



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>
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8.1	Contract Review
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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 "L. Chan".

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

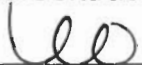
RESPONSIBLE FOR QUALITY SYSTEM FUNCTIONS	OWNER	TARA OILFIELD SERVICES LTD.
Materials Receiving Inspection, Identification and Traceability	No	Yes
Welding Control	No	Yes
Heat Treatment Control	No	Yes
NDE Control	No	Yes
Pressure Test Control	No	Yes
Preparing and Retention of Quality Control Records	No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

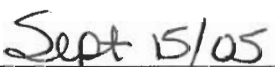

Date

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)				
Item No.	Description	Mat'l Spec. & Grade	Sch./ Rating	(Use for recording RT No's. & Welder Symbols)				
				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: 

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-BDL5 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>Leo 09/25</u>		<u>Dean</u> NOV 04 2005
2) Drawings Submitted to ABSA & CRN Number Issued	<u>Leo 12/19/05</u>	<u>T5045.2</u>	* <u>[Signature]</u> FEB 28 2006
3) ABSA Safety Codes Officer Notified	<u>Leo 11/04</u>		
4) Welding Procedure Approved	<u>Leo</u> ✓		
5) Welding Personnel Qualified	<u>Leo</u> ✓		
6) Materials & Mtr's Checked	<u>Leo 10/15</u>		* <u>[Signature]</u> FEB 28 2006
7) Visual Weld Inspection	<u>Leo 10/30</u>		* <u>[Signature]</u> FEB 28 2006
8) Radiography & Other NDE	<u>Leo 10/30</u>		* <u>[Signature]</u> FEB 28 2006
9) Postweld Heat Treatment	<u>Leo 02/27/06</u>		* <u>[Signature]</u> FEB 28 2006
10) NDE & Heat Treatment Recorded	<u>Leo 10/19/05</u>		
11) Non Conformances Cleared	✓		
12) Deficiencies Cleared	✓		
13) Hydrostatic Test Gauges Checked	<u>Leo 02/28/06</u>	<u>W901 W952</u>	
14) Hydrostatic Test Complete <u>7500 psi</u>	<u>Leo 03/01</u>		* <u>[Signature]</u> MAR 01 2006
15) Manufacturers Data Report AB-28 Complete	<u>Leo 03/01</u>		* <u>[Signature]</u> MAR 01 2006
16) Name Plate Stamped and Attached to Correct Heater Coil	<u>Leo 03/01</u>		* <u>[Signature]</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
Date

[Signature]
Signature of Quality Control Manager



the pressure equipment safety authority

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

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

[x] Code of Construction, 2004 ASME B31.3 Process Piping

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

[x] Loadings per UG22 have been considered.

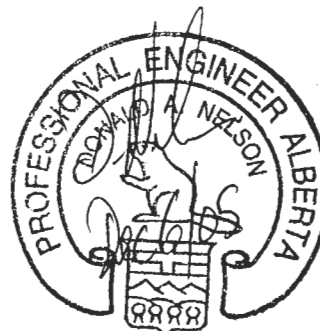
Calc #	Calc Rev #	# of Pages in this Calc	Calc Release Date	Drawing #	Dwg Rev #	Designed By (initial & Date)
2005-302	0	4	Dec 6 2005	05-129-BDLS-1	1	DA Dec 6 2005

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	1.315 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
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Area Available in Branch Wall	A3	0.1270	in ²
-------------------------------	----	--------	-----------------

Area Available in Branch Weld	A4	0.1250	in ²
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Total Area Available (A2+A3+A4+A4+A4)		0.3445	in ²
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Estimated MAWP of Assembly		5096.97	psig
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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

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

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

Hpht = 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

$B_{pnc} = (0.3580 * 0.875) * 2 * 20000 * 1.000 /$
 $(1.315 - 2 * (0.358 * 0.875) * 0.40)$
 $B_{pnc} = 11771.892 \text{ psig M.A.W.P., New \& Cold, branch}$

$B_{pht} = (1.5 * B_{po} * S_{bcold} / S_b)$
 $B_{pht} = (1.5 * 9000.36 * 20000) / 20000$
 $B_{pht} = 13500.541 \text{ psig Hydrotest Pressure, branch}$

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

$L_4 = \text{The minimum of } (L_{4th}, L_{4tb})$
 $L_4 = \text{Minimum}(1.156, 0.627)$
 $L_4 = 0.627 \text{ in. Height of reinforcement zone}$

$d_1 = (D_b - 2 * (T_b * B_{mtr} - c)) / \sin(\beta)$
 $d_1 = (1.32 - 2 * (0.3580 * 0.88 - 0.0625)) / \sin(90.0)$
 $d_1 = 0.813 \text{ in. Effective Length removed from pipe}$

$d_{2d2} = (T_b * B_{mtr} - c) + (T_h * B_{mtr} - c) + (d_1 / 2)$
 $d_{2d2} = (0.358 * 0.875 - 0.0625) + (0.600 * 0.875 - 0.0625) +$
 $(0.813 / 2)$
 $d_{2d2} = 1.120 \text{ in. Candidate for } d_2 \text{ based on } T_b + T_h$

$d_2 = \text{The Min of } (\text{The Max of } (d_1, d_{2d2}), D_b)$
 $d_2 = \text{Min}(\text{Max}(0.813, 1.120), 3.500)$
 $d_2 = 1.120 \text{ in. Half length of reinforcement zone}$

$A_1 = (t_h * d_1 * (2 - \sin(\alpha)))$
 $A_1 = (0.398 * 0.813 * (2 - \sin(90.0)))$
 $A_1 = 0.324 \text{ in}^2 \text{ Area required to be replaced}$

$A_2 = (2 * d_2 - d_1) * (T_h * H_{mtr} - t_h - c)$
 $A_2 = (2 * 1.120 - 0.813) * (0.600 * 0.875 - 0.398 - 0.063)$
 $A_2 = 0.092 \text{ in}^2 \text{ Area available in header}$

$A_3 = (2 * L_4 * (T_b * B_{mtr} - t_b - c)) / \sin(\alpha)$
 $A_3 = (2 * 0.627 * (0.358 * 0.8750 - 0.149 - 0.063)) / \sin(90.0)$
 $A_3 = 0.127 \text{ in}^2 \text{ Area available in branch}$

$A_4 = (\text{Min}(0.7 * T_b, \text{Minthk}) / 0.707) ** 2$
 $A_4 = (\text{Min}(0.7 * 0.358, 0.250) / 0.707) ** 2$
 $A_4 = 0.125 \text{ in}^2 \text{ Area available in branch weld}$

Welders Name (File Number)	Symbol	T.O.S. Proc. #	Process/ Method	Base Metals	"F" #	Backing	Min. O.D.	Deposit Thickness	Pos.	Uphill/ Downhill	Cored/ Solid	Insert	Backing Gas	GTAW Current	GMAW X-Fer	Expiry Date
Doug Weigum (W-4123)	D	TOS-1&2	SMAW	P1	3	Optional	1.0"	.188"	All	Uphill	N/A	N/A	N/A	N/A	N/A	10/01/2006
			Manual	P1	4			.684"								
Nicholas Vogel (W-21228)	U	TOS-1&2	SMAW	P1	3	Yes	25mm	6.35mm	All	Uphill	N/A	N/A	N/A	N/A	N/A	05/13/2007
			Manual	P1	4	No		15.65mm								
Ryan Zimmer (W-22692)	T	TOS-1&2	SMAW	P1	3	Yes	25mm	6.35mm	All	Uphill	N/A	N/A	N/A	N/A	N/A	07/22/2007
			Manual	P1	4	No		15.65mm								
	M	TOS-1&2	SMAW	P1	3	Yes	2.5"	6mm	All	Uphill	N/A	N/A	N/A	N/A	N/A	07/22/2007
			Manual	P11	4	No		16mm								
George Gannon (W-14190)	M	TOS-1&2	SMAW	P1	3	Optional	1.0"	.188"	All	Uphill	N/A	N/A	N/A	N/A	N/A	08/07/2007
			Manual	P1	4			.684"								
	M		SAW	P1	6	With	N/A	Max.	Flat	N/A	N/A	N/A	N/A	N/A	N/A	05/27/2007
			Manual													
	M		GMAW	P1	6	Optional	2.875"	.110"	0-45,F	Downhill	N/A	N/A	NO	N/A	SC	05/24/2007
			SMAW		4			Max.	F, V	Uphill						
	M		GMAW	P1	6	Optional	1.0"	.100"	0-45,F	Downhill	N/A	N/A	NO	N/A	SC	05/25/2007
			FCAW			With		.672"	F, V	N/A						
	S	TOS-1&2	SMAW	P1	3	Optional	1.0"	.188"	All	Uphill	N/A	N/A	N/A	N/A	N/A	
			Manual	P1	4			.684"								
	S		SAW	P1	6	With	N/A	Max.	Flat	N/A	N/A	N/A	N/A	N/A	N/A	05/27/2007
			Manual													
	S		GMAW	P1	6	Optional	1.0"	.100"	0-45,F	Downhill	N/A	N/A	NO	N/A	SC	05/25/2007
			FCAW			With		.672"	F, V	N/A						
	S		GTAW	P1	6	Optional	1.0"	.188"	Flat	N/A	N/A	N/A	N/A	N/A	N/A	05/03/2007
			SMAW	4130				.672"								
Martin Sheridan (W-17163)	S		GTAW	P8	5	Optional	1.0"	0.2"	Flat	N/A	N/A	N/A	N/A	N/A	N/A	07/27/2007
			SMAW			With		.488"	1G							



TARA OILFIELD SERVICES LTD.

P.O. Box 99, Didsbury, Alberta T0M 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 2081.2
 Spec No. TOS-2
 Weld Process SMAW
 Matl. 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 P.W.H.T. YES
CVN-46°C

01 Mo. 2 Day 25 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, appointed 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 absence 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

RADIOGRAPHIC TESTING REPORT

R/PL - 54730



CANSPEC

CLIENT

ATTENTION

ADDRESS

TARA PROJECTS

MARTY SHERIDAN

DIDSBURY

CONTRACTOR

CANSPEC JOB #

PO/WO #

PROCEDURE #

ACCEPTANCE

STANDARD

DATE

MATERIAL TYPE

FILM BRAND

RADIATION SOURCE

KV

PROJECT

WORK LOCATION

316-0013226

3172

RT 0016

ASME B31.3 SC

FOCAL SPOT

Legend 1. Accept 2. Moderate 3. Reject Walker Symbol

	IDENTIFICATION	PIPE DIA.	PIPE SCH	FILM TYPE	REIN.	TECH #	SOD (D)	OFD (I)	# OF EXP	C R K	L F	I P	S U C R P	DEFECT LOCATION & REMARKS	ACC	REJ
1	X-16	3"	XXH D4	125	3	3.4"	1.600	4						D	✓	
2	X-17														✓	
3	X-18														✓	
4	X-19														✓	
5	X-20														✓	
6	X-21														✓	
7	X-22														✓	
8	X-23														✓	
9	X-24														✓	
10	X-25														✓	
11	X-26														✓	
12	X-27														✓	
13	X-28														✓	
14																
15																
16																
17																
18																
19																
20																

SIGNATURES

CLIENT

REPRESENTATIVE

PRINT

TECHNICIAN (SIGN)

PRINT NAME:

CGSB LEVEL

SNT LEVEL

2

3

CEDO / GCSB LEVEL

SNT LEVEL

1" TECHNICIAN

2" TECHNICIAN

SIGNATURE

REFER TO OPPOSITE SIDE FOR SCOPE OF SERVICES AND STANDARD OF CARE

CHARGES

DIA

WELDS

VEHICLE #

DAILY KMS

ENVIRO FEE

3"

X

13

ST HRS

AM

DT HRS

374

X

13

START TIME

PM

SHIFT PREM

3"

X

13

LOA

CAMP - CLIENT

CAMP - CANSPEC

3"

X

13

OF MEN

CAMP COST

PER MAN DAY

3"

X

13

OTHER

DAILY COST REPORT #

OTHER

3"

X

13

RATE SHEET

LOCATION

PH. #

3"

X

13

CAMP CONTRACTOR

NAME

Blue - Film Copy

3"

X

13

CAMP CONTRACTOR

NAME

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RADIOGRAPHIC TESTING REPORT

R/PL - 54729

PAGE 141105 OF 2

AGFA 44

IR 192 ☐ Co 60 ☐ X-RAY

62 CR

2.7 X 2.7 (MM) IN

CONTRACTOR	DATE
CANSPEC JOB #	MATERIAL TYPE
PO#	FILM BRAND
PROCEDURE #	RADIATION SOURCE
ACCEPTANCE	FOCAL SPOT
STANDARD	

ASPH	B31.3 SC	FOCAL SPOT

Legend 1. Accept 2. Moderate 3. Reject * Welder Symbol

[illegible]

SIGNATURES

CLIENT
REPRESENTATIVE

Warren Torgert

[Signature]

SIGNATURE

TECHNICIAN (SIGN) Timothy [Signature] 1ST TECHNICIAN
PRINT NAME: T. G. Roberts

GSS LEVEL	<u>2</u>	#	<u>1270</u>	CEDO / GGSB LEVEL	_____	#	_____
SNT LEVEL	<u>3</u>	#	_____	SNT LEVEL	_____	#	_____

CHARGES

DATE	D/A.	# WELDS	VEHICLE #	START TIME	AM	DAILY KMS
3/4	3	15				374
		X	ST HRS			OT HRS
		X				
		X	LOA			CAMP - CLIENT
		X	# OF MEN			CAMP CO.
		X	OTHER			
QUOTE #						RATE SHEET

CAMP CONTRACTOR	NAME	LOCATION
-----------------	------	----------

PH #

White - Client Copy

Green - Satellite Office

Canary - Canspec Office Copy

Pink - Canspec Office Copy

Blue - Film Copy

Furnace Work Order

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

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

Client Reference:
Furnace: 2

P.O. : Leo

Attention: MARTY SHERIDAN
Furnace Load: CF06-6213

Description	Quantity
Coil	1
Spools	5

Total Overtime Hours = 0 @ \$.00

Per Hour = \$.00
Furnace Charges: \$600.00
Other Charges(s): \$.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 to at per Hour max.
From 425° 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 BRUEAU OF STANDARDS IN WASHINGTON, D.C.

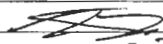
KINGSWAY SCIENTIFIC & IND. INSTR. INC.

CALIBRATED BY:

SIGNATURE:

CONTINENTAL STRESS RELIEVING SERVICES LTD.
Telephone: (403) 273-5105

Date: February 24, 2006
Client: Tara Oilfield Services
Owning Co.: N/A
Chart Speed: 30 Lines/Hour
Material: As Per Customer Specifications
Procedure: PWHT
Furnace Load #: CF06-6213
Client Job #: _____
P.O. #: Leo
Comments: 1-Coil
5-Spools

Operator Name: Aaron Thompson
Operator Signature: 
Temperature in °C: ☒ Recorder #: R 29.

JOB # 05-129C
LINE HEATER BUNDLES
AND SPOOLS

End the Soak

Start the Soak



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

Ph. 343-2822, Fax: 347-1470
Email: info@kingmeter.com
Web: www.kingmeter.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.: W 952

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

TEST GAUGE READINGS

GAUGE READINGS

1000 PSI	1000 PSI
2000 "	2000 "
3000 "	3000 "
4000 "	4000 "
5000 "	5000 "
6000 "	6000 "
7000 "	7000 "
8000 "	8000 "
9000 "	9000 "
10,000 "	10,000 "

TECHNICIAN: [Signature]

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@kingmeter.com
Web: www.kingmeter.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" Wika 10,000 / 68,000

GAUGE NO.: WX01

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

TEST GAUGE READINGS

GAUGE READINGS

1000 PSI	1000 PSI
2000 "	2000 "
3000 "	3000 "
4000 "	4000 "
5000 "	5000 "
6000 "	6000 "
7000 "	7000 "
8000 "	8000 "
9000 "	9000 "
10000 "	10000 "

TECHNICIAN: [Signature]

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

Rev. 1.0
11 OCT 02

EXHIBIT # 17.3

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	N/A
					2006

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	Thickness	Ends		No	Openings		
			Mat'l Spec.		Mat'l Spec.	Thickness		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 [Signature]

(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 [Signature]

ALTA #58

W
HT
RT1



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

MANUF. SER. NO: 05-129C

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 621°C - 60 MIN.</u>

A537501

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.

Nicole
(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)

In accordance with the provisions of the Safety Codes Act

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

Complete both sides of this Form

1. Constructed By: TARA Oilfield Services Ltd. Owner's Job No: 05-129C
 (Name of ABSA authorized primary contractor or subcontractor)
P.O. Box 1389 Didsbury, AB T0M 0W0
 (Address)

Alberta Quality Program No. AQP-1434

2. Constructed For: Canadian Sub-Surface Energy Services.
(Name of primary contractor if different from above)
600#, 205 - 8th Avenue S.W. Calgary. Alberta
(Address)

Alberta Quality Program No. AQP- N/A **Expiry Date:** N/A
(Required when the primary contractor undertakes some/all of the quality functions, e.g., Mat'l supply, NDE, PWHT, Tie-in, fabrication, hydro test, final assembly etc.)

3. Owner: Canadian Sub-Surface Energy Services
(Name and address)

Portable

(Location of installation)

Alberta Quality Program No. AQP- N/A **Expiry Date:** N/A
(Required when the owner undertakes some/all of the quality functions, e.g., Mat'l supply, NDE, PWHT, Tie-in, fabrication, hydro test, final assembly etc.)

4. Piping Design Alberta Registration No.: PP- N/A

5. WP No.: WP-2081.2 ; Company: TARA Oilfield Services Ltd. ; Owner's WP No. (If used): WP-N/A
(Alberta Registration No.) (Alberta Registration No.)
WPS No(s). used: TOS-2 ; Owner's WPS No(s). (If used): N/A

6. Code: **ASME B31.1** Non Boiler External Piping ☐; **ASME B31.1** Boiler External Piping ☐;
ASME B31.3 ☒ - Service category: Normal ☐, D ☐, M ☐, High Pressure ☒; **B31.5** ☐; **B31.9** ☐.

[illegible]

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

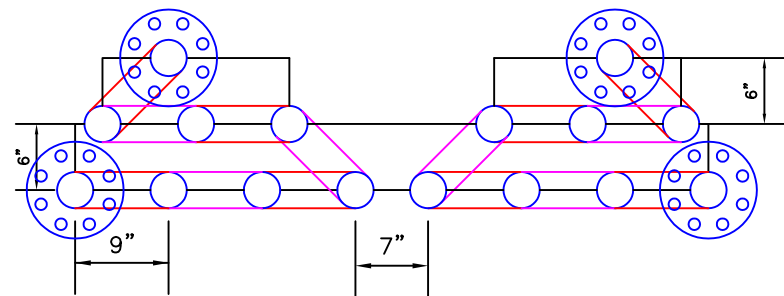
knowledge and belief, the Contractor has constructed this piping in accordance with the applicable Sections of the ASME Piping Codes and Province of Alberta Safety Codes Act and Regulations.

Date: _____ Date: _____

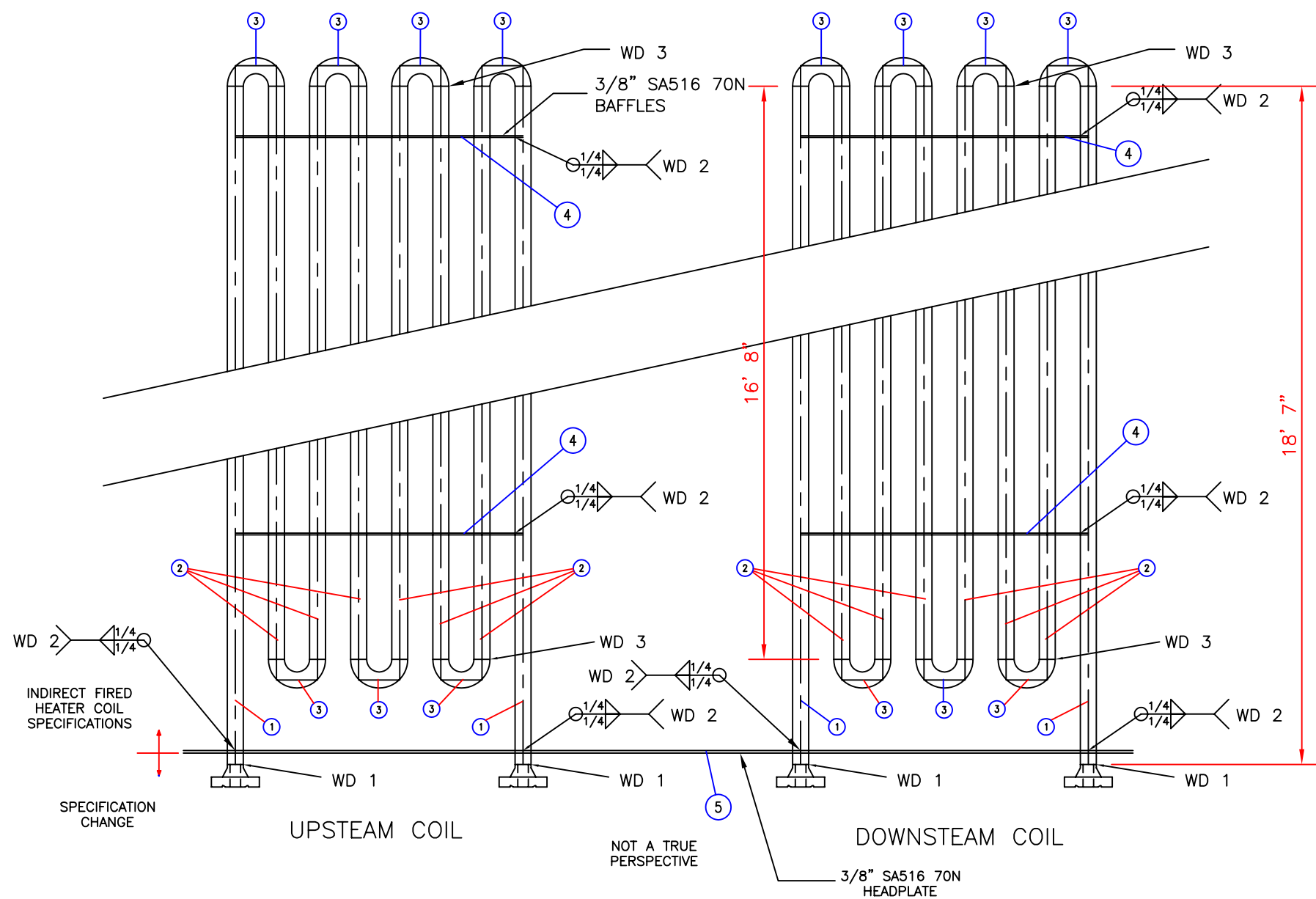
Print Owner's Inspector's Name Owner's Inspector's Signature

Name: _____ Sign.: _____

ABSA Safety Codes Officer
(BOILER EXTERNAL PIPING ONLY)



ORIENTATION VIEW



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 m3
B31.3 SERVICE CATEGORY: NORMAL SERVICE	
N.D.E.: FULL RADIOGRAPHY IN ACCORDANCE TO SEVERE CYCLIC	
HYDROTEST PRESSURE: 7500 PSI. (51,710kPa)	HOLD TIME: 30 min.
HYDROTEST MEDIUM: H2O @ 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 WITHOUT BACKING R = 1/8" (+/- 1/8") α = 75° (+/- 15°) h = 1/16" (+/- 1/16")	WD 2 1/4"	WD 3 WITHOUT BACKING R = 1/8" (+/- 1/8") α = 75° (+/- 15°) 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
PHONE: 403-335-9158 FAX: 403-335-3404

LINE HEATER BUNDLES

LINE HEATER 129C

TARA JOB#: 05-129C

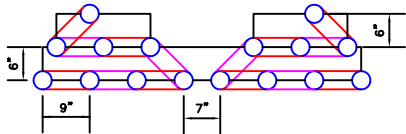
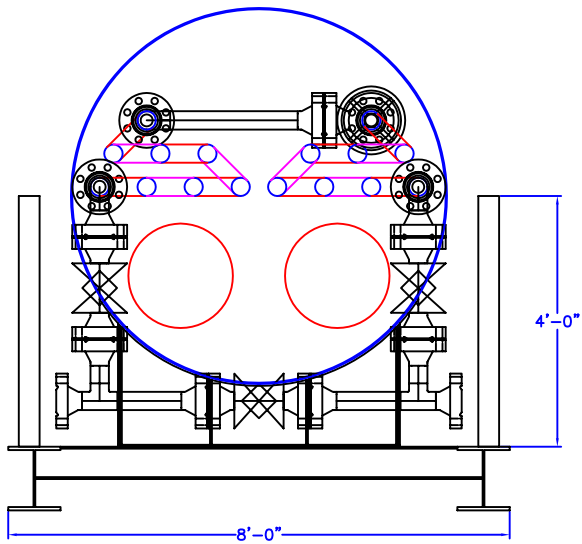
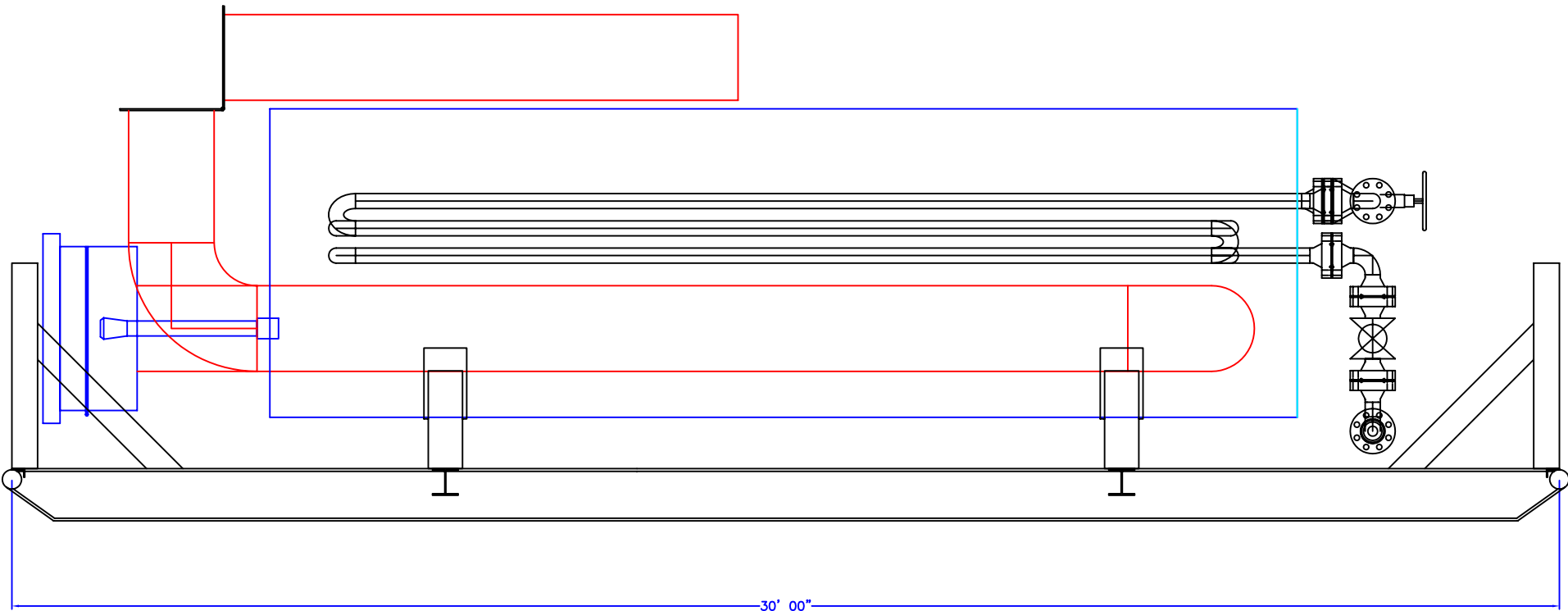
UNIT: LH-02

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

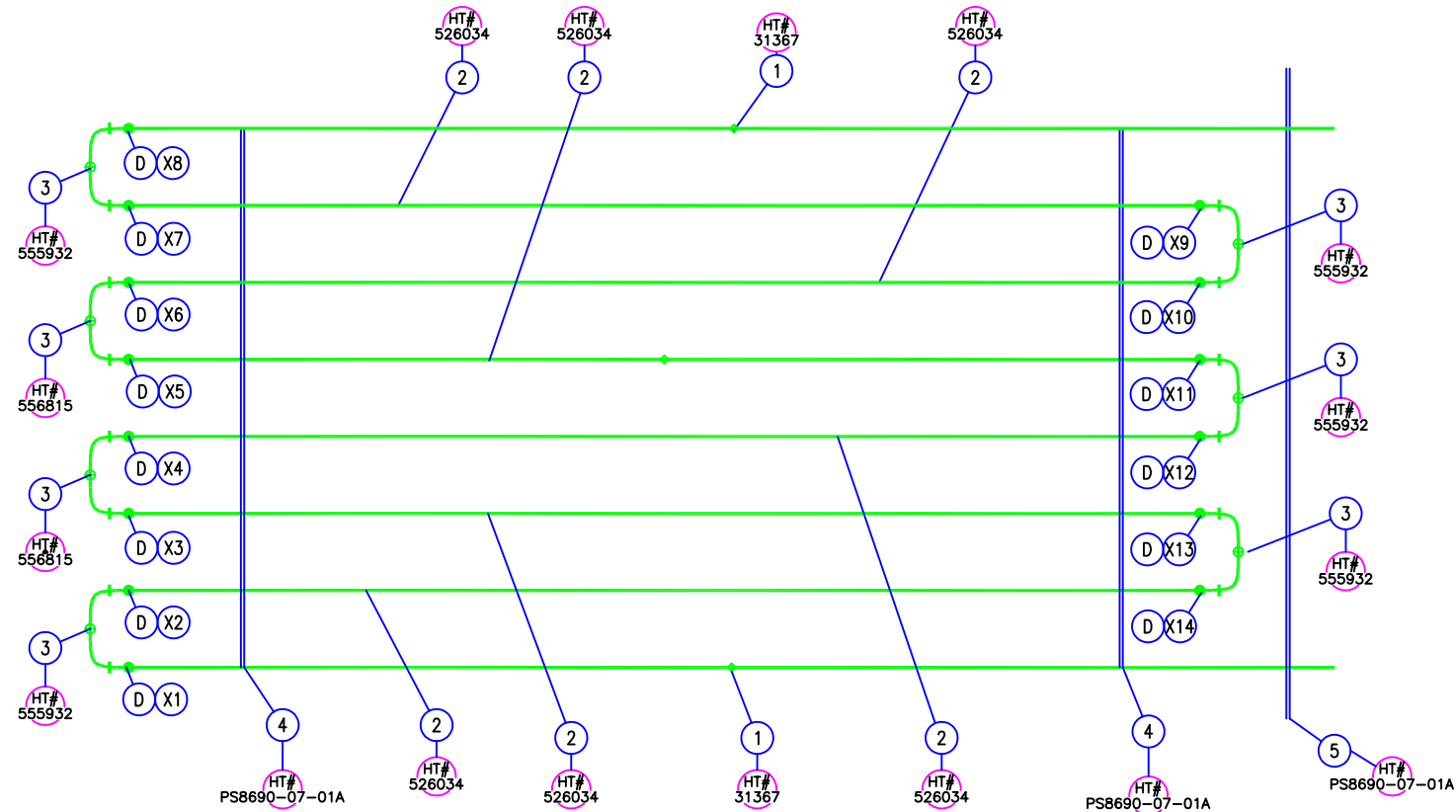
- GENERAL NOTES:
1. QUALITY CONTROL NUMBER: AQP. 1434
 2. WELDING PROCEDURE REGISTRATION NUMBER: WP 2081.2
 3. BAFFLE AND HEAD MATERIAL: SA 516-70N
 4. ALL FITTINGS USED ARE REGISTERED WITH ABSA.
 5. MEASUREMENT TOLERANCES ARE 1/16" (UNLESS SPECIFIED OTHERWISE)
 6. ALL TACK WELDS WILL BE WELD PROCEDURE 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 m3
B31.3 SERVICE CATEGORY : NORMAL SERVICE	
N.D.E. : FULL RADIOGRAPHY IN ACCORDANCE TO SEVERE CYCLIC	
HYDROTEST PRESSURE : 7500 PSI. (51,710kPa)	HOLD TIME : 30 min.
HYDROTEST MEDIUM : H2O @ 50°F	
P.W.H.T. TEMP. : 621°C	HOLD TIME : 60 min.
WPS# : TOS-2	

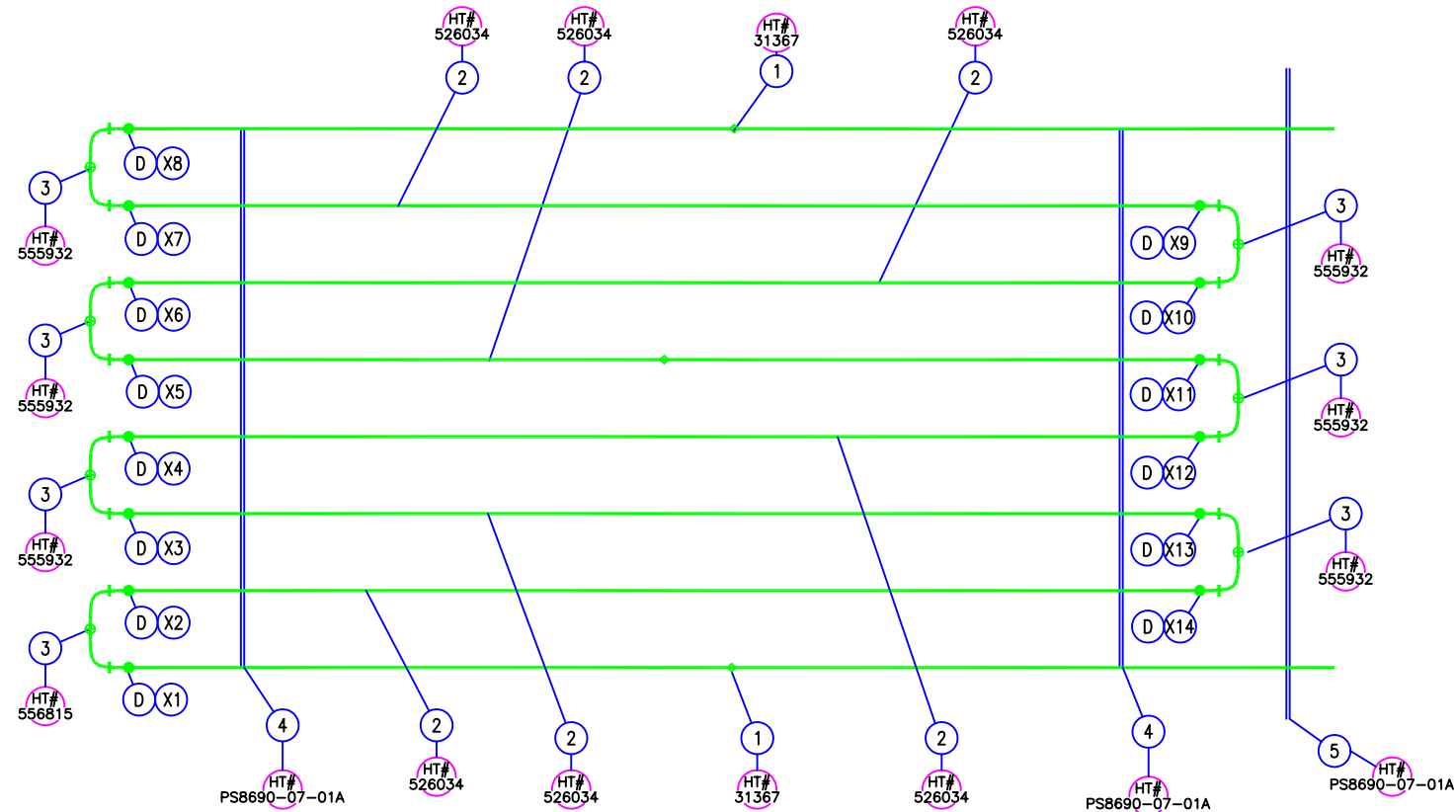
FLGs TO NOZZLE	ATTACHMENT WELD	FTGs TO PIPE
WD 1 WITHOUT BACKING R = 1/8" (+/- 1/8") a = 75° (+/- 15°) h = 1/16" (+/- 1/16")	WD 2 WITHOUT BACKING R = 1/8" (+/- 1/8") a = 75° (+/- 15°) h = 1/16" (+/- 1/16")	WD 3 WITHOUT BACKING R = 1/8" (+/- 1/8") a = 75° (+/- 15°) h = 1/16" (+/- 1/16")

-	---	---	-
-	-	-	-
-	---	---	-
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#: 05-129C	UNIT: LH-03	DWG #: 05-129C-BDLS-2	DWG. BY: L. DUSSAULT
		DATE: 10/07/05	REV: 0



DOWNSTREAM COIL (1B)



UPSTREAM COIL (1A)

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 m3

B31.3 SERVICE CATEGORY: NORMAL SERVICE

N.D.E.: FULL RADIOGRAPHY IN ACCORDANCE TO SEVERE CYCLIC

HYDROTEST PRESSURE: 7500 PSI. (51,710kPa)

HOLD TIME: 30 min.

HYDROTEST MEDIUM: H2O @ 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 WITHOUT BACKING $R = 1/8" (+/- 1/8")$ $a = 75' (+/- 15')$ $h = 1/16" (+/- 1/16")$	WD 2 WITHOUT BACKING $R = 1/8" (+/- 1/8")$ $a = 75' (+/- 15')$ $h = 1/16" (+/- 1/16")$	WD 3 WITHOUT BACKING $R = 1/8" (+/- 1/8")$ $a = 75' (+/- 15')$ $h = 1/16" (+/- 1/16")$

1	ADDED HT NUMBERS & RADIOGRAPHY	02/15/06	LD
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	
--	--

HEAT NUMBERS & RADIOGRAPHY			-		
LINE HEATER 129C			-		
TARA JOB#: 05-129C	UNIT: LH-03	DWG #: 05-129C-RDLS-3	DWG. BY: L. DUSSAULT	DATE: 10/07/05	REV: 1

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 10204:2005-01

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

Kunden-Bestell-Nr.: 05-5385
Purchase Order No.:
No. de commande du client:

Benteler Stahl/Rohr GmbH - Postfach 1340 - 30043 Paderborn - Deutschland
Westlind - Edmonton
5105 - 75th Street
EDMONTON, AB T6E 5S5
KANADA

Hersteller: Warmrohrwerk Dinslaken
Manufacturer: ISO/TS 16949 (ISO 9001) DNV CERT-13705-2003
Producteur: PED 97/23/EC TÜV Cert 07 202 41117/5001/1/H

Herstellerzeichen: 1124178
Manufacturer's brand:
Marque du producteur:

Versandanzeigen-Nr.: 6553634
Dispatch Note No.:
No. d'avis d'expédition:

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

Produkt: NAHTLOSE STAHLROHRE
Product: SEAMLESS STEEL TUBES
Produit: TUBES D'ACIER SANS SOUDURE

Stahlschmelzungsverfahren: ELEKTROSTAHL
Steelmaking process: ELECTRIC FURNACE
Procédé d'élaboration de l'acier: FOUR ELECTRIQUE

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

Maße - Toleranzen: ASME B36.10M-1996, ASME SA-530, ASME Section II Part A Edition 2004, ASTM-A 530-2003

Dimensions-tolérances: ASME B36.10M-1996, ASME SA-530, ASME Section II Part A Edition 2004, ASTM-A 530-2003

Stahlsorte: GRADE 290, GRADE B, GRADE X 42

Steel grade: Hot rolled

Nuance d'acier: see attachment product marking

Lieferzustand: see attachment product marking

Delivery condition: see attachment product marking

État de livraison: see attachment product marking

Produktkennzeichnung: see attachment product marking

Product marking: see attachment product marking

Marquage du produit: see attachment product marking

CONFORME
ASME
2004 EDITION
SECTION II PART A

QC1: Uued DATE: 03/01/06

Pos. Stück Maße
Item Number Dimensions
Poste Nombre Dimensions

0001 49 3" NPS * XXS
18 FT - 22 FT

0002 16 3" NPS * XXS
38 FT - 42 FT

252 0621
252 0074

Länge
Length
Longueur
feet

Gewicht
Weight
Poids
lbs

Schmelzen-Nr.
Heat No.
No. de coulée

Prüfdruck
Test pressure
Pression d'épreuve
PSI

Rohr-Nr.-Gruppe
Tube number group
Série de no. des tubes

Vielfachlängen
Multiple lengths
Longueurs multiples

Benteler Stahl/Rohr GmbH
Postfach 13 40
3043 Paderborn
Deutschland
Tel.: +49 5254 81-0 Fax: +49 5254 13666

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Document No.:
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CERTIFICAT DE RECEPTION EN 10204-3.1

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

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

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

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	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: $CE\ IIW = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) \leq 0,40\ %$
2. Formel: $CEV = C + F + ((Mn/6) + (Si/24) + (Cu/15) + ((Cr + Mo + V + Nb)/5) + (5 \cdot B)) \leq 0,40$
3. Formel: $Mn/C \geq 3/1$
4. Formel: $Cr + Cu + Mo + Ni + V \leq 1,00\ %$

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel
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.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	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

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
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	0,0001
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	735546	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	735546	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
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

- Formel: $CE_{IIW} = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) \leq 0,40 \%$
- Formel: $CEV = C + F + ((Mn/6) + (Si/24) + (Cu/15) + (Ni/20) + ((Cr + Mo + V + Nb)/5) + (5 \cdot B)) \leq 0,40$
- Formel: $Mn/C \geq 3/1$
- Formel: $Cr + Cu + Mo + Ni + V \leq 1,00 \%$

65-262679/001/P

Dokument-Nr.:
Document No.:
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ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1

Formelergebnisse / Formula 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	6,286	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	

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
CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: 65-262679/001/P
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Augensichtskontrolle:	PASSED	Biegeversuch:	PASSED	Maßkontrolle:	PASSED
Visual inspection:		Bending test:		Dimensions examination:	
Examen visuel:		Essai de cintrage:		Vérification des dimensions:	

POS. / Item / Poste: 0004, 0007, 0008

Ringfaltversuch:	PASSED
Flattening test:	
Essai d'aplatissement:	
POS. / Item / Poste: 0001, 0002, 0003, 0005, 0006, 0009	

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.
The sampling was carried out on multiple lengths.
L'échantillonnage était réalisé aux longueurs multiples.

Zugversuch / Tensile test / Essai de traction									
Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung	Re/Rm	
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation	Area reduction	Re/Rm	
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction	Re/Rm	
Anforderungen			mm	ReH	Rm	A2"	1. Formel		
Requirements				PSI	PSI	%	1. Formula		
Exigences				42061-71794	60191-110229	MIN 30	1. Formule		
0001	000001	526034	25,40 X 15,20	46557	69183	44,00			
0001	000002	526034	25,40 X 15,20	46702	69038	45,00			
0002	000001	735251	25,00 X 15,10	46122	67733	46,00			
0002	000002	735251	25,00 X 15,10	46847	68603	44,00			
0002	000003	735251	25,40 X 15,20	46702	69473	44,00			
0003	000001	735325	25,40 X 17,10	46267	67588	48,00			
0003	000002	735325	25,40 X 17,10	46267	66862	47,00			
0004	000001	735452	19,00 X 8,70	48008	67153	41,00			
0004	000002	735452	19,00 X 8,70	47717	68748	40,00			
0005	000001	735264	25,40 X 11,10	46122	67878	44,00			
0005	000002	735264	25,40 X 11,10	46412	69328	45,00			

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:

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

Blatt: 7 / 9
Page:

Zugversuch / Tensile test / Essai de traction

Pos. Item Poste	Proben-Nr. Specimen No. No. de l'éprouvette	Schmelzen-Nr. Heat No. No. de coulée	Probenabmessung Specimen dimensions Dimensions de l'éprouv.	Streckgrenze Yield strength Limite élastique	Zugfestigkeit Tensile strength Résistance à la traction	Dehnung Elongation Allongement	Einschnürung Area reduction Coefficient de striction	Re/Rm Re/Rm Re/Rm
Anforderungen Requirements Exigences	Proben-Nr. Specimen No. No. de l'éprouvette	Schmelzen-Nr. Heat No. No. de coulée	Probenabmessung Specimen dimensions Dimensions de l'éprouv.	Streckgrenze Yield strength Limite élastique	Zugfestigkeit Tensile strength Résistance à la traction	Dehnung Elongation Allongement	Einschnürung Area reduction Coefficient de striction	Re/Rm Re/Rm Re/Rm
	mm			ReH PSI 42061-71794	Rm PSI 60191-110229	A2" % MIN 30	1. Formel 1. Formula 1. Formule	
0006	000001	735361	25,40 X 13,50	49023	69618	46,00		
0006	000002	735361	25,40 X 13,50	49313	69473	47,00		
0007	000001	735198	19,00 X 3,80	57580	70343	35,00		
0007	000002	735198	19,00 X 3,80	57435	71214	36,00		
0008	000001	735457	19,00 X 5,50	50908	69473	44,00		
0008	000002	735457	19,00 X 5,50	49748	68313	34,00		
0008	000001	735546	19,00 X 5,50	50763	69038	43,00		
0008	000002	735546	19,00 X 5,50	50908	68168	39,00		
0009	000001	526035	25,40 X 5,50	51053	69908	41,00		
0009	000002	526035	25,40 X 5,50	50908	69908	39,00		

Härteprüfung / Hardness test / Essai de dureté

Pos. Item Poste	Proben-Nr. Specimen No. No. de l'éprouv.	Schmelzen-Nr. Heat No. No. de coulée	Härte Hardness Dureté	HRC	HB	HV	HRB
Anforderungen Requirements Exigences	Proben-Nr. Specimen No. No. de l'éprouv.	Schmelzen-Nr. Heat No. No. de coulée	Härte Hardness Dureté	HRC	HB	HV	HRB
0001	000001	526034			MAX 200		
					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		

65-262679/001/P

Dokument-Nr.:
Document No.:
No. du document:

1

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. Item Poste	Proben-Nr. Specimen No. No. de l'éprouv.	Schmelzen-Nr. Heat No. No. de coulée	Härte Hardness Dureté	HRC	HB	HV	HRB
Anforderungen Requirements Exigences					MAX 200		
0006	000001	735361			147		
0007	000001	735198			146		
0008	000001	735457			135		
0008	000001	735546			136		
0009	000001	526035			156		

Restmagnetismus / Demagnetize / Démagnétiser

residual magnetic field intensity max 3,5 millitesla

Pos. Item Poste	Ihr Zeichen Your reference Votre référence	Kundenmaterial Customer's Material No. No. de matière du client	Kundenbestell-Nr. Purchase Order No. 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

Benteler Stahl/Rohr GmbH
Postfach 13 40
33043 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

Vermerk / Remark / Remarque

Pos. / Item / Poste: 0001, 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, 0008, 0008, 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

Beiblatt Produktkennzeichnung / Attachment product marking / Supplément marquage du produit

Pos.	Produktkennzeichnung
Item	Produktkennzeichnung
Poste	Marquage du produit

0001, 0002, 0003
FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS WEIGHT CLASS WA GERMANY
P.O. 9199589-00

0004, 0005, 0006, 0007, 0008, 0009
FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY
P.O. 9199589-00

PK = Farbkennzeichnung, colour marking, marquage par couleur FS = Farbschablonierung, paint stencilling, marquage par peinture FSD = Farbstreihdrucker, Colour jet printer, Imprimante à jet d'encre de couleur LS = Längsschablonierung, longitudinal stencilling, marquage longitudinal par peinture PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette PS = Prägestempel, die stamp, marquage par poinçonnage TS = Tintenstrahlkennzeichnung, Ink jet spray marking, imprimante à jet d'encre

Verkäufer(in) / Salesman/woman in charge / Personne chargée : Mr Seelbach, Tel.: 05254/81-4281, Fax: 4289

Dinslaken, 07.04.2005, TEL.: 02064.623-574 FAX: 02064.623-575



Abnahmebeauftragter
Inspection representative
Contrôleur
JAN FREEPKS / SCHIEF

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.
Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.

(A4)

(A03)



VALLOUREC & MANNESMANN TUBES

V & M FRANCE
Tubaria de St. Sautverue du Galbot 21 n°4 - BP 2
59880 Saint-Saulve FRANCE

tel: 03.27.23.13.01

fax: 03.27.23.15.63

MATERIAL TEST REPORT

ISO 9001

INSPECTION CERTIFICATE EN 10204 3.1.B

(A03) Ref: 26-05-138026 1/3
(A08) N° V&M: LA0993105

(A06) Purchaser: CCTF CORPORATION

(A07) Order n°: VM1401 / 4872628-00

(B01) SEAMLESS STEEL PIPE, HOT FINISHED (KILLED STEEL)

(B04) NORMALIZED 1697 °F (931 °C)

(B05) ENDS BEVELLED 37.5° ANTI-RUST COATING DRY VARNISH

(B02) Specification: ASTM A 333 (100199) + ASME SA 333 (010701) ADD 0703 + GRADE 1 AND 6-CSA Z145-1 (010398) + GRADE 249 CAT II-NACE MR0175 ISO 1516 + CEC N° 4 Rev. D + ASME SECT. II PART-A PART D (07701) ADD (2003) + ASTM A 530 (011010) + ASME SA 530 (010704)

(B04-B07) Stencil marking: VALLOUREC & MANNESMANN FRANCE A/SA333 Z145-1 1 + 6 + 250 CAT II HPS LT 51 P 3 0.600 SOUR HT HEAT NUMBER VM1401 / 4872628-00

QUANTITY PER ITEM

Y/R	O/R	(B11-B12) Size	(B13) single length	(B10) Quantity	(B14) (B09) Weight item ref.	(B08) Heat
05	05	NPS 3 xxs 88.90 X 15.24 MM	0609MM 240 0 lin	32	12004 SKU No 2532003	313617

(C71-C92)

LADLE ANALYSIS

CE = C + F (MN) / 6 + SU24 + CU15 + NI20 + (CR + MO + V + NB) / 5 + 5B } < 0.40% ; HEAT 313617 = 0.33%

022: NIN/C	(C70) Process	(B08) Heat	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	Nb	V	B	022
MIN.			0.10	0.40								0.11	0.11	0.11	0.001	3
MAX.			0.24	0.50	1.35	0.025	0.025									
			%	%	%	%	%	%	%	%	%	%	%	%	%	%
L	313617		0.15	0.18	1.04	0.016	0.002	0.11	0.01	0.03	0.04	0.02	0.00	0.00	0.000	6.933

FOR EACH REDUCTION OF 0.01% CARBON BELOW 0.30%, AN INCREASE OF 0.05% MANGANESE ABOVE 1.06% WOULD BE PERMITTED TO A MAXIMUM OF 1.35% MANGANESE

(C10-C01-C03)

RECTANGULAR SPECIMEN LONGITUDINAL TENSILE TEST AT ROOM TEMPERATURE

(C00) Tens	(B08) Heat	width	thick.	secl.	(C11) Y.S.	(C12) T.S.	(C13) Elong. 2"
MIN.		mm	mm	mm2	psi	psi	%
MAX.		mm	mm	mm2	psi	psi	%
01DN537	313617	22.2	15.0	338.47	44249	67172	44

CONFORMS

ASME

2004 EDITION

SECTION II PART A

DATE:

03/01/06

(A01)



VALLOUREC & MANNESMANN TUBES

(A01) V&M FRANCE
Tuberies de St Saulverue du Gallied ZLn 4 - BP 2
59380 Saint-Saulve FRANCE
tel: 03.27.23.13.01
fax: 03.27.23.15.53

(A03)

MATERIAL TEST REPORT

ISO 9001

INSPECTION CERTIFICATE EN 10204 3.1.B

(A03) Ref: 26-05-138026 2/3
(A08) N° V&M: LA099305

(C00) Test	(B08) Heat	width	thick	sect.	(C11) Y.S.	(C12) T.S.	(C13) Elong. 2"
MIN.		mm	mm	mm ²	psi	psi	%
MAX.		mm	mm	mm ²	psi	psi	%
02DM537	313617	22.0	15.2	339.83	43524	67172	43

ROCKWELL C HARDNESS < OR = 22 GUARANTEED

(C40-C02-C41)

CHARPY V LONGITUDINAL IMPACT TEST

(C00) Test	(B08) Heat	(C03) temp.	width	height	sect.	(C42) EI	(C42) E2	(C42) E3	(C43) mean	(C42) shear1	(C42) shear2	(C43) shear mead
MIN.		°F	mm	mm	cm ²	ft.lbf	ft.lbf	ft.lbf	ft.lbf	%	%	%
MAX.		°F	mm	mm	cm ²	ft.lbf	ft.lbf	ft.lbf	ft.lbf	%	%	%
01DM537	313617	-51	10.00	10.00	0.80	129	124	108	120	85	80	65

(D01-D99)

NON DESTRUCTIVE TESTS

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

(C50-C69)

TECHNOLOGICAL TESTS

test	result
FLATTENING TEST	OK

(A00)

(A01)



VALLOUREC & MANNESMANN TUBES

V & M FRANCE
Tubaria de St Sastrerue du Galibot ZI n°4 - Bp 2
59880 Saint-Sauve FRANCE(tel: 03.37.23.13.01)
(fax: 03.27.23.13.63)

MATERIAL TEST REPORT

INSPECTION CERTIFICATE EN 10204 3.1.B

ISO 9001

(A03) Ref: 26-03-138026 3 / 3
(A08) N° V&M: LA0993/05

(201) 18/05/2005

(202)

Original computer copy - authenticity is guaranteed by the V&M logo.
All the pipes/tubes conform to the requirements of the order and standard regarding the grade, quality and heat treatment throughout their whole length.

(A05)

The authorized expert in Quality Control Section
Mr SKORUPKA

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:
需要家名
TRANS-AM PIPING
PRODUCTS LTD.

INSPECTION CERTIFICATE
BENEX

検査証明書
株式会社 ベネックス

DIN 50049/3.18
TO EN 10204/3.18

BENEX No. 90-5559-32
注文番号
CI-04-542

Order No. 651 2-CHOME AIOI CHO
注文番号
KIRYU CITY GUNMA PREF. JAPAN

TEL (0277) 54-8146

Date: 2005.05.18
M D Y
月 日 年
Certificate No. 1290555932
証明番号

Job No.	Specification for Material	Specification for Inspection	Visual Examination	Dimensional Inspection
工事番号	材料規格	検査規格	外観検査	寸法検査

ASTM A234/A234M-01 GR. WPB	ASTM A234/A234M-01 GR. WPB	ASME B16.9-2003	GOOD	GOOD
SATISFIES ASME SA234-LATEST	SATISFIES ASME SA234-LATEST			

MFG No. (Heat Identification No.)	Product & Size	Quantity		
製造番号	品名及び寸法	数量		

555932	SEAMLESS 180E(L) WPB 3 XXS			

Material Manufacturer	Material Heat No.			
素材供給メーカー	製鋼番号			

NKK TUBES	02861	NACE MR-01-75 (LATEST)	GOOD	

Specification	Chemical Composition										*2 Tension Test			HARDNESS TEST	
規定値	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	CEQ*	Y S	T S	F	
100	×	100	×	1000	×	100	×	100	×	100	×	×	×	×	
Min. 最小		10	29									240	415	30	
Max. 最大	30		106	50	58	40	40	15	40	8	20	42	585		
	20	19	73	13	3	2	3	1	1	0	0	33	297	476	41

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

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

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.
上記注文品は製造者の規定または仕様に従って製造され、その要求事項を満足していることを証明します。
*1: The symbol "T" after wall thickness means mm as unit. 厚さ数値の後に示す "T" は mm 単位を意味します。
*2: YS= Yield strength 耐力 VP= Yield point 降伏点 TS= Tensile strength 引張り強さ E= Elongation 伸び

CONFORMS
ASME
2004 EDITION
SECTION II PART A

Manager of Quality Assurance Section
品質保証課長
Shimada

QC1: 03/01/06
DATE: 03/01/06



Trametal S.p.A.

STABILIMENTO : 33058 S. GIORGIO DI NOGARO (UD)
VIA E FERMI, 44 - TEL 0431/629989 (RIC. AUT.)
TELEFAX 0431/629985 (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 di Collaudo/Inspection Certificate/Abnahmeprufzeugnis EN 10204 3.1.B/Din 50049 3.1.B

Cliente/Customer/Kunde/Client	Certificato/Certificate/Abnahmeprufzeugnis/Certificat d'essai		Bolla	Del
EDMONTON STEEL PLATE	104494	1-1 del	20504939	08/04/2005
Lamiere/Plates/Bleche/toles	1	(1)	(2)	(4)
SA S16GR70N	N	Q: allo stato naturale / in as rolled condition / im Walzzustand / dans l'etat de laminage C con laminazione a temperatura controllata / with controlled rolling / normalisiertes Walzverhalten / s'area laminada controlada N Normalizzato / normalized / normalisiert / normalise R recto / annealed / geglättet / recuit	Posizione/Location/Position/Emplacement : 1=Test top/Top/Oben 2=Probe/Bottom/Fuss/Unten	C=Cuota/Quota sample/Kontrollprobe/Couleur P=Placca/Rolled surface/Voroberflächte/Farbe D=Direzione/Direction/Ansicht/Ansicht
Ord.N 20500984			(3)	(5)
Vs E10533-J 1010			Direzione/Direction/Richtung/Strics: L=Longitudinale/Longitudinal/Längs/Long T=Trasversale/Transverse/Quers/Transvers S=Spessore/Thickness/Dicke/Epaisseur	E=Electric/Electric/Elektrisch/Electrique L=Lingotto/Lingot/Block/Lingot CC=Colata continua/Continuous casting/Strangierung/Coulée continue

Analisi Chimica di Colata / Chemical Analysis (heat) / Chemische Analyse / Analyse chimique														Analisi Chimica di Prodotto / Product Analysis / Stuckanalyse / Analyse sur produit																		
Colata	C	Mn	Si	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	Ti				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	0,389	0,19	1,06	0,25	0,009	0,002	0,01	0,002	0,03	0	0,028	0	0	0,0002	0,002	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	0,389	0,2	1,06	0,28	0,006	0,001	0,01	0,04	0,02	0	0,034	0	0	0,0003	0,002	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	0,389	0,19	1,04	0,28	0,015	0,003	0,04	0,01	0,04	0	0,033	0	0	0,0003	0,003	0,375		



N° Lamiera/ Plate/Bleche/Tôle	Lotto	N° Prova N° Test VersuchsN° N° D'essai	Dimensioni/Size/ Grossee/Dimension	Trazione/Traction/Zugversuch/Traction					Z%	Plaga	Resilienz/Impact test/Kerbschlagzähigkeit/Resilience				Media Average Mittelwerte Moyenne					
				(2)	(4)	(5)	Temp	ReH psi			Rm psi	A2 %	Temp	Rp 02 psi		Tipo Type Form	(3)	Temp °F	(4)	KV ft. / lbf
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	MW01-2005	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 la lamiera elencata sono conformi alla prescrizione dell'ordine, che i controlli della marcatura, 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/HIEM, dass oben genannte Erzeugnisse den Bestellvorschriften entsprechen: Markierung, Oberfläche und Abmessung ohne NÖUS CERTIFICATIONS que les produits énumérés ci dessus sont conformes aux prescriptions de la commande, contrôle de marquage, d'aspect et de dimensions satisfaisant.

IL CAPO SERVIZIO COLLAUDI
Chief inspection Dpt.
Überwachungsleiter
Le responsabile dei controlli

TRAMETAL S.p.A.
CONTROLLO QUALITÀ

CONFORMS
ASME
2004 EDITION
SECTION II PART A

QC1: *V. V.* DATE: *03/01/06*

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