and measurement without objection.

WIR BESTÄTIGEN, dass oben genannte Erzeugnisse den Bestellvorschriften entsprechen; Markierung, Oberfläche und Abmessung ohne Objection.

NOUS CERTIFIONS que les produits énumérés ci dessus sont conformes aux prescriptions de la commande, contrôle de la marque, d'aspects et de dimensions sans objection.

ACCORDING TO ASME II PART A ED. 2001 + ADD. 2003. FULLY KILLED, FINE GRAIN STEEL. NORMALIZING AT 910°C, 50 MIN/INCH. STILL AIR.

IL CAPO SERVIZIO COLLAUDI
Chief Inspection Dpt.
Oberwachungsleiter
Le responsable des CONTRÔLES QUALITÉ

CONFORMS
ASME
2004 EDITION
SECTION II PART A

QC1: *Uscita* DATE: *03/01/06*

