


Vendor: ALCO

Doc #: 2013-8440-50

Vendor Rev #: -

Description: QUALITY CONTROL DATA BOOK



REVIEW STAMP

PROJECT NO. _____

1. REVIEWED & ACCEPTED. MANUFACTURE MAY PROCEED
2. REVIEWED & ACCEPTED AS MARKED. REVISE & RE-SUBMIT. MANUFACTURE MAY PROCEED
3. REVISE AS MARKED & RE-SUBMIT. MANUFACTURE SHALL NOT PROCEED
4. REVIEW NOT REQUIRED. FOR INFORMATION ONLY. MANUFACTURE MAY PROCEED

Acceptance in any of these categories in no way relieves the Contractor/Supplier of its responsibility for the due and proper performance of the Works in accordance with the Contract/Purchase Order.


Name *Dave Maberley*

Signed *DAM* Date *Dec. 8, 2014*

1. See attached Document Review Comment sheet for comments/missing QA/QC Records, as noted in the SDDR, and resubmit.

2. Vendor to also address Worley Parsons Discrepancy List items, and resubmit

DATE	JOB NO.	PURCHASE ORDER NO.
11/18/2014	407014-00120	ME-POD-0023
VTRI-2165	DEVON MR. NO.	
	FE-CPF-M023	
EQUIP. NO.	WORLEYPARSONS VP NO.	REV.
001-PK-10-1000	407014-00120-ME-POD-0023-0122	1



REVIEW STAMP

PROJECT NO. _____

1. REVIEWED & ACCEPTED. MANUFACTURE MAY PROCEED
2. REVIEWED & ACCEPTED AS MARKED. REVISE & RE-SUBMIT. MANUFACTURE MAY PROCEED
3. REVISE AS MARKED & RE-SUBMIT. MANUFACTURE SHALL NOT PROCEED
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Acceptance in any of these categories in no way relieves the Contractor/Supplier of its responsibility for the due and proper performance of the Works in accordance with the Contract/Purchase Order.

Name *MHo*

Signed *MHo* Date *26 Nov 14*

THIS STAMP GOVERNS THE FINAL CODING OF THE MANUFACTURERS DATA BOOK

NOTE: SIGN OFF OF WORLEYPARSONS APPROVAL STAMP IS ONLY APPLICABLE TO THE ENGINEERING PORTION OF THE MANUFACTURERS DATA BOOK. QA/QC PORTION TO BE REVIEWED AND APPROVED BY DEVON

Document Review Comments

ALCO GAS & OIL PRODUCTION – M023 407014-00120-ME-POD-0023-0122_S1

QA Review Notes, errors, and/or missing MRB documents, as per the SDDR for Tag 001-PK-10-1000:

GENERAL COMMENTS

- The MRB is to be one pdf document, with bookmarks noting the sections of the MRB as per the approved Table of Contents layout.
- Where are all the drawings, and specifically the vessel/piping drawings?
- Within the Purchase Order Package SCM-F-1120 document, 4.0 Final Documentation, para.4.1, a Table of Contents is to be submitted for review/approval. This has not been received. The ToC should be the first document within the MRB, listing all subsections of the data package. Then the MRB is assembled in that order.

THIS SECTION WILL BE USED TO IDENTIFY ONLY QA/QC MISSING DOCUMENTS, AS PER THE P.O. SDDR

B. QA/QC RECORDS

- B12 Weld Maps missing
- B13 Certified Welding Procedures missing
- B23 Factory Acceptance Test Procedure missing
- B25 Certified Mechanical Run Test Data missing
- B26 Vertical Pump Head Resonance Test missing
- B27 Procedures for Mechanical, Performance & Optional Test missing
- B30 Weld Procedure Qualification Records (welder qualification tickets) missing
- B34 Contractor Certifications (ASME, CWB, CSA, etc.) missing
- B35 Jurisdictional Permits missing
- B40 Insulation & Jacketing Inspection and Acceptance Report (if applicable) missing
- B41 Performance Test Report missing
- B46 Welder Log and Statistics missing
- B50 Pre-Lift Inspection Report missing
- B51 Equipment Bolt Torque Checklist missing
- B54 PSV Shop Pop Test Records missing

Project Title.	CNRL, Ferrier Central Processing Facility	Date:	11/25/2014
WP Project No.	407014-00120	Rev.	0
Devon Project No.	MR-0023	<i>MH</i>	
MR Title:	COB CHD package 001-PK-10-1000		
WP MR No.	407014-00120-ME-POD-0023		
Data book Doc No.	Quality Control databook (0023-0122)		

Final Data Books Discrepancy List

Item	Description	Reference	Remarks
1	The U1 form is missing some pages. The design conditions for the heating coil is missing. The final signature of the Code inspector is missing. Please resubmit with the complete U1 form.	Page 145	
2	Vessel mechanical design calculation (including lifting lug calculation) per SDR C1 and C28 are missing. Please provide.		
3	Piping flexibility and stress analysis per SDR C2 needs to be added.	Alco no.: D-2013-8440-51 (0023-0101)	The piping in 8440-50 is identical to 8440-51.

QUALITY CONTROL DATA BOOK

**CNRL Ferrier Project
Suite 2000, 400 – 3rd Ave. S.W.
Calgary, AB
T2P 4H2**

2013-8440-50

**Ferrier CFP Project
LSD: 11-02-039- W5M**





INSPECTION & TEST PLAN

SHOP ORDER NO.	DESCRIPTION/TAG	CLIENT PO:		
8440-50	COB Closed Hydrocarbon Drain Package/ 001-PK-10-1000	4100001343		
PROJECT		MANUFACTURING CODES		
Ferrier CPF Project 11-02-039-08 W5M		ASME SEC VIII DIV 1, 2010 ED. 2011a ADD. ASME B31.3, 2010 ED.		
INSPECTION AGENCY		ASME B16.5 CSA W59 CSA 47.1		
APPLICABLE SPECIFICATIONS				
Customer Spec. No.:	Description	Date / Rev.		
GS-2410	Structural Steel	0		
GS-2510	Metal Buildings	0		
GS-2530	Skid Assemblies and Modular Structures	0		
GS-3310	Pressure Vessels	0		
GS-3510	Packaged Equipment	0		
GS-3620	Glycol Tracing	0		
GS-3710	Welding Specification	0		
GS-4010	Electrical Design	1		
GS-4020	Electrical Installation	1		
GS-4025	EIC Testing on Pre-Packaged Skids	2		
GS-4040	Low Voltage Control Panel	1		
GS-4050	Combustible Gas H2S and Fire Detection	1		
GS-4140	Motors Below 400 HP	1		
GS-4410	Measurement Equipment - Installation Criteria	12-Jul-11		
GS-4500	Instrument Design and Installation	1		
GS-4600	Instrumentation Installation Index	23-Oct-09		
GS-4710	Process Automation Systems	0		
GS-4720	HMI Graphics	0		
GS-4730	Process Automation Systems Programming Standard	0		
GS-4740	Process Automation Systems Alarm	0		
GS-5100	Piping Design and Configuration	0		
GS-5200	Piping Material Fabrication Installation	0		
Rev.	Prep. By	Appr. By	Initial	Rev. Description
0	RE	RE		







INSPECTION AND TEST PLAN

SL NO	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT		3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
PRESSURE VESSELS WITH 'U' STAMP									
1	REVIEW WPS & PQR	ASME SEC. IX	ASME SEC. IX	WPS/PQR	H	R			
2	REVIEW WELDER QUALIFICATION	ASME SEC. IX	ASME SEC. IX	WQTR	R	R			
3	CHECK MTR's OF PRESSURE PARTS INCLUDING CONSUMABLES	ASME SEC. IX	ASME SEC. IX	MTR	R	R			
4	REVIEW OF QC MANUAL & PROCEDURES		ASME SEC.V ASME SEC. VIII DIV.I DRAWING CODE	QCM/QCP	R	R			
5	MATERIAL IDENTIFICATION STAMPING OF PRESSURE PARTS	DRAWING/SPEC	ASME SEC.II	MCL/MR		R			
6	SET UP INSPECTION	DRAWING	DRAWING/CODE	TS		S			
7	VISUAL INSPECTION INTERNAL, EXTERNAL & DIMENSIONAL	DRAWING	ASME V / ASME VIII DIV 1	TS		S			
8	RADIOGRAPHY TESTING OF WELDS	DRAWING/CODE	ASME SEC VIII DIV. I	RTR		R			
9	ULTRASONIC TESTING OF WELDS	DRAWING/CODE	ASME SEC VIII DIV. I	UTR		R			
10	INTERMEDIATE/FINAL MPT/LPT	DRAWING/CODE	ASME SEC VIII DIV. I	MPIR/LPTR		R			
11	AIR TEST OF REINFORCING PADS (IF REQUIRED)	DRAWING/SPEC	DRAWING/SPEC	ATR		R/ W			
12	TUBES & TUBESHEET DIMENSIONAL CHECK	DRAWING	DRAWING	IR		S			
13	WELDERS IDENTIFICATION	DRAWING		RTR/VESSEL STAMPING		S			
14	HYDRO TEST	DRAWING	ASME VIII DIV 1	HR		W/ H			
15	ABSA REVIEWED AND STAMPED DRAWINGS	DRAWING	ASME SEC. VIII	CRN					
16	FINAL COMPLETION NAME PLATE / MDR / PARTIAL MDR	DRAWING	ASME SEC VIII	MDR/NAMEPLATE COPIES		S			

INSPECTION AND TEST PLAN

SL NO	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
17	PAINTING INSPECTION SURFACE PREP, DFT CHECK	DRAWING SPEC	COATING SPEC	IR		S		
18	FINAL RELEASE NOTE FROM ALCO / 3rd PARTY INSPECTOR	DRAWING		RELEASE DOCUMENT	H	H		

INSPECTION AND TEST PLAN

SL NO	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
STRUCTURAL WORK								
19	REVIEW WPS & PQR			WPS/PQR	H	R		H
20	REVIEW WELDER QUALIFICATION		CSA W59	CWB		R		H
21	CHECK MATERIAL FOR CONFORMITY		CISC			R		H
22	SET UP INSPECTION	DRAWING	DRAWING	TS		S		H
23	VISUAL/NDT INSPECTION	DRAWING	DRAWING	TS		H		H
24	PAINTING INSPECTION SURFACE PREP & COATING	DRAWING/SPEC	SPEC			S		H
25	VISUAL INSPECTION AFTER WELDING							H

INSPECTION AND TEST PLAN

SL NO	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
PIPING & HOOK-UP ASSEMBLY								
26	REVIEW NDT (LOT REQUIREMENT FOR RT)		B31.3					<i>[Signature]</i>
27	HYDRO /PNEUMATIC TEST	DRAWING	B31.3	AB83	W/H	W	<i>[Signature]</i>	<i>[Signature]</i> H
28	FINAL COMPLETION			AB83				<i>[Signature]</i>
29	PAINTING INSPECTION SURFACE PREP & COATING	DRAWING/SPEC	DRAWING/SPEC			S	<i>[Signature]</i>	<i>[Signature]</i> H
30	INSULATION INSPECTION	SPEC	SPEC			S	<i>[Signature]</i>	H
31	FUNCTIONAL/ CALIBRATION OF LEVEL SWITCHES INSTRUMENTATION ITEMS	DRAWING/SPEC	DRAWING/SPEC					N/A
32	TEST REPORTS	SPEC	SPEC	VENDOR REPORT				N/A

INSPECTION AND TEST PLAN								
SL NO	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
SKID ASSEMBLY FINAL CHECK								
33	CHECK ALL COMPONENTS AS PER P&ID	DRAWING	DRAWING			H		DA H
34	EQUIPMENT SHOP ERECTION							
	A) ALIGNMENT/ ORIENTATION OF EQUIPMENT	DRAWING	DRAWING	TS				DA
34	B) WELDING/BOLTING OF EQUIPMENT	DRAWING	DRAWING	TS		S		H
	CHECK CONNECTION PIPING AS PER P&ID	DRAWING	DRAWING			S		DA H
35	CHECK CONNECTION PIPING AS PER P&ID	DRAWING	DRAWING			S		DA H
36	FINAL VISUAL & DIMENSIONS OF COMPLETE ASSEMBLY	DRAWING	DRAWING			H		DA H
37	SURFACE PREPARATION & PROTECTIVE COATING	SPEC	SPEC			S	SD	DA H
38	FINAL INSPECTION RELEASE NOTE	DRAWING	DRAWING	RELEASE NOTE	H	H	DD	DA H
39	DATA BOOK REVIEW	PURCHASE ORDER	PURCHASE ORDER			R		DA

LEGEND	
H - HOLD	MTR - MATERIAL TEST REPORT
W - WITNESS	QCM - QUALITY CONTROL MANUAL
S - SURVEILLANCE	QCP - QUALITY CONTROL PROCEDURE
R - REVIEW DOCUMENTS	RTR - RADIOGRAPHIC TEST REPORT
MR - MATERIAL REPORT	UTR - ULTRASONIC TEST REPORT
TS - TRAVEL SHEET	HR - HYDROSTATIC TEST REPORT
ATR - AIR TEST REPORT	ITR - IMPACT TEST REPORT
IR - INSPECTION REPORT	MCL - MATERIAL CONTROL LIST
WPQR - WELDER QUALIFICATION TEST RECORD	
MPTR - MAGNETIC PARTICLE TEST REPORT	
LPTR - LIQUID PENETRANT TEST REPORT	
PWHTR - POSTWELD HEAT TREATMENT RECORD	
DRAWING/SPEC - MEANS APPROVED DRAWING/SPEC	
SPEC - MEANS CUSTOMER SPECIFICATION AS PER ALCO EXCEPTIONS	
ABSA - ALBERTA BOILERS SAFETY ASSOCIATION	
ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS	



INSPECTION GROUP INC.



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

INSPECTION RELEASE REPORT

MTL Job No. 3048-1 Release No. 001
Devon PO# 4100001343 / FE-CPF-M023 WBS No. 01-00348.01.01.03
Project Ferrier - Central Processing Facility Location / LSD Ferrier - CPF
Client Project Engineer Susan Chin - Engineer, Shane Usipuik - QA Lead, Amrik Dhaliwal - Expeditor Phone 403-776-6403, 403-232-7497, 403-776-6435, Amrik.dhaliwal@dvn.com
Vendor Alco Gas & Oil Production - Edmonton, AB Vendor Job No. 8440-50
Vendor Primary Contact Michael Wagner - Calgary, AB Phone 403-243-5055
Equipment (1) Closed Hydrocarbon Drain Package Tag No. 001-PK-10-1000
Carrier Trans Tech Trailer No.
Packing Slip No. Waybill No.

Table with 6 columns: Rev #, Inspection, Shipping, Details, Date, Inspector, Vendor. Row 0: Final inspection to building package, August 13, 2014.

Description of Material or Equipment

- Closed Hydrocarbon Drain Package c/w ship loose items.

Table with 4 columns: Shop Release, Description, Yes, No, N/A. Contains 4 rows of release criteria.

Deficiency Items if Applicable

Attached N/A Comments: See attached AIL

Dan de Groot Inspector Signature Date August 13, 2014 Phone 780-218-1298 E-Mail djdegroof@telus.net



INSPECTION GROUP INC.

SALES
GENERAL
INQUIRY

devon

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

*David Glasgow	*David Glasgow	*Aug 13/14	*780-465-9061	*dave.glasgow@akogasoil.com
Vendor Quality Representative	Signature	Date	Phone	E-Mail
ADDITIONAL NOTES				



INSPECTION GROUP INC.

2836 Ellwood Drive S.W. Edmonton, AB T6X 0A9
 Office: (780) 450-8883 Fax: (780) 450-8884
 www.mtlinspection.com

Page 1

Job # 3048-1

Date July 23, 2014

Client CURL

Shop AICO

Shop Job # 2043-8440-50

ACTION ITEM REPORT

VENDOR REPRESENTATIVE

SIGN OFF DATE

	VENDOR REPRESENTATIVE	SIGN OFF DATE
1) Grease nipple missing from davit arm assemblies		DD Aug 13/14
2) Paves trough down spouts not secured at Bottom		
3) all ship loose items including awnings to be secured		DD July 30/14
4) Install safety gate.		DD July 29/14
5) Bolting on ladder is too short - Replace		DD July 30/14
6) Internal cladding left with open screw holes that need to be filled		DD Aug 13/14
7) complete touch up paint. Paint to be touched up on platform. Aug 13/14		
8) Close vents, seal doors & windows for shipping.		
9) Subject to electrical punch list completed.		
10) duct tape on slanges. May be difficult to remove on site.		DD Aug 13/14

MTL REPRESENTATIVE:

David

DATE: July 23/14

VENDOR REPRESENTATIVE:

David Sturgis

DATE: July 23/14

Phase # : 2013-8440-50A
Phase Title: COB Closed Hydrocarbon Drain Package
TAG: 001-PK-10-1000

TABLE OF CONTENTS

Title	Availability	
	Yes	No
1. Data Reports	X	
2. CRN's		N/A
3. Nameplate Copy	X	
4. Travel Sheet	X	
5. Impact Test Reports		N/A
6. Material Control	X	
7. Material Reports		N/A
8. MTR's	X	
9. NDE MPT		N/A
LPT		N/A
RADIOGRAPHY	X	
ULTRA SONIC		N/A
10. Stress Relieve Charts		N/A
11. Hydrotest Report(s)	X	
12. Hydro Chart	X	
13. PSV & Valve Cert.	X	



the pressure equipment safety authority

PI SSURE PIPING CONSTRUCTIC AND TEST DATA REPORT
 In accordance with the provisions of the PESR Section 31(1)

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

Complete both sides of this Form

1. Constructed By: Alco Gas & Oil Production Equipment Ltd. Owner's Job No:
TAG:001-PK-10-1000
 (Name of ABSA authorized primary contractor or subcontractor)
5203 - 75th Street, Edmonton, Alberta T6E 5S5
 (Address)

Certificate of Authorization Permit No. AQP-1004(S) Expiry Date: Oct. 7th, 2016

2. Constructed For: _____
 (Name of primary contractor if different from above)

(Address)

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

3. Owner: Canadian Natural Resources Ltd. 2500, 855 - 2nd St. SW. Calgary, AB T2P 4J8
 (Name and address)

LSD: 11-02-039-08 W5M Ferrier CFP Project, AB
 (Location of installation)

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

4. Piping Design Alberta Registration No.: PP-N/A
 (Required if aggregate piping volume is over 0.5m³)

5. Design Responsibility: Owner ; Contractor

6. WP No.: WP-340.2 ; Company: Alco Gas & Oil Prod. Equip. Ltd Owner's WP No. (If used): WP-N/A
 (Alberta Registration No.) (Alberta Registration No.)

WPS No(s). used: CA-P1G1G2-AW-LT-R2 ; Owner's WPS No(s). (If used): N/A

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

Drawing No. Rev. No. Line No.	Fluid (Air/Stm. Etc.)	Des. Press. kPa	Des. Temp. °C (Max. & Min.)	Pressure Test kPa	Test Medium	Pipe Mat'l Spec. & Grade	C.A. mm	Pipe NPS & Schedule	Flange Material & Rating	PWHT/ Preheat Temp. °C	NDE
B-2013-8440-50S -001 Rev. 0 Iso #1	H.C. liquids	1,579	-29/149	3,000	H ₂ O	SA-106-B	1.6	6" Std.	SA-105N CL 150	None / 10	10% R.T / 100% V.T.
B-2013-8440-50S -002, -009 Rev. 0 Iso #2, Iso #9	Gas	1,579	-29/149	3,033	H ₂ O	SA-106-B	1.6	6" Std 2" XH	SA-105N CL 150	None / 10	10% R.T / 100% V.T.
B-2013-8440-50S -003, -004, -005, -007 Rev. 0 -006 Rev. 1 Iso #3, Iso #4, Iso #5, Iso #6, Iso #7	Condensate	1,579	-29/149	3,000	H ₂ O	SA-106-B	1.6	4", 3" Std 2", 1 1/2" XH	SA-105N CL 150	None / 10	10% R.T / 100% V.T.

B-2013-8440-50S -008 Rev. 1 Iso #8	Fuel Gas	1,579	-29/149	3,000	H ₂ O	SA-106-B	1.6	2" XH	SA-105N CL 150	None / 10	10% R.T / 100% V.T.
B-2013-8440-50S -010, -011, -012 Rev. 0 Iso #10, Iso #11, Iso #12	Hot Oil	1,579	-29/149	2,965	H ₂ O	SA-106-B	1.6	2", 1 1/2" XH	SA-105N CL 300	None / 10	10% R.T / 100% V.T.
B-2013-8440-50S -013 Rev. 0 Iso #13	Air	1,034	-45.6/38	3,000	H ₂ O	SA-106-B	1.6	2" XH	SA-105N CL 150	None / 10	10% R.T / 100% V.T.
B-2013-8440-50S -014 Rev. 0 Iso #14	Gas / Condensate	1,579	-29/149	2,965	H ₂ O	SA-106-B	1.6	2" XH	SA-105N CL 300	None / 10	10% R.T / 100% V.T.
D-2013-8440-50F -001 Rev. 1 D-2013-8440-50A -001, -002 Rev. 1 -003 Rev. 0 SW pipe lines from Iso #10 through bldg. htr. 001-UHG-10-1080 to Iso #12 and from Iso #12 through and past TCV-1010A to Iso #12 and by-pass line from Iso #10 to Iso #12	Hot Oil	1,579	-29/149	3,103	H ₂ O	SA-333 Gr. 6 SA-106-B	1.6	1 1/2", 1", 1/2" XH 1" Sch 160	N/A	None / 10	100% V.T.
Thr'd pipe lines from Iso #'s 13-1 & 13-2 throughout the skid package and tubing to PCV-1010A	Air	1,034	-45.6/ 38	1,138	Air / Nitrogen	SA-106-B SA-213 TP 316/316L	1.6 / 0	1" XH 3/8" 20 BWG	N/A	N/A	100% V.T.
Thr'd tubing to PG-1010	Gas	1,579	-29/149	3,103	H ₂ O	SA-213 TP 316/316L	0	1/2" 18 BWG	N/A	N/A	100% V.T.
Heat trace tubing on Iso #'s 1 & 8 o/s bldg.	Hot Oil	1,379	-29/149	3,103	H ₂ O	SA-213 TP 316/316L	0	1/2" 20BWG	N/A	N/A	100% V.T.
Function tested TCV-110 A and TYI-1010A				720 or as regulated	Air	SA-213 TP 316/316L	0	3/8" 20BWG	N/A	N/A	100% V.T.

29

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

No.	Line No.	Spool No.	Dwg. No. (with Rev. No.)	Sub-contractor (Name)	AQP No. (if from Alberta)	Expiry (if from Alberta)

Remarks: For partial data report provide information about the code work that was not completed by the subcontractor (e.g., hydrostatic test, PWHT etc.). For final data report provide information about the code work that was not completed by subcontractors and subsequently completed by the primary contractor (e.g., hydrostatic test of entire assembly, PWHT etc.)

Alco Job# 2013-8440-50

Endorse certificate 'A' or 'B'

A. CERTIFICATE OF COMPLIANCE

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

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

Date: _____ Contractor _____

Print Authorized Representative's Name Signature

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

B. CERTIFICATE OF COMPLIANCE

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

We certify that the statements in this Data Report are correct and that piping job no.

Tag: 001-PK-10-1000

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: May 22, 2014 Alco Gas & Oil Contractor _____

David Glasgow David Glasgow
Print Authorized Representative's Name Signature

CERTIFICATE OF INSPECTION

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

Date: June 9, 2014 Date: _____

Dande Smart _____
Owner's Inspector Name (please print) ABSA Safety Codes Officer (please print)
(BOILER EXTERNAL PIPING ONLY)

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

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



U
W
RT2

2014

Year Built

CRN

W-3166.2

A No.

2013-8440-01B
Serial Number
A 655714

NAME CLOSED HYDROCARBON DRAIN VESSEL TAG

HEAD SA516-70MT

0.332 in
0.215 in
0.315 in

C.A. 0.025 in

SHELL SA516-70MT

HYDRO 65 psi

2013-8440-50



U
W

2014

Year Built

CRN

W-3166.2

A No.

2013-8440-01B
Serial Number
A

NAME HEATING COIL TAG

HEAD SA350LF2 CLT

0.344 in

C.A. 0 in

SHELL SA312-316L/SA403-316L

0.345 in

HYDRO 65 psi

Certified By


ALCO  **GAS & OIL**
PRODUCTION EQUIPMENT LTD.
CP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP
 Edmonton, Alberta, Canada

50 psi at 300 °F
Max. Allowable Working Pressure

15 psi at 300 °F
Max. Allowable External Working Pressure

-49 °F at 50 psi
Minimum Design Metal Temperature

Certified By

ALCO  **GAS & OIL**
PRODUCTION EQUIPMENT LTD.
CP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP
 Edmonton, Alberta, Canada

246 psi at 300 °F
Max. Allowable Working Pressure

50 psi at 300 °F
Max. Allowable External Working Pressure

-49 °F at 246 psi
Minimum Design Metal Temperature

PIPING TRAVEL SHEET

SERIAL NUMBER: 2013-8440-50

DATE: November 22, 2013

CUSTOMER: <u>Canadian Natural Resources Ltd.</u>	COMMENTS:	DATE & INITIAL OF INSPECTOR FOR COMPLETION OF HOLD POINTS HOLD POINTS ARE IDENTIFIED WITH AN *	
CODE ITEM:		ALCO QC	CUSTOMER/AGENT
APPROVED DRAWINGS		JA	
MATERIALS CHECKED AGAINST DRAWING BILL OF MATERIALS		JA	
MILL TEST REPORTS CHECKED		JA	
IMPACT TESTS		N/A	
UNIT LAYOUT		JA	
WELD PROCEDURE APPROVED		JA	
WELDER'S QUALIFICATIONS VERIFIED		JA	
FIT-UP		JA	
INTERNALS / EXTERNALS		JA	
WELD SIZE AND PROFILE		JA	
WELDER'S ID		JA	
P.W.H.T.			
POST WELD HEAT TREATMENT INSTRUCTIONS		N/A	
POST WELD HEAT TREATMENT REVIEWED		N/A	
NDT INSPECTIONS			
RADIOGRAPHS		JA	
BRINELL HARDNESS TESTING		N/A	
OTHER NDE		N/A	
COATING			
VISUAL PRIOR TO COATING		JA	
VISUAL AFTER COATING		JA	
STENCILING		N/A	
TESTING			
HYDROSTATIC TESTING		JA	May 13/14
PNEUMATIC TESTING USING SHOP AIR AT 100 PSIG		N/A	
PNEUMATIC TESTING USING HIGH PRESSURE TEST PROCEDURE		JA	May 2/14
FUNCTION TEST		JA	May 22/14
P & ID FROM FLOWSHEET VARIFIED		JA	July 24/14

NOTES:

Summary of Heat Numbers on Spools

Job #: 2013-8440-50/51

Customer: Canadian Natural Resources

Date: May 29, 2014

Bill of Materials

No.	Size	Rating	Description	Schedule	Material	Heat Numbers
Flanges						
1	2"	CL 300	RF WN Flange	XH	SA-105N	12/73631, 12/35079
2	2"	CL 300	RF Blind Flange		SA-105N	4603008
3	6"	CL 150	RF WN Flange	Std	SA-105N	13/37955, 13/38016
4	4"	CL 150	RF WN Flange	Std	SA-105N	12/34064, 13/38606
5	4"	CL 150	RF Blind Flange		SA-350 LF2 CL1	HUP
6	3"	CL 150	RF WN Flange	Std	SA-105N	TL10006133
7	3"	CL 150	RF Blind Flange		SA-350 LF2 CL1	13/76390
8	2"	CL 150	RF WN Flange	XH	SA-105N	722, 509, TL10006617
9	2"	CL 150	RF Blind Flange		SA-350 LF2 CL1	4703602
10	2"	CL 150	RF Blind Flange		SA-105N	1068F, 13144
11	1 1/2"	CL 150	RF WN Flange	XH	SA-105N	13/75868
Bleed Rings						
12	3"	CL 150	RF Bleed Rings x 1 1/2" THK.		SA-516-70N	VDG
13	2"	CL 150	RF Bleed Rings x 1 1/2" THK.		SA-516-70N	TLH
Spectacle Blinds						
14	6"	CL 150	RF Spectacle Blind x 1/2" THK.		SA-516-70N	KQD, JYZ, JHT
15	4"	CL 150	RF Spectacle Blind x 3/8" THK.		SA-516-70N	UYB
16	2"	CL 300	RF Spectacle Blind x 3/8" THK.		SA-516-70N	TUQ, NZY
17	2"	CL 150	RF Spectacle Blind x 1/4" THK		SA-516-70N	UYA, RQB
Fittings						
18	6"		90° LR Ell BW	Std	SA-234-WPB	162V
19	4"		90° LR Ell BW	Std	SA-234-WPB	11N00007
20	3"		90° LR Ell BW	Std	SA-234-WPB	55E00018, 13A00060, 2J2770, 84059, 07P00006,
20	3"		90° LR Ell BW	Std	SA-234-WPB	55A00123, 12F00005, 86035, CB798
21	2"		90° LR Ell BW	XH	SA-234-WPB	56C00214, 13B00018, 12-211407
22	1 1/2"		90° LR Ell BW	XH	SA-234-WPB	924B, 185A
23	6"x4"		Conc. Red. BW	Std	SA-234-WPB	12F20023
24	4"x3"		Conc. Red. BW	Std	SA-234-WPB	12N20011
25	4"x3"		Red. Tee BW	Std	SA-234-WPB	3A756V
26	4"x2"		Red. Tee BW	Std x XH	SA-234-WPB	CE663
27	3"x2"		Red. Tee BW	Std x XH	SA-234-WPB	B833
28	2"		Tee BW	XH	SA-234-WPB	12P10831, 2C0592, 55E10010, 55K10008
29	2"x1 1/2"		Red. Tee BW	XH	SA-234-WPB	7687
30	2"x1"		Conc. Swage BW	XH	SA-234-WPB	K2624, 123M
31	2"x1 1/2"		Conc. Swage BW	XH	SA-234-WPB	UCW, K444
O'lets & Couplings						
32	1 1/2"		WOL	XH	SA-105N	59059
33	3/4"	CL 3000	TOL		SA-105N	58880
34	1/2"	CL 3000	TOL		SA-105N	58962, 58627
35	1"	CL 3000	3" LG Cplg SW		SA-105N	H3270
Piping						
36	6"		Pipe Sm's	Std	SA-106-B	1325292 (PA120), 53360 (PA061)
37	4"		Pipe Sm's	Std	SA-106-B	1323589 (PA038)
38	3"		Pipe Sm's	Std	SA-106-B	208978 (PA092)
39	2"		Pipe Sm's	XH	SA-106-B	1323281 (P954)
40	1 1/2"		Pipe Sm's	XH	SA-106-B	1325649 (PA155), 614348 (P929)
41	1"		Pipe Sm's	160	SA-106-B	357384 (PA052)
42	1"		Pipe Sm's	XH	SA-106-B	Y56554 (PA124)
43	1/2"		Pipe Sm's	XH	SA-106-B	574021 (P953)
Tubing						
44	1/2"		Tubing Sm's	20 BWG	SA-213 TP 316/316L	YX1302-681
45	3/8"		Tubing Sm's	20 BWG	SA-213 TP 316/316L	YX1102-529

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Table with columns for Certificate N., Date, Invoice N., Date, and Manufacturer details (TRANS AM PIPING PRODUCTS LTD).

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV = ISO 9001 =

SEDE AMMINISTRATIVA E STABILIMENTO: 29861 CESANA BRIANZA (LO - Italy) Via G. Pirelli, 28



Table with columns: COD. COL. COLATA POS. ITEM, VS. ORDINE YOUR REFERENCE, Q.TA' DESCRIZIONE, DIM. IN ACC. A DIM. ACCORDANCE TO, and chemical composition (C%, Mn%, Ni%, Mo%, Cr%, P%, S%, Cu%, V%, Nb%, N%, AP%, C.E.%).

Table with columns: COD. COL. COLATA POS. ITEM, VS. ORDINE YOUR REFERENCE, Q.TA' DESCRIZIONE, DIM. IN ACC. A DIM. ACCORDANCE TO, and mechanical properties (Durezza, Allungamento, Rottura, Contrazione).

TRATTAMENTO TERMICO / HEAT TREATMENT: NORMALIZED AT 920 C - COOLED IN STILL AIR

Table with columns: COD. COL. COLATA POS. ITEM, VS. ORDINE YOUR REFERENCE, Q.TA' DESCRIZIONE, DIM. IN ACC. A DIM. ACCORDANCE TO, and chemical composition.

Table with columns: COD. COL. COLATA POS. ITEM, VS. ORDINE YOUR REFERENCE, Q.TA' DESCRIZIONE, DIM. IN ACC. A DIM. ACCORDANCE TO, and mechanical properties.

TRATTAMENTO TERMICO / HEAT TREATMENT: NORMALIZED AT 920 C - COOLED IN STILL AIR

Handwritten information: CONFORMS TO SA 105N, YEAR 2012, JOB # 19-8440-50, ITEM # 20-134044, SIGNED BY NOV 28 2013.

Table with columns: OFFICIO CONTROLLO QUALITA' (QUALITY CONTROL DEPARTMENT), ENTE UFFICIALE DI COLLAUDO (INSPECTION AUTHORITY), MARCHIO PRODUZIONE (MANUFACTURER'S SYMBOL).

NOTE: 100% MANUFACTURED IN ITALY. NOTES: MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION. MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15186-2009 - SOUR SERVICE. MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE.



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Pirelli, 28
 Tel. +39 031.655441
 Fax +39 031.655149
 quality.info@armes.com

COMPANY WITH
 QUALITY SYSTEM
 CERTIFIED BY DNV
 = ISO 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 2340	Del/Dated 22.04.2013	Fattura / Invoice N. 1556	Del/Dated 17.04.2013
DDT / Del Note N. 1799	Del/Dated 17.04.2013	Ms.Ord. / Our ref. N.	Del/Dated
TRANS AM PIPING PRODUCTS LTD		Dest.: TRANS AM PIPING PRODUCTS LTD	
9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA CA		9335 - Endeavor Drive S.E. T3S 0A1 Calgary, ALBERTA CA	

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

COD. COL. COLATA	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA. Q.TY	DESCRIZIONE DESCRIPTION	DIM.IN ACC. A DIM. ACCORDANCE TO	VSIVO E DIMENS. VIS. & DIMENS.								
13/36699	083	CH-12-294	24,00	BLIND 150 RF 8"	ASME/ANSI B16.5-2009	SATISFACTORY								
MATERIALE / MATERIAL														
ASTM A105 (LADLE)														
C	S	P	Mn	Si	Cr	Cu	Ni	Mo	Nb	V	Co	Al	C	E
0,195	0,240	0,960	0,008	0,008	0,090	0,060	0,010	0,060	0,002	0,002	0,002	0,009	0,027	0,390
PROVETTA / TEST SPECIMEN														
SEZ. mm2 LUNG. mm														
126,60 50,80														
FORMA SHAPE														
1-O 2-O														
SNERVAMENTO YIELD POINT														
Nmin2 >=0,2% 328,0														
ROTTURA TENSILE STRENGTH														
Nmin2 >= 516,0														
ALLUNGAMENTO ELONGATION														
%>= 32,0														
CONTRAZIONE REDUCTION OF AREA														
%>= 61,0														
DUREZZA HARDNESS														
HBN 159,0														
RESILLENZA / IMPACT TEST - JOULE/m2														
TPO / TYPE 1c-10mm														
KV 20														
TRATTAMENTO TERMICO / HEAT TREATMENT														
NORMALIZED AT 920 C - COOLED IN STILL AIR														
FORNO / FURNACE														
ELECTRIC FURNACE														
ORIGINE / ORIGIN OF STEEL														
EUROPEAN UNION														

COD. COL. COLATA	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA. Q.TY	DESCRIZIONE DESCRIPTION	DIM.IN ACC. A DIM. ACCORDANCE TO	VSIVO E DIMENS. VIS. & DIMENS.								
12/36079	066	WIN 300 RF 2" XS	455,00	A105N	ASME/ANSI B16.5-2009	SATISFACTORY								
MATERIALE / MATERIAL														
ASTM A105 (LADLE)														
C	S	P	Mn	Si	Cr	Cu	Ni	Mo	Nb	V	Co	Al	C	E
0,185	0,210	0,970	0,010	0,008	0,090	0,050	0,010	0,050	0,003	0,002	0,017	0,028	0,378	
PROVETTA / TEST SPECIMEN														
SEZ. mm2 LUNG. mm														
126,60 50,80														
FORMA SHAPE														
1-O 2-O														
SNERVAMENTO YIELD POINT														
Nmin2 >=0,2% 350,0														
ROTTURA TENSILE STRENGTH														
Nmin2 >= 509,0														
ALLUNGAMENTO ELONGATION														
%>= 31,0														
CONTRAZIONE REDUCTION OF AREA														
%>= 60,0														
DUREZZA HARDNESS														
HBN 159,0														
RESILLENZA / IMPACT TEST - JOULE/m2														
TPO / TYPE 1c-10mm														
KV 20														
TRATTAMENTO TERMICO / HEAT TREATMENT														
NORMALIZED AT 920 C - COOLED IN STILL AIR														
FORNO / FURNACE														
ELECTRIC FURNACE														
ORIGINE / ORIGIN OF STEEL														
EUROPEAN UNION														

CONFORMS TO EN 105N
 YEAR 2010ED, 2011, 2012
 JOB # 2013-6440-50
 ITEM # 1
 SIGNED BY NOV 28 2013

3-8440-50
 2013-6440-50

NOTE 100% MANUFACTURED IN ITALY NOTES MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH EN ISO 15156-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH EN ISO 15156-2009 - SOUR SERVICE	UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT H. S. Erigiano	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL
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Product Name: BLIND FLANGE RF
 Item No.: 10520
 Revision: SB

SAN ENG STEEL FORGING CO LTD
 311, Jen Hsin Road, Jen Wu District
 Kaohsiung, Taiwan, R.O.C.
 TEL: 07-3724249 ; FAX: 07-3712823
 URL: www.saneng.com.tw
 e-mail: saneng@kats.seed.net.tw

MILL TEST CERTIFICATE
 EN10204-3.1(B)(DIN50049/3.1.B)
 Customer: IRANSAM PIPING PRODUCTS LTD.
 Order No.: 7006601(6)-7/A

Certificate No.: SE-8801E
 Date: 05/21/2013
 Page: 1 OF 2

PRODUCT		MATERIAL SPECIFICATIONS		DIMENSIONAL SPECIFICATIONS										
FORGED STAINLESS STEEL FLANGES		ASTM A105-11/AASME SA105-11a		ASME B16.5-08 CSA Z245.12										
Item No.	Code No	Description	Quantity	CHEMICAL COMPOSITION (%)										CE(*)
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	
1	150 WNRFD STD 2" A105N	1,470 PCE	0.220	0.210	1.150	0.035	0.040	0.300	0.400	0.120	0.080	0.020	0.419	
2	150 WNRFD XS 16" A105N	1 PCE	0.200	0.240	1.040	0.023	0.005	0.006	0.020	0.010	0.004	0.009	0.005	
3	600 WNRFD XS 4" A105N	70 PCE	0.190	0.180	1.070	0.016	0.004	0.100	0.150	0.030	0.020	0.003	0.007	
4	600 WNRFD XS 12" A105N	8 PCE	0.200	0.230	1.120	0.012	0.002	0.080	0.120	0.020	0.004	0.001	0.010	
5	800 WNRFD STD 6" A105N	5 PCE	0.200	0.200	1.140	0.017	0.006	0.007	0.010	0.002	0.004	0.001	0.008	
6	900 WNRFD XS 4" A105N	60 PCE	0.200	0.210	1.160	0.016	0.006	0.007	0.020	0.010	0.002	0.004	0.001	
7	900 WNRFD S120 6" A105N	11 PCE	0.200	0.200	1.140	0.017	0.006	0.007	0.010	0.010	0.002	0.004	0.001	
8	150 BLRFD 24" A105N	30 PCE	0.210	0.230	1.180	0.010	0.014	0.108	0.080	0.010	0.010	0.010	0.010	
9	300 BLRFD 2" A105N	400 PCE	0.220	0.220	1.140	0.021	0.006	0.007	0.020	0.010	0.003	0.004	0.001	
10	300 BLRFD 18" A105N	5 PCE	0.200	0.200	1.040	0.016	0.010	0.110	0.100	0.030	0.020	0.001	0.007	
Item No.	Heat No.	T.S.(MPa) Y.S.(MPa)	E.L.(%)	Hardness (H1B)	R.A.(%)	Impact Test			Material Supplier	REMARKS				
						Temp: Minimum: Joule	1	2			3			
1	4553822	535.0	34.2	154/151	68.6	187	30.0		ACOMINAS	880 CX3HRS CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156-2-08 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A CONFORMS WITH Z245.12 CAT I GR248 SOUR SERVICE-DRY FOR USE AS WELDING NECK AND BLIND FLANGES ONLY MN TO C RATIO IS GREATER THAN 3.0				
2	Y101628	543.3	32.6	155/153	70.4				KOTOBUKI					
3	94409	520.0	36.4	153/150	70.4				WEI CHIH STEEL					
4	652897	531.0	34.6	164/162	71.3				GODO STEEL					
5	4677182	524.0	36.0	154/151	72.1				ACOMINAS					
6	4677184	516.0	35.2	153/151	71.3				ACOMINAS					
7	4677192	524.0	36.0	154/151	72.1				EVRAZ ZSMK					
8	246539	541.0	34.2	155/153	68.6				ACOMINAS					
9	4603008	524.0	33.4	164/161	70.4				KOTOBUKI					
10	Y202035	514.0	34.2	152/150	69.5				KOTOBUKI					



CONFORMS TO SA _____
 YEAR: 2010 ED, 2011 ADP
 JOB #: 2013-8440-50
 ITEM #: 2
 SIGNED BY: NOV 28 2013

Manager of Quality Assurance Dept

*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.

*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S=T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.

*3: C.E. Value = C + (Mn / 8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

2-8440-50
 Po-134044

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 4808	De/Date	09.09.2013	Fattura / Invoice N.	De/Date
DDT / Del Note N. 0	De/Date		Ms.Ord. / Our ref. N.	

TRANS AM PIPING PRODUCTS LTD
9335 ENDEAVOR DRIVE S.E.
T3S 0A1 CALGARY, ALBERTA CA

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV = ISO 9001 =

28881 CESSANA BRIANZA (LO) - Italy
VIA G. PIRELLI, 28
Tel. +39 0362 655441
Fax: +39 0362 655448
QUALITY SYSTEM CERTIFIED BY DNV = ISO 9001 =

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT



COD. COL. HEAT CODE	COLATA ITEM	POS. YOUR REFERENCE	Q.TA' DESCRIPTION	Q.TA' DESCRIPTION
126,60	50,80	13/37955	WIN 150 RF 6" STD A105N	WIN 150 RF 6" STD A105N
MATERIALE / MATERIAL				
ASTM A105 (LADLE)				
PROVETTA / TEST SPECIMEN	FORMA / SHAPE	SNERVAMENTO / YIELD POINT	ALLUNGAMENTO / ELONGATION	CONTRAZIONE / REDUCTION OF AREA
SEZ. mm2	LUNG. mm	N/mm2	%	%
126,60	50,80	330,0	32,0	60,0
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO				
ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010				
ADD. 2011a				
CSA Z245.12 GRADE 248 CAT.1 SOUR SERVICE				

TRATTAMENTO TERMICO / HEAT TREATMENT
NORMALIZED AT 920 C - COOLED IN STILL AIR

FORNO / FURNACE
ELECTRIC FURNACE

ORIGINE / ORIGIN OF STEEL
EUROPEAN UNION

COD. COL. HEAT CODE	COLATA ITEM	POS. YOUR REFERENCE	Q.TA' DESCRIPTION	Q.TA' DESCRIPTION
126,60	50,80	13/37955	WIN 300 RF 1" XS A105N	WIN 300 RF 1" XS A105N
MATERIALE / MATERIAL				
ASTM A105 (LADLE)				
PROVETTA / TEST SPECIMEN	FORMA / SHAPE	SNERVAMENTO / YIELD POINT	ALLUNGAMENTO / ELONGATION	CONTRAZIONE / REDUCTION OF AREA
SEZ. mm2	LUNG. mm	N/mm2	%	%
126,60	50,80	325,0	31,0	58,0
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO				
ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010				
ADD. 2011a				
CSA Z245.12 GRADE 248 CAT.1 SOUR SERVICE				

TRATTAMENTO TERMICO / HEAT TREATMENT
NORMALIZED AT 920 C - COOLED IN STILL AIR

FORNO / FURNACE
ELECTRIC FURNACE

ORIGINE / ORIGIN OF STEEL
EUROPEAN UNION

CONFORMS TO SA 105

YEAR 2013

JOB # 9013-840-50

NOV 28 2013

NOTE 100% MANUFACTURED IN ITALY
NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009 - SOUR SERVICE
MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE

UFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT
ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY

MARCHIO PRODUZIONE / MANUFACTURER'S SYMBOL

Pag. 9 - 12

VISIVO E DIMENS. / VIS. & DIMENS.
SATISFACTORY

VISIVO E DIMENS. / VIS. & DIMENS.
SATISFACTORY

CL 150 W/N
FLANGE RF STD



METFAR
PRODOTTI INDUSTRIALI S.p.A.
SPAZZOLATA S. CAIRO D'ADRIANO - CANTÙ - LEGATE E MOSSATELLA

COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV
= ISO 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Carif. N. 5306 Del/Dated 02.10.2013 Fatura / Invoice N. 3622 Del/Dated 30.09.2013
DDT / Del Note N. 4120 Del/Dated 30.09.2013 No.Ord. / Our ref. N. 0
TRANS AM PIPING PRODUCTS LTD Desct.: TRANS AM PIPING PRODUCTS LTD
9335 ENDEAVOR DRIVE S.E. 9335 - Endeavor Drive S.E. CA
T3S 0A1 CALGARY, ALBERTA T3S 0A1 Calgary, ALBERTA CA

Pag. 3 - 12

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV = ISO 9001 =

Q.T.A	DESCRIZIONE	Q.T.A	DESCRIZIONE	Q.T.A	DESCRIZIONE	Q.T.A	DESCRIZIONE
124,00	WIN 150 RF 6" STD A105N	124,00	WIN 150 RF 6" STD A105N	107,00	WIN 150 RF 6" STD A105N	107,00	WIN 150 RF 6" STD A105N

PROVETTA / TEST SPECIMEN
FORMA / SHAPE 1-0 2-Q
SEZ. / SECT. 50,80
LUNG. / LENGTH mm 126,60

ALLINEAMENTO / ELONGATION
% 32,0

ROTTURA / TENSILE STRENGTH
N/mm² 512,0

CONTRAZIONE / REDUCTION OF AREA
% 58,0

DUREZZA / HARDNESS
HV 154,0 - 158,0

RESILLENZA / IMPACT TEST - JOULE/cm²
TIPO / TYPE 1 2 3
KV 20 -86 88 94

TRATTAMENTO TERMICO / HEAT TREATMENT
NORMALIZED AT 920 C - COOLED IN STILL AIR

TRATTAMENTO TERMICO / HEAT TREATMENT
NORMALIZED AT 920 C - COOLED IN STILL AIR

ASTM A105 (LADLE)
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO
ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010
ADD. 2011a

CSA Z245.12 GRADE 248 CAT.1 SOUR SERVICE

TRATTAMENTO TERMICO / HEAT TREATMENT
NORMALIZED AT 920 C - COOLED IN STILL AIR

TRATTAMENTO TERMICO / HEAT TREATMENT
NORMALIZED AT 920 C - COOLED IN STILL AIR

VS. ORDINE / YOUR REFERENCE	CI-12-430	VS. ORDINE / YOUR REFERENCE	CI-12-430
-----------------------------	-----------	-----------------------------	-----------

PROVETTA / TEST SPECIMEN
FORMA / SHAPE 1-0 2-Q
SEZ. / SECT. 50,80
LUNG. / LENGTH mm 126,60

ALLINEAMENTO / ELONGATION
% 32,0

ROTTURA / TENSILE STRENGTH
N/mm² 508,0

CONTRAZIONE / REDUCTION OF AREA
% 60,0

DUREZZA / HARDNESS
HV 154,0 - 158,0

RESILLENZA / IMPACT TEST - JOULE/cm²
TIPO / TYPE 1 2 3
KV 20 -86 96 92

TRATTAMENTO TERMICO / HEAT TREATMENT
NORMALIZED AT 920 C - COOLED IN STILL AIR

TRATTAMENTO TERMICO / HEAT TREATMENT
NORMALIZED AT 920 C - COOLED IN STILL AIR

ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010
ADD. 2011a

CSA Z245.12 GRADE 248 CAT.1 SOUR SERVICE

CONFORMS TO SA 105N
YEAR 2010 ED. 2011 (60)
JOB # 2013-8440-51
ITEM # 3
SIGNED BY NOV 28 2013

3-8440-51
Po-134044

NOTE 100% MANUFACTURED IN ITALY
NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-01752009 ISO 15156-2:2009 - SOUR SERVICE
MATERIAL IN ACCORDANCE WITH NACE MR-01032012 - SOUR SERVICE

UFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT
A. S. S. S. S.

ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY

MARCHIO PRODUZIONE / MANUFACTURER'S SYMBOL

HighCo G&S B&B 01-13-2013 09:00
Shipment 01-13-2013 09:00
Headline 01-13-2013 09:00
Items 01-13-2013 09:00
4044 items

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001 =

22681 CI SANNA BIRIANZA (LC) - Italy
 Via C. Pirelli, 26
 Tel. +39 031 655411
 Fax +39 031 655149
 quality.info@aromas.com

METALFAR
 PRODOTTI INDUSTRIALI S.P.A.
 STAMPAGGIO A CALDO DI ACCIAI COMBINATI LEGATI E MASSICIARI
 SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

22681 CI SANNA BIRIANZA (LC) - Italy
 Via C. Pirelli, 26
 Tel. +39 031 655411
 Fax +39 031 655149
 quality.info@aromas.com

Carrit. N. 3079 Def/Date 31.05.2013 Fatura / Invoice N. 2087 Def/Date 29.05.2013
 DD1 / Del Note N. 2414 Def/Date 29.05.2013 No.Ord. / Our ref. N.
 TRANS AM PIPING PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 T3S 0A1 CALGARY, ALBERTA CA

9335 ENDEAVOR DRIVE S.E.
 T3S 0A1 CALGARY, ALBERTA CA

9335 ENDEAVOR DRIVE S.E.
 T3S 0A1 CALGARY, ALBERTA CA

DIMIN ACC. A		DIM IN ACC. A	
DIM. ACCORDANCE TO		DIM. ACCORDANCE TO	
ASME/ANSI B16.5 -2009		ASME/ANSI B16.5 -2009	
RESILIENCE / IMPACT TEST - JOULE/CM ²	1 2 3	RESILIENCE / IMPACT TEST - JOULE/CM ²	1 2 3
20 87 83 85		20 87 83 80	
TEMPERATURE (KATZ) °C		TEMPERATURE (KATZ) °C	
KV		KV	
166,0 - 169,0		159,0 - 163,0	
THICKNESS (MM) / (IN)		THICKNESS (MM) / (IN)	
58,0		58,0	
CONTRAZIONE (REDUCTION OF AREA)		CONTRAZIONE (REDUCTION OF AREA)	
30,0		31,0	
ALLUNGAMENTO (ELONGATION)		ALLUNGAMENTO (ELONGATION)	
0,990		0,990	
ROTTURA (TENSILE STRENGTH)		ROTTURA (TENSILE STRENGTH)	
620,0		522,0	
YIELD POINT (MINIMUM)		YIELD POINT (MINIMUM)	
364,0		343,0	
FORMA (SHAPE)		FORMA (SHAPE)	
1-0 2-D		1-0 2-D	
SECT. mm (INCH)		SECT. mm (INCH)	
126,60 (5,0)		126,60 (5,0)	
SECT. mm (INCH)		SECT. mm (INCH)	
50,80 (2,0)		50,80 (2,0)	
PROVETTA / TEST SPECIMEN		PROVETTA / TEST SPECIMEN	
1-0 2-D		1-0 2-D	
SECT. mm (INCH)		SECT. mm (INCH)	
126,60 (5,0)		126,60 (5,0)	
SECT. mm (INCH)		SECT. mm (INCH)	
50,80 (2,0)		50,80 (2,0)	

TRATTAMENTO TERMICO / HEAT TREATMENT
 NORMALIZED AT 920 C - COOLED IN STILL AIR

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 NORMALIZED AT 920 C - COOLED IN STILL AIR

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 NORMALIZED AT 920 C - COOLED IN STILL AIR

TRATTAMENTO TERMICO / HEAT TREATMENT
 NORMALIZED AT 920 C - COOLED IN STILL AIR

TRATTAMENTO TERMICO / HEAT TREATMENT
 NORMALIZED AT 920 C - COOLED IN STILL AIR

CONFORMS TO SA 105N
 YEAR 2010 ED 2011A
 JOB# 2013-8440-5D
 ITEM# 4
 SIGNED BY SA Nov 22 / 13

CONFORMS TO SA 105N
 YEAR 2010 ED 2011A
 JOB# 2013-8440-5D
 ITEM# 4
 SIGNED BY SA Nov 22 / 13

CONFORMS TO SA 105N
 YEAR 2010 ED 2011A
 JOB# 2013-8440-5D
 ITEM# 4
 SIGNED BY SA Nov 22 / 13

UFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT
 ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY

UFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT
 ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY

UFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT
 ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY

100% MANUFACTURED IN ITALY
 MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 MATERIAL IN ACCORDANCE WITH FACE MR 017/62/009 ISO 15116:2009 / SOUR SERVICE
 MATERIAL IN ACCORDANCE WITH FACE MR 017/62/012 - SOUR SERVICE

100% MANUFACTURED IN ITALY
 MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 MATERIAL IN ACCORDANCE WITH FACE MR 017/62/009 ISO 15116:2009 / SOUR SERVICE
 MATERIAL IN ACCORDANCE WITH FACE MR 017/62/012 - SOUR SERVICE

100% MANUFACTURED IN ITALY
 MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 MATERIAL IN ACCORDANCE WITH FACE MR 017/62/009 ISO 15116:2009 / SOUR SERVICE
 MATERIAL IN ACCORDANCE WITH FACE MR 017/62/012 - SOUR SERVICE



MARCHIO PRODUZIONE / MANUFACTURER'S MARK

MARCHIO PRODUZIONE / MANUFACTURER'S MARK

MARCHIO PRODUZIONE / MANUFACTURER'S MARK

2010 ED, 2011 ADD
 2013-8440-5D

2010 ED, 2011 ADD
 2013-8440-5D

2010 ED, 2011 ADD
 2013-8440-5D

2010 ED, 2011 ADD
 2013-8440-5D

Alco Gas Num 01:13
 Trans Num 02:00
 Shear Num 03:00
 Heat Num 04:00
 Stor Num 05:00
 Order Num 06:00
 Date 07:00
 Rev 08:00
 09:00
 10:00
 11:00
 12:00
 13:00
 14:00
 15:00
 16:00
 17:00
 18:00
 19:00
 20:00

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV - ISO 9001 -
 20991 CASARA SPINAZZA & C. s.p.a.
 Via S. Pietro, 28
 Tel. +39 0371 666049
 Fax +39 0371 666048
 www.casara-spinazza.com

METALFAR
 PHOSPHORUS INDUSTRIALI S.P.A.
 STRADA 93 - CAPO D'ACQUA (SARONNO) - (LEGNATE) - 20138 MILANO
 SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

Cardi. N. 5078 - Dedicato 20.09.2013 - Fabbrica / Invoce N. 3470 - Dedicato 19.09.2013
 DOT / Dat Nota N. 3961 - Dedicato 19.09.2013 - No. Ord. / Our ref. N. 0
 TRANS AM PIPING PRODUCTS LTD
 5335 ENDEAVOR DRIVE S.E.
 T3S 0A1 CALGARY, ALBERTA CA
 CA T3S 0A1 Calgary, ALBERTA CA
 P. 33 - 20

DIMIN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5 - 2009		RESILICA / IMPACT TEST - COLLISION		RESILICA / IMPACT TEST - COLLISION	
YIELD POINT MPa	TENSILE MPa	TEMPERATURE °C	IMPACT ENERGY J	TEMPERATURE °C	IMPACT ENERGY J
400,0	536,0	-46	88	82	90

COD. COL. HEAT	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA. QTY	DESCRIZIONE DESCRIPTION
13F278	054	CI-12-311	150,00	WIN 600 RF 3" X3 L F2C11

MATERIALE / MATERIAL	C%	Si%	Mn%	S%	P%	Cr%	Ni%	Mo%	Co%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%
ASTM A350 LF2 CL1/2 (LADLE)	0,180	0,230	1,050	0,005	0,012	0,128	0,090	0,020	0,015	0,015	0,140	0,002	0,002	0,009	0,076	0,399

DIMIN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5 - 2008		RESILICA / IMPACT TEST - COLLISION		RESILICA / IMPACT TEST - COLLISION	
YIELD POINT MPa	TENSILE MPa	TEMPERATURE °C	IMPACT ENERGY J	TEMPERATURE °C	IMPACT ENERGY J
330,0	512,0	20	96	84	90

COD. COL. HEAT	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA. QTY	DESCRIZIONE DESCRIPTION
13E2806	005	CH-12-430	120,00	WIN 150 RF 4" STD A105N

MATERIALE / MATERIAL	C%	Si%	Mn%	S%	P%	Cr%	Ni%	Mo%	Co%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%
ASTM A105 (LADLE)	0,185	0,240	0,980	0,010	0,010	0,130	0,060	0,010	0,017	0,017	0,140	0,003	0,001	0,008	0,025	0,390

105 N.
 2010 ED. 2011 ADD
 JOB # 2013-8440-51
 ITEM # 4
 SIGNED BY V. NOV 29 2013
 35-Stock
 20-134121
 3-8440-51

MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO
 ASTM/ASME A 350/SA 350 M - 12 ASME CODE SECT. II, PART A, ED. 2010 ADD.
 TRATTAMENTO TERMICO / HEAT TREATMENT
 NORMALIZED AT 830 C - COOLED IN STILL AIR

MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO
 ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010
 ADD. 2011a
 CSA Z245.12 GRADE 248 CAT.1 SOUR SERVICE

UFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT
 ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY
 MARCHIO PRODUTTORE / MANUFACTURERS SYMBOL

NOTE 100% MANUFACTURED IN ITALY
 NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
 MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15186-2008 - 8.0UR SERVICE
 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - 8.0UR SERVICE

107511

Material Test Report

COFFER
an **AFG&bal** Company

Heat Code: **HUP**

ISO 9001:2008 Certified

An Ameri-Forge Group Company
13770 Industrial Rd. Houston, TX 77015
Sales: (713) 868-4421 Fax: (713) 455-8366

CE FRANKLIN LTD. 1800, 635-8th Avenue S.W. T2P 3M3 Calgary, ALB	PO: 3318907OR2100	Sales Order: 130292	Line: 8
	Item Code: 0153400100-0031F	Qty Shipped: 45	
	Item Desc: FLG 04.00 0150 BL RF		
	Supplier: STEEL DYNAMICS	Supplier Heat: A102357	
Spec: CSA Z245.12-09 GRADE 248 Cat.2 - ASTM A350(12)/ASME SA350(13)			

Element	(%wt)	Ladle	Product	EPCRA	CAS#	Element	(%wt)	Ladle	Product	EPCRA	CAS#
C	Carbon	0.18	0.19			Cr	Chromium	0.16	0.16	✓	7440-47-3
Mn	Manganese	1.12	1.11	✓	7439-96-5	Mo	Molybdenum	0.03	0.03		
P	Phosphorous	0.013	0.013			V	Vanadium	0.037	0.034		
S	Sulphur	0.005	0.004			Cb	Columbium	0.001	0.002		
Si	Silicon	0.24	0.22			Al	Aluminum	0.027			
Cu	Copper	0.20	0.20	✓	7440-50-8	C.E.		0.43			
Ni	Nickel	0.09	0.09	✓	7440-02-0						

Mechanical Testing			Heat Treat	
Test Lab	Accutest 496283.0		Norm. Temp. (F)	1675
Test Bar Size	SACRIFICIAL PIECE		Norm. (Hrs)	4
HBW	145 - 145		Norm. Cooling Type	AIR
Elg (%)	33.0		Other	
RA (%)	73.0			STEEL DYNAMICS
Tensile Specimen Size (in)	0.250			A102357
Tensile (ksi)	79.8		VD	Y
Yield (ksi)	52.8		EF	Y
Gauge Length	1		Gr. Sz	Y
Charpy Temp (F)	-50			
Charpy (ft lbs)	68 - 97 - 82			
Avg Energy 3 Specimens (ft-lbs)	82			
Min Energy 1 Specimens (ft-lbs)	68			
% Shear	55 - 80 - 70			
Lat. Exp.	56 - 80 - 60			

CONFORMS TO SA **350LF2CL1**
 YEAR **2010 E.P. 2011 ADD**
 JOB # **2013-8440-50**
 ITEM # **5**
 SIGNED BY **[Signature]** FEB 19 2014

1-8440-50
Po-134861.

No Weld repair performed. Chemical Analysis results shown are actual. Forgings are capable of passing hydrostatic test compatible with the appropriate rating. Elongation taken from a round specimen. Yield strength was determined using the .2% offset method. All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing. Made in USA.
 Product compliant with **NACE MR0175 / ISO 15156**, latest edition and dimensions to ASME B16.5. Product was manufactured in the USA.
 Tensile Testing Per ASTM E8; Brinell Hardness Per ASTM E10; Charpy Testing Per ASTM E23.
 AmeriForge manufactures materials according to a certified Quality Management System conforming to ISO 9001:2000 and in compliance to PED 97/23/EC, Section 4.3
 No welding performed.
 Product compliant with NACE MR0103, latest edition.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility alone to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No.: 286626
 Certification Date: 12/23/2013

M. Hingwe
 Mandar Hingwe - Dir. of Quality and Metallurgy

This report is issued in compliance with the requirements of EN10204 3.1 / ISO 10474 3.1.b

Order#: 312846 Seq: 17 PO#: 133700 Heat#: TL10006133 Mill: Tri-Lad
 Part#: FL 3 1 R W STD 5 Part Desc: Flanges 3 (88.9mm O.D.) 150# RAISED FACE WELD NECK STD A/SA105N



ISO 9001 2008

TRILAD Flanges and Fittings, Inc.

30 WOODSLEE AVE
 PARIS, ON, CANADA N3L 3V1
 (PHONE) 519-442-6520
 (FAX) 519-442-7658
 www.tri-lad.com

CERTIFIED MATERIAL TEST REPORT

Certificate No.	13170293	EN 10204 3 1	Date of Report	7/02/2013	
Customer	AB	Customer Order No	405074	Quantity	32
		Tri-Lad Order No	580954	Line No	1

Specification	SA105N SECT II 2010 EDITION 2011A ADDENDA	Heat Treatment	NORMALISED
Item Description	3 150 WN STD RF A105N ←	Temperature	Init 1634 F 890 C
Shop Order/Trace No		Time	N=1 05RS
Lot No		Lot Definition	
Heat Code	TL10006133		
C.E.	.41	Melt Practice	EF

Heat Product	Chemical Composition										
	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	
	18	1.17	.026	.011	28	10	05	13	01		001 ←
Heat Product											
Heat Product											

Yield	Tensile				Reduction of Area	Mechanical Properties		Impact Values	Shear Fracture
	KSi	Mpa	KSi	Mpa		Hardness	Impact Test Temperature		
	56	388	83	572	26 %	46 %	HBW 159	HBW 159 ←	
Tensile Specimen	STD RD								
lateral Expansion	Impact Type				Impact Orientation	Starting Material	Impact Specimen		

CONFORMS TO SA	105N
YEAR	2010 ED, 2011 ADD
JOB #	2013-8440-50
ITEM #	6
SIGNED BY	NOV 22 2013

Notes
 6-8440-50
 30-Stock
 Po-133700
 NACE MR0103 LATEST ED ←
 NACE MR0175/ISO15156-09

We certify that we have reviewed with the applicable standard to which it is ordered including ASME Sect II, ASME B16.5, B16.9, B16.36, B16.47, CSA, MSS, AWWA C-207
 NO WELD REPAIR
 Material conforms to both ASTM (A) and ASME (SA) applicable specifications
 We hereby certify that all information presented on this CMTR conforms to the above specification
 We hereby certify the results to be a true copy of the records of the company.

Les Mansfield
 Les Mansfield, CET
 Quality Assurance Manager



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STRUMENTISTICA:
 23951 CESANA BRIANZA (LC) - Italy
 Via G. Pardi, 28
 Tel. +39 031.555441
 Fax +39 031.655149
 quality.metalfarm-as.com

STRUTTURA A CALDO DI ACCIAI COMUNI - LEGATI E INDESSIBILI

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

COMPANY WITH
 QUALITY SYSTEM
 CERTIFIED BY DNV
 = ISO 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 6330 Del/Dated 03.12.2013 Fattura / Invoice N. 4324 Del/Dated 29.11.2013
 DDT / Del Note N. 4954 Del/Dated 29.11.2013 Ns.Ord. / Our ref. N. 0
 CE FRANKLIN LTD, A Division of NOV WILSON Dest.: CE Franklin Ltd - DISTRIBUTION CEN.
 1800, 635 - 8TH Avenue S.W. 2603 - 76 Avenue
 T2P 3M3 CALGARY, ALBERTA CA T6P 1P6 EDMONTON, ALBERTA CA

Pag. 5 - 10

COD. COL. COLATA HEAT CODE HEAT	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA. Q.TY	DESCRIZIONE DESCRIPTION	A105N	DIM. IN ACC. A DIM. ACCORDANCE TO	RESILUENZA / IMPACT TEST - JOULE/cm ²	FORNO / FURNACE	ORIGINE / ORIGIN OF STEEL
13/39559	059	3220811-OR-2100	18,00	S/O 150 RF 10"		ASME/ANSI B16.5-2013		ELECTRIC FURNACE	EUROPEAN UNION
MATERIALE / MATERIAL									
ASTM A105 (LADLE)									
PROVETTA / TEST SPECIMEN	FORMA SHAPE	ROTTURA TENSILE STRENGTH	ALLUNGAMENTO ELONGATION	CONTRAZIONE REDUCTION OF AREA	DUREZZA HARDNESS	RESILUENZA / IMPACT TEST - JOULE/cm ²	TIPO / TYPE	FORNO / FURNACE	ORIGINE / ORIGIN OF STEEL
SEZ. mm2 SECT. mm2	LANG. mm LENGTH mm	N/mm2 >=	% >=	% >=	HBW	°C	KV	ELECTRIC FURNACE	EUROPEAN UNION
126,60	50,80	519,0	33,0	62,0	152,0 - 154,0		20		
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO									
ASTM/ASME A 105/SA 105 M - 13 ASME CODE SECT. II, PART A, ED. 2013									
CSA CAN3 Z245.12-09 GRADE 248 CAT.I SOUR SERVICE									
TRATTAMENTO TERMICO / HEAT TREATMENT									
NORMALIZED AT 920 C - COOLED IN STILL AIR									

COD. COL. COLATA HEAT CODE HEAT	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA. Q.TY	DESCRIZIONE DESCRIPTION	LF2CL1	DIM. IN ACC. A DIM. ACCORDANCE TO	RESILUENZA / IMPACT TEST - JOULE/cm ²	FORNO / FURNACE	ORIGINE / ORIGIN OF STEEL
1376390	012	3323839-OR-2100	105,00	BLIND 150 RF 3"		ASME/ANSI B16.5-2013		ELECTRIC FURNACE	EUROPEAN UNION
MATERIALE / MATERIAL									
ASTM A350 LF2 CL1/2 (LADLE)									
PROVETTA / TEST SPECIMEN	FORMA SHAPE	ROTTURA TENSILE STRENGTH	ALLUNGAMENTO ELONGATION	CONTRAZIONE REDUCTION OF AREA	DUREZZA HARDNESS	RESILUENZA / IMPACT TEST - JOULE/cm ²	TIPO / TYPE	FORNO / FURNACE	ORIGINE / ORIGIN OF STEEL
SEZ. mm2 SECT. mm2	LANG. mm LENGTH mm	N/mm2 >=	% >=	% >=	HBW	°C	KV	ELECTRIC FURNACE	EUROPEAN UNION
126,60	50,80	512,0	32,0	60,0	152,0 - 156,0		-46		
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO									
ASTM/ASME A 350/SA 350 M - 13 ASME CODE SECT. II, PART A, ED. 2013									
CSA CAN3 Z245.12-09 GRADE 290 CAT.II SOUR SERVICE									
TRATTAMENTO TERMICO / HEAT TREATMENT									
NORMALIZED AT 930 C - COOLED IN STILL AIR									

CONFORMS TO SA 350 LF2CL1
 YEAR 2010 ED. 2014
 JOB # 2013-8440-50
 ITEM # 7
 SIGNED BY [Signature] FEB 19 2014

1-8440-50
 P-134661

NOTE	100% MANUFACTURED IN ITALY	UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL
NOTES	MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION	[Signature]		[MFF Logo]
	MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2:2009 - SOUR SERVICE			
	MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE			

NORMA (INDIA) LIMITED

48, Site IV Industrial Area, Sahibabad, Ghaziabad-201010 (U.P.) INDIA.
 Tel: 91-120-2895404 Fax: 91-120-2895930 E-mail: normaindia@gmail.com

NORMA/LAB NO-027/12-13

P. Order No.:

27-150#WNRFXH FLG. ←

Customer:-

SILBO IND. INC.
 U.S.A.

DATE:-08.04.12

Forging specification: ASME SA105 -09
 ASTM A105 -09

Drawing No.

ANSI B16.5- 2009

Quantity:-

Nos

Steel Supplier

RIN L.

Machining

ASME B16.5- 2009

Mill Heat No.

101152

NORMA HEAT NO- 722 ←

TEST RESULTS

CHEMICAL COMPOSITION

Elements %	Specified	NORMA LAB: MILL T.C.	Actual
Carbon	0.35max.	0.24	0.25
Manganese	0.60-1.05	0.90	0.86
Silicon	0.10-0.35	0.24	0.22
Sulphur	0.040max.	0.015	0.013
Phosphorous	0.035max.	0.21	0.019
Chromium	0.30max.	0.007	---
Nickel	0.40max.	0.003	---
Copper	0.40max.	0.002	---
Molybdenum	0.12max.	0.001	---
Vanadium	0.080max.	0.001	---
Carbon	0.47max.	0.392	0.393

MECHANICAL PROPERTIES.

PROPERTIES SPECIFIED OBTAINED Specified carbon as per Purchase Order
 0.25max.

Yield Strength 250.00 357.76
 (mpa) min.

Tensile Strength 485.00 525.36
 (mpa) min.

%Elongation in 22.00 34.08
 50mm / 4D min

Hardness 187. 156-163
 HB. max.

% Reduction of 30.00 48.89
 Area min.

Remarks: We here by certify that the material Checked by:

Metallurgist

Certified by:

Quality Control Manager

CONFORMS TO SA	105N
YEAR	NOV 2011
JOB #	NOV 2013-8440-50
ITEM #	8
EXPIRES BY	NOV 22 2013

43-8266-50
 Po # 129163

3-8440-50

MARKING AS PER MSS-SP-25-1978
 27-150 XH SA105 N 722 B16.5 NORMA INDIA ←

H.T:- Normalised at temp 920°C


CARBON EQUIVALENT (CE)
 CE = C + Mn + Cr + Mo + V + Ni + Cu
 6 5 15

Serrated face as per MSS-SP-6 With in limits
 of 125-250AARH

124641

03/06/2013

https://gpls.nov.com/mw/gifviewer.aspx?docIDs=221856

 SUDHIR FORGINGS (P) LTD KANGANWAL ROAD, P O JUGIANA, GT ROAD, LUDHIANA (INDIA)		Control No. TC/01 Rev. 01 Eff Date 01.07.2009	
TEST CERTIFICATE (in accordance with EN 10204 3.1 B)			
ITEM	2" 150 WNRF XH (SKU BB74377)	CERTIFICATE No.	SF/FLANGE/21/SC11
QUANTITY	150 PCS	LAB Ref. No.	509
FINISH	BLACK PAINT	CUSTOMER NAME	CCIF CORPORATION
MAT. SPECIFICATION	ASME SA 105N-10 / ASTM A105N-03	INVOICE No.	SF/2011-12/114
P.O. No.	4028984	DT	30-May-2011
Supplier Heat No. 461B Description Specified Observed C% 0.25 max 0.60 - 1.05 0.035 max 0.040 max Si% 0.35 max 0.40 max Mn% 0.80 max 0.90 max P% 0.027 0.038 S% 0.038 0.038 Cu% 0.083 0.083 Ni% 0.40 max 0.40 max Cr% 0.30 max 0.30 max Mo% 0.12 max 0.12 max V% 0.08 max 0.08 max C.I.E % 0.384 0.384		R.A. % 30 min 51.23 Elongation% 22 min 42.4 YIELD N / MM ² 250 min 335.26 485 min 513.71 UTS N / MM ² 485 min 513.71 513.71 Hardness (BHN) 187 max 156	
HEAT TREATMENT PROCESS : TEMP 870°C - 910°C SOAKING TIME: 2.00 HOURS			
REMARKS: Flanges are forged steel and manufactured in strict accordance with ASTM A5A 105 & ANSI B16 5 The flange have been normalized in accordance with ASTM A961 We certify that the Material Suits the Requirement of P O / Relevant specifications Flanges have serrated face as per MSS-SP-6 within the limit of 125 - 250 RMS Flanges are painted with black paint & Marked as SF 2 WNRF XH 150 A105N B16 5 509 INDIA			
13-Stock PO# 131428		INFORMED TO SA 105N YEAR 2013-2011 ADD JOB # 2013-8440-50 ITEM # 8 SIGNED BY NOV 22 2013 FOR SUDHIR FORGINGS PVT. LTD	
G.C. ENGINEER		G.C. MGR	

Order#: 312846 - A Seq: 16 PO#: 133700 Heat#: TL10006617 Mill: Tri-Lad
 Part#: FL 2 1 R W XS 5 Part Desc: Flanges 2 (60.3mm O.D.) 150# RAISED FACE WELD NECK XS A/SA105N

TRILAD Flanges and Fittings, Inc.



ISO 9001:2008

30 WOODSLEE AVE.
 PARIS, ON, CANADA N3L 3V1
 (PHONE) 519-442-8520
 (FAX) 519-442-7658
 www.tri-lad.com

CERTIFIED MATERIAL TEST REPORT

Certificate No. **13174936** EN 10204 3.1 Date of Report **9/27/2013**

Customer **AB** Customer Order No **412563** Quantity **2**
 Tri-Lad Order No **593063** Line No **2**

Specification **A105N** STOCK Heat Treatment **NORMALISED**

Item Description **2 150 WN XS RF A105N** 866501 Temperature **Init 1634 F 890 C**

Shop Order/Trace No. **CONFORMS TO SA 105N**
 Year **2010 ED, 2011 Add**
 Job # **9013-8440-50**
 Item # **8**
 Signed By **NOV 22 2013**
 Heat Code **TL10006617**
 C.E. **40** Melt Practice **EF**
9-8440-50
44-STOCK
PO-133700

Chemical Composition																				
Heat Product	C	19	Mn	1.03	P	0.028	S	0.029	Si	0.24	Cu	13	Ni	0.06	Cr	10	Mo	0.02	V	0.001
Heat Product	Nb	0.01																		
Heat Product																				

Mechanical Properties									
Yield	Tensile	Elongation	Reduction of Area	Hardness	Impact Test	Impact Values	Shear Fracture		
Ksi	63	Ksi	83	HBW	161	Temperature			
Mpa	431	Mpa	575	HBW	161				
Tensile Specimen	STD RD		29 %	56 %					
Lateral Expansion		Impact Type		Impact Orientation		Starting Material	Impact Specimen		

Notes

- Cr+Mo <= 0.32%
- Cr+Cu+Mo+Ni+V <= 1.00%
- Mn/C >= 3.0
- CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15
- ASTM A105N-12
- ASME SA105N 2010 Edition 2011A Addenda
- CSA Z245.12-09 GR 248 CAT I SS
- ANSI/NACE MRO175/ISO15156:2009(E)
- NACE MRO103 LATEST ED.
- NACE MRO175/ISO15156-09

Material is in accordance with the applicable Standard to which it is ordered including:
 ASME Sect II, ASME B16.5, B16.9, B16.33, B16.47, CSA, MSS, AWWA C-207
 NO WELD REPAIR
 Material conforms to both ASTM (A) and ASME (SA) applicable specifications.
 We hereby certify that all information presented on this CMTR conforms to the above specification.
 We hereby certify the results to be a true copy of the records of the company

Les Mansfield
 Les Mansfield, CET
 Quality Assurance Manager



SAN ENG STEEL FORGING CO LTD
 311, Jen Hsin Road, Jen Wu District
 Kaohsiung, Taiwan, R.O.C.
 TEL:07-3724248 ; FAX:07-3712923
 URL: www.saneng.com.tw
 e-mail: saneng@ksts.seed.net.tw

MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50049/3.1.B)
 Customer: SEYBOLD INTERNATIONAL CORP.
 Order No.: 7008954(B)-CEE/NOV

Certificate No.: SE-6954H
 Date: 12/02/2013
 Page: 1 OF 1

PRODUCT		MATERIAL SPECIFICATIONS											DIMENSIONAL SPECIFICATIONS										
FORGED CARBON STEEL FLANGES		ASTM A-350 LF2-13 CL.1/ASME SA-350 LF2-13 CL.1											ASME B16.5-13 CSA Z245.12										
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)											CE(*)								
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb		N							
1	1611217	300 BLRF(2"NPT TAP) 3" LF2	20 PCE	0.220	0.230	1.170	0.019	0.035	0.040	0.400	0.300	0.400	0.120	0.080	0.020	0.007	0.007	0.420					
2	1076971	150 BLRF 2" LF2	111 PCE	0.210	0.240	1.150	0.019	0.006	0.007	0.010	0.010	0.010	0.002	0.007	0.001	0.006	0.409						
3	1076971	150 BLRF 2" LF2	89 PCE	0.220	0.230	1.170	0.019	0.006	0.007	0.020	0.010	0.010	0.002	0.007	0.001	0.007	0.420						
4	1076242	600 BLRF 1" LF2	60 PCE	0.210	0.210	1.110	0.013	0.006	0.007	0.050	0.010	0.002	0.013	0.009	0.009	0.005	0.424						
5	1790147	600 BLRF(1"NPT TAP) 2" LF2	20 PCE	0.220	0.220	1.180	0.016	0.006	0.007	0.020	0.020	0.005	0.005	0.001	0.007	0.424							
6	1737178	600 BLRF(2"NPT TAP) 3" LF2	25 PCE	0.220	0.230	1.170	0.019	0.006	0.007	0.010	0.010	0.002	0.006	0.001	0.007	0.424							
7	1560596	600 HUB BLRF(1"NPT TAP) 2" LF2	100 PCE.	0.220	0.220	1.180	0.016	0.006	0.007	0.020	0.020	0.005	0.005	0.001	0.007	0.424							
8	1509933	150 SORF 2" LF2	15 PCE	0.220	0.200	1.150	0.021	0.003	0.006	0.010	0.010	0.002	0.004	0.001	0.005	0.416							

Item No.	Heat No.	T.S.(*) (MPa)	Y.S.(*) (MPa)	E.L.(*) (%)	Hardness (HB)	R.A.(*) (%)	Impact Test Temp: -46°C Minimum: 20.0 Joule	HEAT TREATMENT(*)		REMARKS
								Min	Max	
1	4677159	527.0	364.0	33.8	153/151	70.4	98.0	850°CX4HRS	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A.	
2	4703602	527.0	372.0	36.0	153/151	68.6	97.0	CONFORMS WITH Z245.12 CAT II GRZ48 SOUR SERVICE-09 (FOR USE AS WELDING NECK AND BLIND FLANGES ONLY)		
3	4677159	527.0	364.0	33.8	153/151	70.4	98.0	TEST SPECIMEN SIZE: 10X10		
4	83623	537.4	399.1	34.4	155/153	68.6	64.0	IMPACT TEST TEMP: -46°C		
5	4603012	529.0	356.0	35.0	153/151	71.3	51.0	MIN TO C RATIO IS GREATER THAN 3.0*		
6	4677159	527.0	364.0	33.8	153/151	70.4	98.0			
7	4603012	529.0	356.0	35.0	153/151	71.3	51.0			
8	4553962	535.0	354.0	33.8	154/152	68.6	37.0			



*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.
 *2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.
 *3: C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

CONFORMS TO SA 350LF2CL1
 YEAR 2010 ED All APP
 JOB # 1013-8440-50
 ITEM # 9
 SIGNED BY [Signature] 10 2014

1-8440-50
 10-134861

Manager of Quality Assurance Dept



④ PO# 120528
J# 7969-03

MUNISH FORGE PVT. LTD

VILL . GOBINDGARH, ADJOINING PHASE -VII FOCAL POINT LUDHIANA, PHONE:-2673307, 2673407
AN ISO 9001 : 2000 CERTIFIED COMPANY
(CERTIFICATE AS PER BS EN 10204 - 3.1B)

INVOICE NO. & DATE		CERTIFICATE NO.		1786/06	
CUSTOMER'S NAME		DATE		30 - 09 - 2006	
PART NO. / NAME		P.O. NO. & DATE			
MATERIAL SPECIFICATION		ASTM A105N/ASME SA 105 - NACE MRO 175			
STANDARD		ANSI B16.5-2003 (REVISION OF ASME B16.5-1996)			
QUANTITY		LAB REF. NO.		1068F	
DESCRIPTION		QTY (PCs)		HEAT NO.	
SPECIFIED		1000			
MILL TEST REPORT		522108		1068F	
OBSERVED BY US		1000			
GRAIN SIZE :-		6.5ASTM			
INCLUSION RATING		A 1.0 B 1.0 C 1.5 D 1.0			
GRAIN FLOW		SATISFACTORY			

CHEMICAL COMPOSITION										
C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	CE%
0.25	1.05	0.035	0.040	0.10	0.40	0.40	0.30	0.12	0.05	0.43
MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MAX
0.21	0.91	0.030	0.022	0.19						
0.23	0.97	0.030	0.021	0.18	0.007	0.005	0.016	0.004	0.001	0.39

MECHANICAL PROPERTIES						
HEAT NO.	DESCRIPTION	YIELD STRENGTH Kg / mm ²	TENSILE STRENGTH Kg / mm ²	% ELONGATION	% REDUCTION	HARDNESS BHN
	OBSERVED	52.50	52.18	29.45	65.16	146-156

SPECIAL REMARKS: - WE CERTIFY THAT THE MATERIAL SUITS THE REQUIREMENT OF P.O. / RELEVANT SPECIFICATION. CARBON STEEL FLANGES ARE FORGED, NORMALIZED & FULLY MACHINED WITH SERRATED FINISH. FLANGES ARE PAINTED WITH BLACK PAINT & MARKED AS :

MUNISH 2 BLRF 150 A 105N B16.5 H1068 F INDIA

A.Q.C.M. (MATERIAL)	A.Q.C.M. (MACHINE)	FLANGE SHOP (W.M)	MANAGER (Q.C) FOR MUNISH FORGE LTD.
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CONFORMS TO SA 105N
YEAR 2010 E.P. 2011AYO
JCB # 2013-8440-50
ITEM # 10
NOV 22 2013

1-8440-50

① Po# 120524
J# 7958-06

OK

1- 8440-51

2" 150 BLIND A105 HT-13144 59A3280

SAN ENG STEEL FORGING CO LTD
311, Jen Hsin Road, Jen Wu Hsing
Keelung Hsien, Taiwan, R.O.C.
TEL: 07-3724289; FAX: 07-3712923
URL: www.saneng.com.tw
e-mail: saneng@ksis.seed.net.tw

MILL TEST CERTIFICATE

EN10204-3.1 BONS0040(3.1.B)
Customer: W.F. FITTINGS & FLANGES (CANADA)
Order No.: E0300532AMID

CONFORMS TO SA 105N
YEAR 1010EP, 2011 ASD
JOB # 1013-8440-51
ITEM # 10
SIGNED BY NOV 22 2013
Certificate No.: SE-5005C
Date: 06/25/2008
Page: 1 OF 1



PRODUCT		MATERIAL SPECIFICATIONS		DIMENSIONAL SPECIFICATIONS											
FORGED CARBON STEEL FLANGES		ASTM A105-05/ASME SA105-07		ASME B16.5-03 CSA Z245.12											
Item No.	CUSTOMER P/N	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)										CE(%)	
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V		Nb
1		150 BLRF 2" A105N	500 PCE	0.200	0.100	0.600	0.035	0.040	0.400	0.300	0.400	0.120	0.020	0.020	0.406
2		150 THRF 2"x1" A105N	30 PCE	0.190	0.160	1.060	0.012	0.011	0.070	0.090	0.050	0.005	0.005	0.008	0.397
3		150 THRF 1 1/2" A105N	25 PCE	0.210	0.210	1.110	0.018	0.014	0.110	0.070	0.050	0.008	0.003	0.008	0.421
Item No.	Heat No	T.S. (MPa)		Y.S. (MPa)	E.L. (%)	HARDNESS (HB)	R.A. (%)	Impact Test		Material Supplier	HEAT TREATMENT (°Z)	REMARKS			
		Min	Max					Minimum	Joule						
1	13144	519.8	410.5	311.9	33.2	150	65.9	1	2	OEMK	880°C X3HRS	CONFORMS WITH NACE MR01-7503 AND MR01-0307/ISO15156.2			
2	10832	523.7	323.6	321.7	34.0	150	66.8	2	3	OEMK		CONFORMS WITH Z245.12 CAT 1 GR 248 SOUR SERVICE-05			
3	35702	517.8	321.7	321.7	37.8	150	64.9	3	3	OEMK					



Manager: Quality Assurance Dept

*1 T.S. = Tensile Strength, Y.S. = Yield Strength, E.L. = Elongation, R.A. = Reduction of Area.
*2 N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T.=Solution Treated, S.R.=Stress Relieved, A.C.=Air Cooled, F.C.=Furnace Cooled, W.C.=Water Cooled, O.L.=Oil Cooled.
*3 C.E. Value = C + (Mn / 6) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

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CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE
 Cardif N. 4883 Del/Dated 28.08.2013
 DOT / Del Note N. 0 Def/Defated
 TRAN AM PIPING PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 T3S 0A1 CALGARY, ALBERTA CA

COMPANY WITH
 QUALITY SYSTEM
 CERTIFIED BY DNV
 = ISO 9001 =
 METALFAR
 PRODOTTI INDUSTRIALI S.p.A.
 VIA S. PIETRO 28
 Tel. +39 030 465424
 Fax. +39 030 465449
 SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

COD. COL. HEAT	COLATA	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA. DESCRIPTION	DESCRIZIONE
13137306				88,00	WIN 150 RF 8" STD A105N
MATERIALE / MATERIAL					
ASTM A105 (LADLE)					
PROVETTA / TEST SPECIMEN	FORMA SHAPE				
SEZ. mm2	1-6 2-3				
LENGH. mm	1				
126,60	50,90				
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO					
ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010					
ADD. 2011a					
CSA Z245.12 GRADE 248 CAT. I SOUR SERVICE					
TRATTAMENTO TERMICO / HEAT TREATMENT					
NORMALIZED AT 920 C - COOLED IN STILL AIR					
FORNO / FURNACE					
ELECTRIC FURNACE					
ORIGINE / ORIGIN OF STEEL					
EUROPEAN UNION					

COD. COL. HEAT	COLATA	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA. DESCRIPTION	DESCRIZIONE
1375368				150,00	WIN 150 RF 1.12" XS A105N
MATERIALE / MATERIAL					
ASTM A105 (LADLE)					
PROVETTA / TEST SPECIMEN	FORMA SHAPE				
SEZ. mm2	1-6 2-3				
LENGH. mm	1				
126,60	50,90				
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO					
ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010					
ADD. 2011a					
CSA Z245.12 GRADE 248 CAT. I SOUR SERVICE					
TRATTAMENTO TERMICO / HEAT TREATMENT					
NORMALIZED AT 920 C - COOLED IN STILL AIR					
FORNO / FURNACE					
ELECTRIC FURNACE					
ORIGINE / ORIGIN OF STEEL					
EUROPEAN UNION					

CONFORME TO SA 105N
 YEAR 2013
 JOB # 1013-8440-50
 ITEM # 11
 SIGNED BY NOV 28 2013

1-8440-50
 1013-8440-50

NOTE 100% MANUFACTURED IN ITALY	UFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY	MARCHIO PRODUZIONE / MANUFACTURER'S SYMBOL
NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION	<i>Handwritten signature</i>		
MATERIAL IN ACCORDANCE WITH NAACE MR-01752009 ISO 15156-2009 - SOUR SERVICE			
MATERIAL IN ACCORDANCE WITH NAACE MR-01032012 - SOUR SERVICE			



6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757
Fax: 780-450-0298

MILL TEST REPORT

Date: January 2, 2014

Heat Code: **VDG**

Description: Bleed Ring 3-150 ←

Material Designation: ASTM A350/LF2/A105N

Specification: SA51670N

Material Supplier: Ascometal via Ryerson

Heat Number: H9099

Work Order: Stock, 127327

NACE: MR0175-09 & MR0103-03

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Cb	Al	N2	V	Ti	B
.169	1.132	.008	.012	.261	.143	.049	.097	.103	.0000	---	---	.013	---	---

MECHANICAL PROPERTIES

Yield Strength (PSI)	Tensile Strength (PSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -50°F (FTLB)	Test Direction	CE
49648	72196	33.2	67	149	34.9, 32.8, 30.5, (32.7)		.412

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalizing Time/Temp. 2.75 hrs/1675°F; air cooled.

Grain Size:

CONFORMS TO SA 516-70N
 YEAR 2010ED, 2011ADD
 JOB # M013-6440-50
 ITEM # 12
 SIGNED BY [Signature] FEB 21 2014

8440-50
PO-134824

Original Materials Inc.
 ASTM A106/AS367F1
 Global P.O.: 2231
 W.O.: Stock

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: [Signature]
Quality Assurance Representative



6803-71 Street
Edmonton, Alberta
T6B 2M5

MILL TEST REPORT

Date: February 27, 2013

Phone: 780-450-9757
Fax: 780-450-0298

Heat Code: **TLH** Bleed Ring 2-300, 2-600, 2" x 3/4" 300, 2" x 1" 600, 3-900, 3-1500, 3-1500 RTJ, 4-150, 3-150; Vent Blind 3-900, 3-1500,

Description: 3-1500 RTJ, 4-150; Spectacle Product 4-150, 3-1500, 3-1500 RTJ, 3-2500 RTJ, 4-150, 10-900 RTJ

Material Designation: ASTM A350/LF2/A105N NACE: MR0175 & MR0103

Specification: SA51670N

Material Supplier: CMC Impact Metals via Ryerson

Heat Number: MM11104672

Work Order: Stock, 120472, 120080, 121138, 121548, 122068, 122134, 122404, 122466, 124149, 124733, 124426, 124919, 125161, 125076, 125331, 125325, 125736, 126495

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Cb	Al	N2	V	Ti	B
.17	1.21	.013	.004	.21	.10	.020	.08	.21	---	.022	---	.016	---	---

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -50°F (FTLB)	Test Direction	CE
49.0	76.0	33	69	141	69, 71, 58 (66)		.42

MISCELLANEOUS

Steelmaking Process: Normalizing Temp @ 1675°F; Time (min) 420.

Grain Size: 8446-50
Ro-134824

CONFORMS TO SA 516-70N
 YEAR 2013 FEB, 2013
 JOB # 2113-8446-50
 ITEM # 13
 SIGNED BY [Signature] FEB 21 2014

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: [Signature]
Quality Assurance Representative



6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757
Fax: 780-450-0298

MILL TEST REPORT

Date: January 31, 2008

Heat Code: **KQD**

Description: Spectacle Product 6-150, 8-150, 2 1/2-150, 6-1500

Material Designation: SA516-70N

NACE: MR0175 & MR0103

Material Supplier: Baoshan Iron & Steel Co., LTD. via Edmonton Exchanger

Heat Number: 408258-7313446300

Work Order: 80203, 80876, 84116, 99259

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Sn	AL	Nb	V	Ti	N
.16	1.11	.007	.0010	.29	.20	.00	.31	.20	.0010	---	.016	.000	.014	.0021

MECHANICAL PROPERTIES

Yield Strength (PSI)	Tensile Strength (PSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -51°F (FTLB)	Test Direction
54810	76850	25	---	151	67, 75, 64 (69)	CE

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalized @ 900°C for 15 minutes.

Grain Size:

CONFORMS TO SA 51670N
 YEAR 2008
 JOB # M13-844050
 ITEM # 14
 EXPIRES BY FEB 2 1 2014

8440-50

Po-134824

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: 
 Quality Assurance Representative

Original Material: place

ASTM A516-70N
 Global P.O.: 16739
 W.O.: 80203



6803 - 71 Street
Edmonton, Alberta
T6B 2M5

MILL TEST REPORT

Date: October 30, 2007

Heat Code: **JYZ**

Description: Spectacle Product 6-150

Material Designation: SA516-70N

Material Supplier: Posco via Edmonton Exchanger

Heat Number: SB73972-PB35702402

Work Order: 78357

NACE: YES

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Sn	AL	Nb	V	Ti	N
.1722	1.155	.0085	.0016	.351	.02	.000	.23	.111	---	.034	---	.019	.001	---

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -51°F (FTLB)	Test Direction	CE
51.3	75.7	24	---	151	119, 123, 128 (123)		.39

MISCELLANEOUS

Steelmaking Process:

Condition of Material: Normalized @890°C 20 min.

Grain Size:

8440-50
PO-134824

CONFORMS TO SA 516-70N

YEAR 2007 DATE 10/30/07

JOB # 1013-8440-50

ITEM # 14

SIGNED BY A. DATE FEB 21 2014

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: [Signature]
Quality Assurance Representative

Original Material: plz

ASTM A516-70N
Global P.O.: 16526
W.O.: 78357

MILL TEST REPORT

Date: July 13, 2007

HEAT CODE: JHT

Description: Spectacle Product 2-300, 8-150, 6-150

Material Designation: SA516-70N

Material Supplier: Dillinger Hutte via Edmonton Exchanger

Heat Number: 10079-549026

Work Order: 75561, 78357, 82247

NACE: MR0175

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Sn	Nb	V	Ti	N
.181	1.15	.008	.0005	.361	.041	.020	.065	.036	.002	.001	.002	.002	.0045

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ - 51°F (FT.LB)	Test Direction	CE
53.8	76.6	26.0	---	145	105, 117, 117 (113)		.39

MISCELLANEOUS

Steelmaking Process:
Condition of Material: Normalized @ 1670°F, air cooled.
Grain Size:

CONFORMS TO SA 516-70N
 YEAR 2007, 2011 ADD
 JOB # 1013-8440-50
 ITEM # 14
 SIGNED BY [Signature] FEB 21 2014

8440-50
PO-134824

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: [Signature]
Quality Assurance Representative



6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757
Fax: 780-450-0298

MILL TEST REPORT

Date: November 20, 2013

HEAT CODE: **UYB**

Description: Spectacle Product 2-600. 4-150

Material Designation: SA516-70N

Material Supplier: Ruikki via Canadian Plate Products Ltd.

Heat Number: 69196-033

Work Order: 125093

NACE: Conforms to Nace MR0175/ISO 15156-2 2009 Annex A & MR0103

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	SN	B	AL	Nb	V	Ti	N
.191	1.10	.011	.001	.32	.07	.004	.04	.011	.002	.0003	.038	.001	.013	.004	.005

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (HBW)	Charpy @ - 51°F (FT>LB)	Test Direction
51	75	28	---	159-166	119, 92, 83 (98)	CE

MISCELLANEOUS

Steelmaking Process:
Condition of Material: Normalized
Grain Size: ASTM Specification A20/ A 20M

CONFORMS TO SA 516-70N
 YEAR 2010ED, 2011ADD
 JOB # 1013-8440-50
 ITEM # 15
 SIGNED BY [Signature] FEB 21 2014

8440-50
PO-134824

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

ASTM A20/20M
Global P.O.: 22105
W.O.: 125093

Signed: [Signature]
Quality Assurance Representative

MILL TEST REPORT

Phone: 780-450-9757
Fax: 780-450-0298

Date: April 9, 2013

HEAT CODE: **TUQ**

Description: Spectacle Product 2-300

Material Designation: SA516-70N

Material Supplier: Ruukki via Edmonton Exchanger

Heat Number: 58263-013

Work Order: 120786

NACE: Conforms to Nace_MR0175/ISO 15156-2 2009 Annex A & MR0103

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Sn	Al	B	CA	V	Ti	N
.180	1.11	.010	.001	.35	.05	.004	.03	.013	.003	.037	.0002	---	.008	.005	.003

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ - 51°F (FT.LB)	Test Direction
51	75	26	---	146	86, 81, 99 (89)	C.E.

MISCELLANEOUS

Steelmaking Process:
Condition of Material: Normalized @ 1688°F.
Grain Size: ASTM Specification A20/A 20M

CONFORMS TO SA 516-70N
YEAR: 2013
JOB # 8440-50
ITEM # 16
RECEIVED BY [Signature] FEB 21 2014

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: [Signature]
Quality Assurance Representative

6805-71 Street
Edmonton, Alberta
T6B 2M5



MILL TEST REPORT

Date: July 8, 2010

HEAT CODE: NZY - 3/8" WT.

Description: Spectacle Product 2-300, 2-600

Material Designation: SA516-70N

Material Supplier: Dillinger Hutte via Edmonton Exchanger

Heat Number: 16154-444052

Work Order: 99474, 102075

NACE: MR0175

CONFIRMS TO SA	516-70MT
YEAR	2010 ED, 2011 ADD
JOB #	0013-6440-50
ITEM #	16
SIGNED BY	[Signature]
	FEB 13 2014

③ 8124-SU
R-12842
1-8440-50

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	SN	B	AL	Nb	V	Ti	N
.148	1.12	.011	.0007	.342	.055	.015	.027	.024	.000	.0003	.043	.018	.000	.003	.0047

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -51°F (FT>LB)	Test Direction
55.8	74.7	37.0	---	138-151	142, 130, 153 (142)	CE

MISCELLANEOUS

Steelmaking Process:
Condition of Material: Normalized @ 1670°F, air cooled.
Grain Size:

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: [Signature]
Quality Assurance Representative

ACTN ASSURON
Global POC: 18827
W.O.: 99474

MILL TEST REPORT

Phone: 780-450-9757
Fax: 780-450-0298

Date: November 20, 2013

Heat Code: **UYA**
Description: Spectacle Product 2-150, 3-150
Material Designation: SA516-70N
Material Supplier: Voestalpine Grobblech GmbH via American Alloy Steel
Heat Number: 931945-254281-2
Work Order: 125093

NACE: MR0175/ISO 15156-2 2009 Annex A & MR0103 2007

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Sb	As	Nb	V	Ti	B
.176	1.150	.006	.0009	.328	.026	.007	.260	.158	.0020	.0020	.01	.004	.002	.0002

MECHANICAL PROPERTIES

Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -50°C (J)	Test Direction
396	539	25.2	---	166-174	137, 184, 167 (163)	CE

MISCELLANEOUS

Steelmaking Process: Normalized @ 920°C, 10 min, air cooling.
Condition of Material: Normalized @ 920°C, 10 min, air cooling.
Grain Size: ASTM Specification A20/A 20M

CONFORMS TO SA 516-70 N
YEAR: 2013
JOB #: 0413-8440-50
ITEM #: 17
CHECKED BY: [Signature] FEB 21 2014

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Signed: [Signature]
Quality Assurance Representative

Original Materials: [Blank]
ASTM E 213-79A
Global P.O.: 22107
N.A.C.: 125093



6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757
Fax: 780-450-0298

MILL TEST REPORT

Date: May 30, 2012

Heat Code: **RQB** 1/4" WT.

Description: Spectacle Product 2-150

Material Designation: SA516-70N

Material Supplier: Dongkuk Steel via Edmonton Exchanger

Heat Number: K1131220-A165900-01

Work Order: 114829

NACE: Conforms to Nace MR0175/ISO 15156-2 2009 Annex A & MR0103

CHEMICAL COMPOSITION %

C	Mn	P	S	Si	Cr	Mo	Ni	Cu	Sn	T.Al	Nb	V	Ti	N
.17	1.44	.012	.001	.37	.016	.001	.01	.01	---	.023	.001	.002	.002	←

MECHANICAL PROPERTIES

Yield Strength (KSI)	Tensile Strength (KSI)	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -51°F (FTLB)	Test Direction	CE
52	78	24	---	151 ←	107, 107, 100 (105)		.414

MISCELLANEOUS

CONFORMS TO SA 516-70N
 YEAR 2010 ED, 2011 ADD
 JOB # 1013-8440-50
 ITEM # 17
 SIGNED BY [Signature] FEB 13 2014

Steelmaking Process:
 Condition of Material: Normalized @ 1670°F, 23min.
 Grain Size: ASTM Specification A20/ A 20M

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Original Material: plate
 ASTM: A516-70N
 Global P.O.: 20746
 W.O.: 114829

Signed: [Signature]
 Quality Assurance Representative

Order#: 312846 Seq: 5 PO#: 133700 Heat#: 55E00018 Mill: BKL - Thai Benkan
 Part#: WF 3 STD 90 PB Part Desc: Weld Fittings 3 (88.9mm O.D.) STD LR 90 DEG ELBOW A/SA234-WPB



Thai Benkan Co., Ltd
 58 Soi Watkwan, Bangkru, Puchong,
 Samutprakarn, 10130 Thailand

D M Y Certificate No
 01/03/2013 T- 2013140274

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchaser: COMCO PIPE AND SUPPLY COMPANY

Purchase Order No: E1-3263

Trk No

No.	TI (%)	MFG. No.	Specification for Material Made from Seamless Pipe ASTM A234-1/ASME SA234-10 GR WPB CSA Z46 14-09 or 24 07 1 SS	Quantity	Heat Treatment (Note 1)	Visual Examination	Dimensional Inspection	Specification																		
								Chemical Composition, %																		
								Tension Test #2																		
								C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	CE	YS	TS	H				
								x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	%		
								100	100	100	1000	1000	100	100	100	100	100	1000	1000	1000	1000	100	240	415	30	197 HB
								Max	10	29															GOOD	
1	0.000	55E00018	90 EL WPB 3 STD	500	A	Good	Good	23	106	50	10	40	40	40	40	40	15	80	20	40	30	197 HB	GOOD			
2								18	85	10	4	1	2	4	1	0	0	33	324	496	51	197 HB	GOOD			
3																										
4																										
5																										

(Note 1) A : Flat formed with final temperature between 620°C-800°C. Air Cooling. N : Normalizing 910°Cx0.5 HR. Air Cooling. *N : Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material material according to AS/NZS ASME MR01 16600 15186-2-2008 & MR01 03 - 2010 (SSC Region 3))

The fittings was manufactured and inspected in accordance with the specification, and was found to meet the requirements

CE = Cr-Mn/6H-Cr-Mo-V/51 (Ni-Cu)15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct

* 1 : "T" symbolized wall thickness in mm * 2 : YS Yield strength TS = Tensile strength E = Elongation

Form TZ-643

Signature/Stamp

Quality Assurance Manager
 Thai Benkan Co., Ltd.

SIGNED BY NOV 22 2013

1-Stock
 20-133700
 CONFIRMED SA 234 WPB
 YEAR 2013-8440-50
 ITEM# 20



Thai Benkan Co., Ltd.
58 Soi Waikrunai, Bangkok, Prapadaeng,
Samutprakam, 10130 Thailand

INSPECTION CERTIFICATE

Purchaser: VAN LEEUWEN PIPE AND TUBE (CANADA) INC.

TO EN10204 3.1

E-No. MC-936 Purchase Order No. 45001560 Job No.

D M Y Certificate No.

No.	MFG. No.	Specification for Material Made from Seamless Pipe	Quantity	Heat Treatment (Note 1)	Visual Examination	Dimensional Insp.
1	13A00058	ASTM A234-11/ASME SA234-10 Gr-WPB CSA Z45 11.08 Gr 241 CAT 1 SS NACE MR0175/ISO 15169-2 088MR0103-2010	871,000	A	HB : 118 - 145	3518
2	13A00060	90 EL WPB 3 S40	83471,000	A	HB : 118 - 145	3518
3	12K00007	90 EL WPB 4 S40	154/800	A	HB : 118 - 145	3523
4	13B00011	90 EL WPB 8 S40	77/200	A	HB : 118 - 145	3534
5	13B00086	90 EL WPB 12 STD	40/250	A	HB : 118 - 145	3540

Specification	Chemical Composition: %											Tension Test #2			
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E
Min.	100	100	100	1000	1000	100	100	100	100	1000	1000	X	100		
Max.		10	29												
Material Heat No.	30		106	50	58	40	40	40	15	80	20	45			
1	J2L8512	18	20	85	10	4	1	2	4	1	0	33	324	496	58
2	J2L8512	18	20	85	10	4	1	2	4	1	0	33	324	496	58
3	24132	16	24	83	11	1	11	8	7	3	1	34	303	470	34
4	J2KB179	20	18	80	22	5	2	2	4	2	0	35	264	479	41
5	1-94347	19	24	84	14	4	1	1	1	<1	<1	33	364	505	44

(Note 1) A : Hot formed with final temperature between 620 °C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR, Air Cooling

The listing was manufactured, received, tested and inspected in accordance with the specification and was found to meet the requirements
C.E. = C+Mn+Cr+Mo+V/34+(Ni+Cu)/15
* 1 : T symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

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.

Note for WPB: For each reduction of 0.10% below the specified carbon maximum, an increase of 0.06% manganese above the specified maximum will be permitted up to a maximum of 1.35%.

Form TZ-6A/4

THAI BENKAN CO., LTD.
58 SOI WAIKRUNAI, BANGKOK, PRAPADAENG,
SAMUTPRAKAM, 10130 THAILAND
TEL: 02-612-2013
FAX: 02-612-2014
E-MAIL: info@bkl.co.th
NOV 22 2013

Quality Assurance Manager
Thai Benkan Co., Ltd.

Order#: 312846 Seq: 5 PO#: 133700 Heat#: 2J2770 Mill: Rigid
 Part#: WF 3 STD 90 PB Part Desc: Weld Fittings 3 (88.9mm O.D.) STD LR 90 DEG ELBOW A/SA234-WPB

DATE: 2013-03-12
 ORDER NO: 7006127/E1-3562
 P.I. NO: 2 01-2
 CERTIFI NO: 13013 2-8440-50

INSPECTION CERTIFICATE
RIGID INDUSTRIES CO., LTD.
 8, MEI-CHUNG RD. NIAO-SONG,
 KAOHSIUNG 83301, TAIWAN
 TEL: 886-77310527-8
 FAX: 886 77315897

ACCORDING TO EN10204/DIN50049/3.1

PURCHASER: SEYBOLD
 ASTM A234 WPB-11
 STANDARD: ASME SA234 WPB-04
 CSA Z245.11-09 Gr.241 CAT 1 Sour Service
 MATERIALS: ASTM A106 Gr.B
 INSP. SPEC.: ASME B16.9 -07

ITEM NO.	PRODUCT & SIZE	QUANTITY PCS	MFG NO.	VISUAL & DIMENSIONAL INSPECTION	HARDNESS MAX 197 HB	HEAT TREATMENT (NOTE)	MAGNETIC PARTICLE EXAMINATION	CHEMICAL COMPOSITION %		PHYSICAL PROPERTIES													
								C x100	Si x100	Mn x100	P x1000	S x1000	Cu x100	Ni x100	Cr x100	Mo x100	V x100	Nb x1000	Y S KSI	T S KSI	E %	C E. X100	
7	ELL 45 LR 2" STD	50	2C0724	GOOD	127-133	A		10	35	29	50	58	40	40	15	8	20	35.0	60.0			50	
8	ELL 45 LR 2" XH	50	2J0700	GOOD	127-134	A		15	23	55	7	4	4	3	2	<1	<1	43.5	54.9			50.1	50
9	ELL 45 LR 3" STD	50	2D8870	GOOD	137-141	A		18	24	55	7	2	3	5	3	<1	<1	43.2	66.2			30.3	29
10	ELL 45 LR 4" STD	16	1I26101	GOOD	143-145	A		17	21	98	8	3	3	3	1	<1	<1	45.5	67.1			31.5	35
11	ELL 45 LR 4" STD	18	2D0301	GOOD	132-134	A		18	23	97	10	7	9	4	1	<1	<1	45.5	66.6			31.3	36
12	ELL 45 LR 4" STD	16	1K42112	GOOD	138-141	A		18	23	97	10	7	9	4	1	<1	<1	45.5	66.6			31.3	36
13	ELL 45 LR 8" XH	20	2L6633	GOOD	139-144	A		19	24	55	9	3	3	3	1	<1	<1	45.0	65.7			32.3	29
14	ELL 90 LR 3" STD	500	2J2770	GOOD	126-134	A		19	24	54	7	4	4	4	1	<1	<1	43.4	68.0			31.7	30
15	ELL 90 LR 4" STD	250	ZF5901	GOOD	128-136	A		17	21	98	8	3	8	3	1	<1	<1	45.5	67.1			31.5	35
16	ELL 90 LR 4" XH	100	3A834V	GOOD	142-145	A		17	23	86	12	3	5	5	5	<1	<1	45.5	66.6			31.3	36

CONFORMS TO SA 234 WPB
 YEAR 2013
 JOB # 813-8440-50
 ITEM # 20
 SIGNED BY NOV 22 2013
 -PHYSICIAN-

On E Lan
 MANAGER OF Q.A. DEPT

(NOTE): A-HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-880°C, AIR COOLING.
 B-NORMALIZING AT TEMPERATURE 880°C X0.5HR, AIR COOLING.
 C-NACE MR-01-75-08/ISO15156.2. NACE MR 0103-10: SATISFACTORY
 WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.
 * TYPE OF SPECIMEN: STRIP (WIDTH: 1 in./GAUGE LENGTH: 2 in.) ** SAMPLING DIRECTION: L=LONGITUDINAL T=TRANSVERSE



INSPECTION CERTIFICATE

AWAJI MATERIA (THAILAND) CO., LTD.
 81,MOO4, PRAKASA ROAD, TAMBOL BANGMUANG, AMPHUR MUANG
 SAMUTPRAKARN THAILAND 10270, Tel : (662)701-6226

Date : **MAY 29, 2008**
 Certificate No. : **T08-31083/1**

Purchaser : **ALLIED FITTING CANADA**

MADE FROM SEAMLESS STEEL PIPE

Order No.	Job No.	Product	Raw Material Pipe Maker
091107-MZ/3		CARBON STEEL BUTT WELDING FITTINGS	SUMITOMO METAL INDUSTRIES, LTD.
Inspection Standard	Material Standard	Appearance	GOOD
ASME B16.9-07 ASTM A234-07 WPB ASME SA234 WPB NACE MR-0175-03, MR-0103-05 C.S.A. Z245.11-02, GR241 CAT.1	ASTM A234-07 WPB ASME SA234 WPB except nuclear usage	GOOD	GOOD
Manufacturing No.	Product code	Article & Size	Quantity
84059	WPB	STD 90 LONG RADIUS ELBOW 3' ←	756 Pcs.
Specification	Material	Note.	
Mln.	WPB	*ALL FITTING MANUFACTURED BY AWAJI MATERIA (THAILAND) CO.LTD. ARE PRODUCED FROM A128 GR.B SEAMLESS PIPE*	
Max.			
Spec. Charge No.			
J7KC789			

Specification	Chemical Composition (%)														*1 Mechanical Test				Hardness	
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti	B	Ca	Al	C.E.	Y.S.	T.S.		E
X100	100	10	29	-	-	-	-	-	-	-	-	-	-	-	-	-	240	415	25.5	9%
X1000	100	106	50	58	40	40	40	15	8	2	2	5	65	-	-	-	-	655	-	187
X10000	100	24	68	11	9	2	2	5	0	0	0	-	-	1	31	313	488	62	140 ←	

Inspection Certificate : ACCORDING TO EN 10204, 3.1 : 2004

ISO 9001: 2000 Manufacturing Company
 Certified by BV, Certificate No. TH07000055

CONFORMS TO SA 234 WPB
 YEAR 2010 ED, 2011 ADD
 JOB # 9013 8440-50
 ITEM # 20
 SIGNED BY NOV 22 2013
 Chief of Inspection Section S.MAEKAWA

1-Stock
 PO-133700
 1-8440-50

ELBOW / Forging temperature 780°C - 930°C and cooled in still air
 TEE, REDUCER & CAP / Normalizing : 900°C
 *We hereby certify that the material described herein has been duly inspected and conforms to the standard as specified above.

Order#: 312846 Seq: 5 PO#: 133700 Heat#: 84059 Mill: Awaaji
 Part#: WF 3 STD 90 PB Part Desc: Weld Fittings 3 (88.9mm O.D.) STD LR 90 DEG ELBOW A/SA234-WPB



Thai Benkan Co., Ltd.
 58 Soi Wakkruai, Bangkru, Prapadaeng,
 Samutprakarn, 10130 Thailand.

D M Y Certificate No.
 05/02/2006 T-2006000000

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchaser: CCTF CORPORATION

E-No. MB-161 Purchase Order No. 4881537 Job No.

No.	MFG. No. (Heat Identification No.)	Specification for Material Made from Seamless Pipe ASTM A234-06/ASME SA234-04 Gr. WPB CSA Z45.11 ER241 CAT I NACE MR0175-2003	Product & Size	Quantity	Specification for Inspection ASME B16.9-2003	Visual Examination	Inspec
1	07P00006	90 EL WPB 3 S40 ←	500	A	Good	7510881	Good
2	07N00035	45 EL WPB 6 S40	160/320	A		7511289	
3	08A00096	90 EL WPB 12 XS	9	A		7514887	
4							
5							

Specification	Chemical Composition: %											Tension Test: #2	
	C	Si	Mn	P	S	Cr	Ni	Mo	V	Nb	C.E.	YS	TS
Min.	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 1000	X 1000	X 1000	X 100	X 1000
Max.	10	29	106	50	58	40	40	15	80	20	240	415	30
Material Heat No.	23												
1	49524	19	17	67	10	2	2	3	4	3	1	1	32
2	J6KB837	18	20	73	8	7	3	5	0	0	0	0	32
3	9-02320	18	23	84	14	1	1	2	3	1	1	1	33
4													
5													

(Note 1) A: Hot formed with final temperature between 620 °C-900°C. Air Cooling N: Normalizing 910°C±0.5 HR. Air Cooling *N: Normalizing 910°C±0.5 HR. Air Cooling (Specification for material made from plate); S: Stress Relieving 675°C±0.5 HR. Air Cooling

THE RESULTS OF THE TESTS AND INSPECTIONS MEET THE REQUIREMENTS.
 C.E. = Coefficient of Expansion (ASME Section II, Part D, Subsection NB, Table NB-3200)

CONFORMS TO SA 234 WPB
 YEAR 2010 EP, 2011 AD
 JOB # 1013 - 8440-51
 SIGNED BY NOV 22 2012

QUALITY ASSURANCE MANAGER
 Thai Benkan Co., Ltd.

MAGNETIC PARTICLE EXAMINATION FOR THE ONLY:
 We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.
 1-5 STOCK
 Po-133700
 1-8440-51



INSPECTION CERTIFICATE

Purchaser: COMCO PIPE AND SUPPLY COMPANY

TO EN10204 3.1

E.No. VC 716 Purchase Order No. E1-2898 Job No.

No.	T1 (%)	MFG No	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination
1	0.000	55A00123	ASTM A234-11/ASME SA234-10 GR WPB CSA Z346 11.0M P-24 CRT 1 SS	ASME B16.9-2007, B16.25-2007	Good
2	0.003		Product & Size	Quantity	Dimensions Actual Data
			90 EL WPB 4 XS	86700	HB 130, 135, 139
			90 EL WPB 3 STD ←	500	HB 128, 130, 132 ←

Specification	Chemical Composition %											Tension Test #2		
	C	Si	Mn	P	S	Cr	Ni	Mo	V	Nb	C.E.	YS	TS	E
Min	100	100	100	1000	100	100	100	100	1000	1000	X 100	MPa		
Max	10	20	106	50	10	40	40	15	80	20	40	240	415	30
Material Heat No	23	15	18	74	15	6	15	10	18	6	0	322	499	34
		17	24	81	8	1	11	4	9	5	3	328	480	34

Sweet Service

1-8440-SI

18-8326-50

PO# 131660

CONFORMS TO SA 234 WPB
 YEAR 2013-8440-SI
 ITEM 20
 SIGNED BY NOV 22 2013

Note 1: A. Heat Treated with final temperature between 620°C-980°C. Air Cooling. N: Normalizing 910°C-1010°C. DR: Air Cooling (Specification for selected materials).
 Note 2: Y: Yield strength; TS = Tensile strength; E = Elongation.
 Note 3: All test results were obtained in accordance with the specification and was found to meet the requirements.
 Note 4: 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.
 Note 5: All test results were obtained in accordance with the specification and was found to meet the requirements.
 Note 6: We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

Quality Assurance Division
 Thai Benkan



Thai Benkan Co., Ltd.
58 Soi Wattanaai, Bangkrui, Prapachang,
Samutprakarn, 10130 Thailand

INSPECTION CERTIFICATE

Purchaser : VAN LEUWEN PIPE AND TUBE (CANADA) INC.

TO EN10204 3.1

D M Y Certificate No.

E-No. Purchase Order No. Job No.

03/11/2012 T. 2012040287

No.	MFG. No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection
		ASTM A234-11/ASME SA234-10 Gr.WPB CSA Z46 11-08 Gr.241 CAT 1 SS NACE MR0175 ISO 15155-2.08&MR0103-2010	ASME B16.8-2007, B16.25-2007	Good	Good
1	12E00004	90 EL WPB 3 S40		HB : 118 - 145	3518
2	12F00003	90 EL WPB 3 S40 ←		HB : 118 - 145 ←	3518
3	12K00006	90 EL WPB 3 S40		HB : 118 - 145	3518
4	12F20071	RE WPB 12 X 8 STD		HB : 120 - 140	2821
5	12E00012	90 EL WPB 2 S80		HB : 130 - 160	3578

Specification	Chemical Composition %											Tension Test *2			
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E
Min.	x 100	x 100	x 100	x 1000	x 1000	x 100	x 100	x 100	x 100	x 1000	x 1000	x 100			
Max.		10	29										240	415	30
Material Heat No.	30		106	50	58	40	40	40	15	80	20	45		655	
1	48751	16	24	90	10	8	3	4	3	3	2	33	317	479	31
2	972974 →	16	17	77	12	5	14	8	5	0	0	34	327	504	33
3	973946	16	20	76	13	4	14	8	5	0	0	35	319	496	34
4	25172	18	19	78	8	2	2	4	1	0	0	32	307	455	41
5	972694	16	19	79	21	6	15	8	5	0	0	35	336	518	31

(Note 1) A : Hot formed with final temperature between 620°C-980°C. Air Cooling. N : Normalizing 910°Cx0.5 HR. Air Cooling. *N : Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plate) S : Stress Relieving 675°Cx0.5 HR. Air Cooling

The findings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements
C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

EXPOSURE TO RAY
YEAR 2010
NOV 2 2010

Quality Assurance Manager
Thai Benkan Co., Ltd.

VL QA Approved

CONFORMS TO EN 234 WPB
 YEAR 2010 ED. 2011 600
 JOB # 1013-8440-SD
 ITEM # 20
 SHIPPED BY NOV 22 2013

1-8440-SD
 7-8390-S1
 70-132707

INSPECTION CERTIFICATE

AWAJI MATERIA (THAILAND) CO., LTD.
 81, MUO4, PRAKASA ROAD, TAMBOL BANGMUANG, AMPHUR MIUANG
 SAMUTPRAKARN THAILAND 10270, Tel : (662)701-5226

MADE FROM SEAMLESS STEEL PIPE



Date: JUNE 28, 2008
 Certificate No.: T08-0959

Purchaser: ALLEED FITTING CANADA
 Order No.: 1212D/AAW/7
 Job No.:
 Product: CARBON STEEL BUTT WELDING FITTINGS

Inspection Standard	Material Standard	Appearance	GOOD	Dimension	GOOD	Quantity	Notes
ASME B7E.1-3T ASTM A880-07 ASME SA234-08 ASME SA234-08, MR 0103-03 CSA Z245.17-02 GR Z41 CAT 1	ASTM A234-07 WPB ASME SA234-08 ASME SA234-08, MR 0103-03 CSA Z245.17-02 GR Z41 CAT 1	GOOD	GOOD	3"	GOOD	250 Pcs.	ALL FITTING MANUFACTURED BY AWAJI MATERIA (THAILAND) CO., LTD. ARE PRODUCED FROM A108 GR.B SEAMLESS PIPE

C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti	B	Ca	Al	C.E.	*1 Mechanical Test			E
																Y.S.	T.S.	%	
30	10	29	0.010	0.005	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	240	415	25.5	187
18	22	68	0.010	0.005	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	308	488	02	124

ISO 5001: 2000 Manufacturing Company
 Certified by BV, Certificate No. TH07030365

1) Y.S. = Yield Strength, T.S. = Tensile Strength, E = Elongation
 2) For each reduction of 0.01% below the specified carbon(C) Maximum, an increase of 0.05% manganese(Mn) above specified maximum will be permitted up to a maximum of 1.35% as per foot note D of ASTM A234-02/ASME SA-234 Table 1
 3) BLOW / Forming temperature 780°C - 930°C and cooled in still air
 4) FREE REDUCER & GAP / Normalizing 500°C
 5) Verify that the material inspection parameters comply with the requirements of the standard as well as per above.

Signature
 Date of Inspection: 2008/06/28

Order#: 312846 Seq: 5 PO#: 133700 Heat#: CB798 Mill: TK Corporation
 Part#: WF 3 STD 90 PB Part Desc: Weld Fittings 3 (88.9mm O.D.) STD LR 90 DEG ELBOW A/SA234-WPB

117-12, Noksan Saneop Daero
 Gangseo-gu, Busan,
 618-817 Korea
 Tel : 82-51-970-6672
 Fax : 82-51-831-6886

INSPECTION CERTIFICATE

(EN10204:2004 3.1 / ISO 10474:1991 3.1B)

Customer	Comco Pipe & Supply	Certificate No.	20130602648	Date	2013/06/11										
P.O No.	E1-233777-6	Project Name													
Job No.															
Specification for Material	ASTM/ASME A/SA234 WPB(10 Ed. & 11 Add.)NACE MR0175-3.3.2.1	Starting Material	CEAMLESS PIPE												
Specification for Inspection	ASME B16.9-2007	Dimension and Visual Inspection	GOOD												
Heat Code No [HCN]	No	Descriptions	Q'ty (Pcs)	Heat Treatment											
CB798	0001	90° ELBOW LONG STD B.W 3" ←	106	HOT FORMED 845°C-845°C											
<table border="1" style="margin: auto;"> <tr><td>CONFORMS TO SA</td><td>234 WPB</td></tr> <tr><td>YEAR</td><td>NOV ED, 2011 ADD</td></tr> <tr><td>JOB #</td><td>9013-8440-51</td></tr> <tr><td>ITEM #</td><td>20</td></tr> <tr><td>SIGNED BY</td><td>NOV 22 2013</td></tr> </table>						CONFORMS TO SA	234 WPB	YEAR	NOV ED, 2011 ADD	JOB #	9013-8440-51	ITEM #	20	SIGNED BY	NOV 22 2013
CONFORMS TO SA	234 WPB														
YEAR	NOV ED, 2011 ADD														
JOB #	9013-8440-51														
ITEM #	20														
SIGNED BY	NOV 22 2013														
1-8440-51 1-Stock 20-133700															

CHEMICAL COMPOSITION (%)

Heat Code No [HCN]	Spec.	C	Si	Mn	P	S	NI	Cr	Mo	Cu	V	Cb	B	CE	Raw Heat No
CB798	Max.	0.23	-	1.06	0.050	0.020	0.40	0.40	0.15	0.40	0.020	0.020	0.005	0.43	
	Min.	-	0.13	0.29	-	-	-	-	-	-	-	-	-	-	
CB798	L	0.20	0.26	0.55	0.011	0.005	0.04	0.06	0.05	0.06	0.004	0.014	0.0003	0.321	408941
	P	0.18	0.24	0.63	0.010	0.003	0.02	0.04	0.03	0.04	0.003	0.012	0.0002	0.287	←

MECHANICAL PROPERTIES

Heat Code No [HCN]	Spec	Y.S		T.S	E.L	Hardness Test	
		Mpa			(%)	HB	
CB798	Max.	-	-	655	-	197	
	Min.	240	-	415	25.4	-	
CB798	P	271.4	-	478.8	31.4	142	144 ←

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Remark: *Nb+V : Max 0.03
 -CB798 : D 018

Legend:
 HB: Brinell
 ST: Solution Treatment
 SR: Stress Relieving
 N: Normalized
 T: Tempered
 A: Annealed
 Q: Quenched
 Y S: 0.2% Offset Method
 (G): Hot-Dip Galvanized Coating
 AC: Air Cool
 OC: Oil Cool
 WQ: Water Quenched
 WC: Water Cool
 B: Base
 W: Weld
 H: Heat
 L: Ladle
 P: Product

Reviewed by:
 Witnessed by:

Approved by: *[Signature]*

Head of Quality Control Dept

Order#: 312846 Seq: 8 PO#: 133700 Heat#: 56C00214 Mill: BKL - Thai Benkan
 Part#: WF 2 XS 90 PB Part Desc: Weld Fittings 2 (60 3mm O.D.) XS LR 90 DEG. ELBOW W/SA2181 WF B

INSPECTION CERTIFICATE

Purchaser: COMCO PIPE AND SUPPLY COMPANY

That Benkan Co. Ltd
 58 Soi Waikrum, Bangkui, Prapachin
 Samutprakarn, 10130 Thailand

E.No. MD-139 Purchase Order No. EI-1081-REV 1 Job No. TO EN10204 3.1 Certificate No. D M Y

No.	T1 (%)	MFG. No	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection
			ASTM A234-11/ASME SA234-10 ER-WPB CSA Z345.11-08 GR 241 CAT 1 SS	ASME B16.9-2007 B16.9-2007	Good	Good
		Product & Size		Quantity	Hardness Actual Data	Remarks
1	0.000	56C00220	90 EL WPB 3 XS	200	HB 151, 153, 154	
2	0.000	56C20206	RC WPB 3 X 2 STD	25	HB 123, 124, 125	
3	0.001	56C00214	90 EL WPB 2 XS	200/500	HB 140, 143, 147	
4	0.002	56C00216	45 EL WPB 3 S160	50	HB 151, 152, 153	
5	0.002	56C00218-1	180 EL WPB 3 S160	12/30	HB 119, 123, 126	

Specification	Chemical Composition %										Tension Test #2			
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	YS	TS	E
Min	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 100	MPa	%
Max	10	10	29									240	415	30
Material Heat No.	30		106	50	50	40	40	40	15	80	20		656	
1 J3K5852	19	22	84	15	5	2	2	3	1	0	0	34	467	63
2 J3K5206	19	20	81	16	5	1	2	5	1	0	1	34	495	37
3 978696	16	19	77	12	2	15	6	10	5	0	0	33	509	34
4 J3L2513	11	29	130	10	1	1	2	10	1	0	1	35	469	67
5 J3L2513	11	29	130	10	1	1	2	12	1	0	1	35	469	67

HARDNESS MAX
 197 HB
 19-8440-50
 50-Stock
 70-133100
 CONFORMS TO SA 234 WPB
 YEAR 2013-2014
 JOB # 2013-8440-50
 ITEM # 21
 SIGNED BY NOV 2 2013

(Note: J.A.: Hot formed with final temperature between 620°C-800°C, Air Cooling; N.: Normalizing 910°Cx0.5 HR, Air Cooling
 Material according to ASME/SAE/ASTM/EN/ISO/BS/JIS/GB/AS/NZS/AFNOR/BSI/1010/BSR/Repos 31 Annex A. Steel making process is basic oxygen, fully killed steel
 the fittings was manufactured sampled, tested and inspected in accordance with the specification and was found to meet the requirements
 CE = C-Mn; P, S, Cu, Ni, Cr, Mo, V, Nb, Ti
 T: Tensile strength; YS = Yield strength; TS = Tensile strength; E = Elongation
 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
 Note for WPB: For each reduction of 0.16% below the specified carbon maximum, an increase of 0.06% in elongation above the specified maximum will be permitted up to a maximum of 1.35%
 Form T2 6A/4

Quality Assurance Manager
 That Benkan Co., Ltd



Thai Benkan Co., Ltd.
58 Soi Watsooi, Bangkok, Thailand
Samutprakarn, 10130 Thailand

D M Y Certificate No.
0204/2013 T- 2013180054

INSPECTION CERTIFICATE

Purchaser: TRANS-AM PIPING PRODUCTS LTD.

TO EN10204 3.1

E.No. MC-865
Purchase Order No. CH-12-378 C/O: 2
Job No.

No.	MFG. No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection
1	12G00044	ASTM A234-1/ASME SA234-10 GR WPB CSA ZN6:11 GR 241 CAT 1 WACE MFR073190 1515B-2, 30B	ASME B16.9-2007, B16.25-2007	Good	Good
2	13800018	Product & Size 90 EL WPB 12 S120 90 EL WPB 2 S80	Quantity 1/15 3,000/4,000	Heat Treatment (Note 1) A A	Hardness Actual Data HB: 116 - 145 HB: 130 - 160
3					
4					
5					

Specification	Chemical Composition %											Tension Test #2			
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E
Min.	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 100	MPa	MPa	%
Max.	10	28											240	415	30
Material Heat No.	30	106	50	58	40	40	40	15	80	20			655		
1 2-80323	19	25	84	13	3	<1	1	3	1	1	<1	34	248	483	37
2 978740	15	19	75	16	4	18	9	18	5	0	0	34	329	513	33
3															
4															
5															

ORIGINAL

(Note 1) A: Hot formed with final temperature between 620 °C-980°C, Air Cooling; N: Normalizing 910°C±0.5 HR, Air Cooling

The filler was manufactured and inspected in accordance with the specifications and intended to meet the requirements.
C.E. = C-Mn/(Fe+Mn+V+Ni+Cu) x 100
* 1: The symbolized wall thickness in mm. * 2: YS Yield strength TS = Tensile strength E = Elongation
We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the manufacturer's requirements and that the test results shown herein are correct

YEAR 2010E01/2011 ADD
JOB # 2013-8440-51
SIGNED BY [Signature]
21 NOV 29 2013

60-Stock
Po-13412-1
3-8440-51

2 - XH LR 90 BW ELBOW A234-WPB
Rev'd By: 88
Item# 21

A I C O G 2 5 E L B O W 9 0 X H L R 2 1
 H e a t N o . 1 3 4 1 2 1
 S h i p m e n t N o . 1 3 4 1 2 1
 R e v d B y : 8 B



Thai Benkan Co., Ltd.
 58 Soi Witsakul, Bangsar, Prapoksaeng,
 Samprakan, 10130 Thailand.

INSPECTION CERTIFICATE

Purchaser: TRANS-AM PIPING PRODUCTS LTD.

TO EN10204 3.1

D M Y Certificate No.
 0204/2013 T- 2013130054

E.No. MC-865
 Purchase Order No. CI-12-379 CO: 2
 Job No.

No.	MFG. No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection
Product & Size		Quantity	Heat Treatment (Note 1)	Hardness Actual Data	
90 EL WPB 12 S120		1/15	A	HB : 116 - 145	
90 EL WPB 2 S80		3,000/4,000	A	HB : 130 - 180	
1	12G00044				
2	13E00018				
3					
4					
5					

Specification	Chemical Composition %										Tension Test *2					
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E	
Min.	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 100	MPa	%	HARDNESS MAX	
Max.	10	28	106	50	58	40	40	40	15	80	20		240	415	30	197 HB : GOOD
Material Heat No.	30													655		
1	2-80323	19	25	84	13	<1	1	3	1	1	<1	34	249	483	37	
2	976740	15	19	75	16	4	18	9	5	0	0	34	329	513	33	
3																
4																
5												5	8440-51			

ORIGINAL

(Note 1) A : Not formed with final temperature between 620 °C-980°C, Air Cooling, N : Normalizing 910°C±0.5 HR, Air Cooling
 The buyer has manufactured, stored and inspected in accordance with the specifications and not formed to meet the requirements.
 C.E. = C-Mn/(C+Mn+V)S-(Ni+Cu)/15
 MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY:
 * 1 : T₁ Symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
 We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned
 and also with the manufacturer's requirements and that the test results shown herein are correct.

YEAR 2010 EDD-2011 ADD
 JOB # 2013 - 8440-51
 SIGNED BY [Signature] 04/02/2014
 Quality Assurance Manager
 Thai Benkan Co., Ltd.

Purchaser: CRANE SUPPLY VALVE WAREHOUSE
 Order No.: FUM002-69150
 Invoice No.: HY20130608

MATERIAL TEST REPORT

YANGZHOU HUAYU PIPE FITTING CO., LTD.
 NO.99,BAOYING STREET,BAOYING COUNTY,JININGSU PROVINCE,P.R.CHINA,225899

Date: Aug. 9, 2013
 Certificate No: 5001-1305003
 Certificate Iss: BY10204-2004.3.1

Material Specification
 ASTM/A516 (SA240) WPB
 NACE MR0175-02
 NON-DESTRUCTIVE TEST(MT)

Specification for Inspection
 ASME B16.3-2007

Visual and Dimensional
 Inspection: GOOD

Hardness
 Max: 97HRB
 6000

Cr-Ni-Cr-Mn
 < or =1.00%

Cr-Mn
 < or =0.12%

PSM: 6000

NO.	Product Description	Heat L.D.	Quantity (Pcs)	Tension Test (1)			Chemical Composition %										Heat Treat ment (3)	Type (4)	Raw Material							
				TS Mpa	YS Mpa	E %	C	Mn	Si	P	S	Cr	Ni	Mo	V	Cu				Nb	CE(7)					
20	3X2 STD WPB BW CON RED	112038	87	415	240	30	0.30	0.10	0.28	0.10	0.050	0.058	0.46	0.40	0.15	0.08	0.46	0.02	0.45	HF						
21	4X3 STD WPB BW CON RED	12-105833	87	517	352	34	0.20	0.44	0.21	0.016	0.003	0.01	0.03	0.01	0.01	0.01	0.02	-	0.25	HF						
22	6X4 STD WPB BW CON RED	1241042	62	488	326	28	0.18	0.43	0.21	0.022	0.013	0.10	0.03	0.01	0.01	0.01	0.04	0.005	0.001	0.02	-	0.30	HF			
23	8X6 STD WPB BW CON RED	1124588	25	490	320	31	0.20	0.45	0.21	0.011	0.004	0.03	0.02	0.01	0.01	0.01	0.04	0.005	0.001	0.01	-	0.29	HF			
24	8X6 STD WPB BW ECC RED	12-105833	37	517	392	35	0.20	0.44	0.28	0.010	0.006	0.10	0.04	0.02	0.01	0.01	0.03	0.01	0.01	0.01	-	0.29	HF			
25	12X12 STD WPB WELD CAP	1112-05370	62	470	295	30	0.15	0.51	0.26	0.010	0.003	0.02	0.01	0.01	0.01	0.01	0.04	0.005	0.001	0.02	-	0.32	HF			
26	12X12 STD WPB WELD CAP	208845	75	462	313	30	0.18	0.45	0.24	0.015	0.008	0.01	0.02	0.01	0.01	0.01	0.03	0.02	0.01	0.03	-	0.25	HF			
27	12X12 STD WPB WELD CAP	208845	62	462	313	30	0.15	0.49	0.24	0.015	0.008	0.01	0.02	0.02	0.02	0.01	0.03	0.02	0.01	0.03	-	0.27	HF			
28	12X12 STD WPB WELD CAP	208845	50	462	313	30	0.18	0.49	0.24	0.015	0.008	0.01	0.02	0.02	0.02	0.01	0.03	0.02	0.01	0.03	-	0.27	HF			
29	12X12 STD WPB WELD CAP	12-211407	250	486	328	32	0.18	0.45	0.24	0.015	0.008	0.01	0.02	0.02	0.02	0.01	0.03	0.02	0.01	0.03	-	0.27	HF			
30	12X12 STD WPB WELD CAP	11-208555	50	485	395	32	0.18	0.45	0.25	0.013	0.005	0.01	0.02	0.02	0.02	0.01	0.03	0.02	0.01	0.03	-	0.27	HF			
31	12X12 STD WPB WELD CAP	11-213078	50	515	365	31	0.20	0.24	0.27	0.022	0.006	0.10	0.03	0.03	0.003	0.006	0.05	0.10	0.03	0.003	0.05	-	0.30	HF		
32	12X12 STD WPB WELD CAP	12-211407	50	486	328	32	0.18	0.51	0.23	0.013	0.006	0.05	0.02	0.01	0.01	0.003	0.03	0.05	0.02	0.01	0.003	0.03	-	0.28	HF	
Total (Page 1-Page2)				5,260																						

Note: (1) YS= Yield Strength TS= Tensile Strength E= Elongation
 (2) CE=C-Mn-Si-Cr-Ni-Mo-W-Nb-V and heat treated according
 to ASME B16.3-2007 (3) HF= Hot formed (620-800 °C) and cooled in still air. (4) Cold formed and normalized (650 °C/1hr), cooled in still air.
 (5) Non-destructive testing (MT) results are from
 Note: (6) Non-destructive testing (MT) results are from
 Note: (7) Non-destructive testing (MT) results are from



We hereby certify that the products detailed herein conform to the specifications concerned and also with the provisions of the relevant standards mentioned herein as correct. This material was manufactured under the control of the manufacturer.

CONFORMS TO SA 240 WPB
 YEAR 2010 ED 2111ADD
 JUN 1 2012-8440-51
 ITEM# 21
 SIGNED BY APR 30 2014

no-stock
 PO-134901

1-8440-51

125-001
P.O.# 122231



INSPECTION CERTIFICATE



Customer: TRANS AM PIPING PRODUCTS LTD.
Product: SEAMLESS CARBON STEEL BUTT WELD FITTINGS
Spec: ASME SA/ASTM A234 WPB-05
CSA Z245.11-96 / CALIFORNIA CE MR 0175-03

CHIP HSIN ENTERPRISE CO., LTD.
17, TUNG LI ROAD HSIAO KANG
KAOHSIUNG, TAIWAN P.R.C.
TEL: (07)831-9157-9
FAX: (07)831-2942, 821-7500

Certificate No: 09700066-0104
Order No: CI-08-362
Date: 2008/10/8

Specification for Raw Material		Specification for Inspection		Visual Examination		Dimensional Inspection	
ASTM A106 GR. B		ASME B16.9-2001		GOOD		GOOD	
Item	Description	Quantity	Heat ID	Heat No.	Raw Material Mfg	Raw Certificate No	
43	90 E L R XS	1	320D	J7L1320	SUMITOMO	BYJK2231	
44	90 E L R XS	1 1/4	728A	J6K1728	SUMITOMO	BYYL8104	
45	90 E L R XS	1 1/2	185A	J6K4185	SUMITOMO	BYYL4506	
45	90 E L R XS	1 1/2	924R	J7L6924	SUMITOMO	BYJK2300	
46	90 E L R XS	2	505C	J6K3505	SUMITOMO	BYYL4349	

Specification

C	Chemical Composition %										
	Si	Mn	P	S	Cr	Ni	Mo	V	Nb	Cu	C
$\times 100$	$\times 100$	$\times 100$	$\times 1000$	$\times 1000$	$\times 100$	$\times 100$	$\times 100$	$\times 1000$	$\times 1000$	$\times 1000$	$\times 1000$
18	24	46	11	9	4	3	2	0	0	0	27
19	19	78	14	5	4	3	2	1	0	0	33
20	24	46	16	10	2	2	4	1	0	0	29
21	28	48	27	9	2	2	3	1	0	0	30
19	26	56	9	9	2	1	2	1	0	0	29

Tension Test

U.S. P.S.I.	T	E	%	HARDNESS TEST	Heat Treatment	Magnetic Particle Exam.	Remark
35000	60000	30	197	197	620°C TO 980°C		
49900	95000	40	137	137	HOT FORMED		
44900	61600	40	138	138			
49900	66700	40	139	139			
49200	65300	40	141	141			
47900	68200	40	138	138			

CONFORMS TO SA 234 WPB
YEAR 2010 EP, 2011 DD
JOB 2013-8440-50
ITEM# 22
NOV 22 2013
SIGNED BY L.S. Tsai
Chief of Quality Assurance Section

P.O.# 122231 Job# 125-001 Item# 12
HEAT NUMBER : 924B
TRANS AM PIPING PRODUCTS - REV'D BY : 8 - 1458 89
Shipment/Seg #: 5

C.P. = C + MN/6 + (CR + MO + V)/5 + (NI + CU)/15
We hereby certify that the product described herein has manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that test results shown herein are correct.

HEAT NUMBER : 185A
 TRANS AM PIPING PRODUCTS - REV'D BY: 1-1/2" XH LR 90 BW ELTS A234-WPB

Shipment # : 1062 130
 We hereby certify that the product described herein has manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.



INSPECTION CERTIFICATE

(MILL TEST)

Customer: TRANS AM PIPING PRODUCTS LTD.
 Product : SEAMLESS STEEL PIPE FITTING
 Spec : ASME SA/ASTM A234 WPB-03
 CSA Z45.11-98 C241 CALLINACE MR 0175-03

CHUP HSIN ENTERPRISE CO., LTD.
 17, TUNG LI ROAD HSIAO KANG
 KAOHSIUNG, TAIWAN R.O.C.
 TEL:(07)831-9157-9
 FAX:(07)831-2942, 821-7500

Certificate No : 09600133-0206
 Order No : CI-07-632
 Date : 2008/2/26

Specification for Raw Material	Specification for Inspection	Visual Examination	Dimensional Inspection
ASTM A106 GR.B	ASME B16.9-2001	GOOD	GOOD

Item	Description	Quantity	Heat ID.	Heat No.	Raw Material Mfg	Raw Certificate NO.
81	90 E L R XS	1	028D	J6K0028	SUMITOMO	BYYL4408
82	90 E L R XS	1 1/4	508A	J4K4508	SUMITOMO	BYYP4008
83	90 E L R XS	1 1/2	185A	J6K4185	SUMITOMO	BYYL4506
84	90 E L R XS	2	505C	J6K3505	SUMITOMO	BYYL4349
85	90 E L R XS	3	0613	J6K0613	SUMITOMO	BYYL6573
85	90 E L R XS	3	2332	J6K2332	SUMITOMO	BYYL8203
86	90 E L R XS	4	A993	J6KA993	SUMITOMO	BYYL8206
89	45 E L R XS	2 1/2	27Z1	J6K27Z1	SUMITOMO	BYYL6571

Specification	Chemical Composition %												Tension Test		Heat Treatment	Magnetic Particle Exam.	Remark
													HARDNESS TEST				
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	Y.S. P.S.I	T.S. P.S.I			
MIX	10	29	106	50	58	40	40	40	15	80	20	50	35000	60000	30	197	
MAX	18	24	44	15	10	2	2	4	2	0	0	27	47800	65300	42	137	
81	20	22	48	10	9	1	1	2	1	0	0	26	48500	67100	42	142	
82	20	24	46	16	10	2	2	4	1	0	0	29	49300	65300	40	139	
83	19	26	56	9	9	2	1	2	1	0	0	29	47900	60900	40	138	
84	18	28	65	10	5	9	4	5	4	0	0	32	45000	78500	41	137	
85	13	14	74	8	6	5	3	2	1	0	0	26	45000	61200	41	135	
86	14	16	73	9	3	4	3	2	1	0	0	27	42000	64100	40	135	
89	15	25	73	10	5	9	5	3	3	0	0	29	47100	71800	41	134	

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
 We hereby certify that the product described herein has manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

SIGNED BY: *L.S. Tsai*
 Chief of Quality Assurance Section

CONFORMS TO SA 234-CPS
 YEAR 2010 E.D. 10/11/10
 JCS # 1013-8440-51
 TEST # 22
 SIGNED BY: *L.S. Tsai* NOV 24 2010

Stock
 Po# 12-6163



Thai Benkan Co., Ltd.
58 Soi Watkrutai, Bangkok, Prapacheng,
Samutprakarn, 10130 Thailand.

INSPECTION CERTIFICATE

Purchaser: VAN LEEUWEN PIPE AND TUBE (CANADA) INC

TO EN10204 3.1

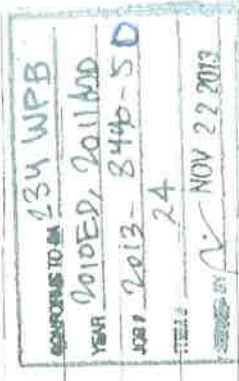
E-No. MC-936 Purchase Order No. 45001580 Job No. _____
D M Y Certificate No. 04/01/2013 T- 2013040003

No.	MFG. No.	Specification for Material Made from Seamless Pipe	Quantity	Heat Treatment (Note 1)	Visual Examination	Inspection	Item No
1	12K20010	RC WPB 4 X 3 S40	67/100	N	HB : 135 - 150		2479
2	12N20011	RC WPB 4 X 3 S40 ←	33/100	N	HB : 135 - 150 ←		2479
3	12N00011	90 EL WPB 10 S40	48/200	A	HB : 120 - 150		3537
4	12P00007	90 EL WPB 10 S40	60/200	A	HB : 120 - 150		3537
5	12N20105	RC WPB 4 X 3 S80	39/150	N	HB : 125 - 140		2633

Tension Test *2

Material Heat No	Chemical Composition %										Tension Test *2				
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E
1	19	19	84	15	6	1	4	1	0	0	0	34	322	471	37
2	16	20	82	12	3	18	9	16	5	0	0	36	293	472	38
3	19	18	79	10	3	1	3	1	0	0	0	33	364	498	36
4	19	22	82	14	6	2	4	1	0	0	0	34	293	482	40
5	19	19	82	12	6	2	4	1	0	0	0	34	308	461	44

12 = STOCK
Po - 132098
GOOD 1-8440-SD



Note 1) A : Hot Formed with final temperature between 620°C-950°C. Air Cooling. N : Normalizing 910°Cx0.5HR. Air Cooling. *N : Normalizing 910°Cx0.5HR. Air Cooling (Specification for material made the fittings was manufactured sampled, tested, and inspected in accordance with the specification and was found to meet the requirements

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
Form TZ-6A/3

Quality Assurance Manager
Thai Benkan Co., Ltd.
Rungnapa Kampranon



VI QA Approved



INSPECTION CERTIFICATE

(EN10204:2004 3.1 / ISO 10474:1991 3.1B)

117-12, Noksan Saneop Daero,
 Gangseo-gu, Busan,
 618-817 Korea
 Tel : 82-51-970-8672
 Fax : 82-51-631-6806

Customer	Trans Am Piping Products Ltd.		Certificate No.	20130803587	Date	2013/08/21
P.O No.	CI-13-411		Project Name	EDMONTON		
Job No.						
Specification for Material	ASTM/A9ME A/SA234 WPB(10 Ed. & 11 Add.) NACE MR0176/ISO 15156-2 AND NACE MR0103-07		Starting Material	SEAMLESS PIPE		
Specification for Inspection	ASME B16.9-2007		Dimension and Visual Inspection	GOOD		
Heat Code No [HCN]	No.	Descriptions	Q'ty (Pcs)	Heat Treatment	N.D.E (GOOD)	
BV662	0022	REDUCING TEE STD / X-S B.W 3" x 1-1/2"	10	N: 910°C	MT	
CF759	0023	REDUCING TEE STD / X-S B.W 3" x 2"	300	N: 910°C	MT	
CE363	0025	REDUCING TEE STD / X-S B.W 4" x 2"	100	N: 910°C	MT	

CHEMICAL COMPOSITION (%)

Heat Code No [HCN]	Spec.	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	V	C.E	Raw Heat No
	Max.	0.30	0.35	1.06	0.050	0.058	0.40	0.40	0.15	0.40	0.080	0.50	
	Min.	-	0.10	0.29	-	-	-	-	-	-	-	-	
BV662	L	0.11	0.19	0.87	0.014	0.004	0.08	0.15	0.06	0.132	0.00	0.278	669924
CF759	L	0.14	0.17	0.78	0.008	0.002	0.02	0.07	0.02	0.03	0.01	0.293	325026
CE363	L	0.12	0.20	0.67	0.010	0.004	0.10	0.18	0.06	0.165	0.00	0.297	977238

CONFORMS TO SA 234 WPB

YEAR 2010 ED, 2011 ADD

JOB # 2013-8440-50

ITEM # 26

SIGNED BY [Signature] NOV 28 2013

1-8440-50
Po-134044

MECHANICAL PROPERTIES

Heat Code No [HCN]	Spec	Y.S	T.S	E.L	Hardness Test	
		Kal		(%)	HB	
	Max.	-	95	-	197	
	Min.	35	80	28.4		
BV662	P	42.6	63.8	37.6	144	142
CF759	P	41.9	64.8	38.1	140	142
CE363	P	37.5	63.6	39.1	142	144

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Remark: *CSA Z245.11 Gr. 241 Cat I Sour Service
 *GRN No.
 QA9067.2, OA9067.24, OA9067.27, OA9067.20,
 OA9067.28, OA9067.25, OA9067.29, OA9067.26,
 QA9067.2T, OA9067.2V, OA9067.2H
 *Tensile Test Specimen Type - Longitudinal

Legend:
 HB: Brinell
 ST: Solution Treatment
 SR: Stress Relieving
 AC: Air Cool
 OC: Oil Cool
 WC: Water Quench
 WC: Water Cool
 B: Base
 W: Weld
 R: Root
 L: Lead
 P: Product
 N: Normalized
 T: Tempered
 A: Annealed
 Q: Quenched
 Y.S: 2% Offset Method
 (G): Hot-Dip Galvanized Coating

Reviewed by:
 Witnessed by:

Approved by: [Signature]

Head of Quality Control Dept

3X2 STD / XH BW RED TEE A234-WPB

CONFORMS TO SA 134 WPB
 YEAR 2013
 JOB # 2013-8440-50
 ITEM# 27
 SIGNED BY NOV 28 2013

1-8440-50
 20-134044



INSPECTION CERTIFICATE

Customer : TRANS AM PIPING PRODUCTS LTD. (MILL TEST)
 Product : SEAMLESS CARBON STEEL BUTT WELD FITTINGS
 Spec : ASME SA/ASTM A234 WPB-11a
 CHUP HSN ENTERPRISE CO., LTD.
 17, TUNG LI ROAD HSIAO KANG, KAOHSIUNG, TAIWAN, R.O.C.
 TEL: (07)831-9157 FAX: (07)821-7500, 831-2942

Starting Material		Specification for Inspection										Visual Inspection			Dimensional Inspection		
ASTM A106 GR.B		ASME B16.9-2007										GOOD			GOOD		
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE MT	Test Temp	Size of specimen	Charpy V-Notch Impact Value	Ave.	Impact Test						
											Heat Treatment	REMARK					
111	TEE SMLS XS	6	6016	J0L6016	SUMITOMO BYYM8807	PASS											
130	RED TEE SMLS XS	3 X 1	330A	J0L1330	SUMITOMO BYYM8360	PASS											
133	RED TEE SMLS XS	4 X 3	A67V	12151678	HENGYANG C201300261-1	PASS											
136	RED TEE SMLS STD / XS	3 X 2	B833	J8K8833	SUMITOMO BYYF3800	PASS											
Specif- cation	Chemical Composition%										Tension Test			Hardness Test	Heat Treatment	REMARK	
	C	Si	Mn	P	S	CU	Ni	Cr	Mo	V	Nb	C.E	Y.S				T.S
X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X1000	X1000	X100	P.S.I	P.S.I	%	HB		
Min.	10	29										35000	60000	30			
Max.	22	135	50	58	40	40	40	15	80	20	50	95000			197		
111	17	22	19	8	2	1	4	1	0	0	27	42100	66700	42.5	139		
130	17	23	12	9	5	2	3	2	0	0	27	42800	68200	40	137		
133	15	24	87	10	8.8	7.1	2.3	3.3	2.4	1	31	43530	64000	37	134		
136	12	24	133	16	3	1	2	12	1	0	37	49700	74000	43.3	138		

L.S. Tsai

Chief of Quality Assurance Section

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15
 We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

REVISIONS: 10
 BY: SB
 DATE: 10/28/13



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkrui, Prapachiteng
Samutprakram, 10130 Thailand.

INSPECTION CERTIFICATE

Purchaser : VAN LEEUWEN PIPE AND TUBE (CANADA) INC.

TO EN10204 3.1

E-No. MC-936 Purchase Order No. 45001560 Job No.

D M Y Certificate No.
06/02/2013 T- 2013040046

No.	MFG. No.	Specification for Material Made from Seamless Pipe ASTM A234-11/ASME SA234-10 GR WPB CSA Z245 11-08 GR 241 CAT 1 SS ASME MF0175650 15158-2008/MF0103-2010	Product & Size		Quantity	Heat Treatment (Note 1)	Specification for Inspection ASME B16.9-2007, B16.25-2007	Visual Examination	Dimensional Inspection
			(T*1)	(T*2)					
1	12P10831	T WPB 2 S80 ←		194/300	N	Good	Good	Good	
2	12M10832	T WPB 3 S80		26775	N	HB : 118 - 145 ←	2988	3005	
3	12M10815	T WPB 6 S40		13775	N	HB : 120 - 150	2954	2954	
4	12N10815	T WPB 6 S40		51775	N	HB : 120 - 150	2954	2954	
5	12N10816	T WPB 6 S40		2775	N	HB : 120 - 150	2954	2954	

Specification	Chemical Composition %													Tension Test #2		
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E	
Min.	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 100	MPa.	%		
Max.		10	29										240	415	30	
Material Heat No.	30		106	50	58	40	40	15	80	20	45			665		
1 J2L8512 → 18	20	18	85	10	4	1	2	4	1	0	33	327	480	56	197 HB : GOOD 1-8440-50	
2 J1KA032	19	18	83	18	5	1	2	5	2	0	34	310	491	39	10-Stock	
3 J2L6263	19	20	85	13	8	1	2	3	1	0	34	328	478	39	PO-132098	
4 975058	20	23	47	13	1	10	6	15	4	2	33	289	470	37	28	
5 51227	17	23	83	10	1	8	3	5	2	3	34	328	468	36	NOV 22 2013	

(Note 1) A : Hot formed with final temperature between 620°C-980°C. Air Cooling N : Normalizing 910°Cx0.5 HR. Air Cooling *N : Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plate) S : Stress Relieving 675°Cx0.5 HR. Air Cooling

The fittings was manufactured, sampled, tested and inspected in accordance with the specification and was found to meet the requirements

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY : GOOD

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

Form 17-647

CONFORMS TO EN 10204 3.1
YEAR 2013
JOB NO. 1013-8440-50
ITEM # 28
NOV 22 2013

Rungge Nantipiranon
Quality Assurance Manager
Thai Benkan Co., Ltd.

VL QA Approved



INSPECTION CERTIFICATE

RIGID INDUSTRIES CO., LTD.

8 BEICHUNG RD. WANG-SUNG,
KAOHSIUNG HSEI 1, 8301 TAIWAN
TEL: 886 77310527-8
FAX: 886 77315887

INDUSTRY NO: 5115410
ASTM A234 WPB-1
ASME SA234 WPB-1

SIZE: 2.5" ID x 24" Dia (500mm)
TYPE: ANSI B16.3 (RF)

QUANTITY: 300 PCS
SPEC: ASME B16.3.1
ACCORDING TO EN10264/DIN6004/9/3.1

DATE: 2013-11-28
INSPECTOR: [Signature]
DATE: 2013-11-28
BY: [Signature]
NO: 3-8440-51

ITEM NO.	DESCRIPTION	QUANTITY PCS	MFG NO.	VISUAL & DIMENSIONAL INSPECTION	WAVELENGTH	HEAT TREATMENT	REMARKS
4	ELL 45 LR 2" STD	60	1P3015	GOOD	147	A	
5	ELL 45 LR 3" 2H	20	2P336	GOOD	140	A	
6	ELL 90 LR 2" 2H	500	204505	GOOD	132	A	
7	ELL 90 LR 3" 180	100	287129	GOOD	134	A	
8	ELL 90 LR 3" 2H	200	218527	GOOD	134	A	
9	ELL 90 LR 8" STD	300	1K3492	GOOD	146	A	
10	ELL 90 LR 8" 2H	50	202511	GOOD	143	A	
11	CONV RED 10X5" 2H	10	200552	GOOD	132	N	
12	TEE 2" 2H	300	302003	GOOD	140	N	
13	REDUCE 8X4" 2H	5		GOOD	140	N	

CHEMICAL COMPOSITION %

ITEM NO.	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	Fe
4	78	79	7	2	18	0	0	0	0	100
5	68	68	8	4	22	0	0	0	0	100
6	66	66	11	6	25	0	0	0	0	100
7	65	65	6	5	22	0	0	0	0	100
8	54	54	8	4	24	0	0	0	0	100
9	60	60	12	0	24	0	0	0	0	100
10	56	56	8	0	24	0	0	0	0	100
11	41	41	20	3	13	0	0	0	0	100
12	52	52	5	6	22	0	0	0	0	100
13	93	93	16	3	28	0	0	0	0	100

NOTES: 1. NOT REPORTED WITH FINAL TESTS. 2. PERMITTED TO BE USED FOR 900°C AIR COOLING. 3. INFORMATION FOR CUSTOMERS: 5. FOR PIPE END, SA192 AS 7.001. 4. CONFIRM THAT THE PRODUCT DESCRIBED HEREIN IS THE SAME AS SPECIFIED IN THE ORDER. 5. THE SPECIFICATION IS BASED ON THE LATEST REVISIONS OF THE STANDARD. 6. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

OK

Order#: 312846 Seq: 12 PO#: 133700 Heat#: 55E10010 Mill: BKL - Thai Benkan
 Part#: WF 2 XS T PB Part Desc: Weld Fittings 2 (60.3mm O.D.) XS WELD TEE A/SA234-WPB



Thai Benkan Co., Ltd.
 58 Soi Watukana, Bangkok, Prapachong
 Samruprakarn 10130 Thailand

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchaser: COMICO PIPE AND SUPPLY COMPANY

E-No: MC-819 Purchase Order No: E1-3263 Job No:

D M Y Certificate No
 14022013 - 2013140192

No.	Tl (%)	MFG. No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection
1	0.000	55E10010	ASTM A234-11/ASME SA234-1B Gr. WPB CSA Z345 11-09 Gr. 241 CAT 1 SS	ASME B16.9-2007, B16.25-2007	Good	Good
2	0.000	55E10015	T WPB 2 XS	Quantity: 200	Hardness Actual Data	9.0091
3	0.000	55E10017-1	T WPB 3 X 1 STD	Quantity: 5	HB: 142, 143, 145	0.0000
4			T WPB 3 X 2 STD	Quantity: 1/50	HB: 133, 134, 136	0.0000
5					HB: 126, 128, 130	0.0000

Specification	Chemical Composition %											Tension Test #2		
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	YS	TS	E
Min.	100	100	100	1000	1000	100	100	100	100	1000	1000	100	MPa	%
Max.	10	29										240	415	30
Material Heat No.	23		106	50	10	40	40	40	15	80	20	40	655	
1 J2L4043	20	21	84	13	8	2	2	5	1	0	0	35	405	58
2 J2K4431	19	19	85	20	5	2	2	6	1	0	0	35	498	37
3 J2K4431	18	19	85	20	5	2	2	6	1	0	0	35	498	37
4														
5														

HARDNESS MAX
 2-8440-51
 4-Stroke
 12-1587

CONFIRMS TO SA 234-1B
 YEAR 2013-2011 ADD
 28
 SIGNED BY NOV 22 2013

(Note 1) A: Hot formed with final temperature between 620°C-800°C, Air Cooling; N: Normalizing 910°Cx0.5 HR, Air Cooling; *N: Normalizing 910°Cx0.5 HR, Air Cooling (Specification for material made in Thailand according to ASME B16.9/ISO 16106-2:2009 & B16.9-2010 (SSC, Report))
 The fittings was manufactured sampled tested and inspected in accordance with the specification and was found to meet the requirements
 C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
 We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct
 * 1: "T", symbolized wall thickness in mm, * 2: YS Yield strength TS = Tensile strength E = Elongation
 Form TZ-6A/3

Rungroj Kanjanaporn
 Quality Assurance Manager
 Thai Benkan Co., Ltd.

Order#: 312846 Seq: 12 PO#: 133700 Heat#: 55K10008 Mill: BKL - Thai Benkan
 Part#: WF 2 XS TPB Part Desc: Weld Fittings 2 (60.3mm O.D.) XS WELD TEE A/SA234-WPB



Thai Benkan Co., Ltd
 58 Soi Waiwanthai, Bangkru, Prapachong
 Samprakram, 10130 Thailand

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchaser: COMCO PIPE AND SUPPLY COMPANY

E-No: MC-947 Purchase Order No. E1-3560 Job No. 110220013

D M Y Certificate No. 110220013

No.	MFG. No.	Specification for Material Made from Seamless Pipe ASTM A234-1/ASME SA234-10 Gr. WPB CSA Z46 11-99 Gr 241 CAT 1 SS	Product & Size (T*1)	Quantity	Heat Treatment (Note 1)	Specification for Inspection ASME B16.9-2007, B16.25-2007	Visual Examination	Dimensional Inspection
1	55K10001	T WPB 1 S160		5	N		Good	Good
2	55K10006	T WPB 16 STD		5	N		HB : 128,131,133	<0.000*
3	55K10008	T WPB 2 XS ←		150	N		HB : 142,143,145	<0.000*
4							HB : 144,146,153	0.0001
5								

Specification	Chemical Composition %											Tension Test #2			
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E
Min	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X			
Max		10	29												
Material Heat No.	23		106	50	10	40	40	40	15	80	20	40	240	415	30
1	2-76095	19	24	85	10	4	1	4	1	1	<1	35	287	475	47
2	3-90042	19	24	83	17	3	<1	3	<1	1	<1	34	305	489	46
3	J2L8512 →	18	20	85	10	4	1	2	4	1	0	33	327	480	56
4															
5															

(Note 1) A : Hot formed with final temperature between 620 °C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR, Air Cooling *N : Normalizing 910°Cx0.5 HR, Air Cooling (Specification for material made according to ANSINACE MRO175/ISO 15156-2-2008 & MRO103 - 2010 (SSC Region 3))
 The fittings was manufacturer's assembled tested and inspected in accordance with the specification, and was found to meet the requirements
 C.E = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
 We hereby certify that the product described herein has been manufactured in accordance with the specifications with the specifications concerned GOOD
 and also with the purchaser's requirements and that the test results shown herein are correct

1 : "T" symbolized wall thickness in mm * 2 : YS Yield strength TS = Tensile strength E = Elongation
 Form TZ-6A/3

CONFORMS TO SA
 YEAR 2013-8440-51
 ITEM 28
 SIGNED BY NOV 22 2013
 Ruangsakya Kumpitakon
 Quality Assurance Manager
 Thai Benkan Co., Ltd.

Current Date: Tue 30 Apr 2013 14:52:25 +0000

Material Test Report

Report Number: 25189
Description: 2" SWAGES & BULL PLUGS
Specification: A234-WPB/SA234-WPB
Year of Revision:

Date: Wed, Feb 27th 2013
Heat Treatment: H.R.
Material: C1018
CRN: 0A7470.5CR1

Comment: NACE MR0103-07
MR0175/ISO 15156-2-03

Additional Comment:

2" x 1" sch 80 PBE CONC swage

Chemical Analysis

Heat Code: K2624
Heat Number: A130312

C	0.190	Cu	0.160	Al	0.029
Mn	1.050	Ni	0.070	Ti	0.001
P	0.009	Cr	0.150	Ca	0.005
S	0.003	Mo	0.080	Sn	0.010
Si	0.230	V	0.033		
N	0.007	Cb/Nb	0.002		

Carbon Equivalency Formula Used:
 $C + (Mn/8) + (Cr+Mo+V)/5 + (Ni+Cu)/15$
CE= 0.43

Mechanical Tests

Yield PSI: 60500
Elongation: 29 % @ 2"
Size: 2.375" RND

Tensile PSI: 83500
Reduction of 65 Area %
Brinell Hardness: 163

Charpy Impact Test

Individual Values

(V1) ft/lbs (V2) ft/lbs (V3) ft/lbs

This Material Test Report meets DIN 50 049/EN 10 204 3 1, B Standard 1995

We hereby Certify that the material described has been tested in accordance with the specifications, and the results are correct as contained in the records of the Company.

[Signature]

Ian Stuckie
Q.A. Manager and Customer Service

CONFORMS TO SA 234 WPB
YEAR 2010 ED, 2011 190
JOB # 2013 - 8440-50
ITEM # 30
SIGNED BY NOV 22 2013

10-Stock
Po-133856
6-8440-50



Sarnia

Toll Free: 1-888-511-1381
By regular telephone at: 519-336-2960
By fax at 519-344-3181

Mailing Address: PO Box 999, 846 Kedco SL Sarnia, ON N7T 7K6

Edmonton

Toll Free: 1-800-661-3800
By regular telephone at: 780-438-4944
By fax at 780-435-3917

Mailing Address: 4120 - 78 Av Edmonton, AB T6B 3M8

Alco Gas & Oil PO# 13412 com# 4
 Heat Number: 123M
 Trans Am Piping Products Ltd
 Shipment / Seq #: S 13 - 1241 53

2X1 2X1 CONC SWAGE NIPPLE
 A234 WPB PLAIN BOTH ENDS

 I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A. Via Giancarlo Farina, 28 - 16030 Casarza Ligure - GE - ITALY Tel. +39 0185 467661 - Fax +39 0185 466610 - E-mail quality.ital@farinagroup.com MATERIAL TEST DEPARTMENT	COMPANY WITH QUALITY SYSTEM ISO 9001:2008 CERTIFIED BY RINA CERT. N° 232915
--	--

INSPECTION CERTIFICATE EN 10204:2004 / 3.1	Nr 104343	Dated 27.03.2013
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TRANS AM PIPING PRODUCTS LTD. 9335 Endeavor Drive S.E. Calgary, Alberta T3S 0A1	Purchase Order Nr CI-12-868 C/O 2 Item Nr 010 Packing List Nr 202 Invoice Nr 103
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Heat Code	Heat Nr	Quantity	Description
123M	12/73959	75,00	CONC.SWAGE PBE S-80 2"x1" MSS SP 95 WPB ←

Element	C	SI	Mn	S	P	Cr	Ni	Mo	Ti	Cu
ASTM A234 WPB (LADLE)	0,190	0,220	0,980	0,010	0,011	0,090	0,080	0,010	0,018	0,160 ←

Element	V	Nb	N	AL	C.E.	PRE
ASTM A234 WPB (LADLE)	0,003	0,002	-	0,025	0,385	-

Test specimen	Shape	Tensile	Yield Strength > 0,2%	Yield Strength > 1%	Elongation	Reduction of area
Sect. mm2	Length mm	1=□ - 2=□	N/mm2	N/mm2	%	%
122,65	60,00	1	528,0	334,0	38,0	-

HARDNESS		IMPACT TEST				
HBW	TYPE	Test specimen	°C	1-Joule	2-Joule	3-Joule
→ 180,0 - 188,0	KV	10x10mm	-10	54	58	57


Heat treatment	Normalized at 880°C / Air Cool	ELECTRIC FURNACE
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Dimension in accordance	MSS SP95 Ed.2006 - ASME B38.10 Ed.2004 - NACE MR 0175 ISO 15156 Ed.2009 MSS SP25 Ed.2008 - NACE MR 0103 Ed. 2012 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS ←
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Material in accordance	ASME SA ASTM A234/A234M-11a Gr. WPB
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Visual & Dimensional	SATISFACTORY	Origin	EUROPEAN UNION	Our Ref.	2012-1E201-0000654-0010
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Notes	15-Block PO-134121 2-8440-51	CONFORMS TO SA 234 WPB YEAR 2010 ED, 2011 ADD JOB # 2013-8440-51 ITEM # 30 SIGNED BY [Signature] DEC 03 2013
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QUALITY CONTROL DEPT. Boris Fizzotti Boris Fizzotti	INSPECTION AUTHORITY	MANUFACTURER'S SYMBOL IML or 
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CANVIL

CERTIFICATE OF TEST

Reference No.: JB-0411

02/26/99

Order Number: 00000000

EMCO DIST. GROUP (WESTLND EDM)
14940-121A AVENUE

7540841

EDMONTON AB.
T5V 1A3

Part Number: 5220400000

Description: 2 X 1/2 SCH 80 CONC SWAGED NIP TEE

Specification: ASTM A234 GRADE WPB / ASME SA234 GRADE WPB

Fitting Trademark: J B SMITH

Chemical Analysis %

Heat No.	Ht Code	C	Mn	P	S	Si	Cu	Ni	Cr
B69350	UCW ←	0.15	1.04	0.006	0.008	0.23	0.01	0.01	0.04
		Mo	V	Cb/Nb					
		0.01	0.00	0.00					

Mechanical Properties

Yield Strength psi : 43,100	Tensile Strength psi : 67,700
MPa : 297	MPa : 466
Elongation % 2" : 37.0	Red. Area % : 64.0
	Hardness BHN : 128

Heat Treatment:

2-8440-50

CONFORMING TO SA	234 WPB
YEAR	2010 ED, 2011 ADD
JOB #	013-8440-50
ITEM #	31
SIGNED BY	NOV 22 2013

We certify that this is a true and correct copy of the mill certificate, issued by the manufacturer of the steel employed or the laboratory which has determined it, as retained in the records of the company. CANVIL makes no representation beyond those of the manufacturer or its agent.

CANVIL

Material Test Report

Current Date: Tue, Nov 30th 1999



Report Number: 7642 Date: Tue, Nov 30th 1999
 Description: 2" SWAGES & BULL PLUGS Heat Treatment: H.R.
 Specification: A234-WPB/SA234-WPB Material: C1018
 Date of Revision: 0000-00-00 00 00 00 Material: C1018
 Comment: CRN

2" x 1/2" x H SWAGE
 2" x 1/2" S160 SWAGE

Chemical Analysis

Heat Code: K444
 Heat Number: 10564

C	0.200	Cu	0.200	Al	
Mn	0.810	Ni	0.081	Tr	0.000
P	0.013	Cr	0.217		0.000
S	0.020	Mo	0.036		
Si	0.240	V	0.000		
N	0.000	Nb	0.000		

Carbon Equivalency Formula Used:
 $C + (Mn/6) + (Cr + Mo + V)/5 + (Ni + Cu)/15$
 CE = 0.40

Mechanical Tests

Yield PSI: 52800
 Elongation: 28 % @ 2"
 Size: 2.375" RND

Tensile PSI: 84900
 Reduction of Area %
 Brinell Hardness: 183

Charpy Impact Test

Individual Values: (V1) 0 ft/lbs (V2) 0 ft/lbs (V3) 0 ft/lbs

This Material Test Report meets DIN 50 049:EN 10 204 3.1 B Standard 1995

We hereby Certify that the material described has been tested in accordance with the specifications and the results are correct as contained in the records of the Company.

M. Shields
 O.A. Manager and Customer Service



Sarnia
 Toll Free 1-866-511-1381
 By regular telephone at 519-336-2960
 By fax at 519-344-3181

Mailing Address
 PO Box 999
 645 Kedco St
 Sarnia, ON
 N7T 7K6

Edmonton
 Toll Free 1-800-661-3809
 By regular telephone at 780-438-4944
 By fax at 780-435-3917

Mailing Address
 4120 70 Av
 Edmonton AB
 T6B 3M8

2-8440-51

CONFORMING TO SA	234WPB
YEAR	2010 ED, 2011 ADD
JOB #	1013-8440-51
ITEM #	31
SIGNED BY	L. NOV 22 2010



Manufacturer of Piping and Pressure Vessel Components

4404 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bonney Forge Company

Sold To: TRANS AM PIPING PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 258,027

PO #: CI-13-444

Sales Order #: C001311061

Date: 07/26/2013

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

Material: A/SA105N 09

Item	Quantity	Description
18	50	36 - 4 X 1 1/2 XS BWP A/SA105N

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.190	0.08	0.060	1.09	0.007	0.013	0.02	0.008
	S	SI	V					
	0.021	0.21	0.004					
Carbon Equivalency:		Ladle		0.40				

Product	C	CR	CU	MN	MO	NI	P	S
	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.000
	SI	V						
	0.00	0.000						

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	73,449	50,791	34.25	61.83	132 BHN
					135 BHN

Normalized

IAW NACE MR0175/ISO 15156- 2009

Certified Material Test Report

Heat Code: 59059

CONFORMS TO SA	105N
YEAR	2010 EQ, 2011 ADD
JOB #	2013-8440-50
ITEM #	32
SIGNED BY	NOV 28 2013

1-8440-50
 Po-134044

Marie Dehmer
 Quality Assurance Representative



Manufacturer of Piping and Pressure Vessel Components
 4404 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bomsey Forge Company

Sold To: TRANS AM PIPING PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 251,948

PO #: CI-13-306

Sales Order #: C001306001

Date: 04/23/2013

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

Certified Material Test Report

Heat Code: 58880

CONFORMS TO	A105N
YEAR	2012 ED, 2011 ED
JOB #	1013-8440-50
ITEM #	33
TESTED BY	12-NOV 22 2013

Material: A/SA105N 09

Item	Quantity	Description
15	1,500	36 - 1 1/2 X 3/4 3M THP A/SA105N

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.209	0.04	0.050	1.02	0.006	0.013	0.02	0.008
	S	SI	V					
	0.019	0.24	0.004					
Carbon Equivalency:	Ladle			0.39				

175-Stock
 Po-132467
 2-8440-50

Product	B	C	CR	CU	MN	MO	NB	NI
	<0.0002	0.202	0.04	0.050	1.03	0.007	0.014	0.03
	P	S	SI	V				
	0.005	0.014	0.24	<0.001				
Carbon Equivalency:	Product			0.39				

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	74,099	49,441	34.85	56.26	135 BHN

135 BHN

Normalized

LAW NACE MR0175/ISO 15156-2009

Marie Dehmer
 Quality Assurance Representative



Manufacturer of Piping and Pressure Vessel Components
 4404 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bowney Forge Company

Sold To: TRANS AM PIPING PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 251,948

PO #: CI-13-306

Sales Order #: C001306001

Date: 04/23/2013

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

Material: A/SA105N 09

Item	Quantity	Description
15	1,500	36 - 1 1/2 X 3/4 3M THP A/SA105N

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.209	0.04	0.050	1.02	0.006	0.013	0.02	0.008
	S	SI	V					
	0.019	0.24	0.004					
Carbon Equivalency:	Ladle		0.39					

Product	B	C	CR	CU	MN	MO	Nb	NI
	<0.0002	0.202	0.04	0.050	1.03	0.007	0.014	0.03
	P	S	SI	V				
	0.005	0.014	0.24	<0.001				
Carbon Equivalency:	Product		0.39					

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	74,099	49,441	34.85	56.26	135 BHN

Normalized

LAW NACE MR0175/ ISO 15156-2009

Certified Material Test Report

Heat Code: 58880

CONFORMS TO	105N
YEAR	2010 ED, 2011 ADD
JOB #	1013-8440-50
ITEM #	33
TESTED BY	NOV 27 2013

175-Stock
 Po-132467
 2-8440-50

Marie Dehner
 Quality Assurance Representative



Manufacturer of Piping and Pressure Vessel Components
 4404 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Booney Forge Company

Sold To: TRANS AM PIPING PRODUCTS
 LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 246,756

PO #: CI-13-124

Sales Order #: C001300902

Date: 02/05/2013

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

Material: A/SA105N 09

Item	Quantity	Description
4	34	36 - 3/4 X 1/2 3M THP A/SA105N

Certified Material Test Report

Heat Code: 58962

CONFORMS TO SA	105N
YEAR	NOVED, 2011 ASD
JOB #	2013-8440-50
ITEM #	34
SIGNED BY	NOV 22 2013

50-Stock
 Po# 131489
 2-8440-50

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.200	0.04	0.070	1.05	0.005	0.012	0.02	0.009
B		SI	V					
	0.019	0.20	0.004					

Carbon Equivalency: Ladle 0.39

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	79,000	47,700	28.00	63.00	159 BHN

Normalized

IAW NACE MR0175/ ISO 15156-2009

Marie Dehmer
 Quality Assurance Representative



Manufacturer of Piping and Pressure Vessel Components

4407 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bonney Forge Company

Sold To: TRANS AM PIPING PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 227,018

PO #: CI-12-213

Sales Order #: C001203284

Date: 03/23/2012

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WPI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

Material: A/SA105N 09

Item	Quantity	Description
8	500	36 - 3/4 X 1/2 3M THP A/SA105N IAW NACE MR0175/ISO 15156-2009

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.220	0.03	0.050	1.05	0.000	0.013	0.02	0.006
	S	SI	V					
	0.020	0.21	0.003					
Carbon Equivalency:		Ladle		0.41				

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	81,500	53,500	31.00	56.00	163 BHN
					163 BHN

Normalized

Certified Material Test Report

Heat Code: 58627

CONFORMS TO SA	105N
YEAR	NOV 2013
JOB #	2013-8440-51
ITEM #	34
SIGNED BY	NOV 22 2013

50-stock
 Po # 129492

2-8440-51

Marie Dehmer
 Quality Assurance Representative

Phone (780) 466-4122
 Fax (780) 463-5587

KS Manufacturing Enterprises Ltd.

5203-76 Avenue
 Edmonton, Alberta T6B 0A7

MATERIAL TEST REPORT 25104

Date: 2013-11-14

Purchaser: ALCO GAS OIL PRODUCTION EQUIPMENT LTD.

Distributor:

Purchaser Order No. 133927

Distributor Order No:

Products

Item No.	Qty.	Product	Specification	Heat No	Description
1	85	1" X 6" LONG 3000 THRD COUPLING B16.11 CRN# 0A0297.2	A/SA350 LF2	H3270	1-3/4" RD BAR ASTM A105, A576, A350 LF2 CL 1, A696 GR C, A370-05, A29, API 6A PSL 3, ASME SA105, SA350 LF2 CL 1, NACE MR01- 75/ISO 15156, NACE MR01-03, DIN/EN 10204 3.1

Chemical Properties

Heat No.	C	Mn	P	S	Si	Cr	Ni	Mo	Cu	V	Nb	Co	N	Al	Sn	Ti
H3270	.173	1.232	.008	.014	.265	.091	.062	.011	.077	.013	.000	-	-	-	-	-

Mechanical Properties

Item No.	Heat No	Yield	Tensile	Elong % in 2"	RA	B.H.N.	Impact		Remarks
							ET	LB	
1	H3270	49,442 PSI	75,250 PSI	34	73-2	143-149	88.6-85.6-90.0 @ -50		NORMZE:1697 F. 2 HRS A.C. C.E.: .411

85-Stock
 Po-133927
 1-@ 6" LG
 8440-SD

CONFORMS TO SA 350 LF2 CL 1
 YEAR 2010 ED, 2011 ADD
 JOB# 2013-8440-SD
 ITEM# 35
 SIGNED BY [Signature] NOV 22 2013

We hereby certify the above results to be correct as contained in the records of the company.

[Signature]
 Kwang Y. Lee

HONGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST CERTIFICATE

Add: 10 Dalixincun, Hengyang
City, Hunan, P. R. China P. C. 421001
Tel and Fax: +86 734 8973729
E-mail: hysteel@hysteel.com

(421001010 EN10204 3.1B)

BHD PIPECLAR LIMITED		CERTIFICATE NO	2013567231	
DATE	11/03/10	F. O. NO.	117000	DATE
SEAMLESS STEEL LINE PIPE		DELIVERY CONDITION	HR	
B.P.M. Grade 290		DIMENSIONS	6" x SCH40 x 40FT	
TOTAL WEIGHT		TOTAL LENGTH	FT	TOTAL WEIGHT
				KG
REMARK: ORIGIN: MADE IN CHINA				

REF: HONGYANG VALIN STEEL ASME A516G, SA 2245, J CAT 1 & NACE MR0175 (ONLY)

The certificate is issued by a computerized system and it is valid with electronic signature. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

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

In case you require the withdrawal of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube Co., Ltd. E-mail: hysteel@hysteel.com

Quality Manager


Certificate-maker: 唐娜娜



MANUFACTURER: TIANJIN PIPE (GROUP) CORPORATION
 ADD: JINTANG ROAD DONGLI DISTRICT, TIANJIN, CHINA
 TEL: 86-22-24801073
 FAX: 86-22-24801291

QUALITY CERTIFICATE

QR-11-8.2.4-19

Licence No.:

No.: 13061924

Contract No.	TPCO-13014E	L/C No.	
Order	BHD Tubular Limited	Product	SEAMLESS STEEL LINE PIPE
P.O. No.	PO# 111606	Port of desti.	
Standard	CSA Z245.1-07/API SPEC 5L-2007/ASTM/ASME A/SA 106-2011	O.D. x W.T.	6IN SCH40(168.30*7.11)
		Steel grade	CAT I Gr 290 SSX42/Gr. B/CRC
		Manu Method	HOT ROLLING SEAMLESS
		Length range	40-44FT
		Total metres	
		Total Tons	

Heat No.	140	Quantity	106B
		Bundles	36
		Meters	2013-8440-50
		Pieces	36
		Delivery condition	AS ROLLED
		Sample No.	140-06-074
		Temp. °C	24
		I.S.	575
		Type	R10.5
		Y.S	410
		Elong. %	33.0
		Shrink. %	
		Temp. °C	
		Size	
		AK1	
		AK2	
		AK3	
		Shear %	
		Shear AVE %	

COPIES TO SA
 YEAR: 2010, 2011 ADD
 JOB #: 2013-8440-50
 ITEM #: 36
 SHIPPED BY: NOV 28 2013
 Po-134053
 A strip, L=25 mm Lo=50mm

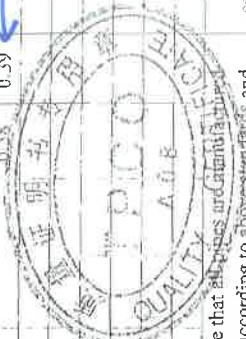
Heat No.	140	Sample No.	1	2	3	4	AVE	1	2	3	4	AVE	NDE
		Sample No.	182.0	181.0	182.0	183.0	184.0	183.0	182.0	182.0	181.0	182.0	EMI/L3
		Hardness test (inside)											
		Hardness test (middle)											
		Hardness test (outside)											

Heat No.	533760	Steel speci.	16MnV5
		C	0.1700
		Si	0.24
		Mn	1.14
		P	0.009
		S	0.002
		Cr	0.08
		Ni	0.06
		Mo	0.03
		Cu	0.06
		Al	0.028
		V	0.060
		Nb	<0.01
		Ti	<0.01
		B	<0.0005
		Ca	0.0018
		N	<0.01
		H	<0.0005
		O	<0.0005
		CE(CSA)	0.40
		CE(IIW)	0.40
		Hydro. Test	2670psi/8S

Heat No.	140	Sample No.	1	2	3	4	AVE	1	2	3	4	AVE	NDE
		Sample No.	182.0	181.0	182.0	183.0	184.0	183.0	182.0	182.0	181.0	182.0	EMI/L3
		Hardness test (inside)											
		Hardness test (middle)											
		Hardness test (outside)											

Heat No.	533760	Steel speci.	16MnV5
		C	0.1700
		Si	0.24
		Mn	1.14
		P	0.009
		S	0.002
		Cr	0.08
		Ni	0.06
		Mo	0.03
		Cu	0.06
		Al	0.028
		V	0.060
		Nb	<0.01
		Ti	<0.01
		B	<0.0005
		Ca	0.0018
		N	<0.01
		H	<0.0005
		O	<0.0005
		CE(CSA)	0.40
		CE(IIW)	0.40
		Hydro. Test	2670psi/8S

NACE MR 0103-2010/MR 0175-2009/ISO 15156-2A-2009; CE(CSA)=C+Fx (Mn/6+S/24+Cu/15+Ni/20+ (Cr+Mo+V+Nb) / 5+5B);
 Note: CE(IIW)=C+Mn/6+(Cr+Mo+V)/5+(Cu-Ni)/15; ALUMINUM KILLED STEEL, EAF-LF-CONTINUOUS CASTING;
 EN10204-3.1; Silicon and calcium treated for inclusion morphology control in Steel Melting.
 Remark: desti.=destination; Tem.=Temperature; Specif.=specification; Man.=Manufacturer; Fla.=Flattening; G=Good; Hydro.=Hydrostatic; Mag=Magnetic



We hereby state that all pieces and quantities have been inspected according to above standards and order.

No. _____ Date _____
 Page: _____ (1)

2013-6-25

(FOR EXPORT ONLY)

HENGYANG VALIN STEEL
 HISE CO., LTD

MILL TEST CERTIFICATE

ADD: 10 Dalixicun, Hangyao City, Hunan, P. R. China P. C. 421021
 Tel and Fax: +86 736 8874755
 E-mail: henyansh@163.com

ALCO # PA-038

CONTRACT NO. 211000718-06 P.01001
 PRODUCT SEAMLESS STEEL LINE PIPE
 SPECIFICATION SEE SPECIFICATION NOTE
 GRADE R. EX42, Grade 290
 TOTAL BUNDLES TOTAL PIECES
 DIMENSIONS TOTAL LENGTH: 4 X S40 X 20FT
 CERTIFICATE NO. 112000 DELIVERY CONDITION HR
 DATE: 2013-2-14 PAGE: 1/1
 C2013291001

NO	HEAT NO	BUNDLES	PIECES	LENGTH FT	WEIGHT RT	TENSILE TEST ASTM A370			
						YIELD STRENGTH R0.2	TENSILE STRENGTH R0.5	ELONGATION EL(%)	REDUCTION OF AREA RA (%)
1	1323585	6	107	2141.398	10.491	48140	36.0		0.71
2	1324030	3	57	1140.745	5.589	52795	35.0		0.75
3	1324050	3	44	880.575	4.314	53215	34.5		0.76
4	1319280	11	229	4182.730	20.495	53650	31.5		0.72

NO	NOTCH TYPE	ORIENTATION	TEMPERATURE (°C)	SIZE (mm)	IMPACT TEST		NON-METALLIC INCLUSION	GRAIN SIZE	HARDNESS TEST
					AVG	MIN			
1	U	L	20	10	1068	1068			HV10
2	U	L	20	10	1068	1068			HV10
3	U	L	20	10	1068	1068			HV10
4	U	L	20	10	1068	1068			HV10

METALLIC WEIGHT: N-NORMALIZING RE-HOT EXPANDED
 NON-METALLIC WEIGHT: A-ANNEALING RE-HOT FOLDED
 METALLIC WEIGHT: Q&T-QUENCHING AND TEMPERING AV-AVERAGE MET. ABSORB. ENERGY AND TEMPERING
 NON-METALLIC WEIGHT: AWC2-ABSORB. ENERGY FOR THE SECOND SET L2-L2 SIDE EXPANSION


SAMPLE ORIENTATION: L-LONGITUDINAL I-TRANSVERSE
 SAMPLE TYPE: S-STRIP C-CLUBBED F-FULL-SECTION
 Q&T-QUENCHING AND TEMPERING
 AWC2-ABSORB. ENERGY FOR THE SECOND SET

YEAR: 2013
 MONTH: 02
 DAY: 14
 SIGNED BY: [Signature]

366: 10 Hualin Road, Hangzhou
 City, China P. O. 311100
 Tel: +86 571 8722299
 Fax: +86 571 8722299

MILL TEST CERTIFICATE

SEAMLESS STEEL PIPE		CERTIFICATE NO.		2015-014		PAGE:		3/3	
P.O. NO.		102000		DELIVERY CONDITION		HR			
SEAMLESS STEEL PIPE		HEAT TREATMENT		DIMENSIONS		4" x 540 x 20FT			
TOTAL		PIECES		TOTAL LENGTH		FT		TOTAL WEIGHT	
								MT	
REMARKS: ORIGINAL IN CHINA									

<p>THE QUALITY MANAGEMENT SYSTEM HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS REQUIRED IN YOUR CONTRACT. THE QUALITY MANAGEMENT SYSTEM IS VALID WITH ELECTRONIC SIGNATURE. IN CASE THE OWNER OF THE CERTIFICATE WOULD RELEASE A SIGNATURE, THE QUALITY MANAGEMENT SYSTEM WILL BE VALID. THE QUALITY MANAGEMENT SYSTEM WILL BE VALID. THE QUALITY MANAGEMENT SYSTEM WILL BE VALID.</p>		<p>Quality Manager:</p> 	
<p>THE QUALITY MANAGEMENT SYSTEM HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS REQUIRED IN YOUR CONTRACT. THE QUALITY MANAGEMENT SYSTEM IS VALID WITH ELECTRONIC SIGNATURE. IN CASE THE OWNER OF THE CERTIFICATE WOULD RELEASE A SIGNATURE, THE QUALITY MANAGEMENT SYSTEM WILL BE VALID. THE QUALITY MANAGEMENT SYSTEM WILL BE VALID. THE QUALITY MANAGEMENT SYSTEM WILL BE VALID.</p>		<p>Certificate number: 原延牌</p>	

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

ADD: 10 DALIXINCU, HENGYANG CITY, HUNAN, P. R. CHINA P. C.: 421001
TEL AND FAX: +86 734 8873739
E-MAIL: HSYA@HYSTEEL.TUBE.COM

ALCO # P954

CEFRANKLIN
2111000674
P.O. NO. PO 3213317-OR-2100 L/C NO.: 3FAHDS-00278
SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE.
DELIVERY CONDITION: HR
HEAT TREATMENT: 2" x 0.218" x 20FT
DIMENSIONS: B, X42
TOTAL LENGTH: 20053.25 FT TOTAL WEIGHT: 45.713 MT
CERTIFICATE NO. C201318333-1
DATE: 2013-5-22
PAGE: 1/3

NO.	LOT NO.	HEAT NO.	BUNDLES	PIECES	LENGTH		WEIGHT	TENSILE TEST ASTM A370				COLD BENDING TEST
					FT	MT		TS(Psi)	YS(Psi)	EL(%)	RA (%)	
1	934302903	1323281	12	452	9045.98	20.621	74240	53070	30.0	0.71	ACCEPTABLE	
2	934302904	1323280V	7	251	5023.32	11.451	70180	51185	31.0	0.73	ACCEPTABLE	
3	934302905	1323282	5	191	3822.53	8.714	72500	51185	32.0	0.71	ACCEPTABLE	
4	935100416	1323281	3	108	2161.42	4.927	70615	51475	36.0	0.73	ACCEPTABLE	

NO.	IMPACT TEST				NON METALLIC INCLUSION	GRAIN SIZE	HARDNESS TEST				
	NOTCH TYPE/ORIENTATION	TEMPERATURE (C)	SIZE (mm)	AVG							
1	AK2 (J)	AV. (J)	% SHEAR AREA	LE	AK2 (J)	AV. (J)	% SHEAR AREA	LE	NON METALLIC INCLUSION	GRAIN SIZE	HARDNESS TEST
1	/	/	/	/	/	/	/	/	OMPHIBIOSIS	106b	HRC <22
2	/	/	/	/	/	/	/	/	NEAR 2010E	2011A	11.0V
3	/	/	/	/	/	/	/	/	JOB# 2013-8440-50		11.0V
4	/	/	/	/	/	/	/	/	TECH 39		11.0V
									SIGNED BY: DA	March 3/14	11.0V

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

HENGYANG VALIN STEEL
TUBE CO., LTD

MILL TEST REPORT

Add: 10 Dalixincun, Hengyang
City, Hunan, P.R. China P. C.: 421001
Tel and Fax: +86 734 8870789
E-mail: hstee@hysteeltube.com

(ACCORDING TO EN10224 3.1)

CUSTOMER	CE FRANKLIN	CERTIFICATE NO.	C201318333-1
CONTRACT NO.	2111000674	DATE:	2013-5-23
PRODUCT	SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE.	DELIVERY CONDITION	HR
SPECIFICATION	SEE SPECIFICATION NOTE	HEAT TREATMENT	
GRADE	B,X42	DIMENSIONS	2" x 0.218" x 20FT
TOTAL BUNDLES:	27	TOTAL LENGTH:	20053.250
		PIECES:	1002
		TOTAL WEIGHT:	45.713
		MT	

REMARK: 1. ORIGIN: MADE IN CHINA 2. ALL ELEMENTS TO BE LISTED.

SPECIFICATION NOTE	ASTM A53B-2012/A106B-2011, ASME SA53B/SA106B-2010, API 5L B/X42, PSLL-44TH EDITION NACE MR-0175-2009 (FOR HARDNESS ONLY)
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We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.

This certificate is issued by a computerized system and it is valid with electronic signature. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.

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

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

CUSTOMER THIRD PARTY

Quality Manager:



Certificate-maker:

刘年亚

9530034

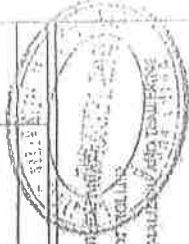


02/01/2014

Side 19111500000, Menge: 50,000, 2013-03-06
 PA-155

HENSBURG VALLEY STEEL
 TUBE CO., LTD
MILL TEST CERTIFICATE
 (ACCORDING TO EN10263-3)

CUSTOMER: BOCOR Steel Corporation	CERTIFICATE NO: CH113854-1	DATE: 2013-03-06	NA: NA	10								
CONTRACT/ITEM NO: 201100031-12	RO NO: 10008	ROLL NO: N										
PRODUCT: SEAMLESS STEEL LINE PIPE	DELIVERY CONDITION											
SPECIFICATION: SEE SPECIFICATION NOTE	HEAT TREATMENT											
GRADE: B30X40X6.35	DIMENSIONS	EFS: 1427X14X0FT										
TOTAL BUNDLES: 9	TOTAL PIECES: 543	100% 100	FT	TOTAL WEIGHT: 12021								
NO	LOT NO	HEAT NO	BUNDLES	PIECES	LENGTH	WEIGHT	TENSILE TEST AVAILABLE				ARL0 MINERLOG TEST	
							TS (Pa)	YS (Pa)	EL (Pa)	AS (Pa)		
1	1359130	1359130	9	543	14967.159	12.081	TS (Pa)	YS (Pa)	EL (Pa)	AS (Pa)	0.500	0.500
IMPACT TEST												
NO	HEAT NO	% SHEAR AREA	CE	20°C U1	AC (J)	% SHEAR AREA	LE	NON-METALLIC INCLUSIONS	GRANULAR SIZE	HARDNESS TEST		
										NACT REPORT		
SAMPLE ORIENTATION: L-LONGITUDINAL T-TRANSVERSE SAMPLE TYPE: S-SHIP C-CORNER H-HULL SECTION Q&T: QUENCHING AND TEMPERING ACQ: ABSORB ENERGY FOR THE SECOND SET ACQ: ABSORB ENERGY FOR THE FIRST SET												



PA-155
 STOCK
 P0135026

CONTROLLERS TO SA: 1060
YEAR: 2010 ED 2011A
ADD: 2013-8440-50
ITEM: 40
SIGNED BY: DA March 3/14


MILL TEST CERTIFICATE

HENGYANG VALLEY STEEL
TUBE CO., LTD

ADD: 10 HENGYANG, HENAN
451131, HENAN, P. R. CHINA TEL: 8637230
FAX: 8637235 888 224 8522235
E-MAIL: hyc@hycsteel.com

EXCERPTS TO ENTRIES 3, 4

CUSTOMER	Bo-Chen Steel Corporation	CERTIFICATE NO.	101008	SIZE	201.5*2.5	GRADE	Q345
CONTRACT NO.	2311060791-12	P.O. NO.		DELIVERY QUANTITY	8		
PRODUCT	SEAMLESS STEEL LINE PIPE						
SPECIFICATION	SEE SPECIFICATION NOTE	HEAT TREATMENT		DIMENSIONS	REF: 1.12 X 14.2 X 20FT		
GRADE	Q345	TOTAL LENGTH	1098.195	TOTAL WEIGHT	15.884	MT	
TOTAL BUNDLES	7						
REMARKS: 1. ORIGIN: MADE IN CHINA. 2. ALL ELEMENTS TO BE LISTED.							

<p>REMARKS: 1. ORIGIN: MADE IN CHINA. 2. ALL ELEMENTS TO BE LISTED.</p>	<p>QUALITY MANAGER</p> 
<p>WE HEREBY CERTIFY THAT MATERIAL HEREIN DESCRIBED HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS REQUIRED IN YOUR ORDER AND SATISFIES THE CORRESPONDING REQUIREMENTS.</p> <p>THIS CERTIFICATE IS VALID ONLY IF A COMPUTATIONAL SYSTEM AND IT IS VALID WITH ELECTRONIC SIGNATURES. IN CASE THE CONTENT OF THIS CERTIFICATE WOULD CONTRADICT ANY COPY OF IT, WE MUST ELUCT THE AUTHORITY TO THE ORIGINAL ONE TAKING UPON OURSELVES THE RESPONSIBILITY FOR ANY UNBLENDED OR NOT ALLOWED USE.</p> <p>ANY ALTERATION NUMBER MODIFICATION WILL BE SUBJECT TO THE BANK.</p> <p>IF YOU NEED TO ASSURE THE AUTHENTICITY OF THIS CERTIFICATE, PLEASE DO NOT HESITATE TO CONTACT HENGYANG VALLEY STEEL TUBE CO., LTD. E-MAIL: hyc@hycsteel.com</p> <p>CUSTOMER THIRD PARTY:</p>	<p>CONFIRMATION</p> <p>胡学军</p>



NIKOPOL STEEL PIPE
 "YTIST", CJSC o 56, TRUBNIKOV
 AV., NIKOPOL CITY
 DNIPROPETROVSK
 REG., UKRAINE, 53201
 FAX: +38-05662-25062
 WWW.STEELPROML.COM

MILL TEST REPORT

IN ACCORDANCE WITH EN 10204/3. 1B

NO. 302-B

DATE: 15.08.2006

BUYER:

SIZE: 1 1/2" SCH 80 SMLS (1.900" x 0.200")

Alco # P 929

PURCHASE ORDER #

SPECIFICATION: ASTM A333/ ASME SA 333
 NACE MR 0175-2002
 GRADE: Gr6

Stock
 P-132 903

CONFORMS TO SA 333-6
 YEAR 2010 ED 2011A
 JOB # 2013-8440-50
 ITEM # 40
 SIGNED BY DA April 17/14

HEAT NUMBER	LADLE ANALYSIS-STEEL											PRODUCT CHEMISTRY %				OTHER VALUES	
	C	Si	Mn	S	P	Cr	Ni	Cu	Mo	V	CE	Mn/C	C+Cu+Mo+Ni+V max 1	max 1			
614348	0,19	0,22	0,52	0,023	0,018	0,02	0,02	0,02	0,01	0,28	0,28	2,74	0,07	0,07			
613633	0,20	0,22	0,54	0,020	0,016	0,02	0,02	0,02	0,01	0,30	0,30	2,70	0,07	0,07			
623806	0,18	0,23	0,52	0,024	0,014	0,02	0,01	0,03	0,01	0,27	0,27	2,89	0,07	0,07			
623797	0,19	0,22	0,55	0,022	0,023	0,02	0,02	0,02	0,01	0,29	0,29	2,89	0,07	0,07			

MECHANICAL PROPERTIES

HEAT NUMBER	Beat No	YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	Elongation %	FLATTENING TEST	BEND TEST	IMPACT TEST CHАРPY V-NOTCH L - 10x3,33 ft x lb			TEMP. °C	HYDRO-STATIC TEST (PSI)	NON-DESTRUCTIVE TEST METHOD USED	HARDNESS TEST
							1	2	3				
							average						
614348	2819	49200	71000	28	NONE	GOOD	15,1	16,8	16,8	-53°	NONE	EDDY CURRENT	<22HRC
613633	2841	47700	65000	31	NONE	GOOD	15,0	16,8	14,7	-53°	NONE	EDDY CURRENT	<22HRC
623806	2837	47600	69000	31	NONE	GOOD	15,4	16,8	16,3	-53°	NONE	EDDY CURRENT	<22HRC
623797	2834	49000	68000	34	NONE	GOOD	16,5	15,6	15,4	-53°	NONE	EDDY CURRENT	<22HRC

Nominal size of longitudinal strip sample for stretching test: width, mm: 12,5±0,25, calculated length, mm: 50
 • I CERTIFY THAT THE MATERIAL HEREIN DESCRIBED HAS BEEN MANUFACTURED WITH THE ORDERED SPECIFICATION AND THAT THE TEST INFORMATION IS CORRECT AND CONTAINED IN THE RECORDS OF THE COMPANY

Senior control foremen

Prepared by

Mannesmannrohr Sachsen GmbH (Am1) Mannesmannrohr Sachsen GmbH Mannesmannstrasse 11 01619 Zeitz/ah	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT (A02) (3.1 NACH EN 10204:2004) PARAGRAPHE 16, C No. : 724292/012 (A03) Page: 1 (5) Date: 27.08.2012
---	---	---

1 5160 1106

(A01) Mannesmannrohr Sachsen GmbH	(A08.1) V&M-Order-No. 06065121 (A08.2) Suborder LA2160
(A04.1) Customer CCTF CORPORATION 5407-53RD AVENUE CA-T6B3G2 EDMONTON, AB/CANADA	(A07.2) Order-No. VM2862 Date 01.02.2012
(A08.2) Orderer VALLOUREC TUBES CANADA INC. / SUITE 101	(A08.3) Order-No. 4890987-00
(A01, A02, A04) Description of the product	HOT FINISHED SEAMLESS LINE PIPE MAX. 10 % SHORT LENGTHS, NOT SHORTER THAN 17 FT RESIDUAL MAGNETISM DOES NOT EXCEED 30 GAUSS ENDS PLAIN, SQUARE CUT TUBE ENDS CLOSED BY PLASTIC PLUGS INSIDE WITHOUT RUST PROTECTION OUTSIDE DRY VARNISH DEVIATION FROM STRAIGHTNESS MAX. 4 MM ON 1 M AT EACH END, TOTAL DEVIATION OF TUBE LENGTH MAX. 0.2 % IN BUNDLES OF MAX. 4000 KG, WITH 6 STEEL BANDS AND 2 SLINGS (NYLON) FOR CONTAINER REPORT ELEMENTS: C, SI, MN, P, S, CU, CR, NI, MO, V, NB, B REFERENCE-NUMBER SKU NO 2520524 V & M FRANCE NO/ITEM LA2160/03 API SPEC. 5 L, PSL 1, 10.2007 ASTM A 106 M - 10 ASTM A 530 M - 04 A ASME SA 106, EDITION 2010 ASME SA 830 M, EDITION 2010 ASME BOILER AND PRESSURE VESSEL CODE, SECTION II, PART A, EDITION 2010 CSA Z 245.1:2009 NACE MR 0175/ISO 15166-2:2009/ EN ISO 15166-2:2009, ANNEX A 2.1.2 NACE STANDARD MR 0103-2010, PARAGRAPH 2.1 X 42 / GRADE B (ASTM A 106 M / ASME SA 106) / GRADE B (API 5L) / GRADE 290 (CSA Z245.1, CAT. I) AS ROLLED "SOUR SERVICE AS DEFINED IN PARAGRAPH 16 OF CSA/Z245.1. BUT WITHOUT HIC TEST, THESE PSL 1 PRODUCTS DO NOT CONFORM TO ANNEX H OF API 5L." STEEL MANUFACTURER IS HKM, DUISBURG, GERMANY

Alico # PA-052

CONFORMS TO SA	100 B
YEAR	2010 ED 2011 A
JOB #	2013-8440-50
ITEM #	41
SIGNED BY	28 April 17/14

Stock
Po-133965

Mannesmannrohr Sechen GmbH (A01) Mannesmannrohr Sechen GmbH Mannesmannstrasse 11 01619 Zetheln	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT (A02) (3.1 NACH EN 10204:2004) PARAGRAPH 16, C
		No. : 72429Zh12 (A03) Page: 2 / 5 Date: 27.08.2012

(A12) V&M Item	(A10) Cust. Item	(A14) Item text	(B00) Dimensions	(B10) Single length
3			NPS 1 IN X SCHJED. 160,000 IN	FIXED LENGTH 20 FT SINGLE LENGTH TOLERANCE IN IN + 4,00 / - 0,00

(A14) V&M Item	(A00) Cust. Item	(B00) Quantity	(B11) Total length ft	(B13) Weight lbs
3		120	2.400,00	6.914

(071)

HEAT CHEMICAL ANALYSIS

(B07.1) Heat	(B16) Process	C %	Si %	Mn %	P %	S %	Al %	Cu %	Cr %	Ni %	Mo %
min	-	-	0.100	0.29	-	-	-	-	-	-	-
max	-	0.280	0.500	1.08	0.030	0.0350	-	0.400	0.400	0.400	0.150
357384	Oxygen (BOF)	0.100	0.200	0.74	0.012	0.0020	0.027	0.040	0.120	0.070	0.020

(B07.1) Heat	V %	Ti %	Nb/Cb %	Co %	B %	CQ 24 %	EF 14 %	EF 02 %				
min	-	-	-	-	-	-	-	-	-	-	-	-
max	0.080	0.0400	0.110	-	0.0010	.40	1.00	0.15				
357384	0.001	0.0040	0.001	0.0050	0.0002	.38	0.25	0.01				

CQ 24	$CEV = C + F \times (Mn/6 + Si/24 + Cu/15 + Ni/20 + (Cr + Mo + V + Co)/6 + 5B)$
EF 14	$EF = CR + MO + NI + CU + V$
EF 02	$EF = V + TI + NB$

Heats fully killed

E-F3=NB + V = MAX. 0,06%
E-F3=0,006% (357384)

(072)
PRODUCT CHEMICAL ANALYSIS

CONFORMS TO SA	106-B
YEAR	2010 ED 2011 A
JOB #	2013-8440-50
ITEM #	41
SIGNED BY	DS April 17/14

Mannesmannrohr Sachsen GmbH (601) Mannesmannrohr Sachsen GmbH Mannesmannstrasse 11 01619 Zella-Mehlis	 VALLOURDC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT (602) (3.1 NACH EN 10204:2004) PARAGRAPH 16, C No. : 72429Zh12 (603) Page: 3 / 6 Date: 27.06.2012
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(C72)
PRODUCT CHEMICAL ANALYSIS

(B07.1) Heat	(C00.1) Test Place	C %	Si %	Mn %	P %	S %	Al %	Cu %	Cr %	Ni %	Mo %
min		-	0.100	0.29	-	-	-	-	-	-	-
max		0.260	0.600	1.06	0.030	0.0360	-	0.400	0.400	0.400	0.160
357304		0.169	0.216	0.72	0.012	0.0010	0.020	0.046	0.110	0.070	0.021
357384		0.170	0.217	0.72	0.012	0.0010	0.026	0.045	0.116	0.075	0.021

(B07.1) Heat	(C00.1) Test Place	V %	Ti %	Nb/Cb %	Co %	B %
min		-	-	-	-	-
max		0.080	0.0400	0.110	-	0.0010
357384		0.002	0.0030	0.002	0.0050	0.0002
357384		0.002	0.0030	0.002	0.0050	0.0002

CHECK ANALYSIS ON 2 TUBES PER HEAT

TENSILE TEST RESULTS
 Type (C10.1) FULL SECTION TEST SPECIMEN
 Test temperature (C03) ROOM TEMPERATURE
 Direction (C07) longitudinal

(B07.1) Heat	(C00.1) Test Place	(C10) Dimension	(C11) YS	(C12) TS	(C13) Elong.	(C14.1) Rallo
		mm	R _{10.8} psi	R _m psi	2" %	R/R _m
min		-	42000	60000	24.0	-
max		-	-	-	-	-
357304	90850	33.50X06.25	46021	71938	46.7	0.98

HARDNESS TEST WITH FREQUENCY AS FOR THE TENSILE TESTS

HARDNESS TEST RESULTS

CONFORMS TO SA	106-B
YEAR	2010 ED 2011A
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ITEM #	41
SIGNED BY	DS April 17/14

Mannesmannrohr Sachsen GmbH (A01) Mannesmannrohr Sachsen GmbH Mannesmannstraße 11 01619 Zella-Mehli	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT (A02) (3.1 NACH EN 10204:2004) PARAGRAPH 1B, C
		No. : 724202112 (A03) Page: 4 / 5 Date: 27.06.2012

HARDNESS TEST RESULTS

(D07.1) Heat	(C06.1) Test Place	(C03) Value HB	(C03) Value HB	(C03) Value HB						
min										
max		200.0	200.0	200.0						
357384	00868	145.0	144.0	140.0						

(D03)

OTHER TESTS ON PIPE

Test	Conditions	Test rate	Result
HEAT TREATMENT	HOT FINISHED IN THE RANGE OF NORMALIZING TEMPERATURE		
HYDROSTATIC TEST	3000 PSI, HOLDING TIME 6 SEC.	EACH PIPE/TUBE	NO LEAKAGE
FLATTENING TEST			SATISFACTORY
BENDING TEST			SATISFACTORY
APPEARANCE AND DIMENSIONS (D01)		EACH PIPE/TUBE	SATISFACTORY
VERIFICATION TEST		EACH PIPE/TUBE	SATISFACTORY
HARDNESS TEST		HB MAX. 200,0	
HARDNESS TEST		HRC MAX. 22	GUARANTEED
PIPE PRODUCTION METHOD	SEAMLESS, HOT-ROLLED		


- EDDY CURRENT TEST ACC. TO CSA 2 246.1; SATISFACTORY

- KILLED STEEL

- HYDROSTATIC TEST: 20,7 MPA, HOLDING TIME 5 SEC. EACH PIPE/TUBE; NO LEAKAGE

(A04, B04)

MARKING, IDENTIFICATION

<p>3</p> 	<p>PAINT STENCILED ON ONE SIDE MANUFACTURER MANUFACTURER'S MARK SPEC. 5L API-MONOGRAM 5L0160.5 MONTH/YEAR 33,4 X 6,35 NW 1 X SCHED.160 TERMS OF DELIVERY PSL 1/A106/SA106/2245.1-09 X42 / B / B / 250 CAT 1 PROCESS OF MANUFACTURE SMLS SS HEAT-NO. TEST PRESSURE BAR TEST PRESSURE PSI 3000 NDE TUBE/PIPE LENGTH MM TUBE/PIPE LENGTH FT PIPE NO. (TALLY-NR.) 65665121 V&M ITEM-NO 3 WA GERMANY CUSTOMER ORDER-NO. VM2852 ORDER-NO. USER 4800987-00 MANUFACTURER'S NAME</p>
--	---

DATE: 03/12
TUBE NUMBER: 1 - 120

(Z01)

The supplied products are in compliance with the requirements of the order

CONFORMS TO SA	106-B
YEAR	2010 ED 2011A
JOB #	2013-8440-50
ITEM #	41
SIGNED BY	22 April 17/14

Mannesmannrohr Sachsen GmbH (M)H Mannesmannrohr Sachsen GmbH Mannesmannstraße 11 01814 Zetheln	 VALLOUREC & MANNESMANN TUBES Vallourac Group	MATERIAL TEST REPORT (A03) (2.1 NACH EN 10204:2004) PARAGRAPH 16, C No.: 724282h12 (A03) Page: 6 / 6 Date: 27.08.2012
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(A03, 207, 203)

Date	27.08.2012
Validated by	Inspection Representative
	RACZ <i>Racz</i>
☎	(03625) 782318
📠	(03625) 781140
@	ULRIKE.RACZ@SMP-TUBES.DE
Stamp	

Indication in parentheses correspond to attributes according to EN 10198

This test report and certification respectively may neither be modified nor used for other products. Citations are regarded as illustrations of documents and may be subject to changes in future.

Order#: 332089 Seq: 1 PO#: 134685 Heat#: Y56554 Mill: Wuxi Huayou Special Steel Co
 Part#: P 1 XS S6 S PL Part Desc: Pipe 1 (33.4mm O.D.) EXTRA HEAVY SMLS A/SA106-B SRL PLAIN END (com.)

CONFORMS TO SA 106B
 YEAR 2010 ED 2011A
 JOB# 2013-8440-50
 ITEM# 42
 SIGNED BY 28 April 17/A

Stock
 Po-134685.
 无锡市华友特钢有限公司
 Wuxi Huayou Special Steel Co., Ltd.



产品质量证明书

MILL TEST CERTIFICATE
 (EN10204.3.1B)

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Alco # PA124

订货单位 CUSTOMER	KNIGHTSBRIDGE INTERNATIONAL CORP.		证书号 CERTIFICATE NO.	1338907		制造方法 MAKING METHOD	冷拔 COLD-DRAW		
收货单位 PURCHASER	KNIGHTSBRIDGE INTERNATIONAL CORP.		信用证号 L/C NO.	DC HCY211525		交货状态 DELIVERY CONDITION	退火态 ANNEALED		
产品名称 PRODUCT	SEAMLESS STEEL PIPES		合同号 CONTRACT NO.	E1-3117		冶炼过程 STEEL MAKING PROCESS	电炉炼钢 ELECTRIC FURNACE		
标准 SPECIFICATION	API 5L/ASTM A106 OR B/ASME SA 106 B		钢管类型 PIPE TYPE	铝镇静钢 ALUMINUM KILLED STEEL		热处理工艺 HEAT TREATMENT	860°C*25MIN AIR COOLING		
	(NACE MR0175 / NACE MR01-03 & ISO 15156)					出货日期 DATE OF ISSUE	2012-06-24		
外径 OD	33.4mm	壁厚 W.T.	4.55mm	长度 LENGTH	6.1m	总支数 TOTAL PICES (PCS)	4287	总米数 TOTAL METERS	26150.70
	SCH XS							总重量 (吨) TOTAL WEIGHT (TONS)	94.556

化学成分 (wt %)																														
		CHEMICAL COMPOSITION																												
		C	Si	Mn	P	S	硫	铜	镍	铬	钼	钒	钨																	
		%	%	%	%	%	%	%	%	%	%	%	%																	
Max		0.28	—	1.06	0.030	0.030	—	—	0.40	0.40	0.15	0.08	—																	
Min		—	0.10	0.29	—	—	—	—	—	—	—	—	—																	
力学性能 (MPa)																														
		冲击试验 IMPACT TEST						硬度试验			水压试验		无损探伤检验																	
		A _{av} (J)						HARDNESS TEST (HB)			HYDROSTATIC TEST		N.D.E.																	
											17MPa, 10S		无损伤探伤																	
											CE VALUE (≤0.40)		合格 GOOD																	
											137/133/130		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
											合格 GOOD		合格 GOOD																	
序号 NO.	20100938	炉号 HEAT NO.	Y56554		支数 PCS		4287		韧性试验 TENSILE TEST		屈服强度 Y.S.		245		抗拉强度 T.S.		475/470		伸长率 A %		31/33		冲击试验 IMPACT TEST		A _{av} (J)		合格 GOOD		合格 GOOD	
屈服强度 Y.S.		MPa		#4		MPa				试块温度 TEMPERATURE OF TEST		10 X 10 X 55 (20°C)								硬度试验 HARDNESS TEST		(HB)		合格 GOOD		合格 GOOD		合格 GOOD		
Max		415		245		475/470		31/33		冲击试验 IMPACT TEST		A _{av} (J)		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		
Min		—		—		—		—		试块温度 TEMPERATURE OF TEST		10 X 10 X 55 (20°C)								合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		
Visual & Dimension		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		弯曲试验 BENDING TEST		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		合格 GOOD		
Notes		*1. HEAT (LABEL) ANALYSIS; *2. PRODUCT ANALYSIS; *3. 试样尺寸 SIZE: φ 33.4 mm.																												
Inspector		合格		合格		合格		合格		合格		合格		合格		合格		合格		合格		合格		合格		合格		合格		



非金属材料 (EN10204.3.1B)
 检验员
 INSPECTOR
 无锡华友特钢有限公司
 WUXI HUAYOU SPECIAL STEEL CO., LTD.
 无锡市华友特钢有限公司
 WUXI HUAYOU SPECIAL STEEL CO., LTD.

本证书所列产品，均按标准规定制造、取样、试验和检验，并符合标准及合同要求。
 WE HEREBY CERTIFY THAT THE MATERIALS DESCRIBED HEREIN HAVE BEEN MANUFACTURED, SAMPLED, TESTED AND INSPECTED
 IN ACCORDANCE WITH THE CUSTOMER'S SPECIFICATION (S), AND THAT THEY SATISFY THE REQUIREMENTS.

Benteler Steel/Tube GmbH
 Postfach 13 40
 33043 Paderborn
 Deutschland
 Tel.: +49.5254.81-0 Fax: +49.5254.13666

BENTELER

Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
 INSPECTION CERTIFICATE EN 10204-3.1
 CERTIFICAT DE RECEPTION EN 10204-3.1
 EN 10204:2005-01

Benteler Steel/Tube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

VAN LEEUWEN PIPE & TUBE
 (CANADA) INC.
 2875-64 AVENUE
 EDMONTON, AB T6P 1R1
 CANADA

Dokument-Nr.: 41-718541/001/P
Document No.:
 No. du document:

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

Benteler Auftrags-Nr.: 1578490
Order No.:
 No. de commande Benteler:

Versandanzeigen-Nr.: 4119764
Dispatch Note No.:
 No. d'avis d'expédition:

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

Lieferbedingungen:
Terms of delivery:
Conditions de livraison:

ASME SA-106, ASME Section II Part A Edition 2010 Addenda 2011a, S6, ASTM-A 106-2011, S6, API Specification 5L Forty-Fourth Edition, October 2007, ISO 3183:2007, PSL 1, incl. ADDENDUM 3, CSA Standard Z245.1-07 Category I, Sour Service, ANSINACE MR0175/ISO 15156-1: 2009, ANSINACE MR0175/ISO 15156-2: 2009

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

ASME B36.10M-2004, ASME SA-530, ASME Section II Part A Edition 2010 Addenda 2011a, ASTM-A 530-2004a

Stahlsorte:
Steel grade:
Nuance d'acier:

GRADE 290, GRADE B, GRADE X 42

Lieferzustand:
Delivery condition:
État de livraison:

Hot rolled

Produktkennzeichnung:
Product marking:

FS: BENTELER Z.245.1-07 - ISO 3183 - A 106-S6 - SA-106-S6 Spec 5L-0151.1 API SIGN 0912
 PSL1 B/X42/290 SS HEAT-NO. TEST PRESSURE NDE DIMENSIONS WA GERMANY P.O. 45001557

Marquage du produit:

AEZ = Anzeichenbezeichnung, Etching ink marking, Gravure à l'encre, HK = Fertigungsbezeichnung, colour marking, FSD = Farbstrahlbezeichnung, Couleur jet pulvérisé, Impression à jet d'encre de couleur
 LK = Laserkennzeichnung, Laser marking, Marquage laser, 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

Prüf-Nr.: Blatt: 1 / 7
Inspection No.: Page:
 No. du certificat: Page:

Hersteller: Warmrohrwerk/Zieherei
Manufacturer: (DIN EN ISO 9001, ISO/TS-16949 CERTIFIED BY TÜV NORD CERT) (PED 97/23/EC CERTIFIED BY TÜV NORD SYSTEMS)

Herstellerzeichen:
Manufacturer's brand:
 Marque du producteur:

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

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

Alco # P953

CONFORMS TO SA	106-B
YEAR	2010 ED 2011A
JOB #	2013-8440-50
ITEM #	43
SIGNED BY	DA April 17/14



VL QA Approved



Steel/Tube

Benteler Steel/Tube GmbH
Posifach 13 40
33043 Paderborn
Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254.13666

Blatt: 2 / 7
Page: Page:
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Prüf-Nr.: 41-718541/001/P
Inspection No.:
No. du certificat: A100#P953

Dokument-Nr.: 41-718541/001/P
Document No.:
No. du document:

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

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		
0001	976	1" NPS * Sched. 80 18 FT - 22 FT	19468,77	41562	573889	3000		
0002	943	1/2" NPS * Sched. 80 18 FT - 22 FT	19888,16	21418	574021	3000		
0003	754	3/4" NPS * Sched. 80 18 FT - 22 FT	15460,96	23303	574179	3000		
0005	386	1" NPS * Sched. 160 18 FT - 22 FT	8358,27	23700	574021	3000		
0006	517	3/4" NPS * Sched. 40 18 FT - 22 FT	10380,71	12037	574020	3000		
0007	224	1 1/2" NPS * Sched. 40 18 FT - 22 FT	4872,44	13144	217117	3000		
0010	294	3/4" NPS * Sched. 160 18 FT - 22 FT	6292,65	12518	574020	3000		

CONFORMS TO SA	1068
YEAR	2010 ED 2011A
JOB #	2013-8440-50
ITEM #	43
SIGNED BY	28 April 17/14

Stock
Po-133198

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	573889	0,130	0,200	0,74	0,011	0,002	0,10	0,02	0,06	0,06	0,002	0,011	0,002	0,0001
0002	574021	0,130	0,180	0,76	0,007	0,002	0,13	0,03	0,09	0,08	0,002	0,012	0,001	0,0001
0003	574179	0,120	0,220	0,73	0,008	0,001	0,11	0,03	0,05	0,06	0,002	0,013	0,002	0,0001
0005	574021	0,130	0,180	0,76	0,007	0,002	0,13	0,03	0,09	0,08	0,002	0,012	0,001	0,0001
0006	574020	0,140	0,170	0,75	0,006	0,002	0,10	0,03	0,08	0,07	0,002	0,011	0,001	0,0001
0007	217117	0,125	0,210	0,73	0,008	0,002	0,08	0,03	0,07	0,10	0,002	0,012	0,002	0,0001
0010	574020	0,140	0,170	0,75	0,006	0,002	0,10	0,03	0,08	0,07	0,002	0,011	0,001	0,0001

ABNAHMEPRÜFZEUGNIS EN 10204-3.1 Dokument-Nr.: 41-718541/001/P
 INSPECTION CERTIFICATE EN 10204-3.1 Document No.:
 CERTIFICAT DE RECEPTION EN 10204-3.1 No. du document:

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

1. Formel: $CE_{IIW} = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) < = 0,40 \%$
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: $Cr + Cu + Mo + Ni + V < = 1,00 \%$

CONFORMS TO SA 106-B
 YEAR 2010 ED 2011A
 JOB # 2013-8440-50
 ITEM # 43
 SIGNED BY: 28 April 17/14

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
Pos'n	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule
0001	573889	0,286	0,263	5,692	0,242
0002	574021	0,300	0,273	5,846	0,332
0003	574179	0,277	0,247	6,083	0,252
0005	574021	0,300	0,273	5,846	0,332
0006	574020	0,301	0,284	5,357	0,282
0007	217117	0,280	0,258	5,840	0,282
0010	574020	0,301	0,284	5,357	0,282

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.													
Pos'te	No. de coulée													
0001	573889	0,120	0,190	0,73	0,009	0,002	0,10	0,02	0,05	0,05	0,001	0,014	0,002	0,0002
0001	573889	0,120	0,190	0,73	0,009	0,002	0,10	0,02	0,05	0,05	0,001	0,014	0,002	0,0001
0002	574021	0,130	0,180	0,75	0,006	0,002	0,13	0,04	0,08	0,09	0,001	0,015	0,001	0,0001
0002	574021	0,130	0,180	0,76	0,006	0,002	0,13	0,04	0,08	0,09	0,001	0,015	0,001	0,0001 ←
0003	574179	0,130	0,220	0,73	0,007	0,001	0,11	0,04	0,04	0,06	0,001	0,015	0,002	0,0004
0003	574179	0,120	0,220	0,73	0,007	0,001	0,11	0,04	0,04	0,06	0,001	0,015	0,002	0,0004
0005	574021	0,130	0,180	0,75	0,006	0,002	0,13	0,04	0,08	0,09	0,001	0,015	0,001	0,0001
0005	574021	0,130	0,180	0,76	0,006	0,002	0,13	0,04	0,08	0,09	0,001	0,015	0,001	0,0001
0006	574020	0,150	0,180	0,76	0,006	0,002	0,11	0,03	0,08	0,08	0,001	0,016	0,002	0,0001
0006	574020	0,140	0,180	0,75	0,005	0,002	0,11	0,03	0,08	0,08	0,001	0,015	0,002	0,0001

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													
0007	217117	0,120	0,200	0,73	0,008	0,002	0,08	0,03	0,07	0,12	0,001	0,015	0,002	0,0001
0007	217117	0,120	0,200	0,73	0,008	0,002	0,08	0,03	0,07	0,13	0,001	0,016	0,002	0,0001
0010	574020	0,150	0,180	0,76	0,006	0,002	0,11	0,03	0,08	0,08	0,001	0,016	0,002	0,0001
0010	574020	0,140	0,180	0,75	0,005	0,002	0,11	0,03	0,08	0,08	0,001	0,015	0,002	0,0001

1. Formel: $CE_{IIW} = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) < = 0,40 \%$
 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: $Cr + Cu + Mo + Ni + V < = 1,00 \%$

Formelergbnisse / 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	573889	0,272	0,243	6,083	0,221
0001	573889	0,272	0,242	6,083	0,221
0002	574021	0,300	0,274	5,769	0,341
0002	574021	0,302	0,275	5,846	0,341
0003	574179	0,288	0,268	5,615	0,251
0003	574179	0,278	0,249	6,083	0,251
0005	574021	0,300	0,274	5,769	0,341
0005	574021	0,302	0,275	5,846	0,341
0006	574020	0,315	0,304	5,066	0,301
0006	574020	0,303	0,288	5,357	0,301
0007	217117	0,276	0,245	6,083	0,301
0007	217117	0,277	0,246	6,083	0,311
0010	574020	0,315	0,304	5,066	0,301
0010	574020	0,303	0,288	5,357	0,301

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

Dokument-Nr.: 41-718541/001/P
 Document No.:
 No. du document:

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

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:

PASSED

Die Rohre wurden zerstörungsfrei geprüft:
 The tubes are non destructive tested:
 Les tubes ont passé un essai non destructif:

PASSED

Augensichtkontrolle: PASSED
 Visual inspection:
 Examen visuel:

PASSED

Maßkontrolle:
 Dimensions examination:
 Vérification des dimensions:

PASSED

CONFORMS TO SA 106-B
 YEAR 2010 ED 2011A
 JOB # 2013-8440-50
 ITEM # 43
 SIGNED BY 28 April 17/14

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 längs Vollprobe / Tensile test longitudinal Full section test specimen / Essai de traction longitudinale Eprouvette a section complete

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
			mm	ReH / N/mm ² / MIN 290	Rm / N/mm ² / 415-625	% / MIN 30	1. Formel / 1. Formule
0001	000001	573889	33,45 X 4,60	348	477	50	
0002	000001	574021	21,30 X 3,75	371	501	40	
0003	000001	574179	26,85 X 4,00	361	482	44	
0006	000001	574020	26,85 X 2,95	379	500	42	

Benteler Steel/Tube GmbH
 Postfach 13 40
 33043 Paderborn
 Deutschland
 Tel.: +49.5254.81-0 Fax: +49.5254.13666

BENTELER
 Steel/Tube

Blatt: 6 / 7
 Page: 7

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

41-718541/001/P

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

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

Zugversuch längs Gewicht und Länge / Tensile test longitudinal Weight and length / Essai de traction longitudinale Poids et longueur

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
			ReH	Rm	A2"	1. Formel	
			mm	N/mm ²	%	1. Formule	
			MIN 290	415-625	MIN 30	1. Formule	
0005	000001	574021	1.689,40	408	300	48	
0007	000001	217117	1.629,90	411	356	54	
0010	000001	574020	1.200,10	403	331	44	

CONFORMS TO SA 106-B
 YEAR 2010 ED 2011A
 JOB # 2013-8440-50
 ITEM # 43
 SIGNED BY [Signature] April 17/14

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	HBW
				MAX 200				
0001	000001	573889	139					
0002	000001	574021	148					
0003	000001	574179	141					
0005	000001	574021	140					
0006	000001	574020	147					
0007	000001	217117	144					
0010	000001	574020	138					

Restmagnetismus / Demagnetize / Démagnétiser

demagnetized tubes; 1 measurement per 4 hours on both tube ends Two readings 180° apart around the circumference. Average value max 3.0 Millitesla (24 A/cm), individual value max 3.5 Millitesla (28 A/cm)

Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland
Tel.: +49-5254-81-0 Fax: +49-5254-13666

BENTELER 
Steel/Tube

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

Dokument-Nr.: 41-718541/001/P
Document No.:
No. du document:

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

Blatt: 7 / 7
Page:
Page:

Vermerk / Remark / Remarque

NACE Standard: Hardness acc. to ANSI/NACE MR0175/ISO 15156: HRC max 22., The material meets the requirements of NACE MR0103, Region 3, in accordance to Figure 1 and Appendix A.2, ANSI/NACE MR0175/ISO 15156-2:2009; Certificate remarks: The Material is Aluminium deoxidized and inclusion shape controlled with Calcium-Silicon treatment, It is the end user's responsibility to ensure that all environmental requirements as well as the requirements regarding engineering, construction and operation of facilities are fulfilled in the country of use. Fit for purpose of the parts as well as homologation is not the scope of this contract., This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-07 meets the requirement for micro hardness of max. 248 HV 500 gf., No weld repair has been carried out; Bend test: mandrel diameter 12D; Bending angle: 90 °

Grain size: acc. to ASTM-E 112, Grain size 6 and finer: Item 001 Heat no. 573889 = 10, Item 002 Heat no. 574021 = 10 - 11, Item 003 Heat no. 574179 = 10, Item 005 Heat no. 574021 = 9 - 10, Item 006 Heat no. 574020 = 10, Item 007 heat no. 217117 = 10, Item 010 Heat no. 574020 = 9.

Verkäufer(in) / Salesman/ woman in charge / Personne chargée : Mrs Schöneweis, Tel.: 05254/81-4234, Fax: 4289

Paderborn Schloß Neuhaus, 12.10.2012, TEL.: 05254.81-1765 FAX: 05254.81-1752


Abraham Bauer
Inspection representative

Contrôleur

THOMAS GOLLÁN / GUT

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.

MILL TEST CERTIFICATE

SHANGHAI PUFA STAINLESS STEEL PIPE FACTORY

7 Hongye Road, Tang Town, Pudong New District, Shanghai, China

ISO 9001:2008 MOODY

REGISTRATION No.: 110703068



CERTIFICATE NO.: 13-7-89
 COMMODITY: Seamless Stainless Steel Tube OD Polished to 320Grit
 SPECIFICATION: ASTM A213-11a/ASME SA213-08/ASTM A269-10 EAW
 PURCHASER: SC MFG Group *JNSHYMCOHSH - StocK*
 CONTRACT NO.: SC-15531 *Pe - 134762.*
 DATE OF REPORT: 2013.7.15

Steel Grade	Heat No.	Lot No.	Dimensions			Process	Delivery Condition	Macroscopic Inspection
			O.D. (in)	W.T. (in)	Length (ft)			
TP316/ TP316L	YX1302-681		1/2	0.035	20	37,500	Solution -Annealed	Passed

Chemical Composition (W.T. %)

Element	C	Mn	P	S	Si	Cr	Ni	Mo	Ti
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	16.0~18.0	10.0~14.0	2.00~3.00	/
Ladle Analysis	0.019	0.73	0.033	0.001	0.40	16.65	10.05	2.04	/
Product Analysis	0.022	0.70	0.035	0.001	0.40	16.47	10.30	2.14	/

Mechanical Properties

Test Item	Y.S. (MPa) Rp0.2	T.S. (MPa) Rm	EL. (%) In 2 in	Reduction of Area Z (%)	Hardness	Cold Bend Test	Flaring Test	Flattening Test	Flange Test
Requirements	≥205	≥515	≥35	/	HRB≤80	/	22%	e=0.09	Passed
Test Results	260/270	590/600	61/62	/	75/77	/	Passed	Passed	Passed

Test Item	Non Destructive Tests		Hydrostatic Test	Inter-granular Corrosion Test	Remarks:
	Eddy Current Test	Ultrasonic Test			
Requirements	ASTM E 426	/	/	ASTM A262 E	Materials is NACE MR0103-2007 compliant Tubes tested per ASTM A1016-11a All tubes annealed to above 1900 Deg F and water quenched below 800 Deg F in 3 minutes- No weld repair performed In Compliance with EN 10204-3.1 Materials is NACE MR0175/ISO 15156-2003 compliant Tubes Made in CHINA
Test Results	Passed	/	/	OK	

We hereby certify that the material described herein has been made and tested completely in accordance with the above specification and with the requirements of the purchase order or contract.

CONFORMS TO SA 213 TP 316/316L
 YEAR 2010 ED 2011A
 JCS # 2013-844D-50
 ITEM # 44
 SIGNED BY: *General Manager*
 DATE: *28 May 11/14*

3/8" x 20 BWS Tubing

CONFORMS TO SA	A13 TP 316/316L
YEAR	2010 ED 2011A
JOB #	2013-8440-50
ITEM #	45
SIGNED BY	DA May 1/14

MILL TEST CERTIFICATE

SHANGHAI PUFA STAINLESS STEEL PIPE FACTORY

7 Hongye Road, Tang Town, Pudong New District, Shanghai, China

ISO 9001:2008 MOODY

REGISTRATION No.: 110703068

CERTIFICATE NO.: 11-9-28
 PURCHASER: SC MFG Group
 CONTRACT NO.: SC-15310
 COMMODITY: Seamless Stainless Steel Tube OD Polished to 240Grit
 DATE OF REPORT: 2011.9.12
 SPECIFICATION: ASTM A213-10/ASME SA213-08/ASTM A269-10 EAW

Steel Grade	Heat No.	Lot No.	Dimensions			Process	Delivery Condition	Macroscopic Inspection			
			O.D. (in)	W.T. (in)	Length (ft)			Pieces	Feet	End Cut	Appearance
TP316/ TP316L	YX1102-529		3/8	0.035	20	2500	50,000	Cold-Drawn	Solution - Annealed	Passed	Passed

Chemical Composition (W.T. %)

Element	C	Mn	P	S	Si	Cr	Ni	Mo	Ti
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	16.0-18.0	10.0-14.0	2.00-3.00	/
Leadle Analysis	0.020	0.68	0.035	0.001	0.53	16.52	10.08	2.06	/
Product Analysis	0.026	0.64	0.038	0.003	0.42	16.86	10.28	2.05	/

Mechanical Properties

Test Item	Y.S. (MPa) Rp0.2	T.S. (MPa) Rm	EL. (%) In 2 in	Reduction of Area Z (%)	Hardness	Cold Bend Test	Flaring Test	Flattening Test	Flange Test
Requirements	≥205	≥515	≥35	/	HRB≤80	/	22%	e=0.09	Passed
Test Results	270/280	570/580	59/60	/	72/74	/	Passed	Passed	Passed

Non Destructive Tests

Test Item	Eddy Current Test	Ultrasonic Test	Hydrostatic Test	Inter-granular Corrosion Test	Remarks:
Requirements	ASTM E 426	/	/	ASTM A262 E	Materials is NACE MR0103-2007 compliant Tubes tested per ASTM A1016-08 All tubes annealed to above 1900 Deg F and water quenched below 800 Deg F in 3 minutes- No weld repair performed In Compliance with Mil-P-24691 / 3 In Compliance with RoHS Directive 2008/35/EC In Compliance with EN 10204-3.1 Tubes Made in CHINA
Test Results	Passed	/	/	OK	

We hereby certify that the material described herein has been made and tested completely in accordance with the above specification and with the requirements of the purchase order or contract.

Approved by: 
 QC Manager

General Manager



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: HC DRAIN INLET ISO#'s 1-1 & 1-2

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 440 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G3 & G6

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Alagow
QC INSPECTOR/ ALCO GAS & OIL

3/27/2014
DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: HC DRAIN INLET ISO #1-3

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G3 & G6

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow 3/31/2014
QC INSPECTOR/ ALCO GAS & OIL DATE

3RD PARTY INSPECTOR DATE

AUTHORIZED INSPECTOR DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: HP FLARE GAS OUTLET ISO #2

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 440 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G3 & G6

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

<i>David Gungor</i>	3/27/2014
QC INSPECTOR/ ALCO GAS & OIL	DATE
3 RD PARTY INSPECTOR	DATE
AUTHORIZED INSPECTOR	DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: CONDENSATE OUTLET ISO#'s 3-1 & 3-3

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G3 & G6

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow 3/31/2014
QC INSPECTOR/ ALCO GAS & OIL DATE

3RD PARTY INSPECTOR DATE

AUTHORIZED INSPECTOR DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: CONDENSATE OUTLET ISO #3-2

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 450 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G11 & G13

PRESSURE TEST CHART RECORDED: YES NO

**WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER
WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO
LEAKS OR OTHER DEFECTS WERE FOUND.**

David Glasgow

QC INSPECTOR ALCO GAS & OIL

5/7/2014

DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: CONDENSATE OUTLET ISO #4

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G12 & G23

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Huggins

QC INSPECTOR/ ALCO GAS & OIL

4/2/2014

DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: CONDENSATE OUTLET ISO #5

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 440 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G8 & G25

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow 4/3/2014
QC INSPECTOR/ ALCO GAS & OIL DATE

3RD PARTY INSPECTOR DATE

AUTHORIZED INSPECTOR DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: PSV-1012A GAS RELIEF ISO #6

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 450 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G11 & G13

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

 _____ QC INSPECTOR/ ALCO GAS & OIL	5/7/2014 _____ DATE
_____ 3 RD PARTY INSPECTOR	_____ DATE
_____ AUTHORIZED INSPECTOR	_____ DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: TRUCK-OUT CONNECTION ISO #7

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G8 & G11

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow
QC INSPECTOR / ALCO GAS & OIL

4/1/2014
DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: VENT GAS CONNECTION ISO #9-1

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G8 & G11

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow 4/1/2014
QC INSPECTOR/ ALCO GAS & OIL DATE

3RD PARTY INSPECTOR DATE

AUTHORIZED INSPECTOR DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: VENT GAS CONNECTION ISO #9-2

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G12 & G23

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Husgar

QC INSPECTOR ALCO GAS & OIL

4/2/2014

DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: HEAT MEDIUM SUPPLY ISO#'s 10-1 & 10-2

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G12 & G23

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow 4/2/2014
QC INSPECTOR/ ALCO GAS & OIL DATE

3RD PARTY INSPECTOR DATE

AUTHORIZED INSPECTOR DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: HEAT MEDIUM RETURN ISO #11

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 430 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G5 & G19

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow
QC INSPECTOR/ALCO GAS & OIL

4/2/2014
DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: HEAT MEDIUM RETURN ISO#'s 12-1 & 12-4

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G12 & G23

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow

QC INSPECTOR/ ALCO GAS & OIL

4/2/2014

DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE

5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: HEAT MEDIUM RETURN ISO#'s 12-2 & 12-3

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 430 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G5 & G19

PRESSURE TEST CHART RECORDED: YES NO

**WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER
WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO
LEAKS OR OTHER DEFECTS WERE FOUND.**

David Husgar

QC INSPECTOR/ALCO GAS & OIL

4/2/2014

DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: INSTRUMENT AIR SUPPLY ISO #13-1

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G8 & G11

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Slusger 4/1/2014
QC INSPECTOR/ ALCO GAS & OIL DATE

3RD PARTY INSPECTOR DATE

AUTHORIZED INSPECTOR DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: UTILITY AIR SUPPLY ISO #13-2

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G3 & G6

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glugos

QC INSPECTOR/ALCO GAS & OIL

3/31/2014

DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: SPOOLS FOR LIT-1010 & LIT-1010A
ISO#'s 14-1, 14-3 & 14-4

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 430 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G5 & G19

PRESSURE TEST CHART RECORDED: YES NO

**WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER
WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO
LEAKS OR OTHER DEFECTS WERE FOUND.**

David Glasgow 4/2/2014
QC INSPECTOR/ALCO GAS & OIL DATE

3RD PARTY INSPECTOR DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-50

DESCRIPTION: SPOOLS FOR LIT-1010 & LIT-1010A ISO #14-2

NAME OF AUTHORIZED INSPECTION AGENCY:

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 435 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: WATER **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G3 & G6

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

David Glasgow
QC INSPECTOR/ ALCO GAS & OIL

3/31/2014
DATE

3RD PARTY INSPECTOR

DATE

AUTHORIZED INSPECTOR

DATE

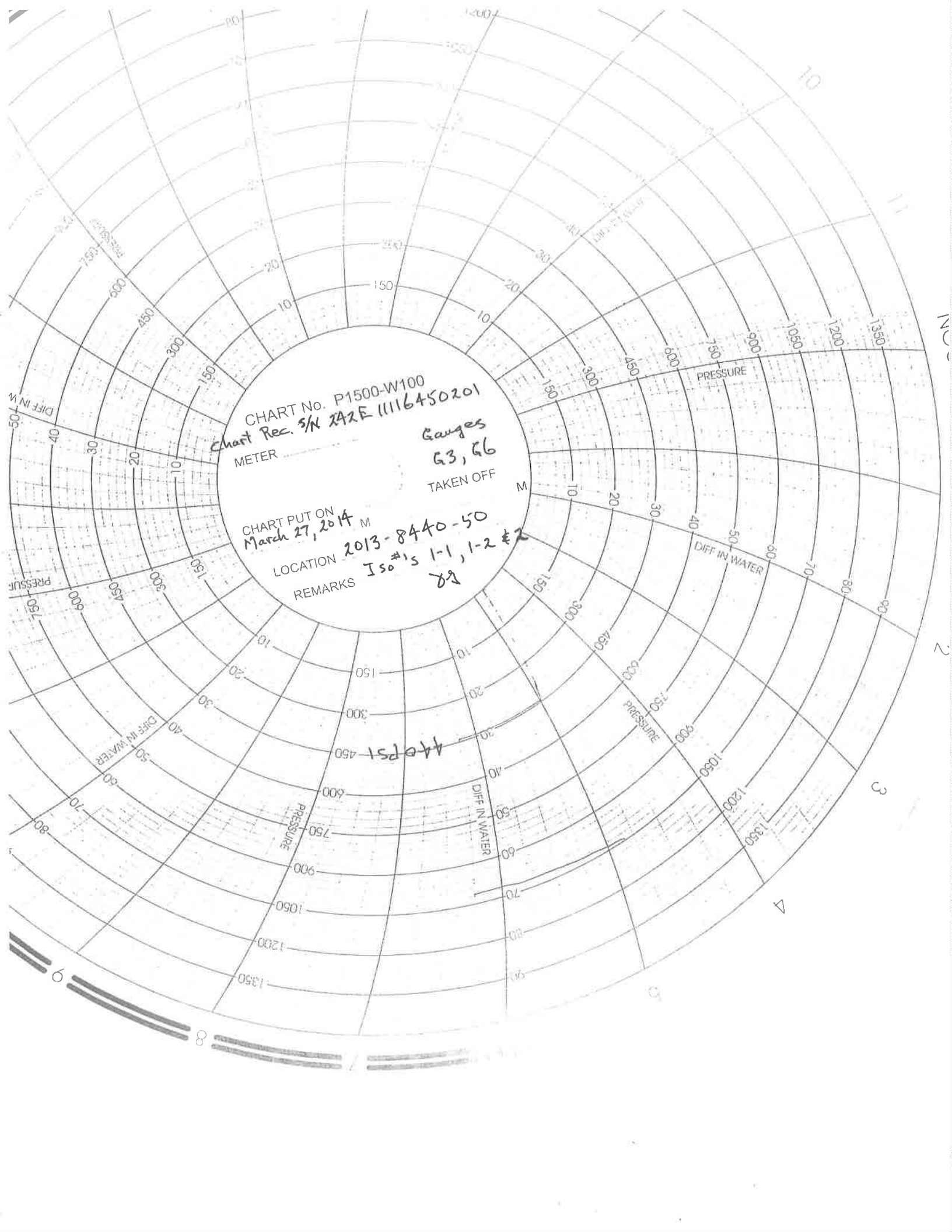
CHART No. P1500-W100
Chart Rec. S/N 242E 1116450201
METER

Gauges
G3, G6
TAKEN OFF

CHART PUT ON
March 27, 2014 M

LOCATION 2013-8440-50
REMARKS Iso #s 1-1, 1-2 #2
89

440 PSI





RECORDING CHARTS
GRAPHIC CONTROLS CANADA LTD.
GANANOQUE, ONTARIO

Chart Rec LEASE **GAS MEASUREMENT**
N 242E 111 6450201

METE

PLATE

Gauges
53 56

ON M.
19

March 31, 2014

LOCATION **2013-8440-50**

Remarks **Iso# 1-3, Iso# 3-1**

CMR P1500W100

Iso# 3-3, Iso# 14-2, Iso# 13-2

22

435851

6 P.M.



RECORDING CHARTS
GRAPHIC CONTROLS CANADA LTD.
GANANOQUE, ONTARIO

GAS MEASUREMENT
Chart Rec. S/N 242 E 11116450201

LEASE

METER

PLATE

Gauges

G12, G23

April 2, 2014^M

ON M.
19

LOCATION

2013-8440-50

Remarks

Iso# 4, Iso# 12-1

CMR P1500W100
Iso# 12-4, Iso# 9-2, Iso# 10-1, Iso# 10-2

78A

6 P.M.



RECORDING CHARTS
GRAPHIC CONTROLS CANADA LTD.
GANANOGUE, ONTARIO

GAS MEASUREMENT

Chart Rec 3/N 242E-11116450201

METE[®]

PLATE
Gauges

68, G25

April 3, 2014

ON — M.

19

LOCATION 2013-8440-51

Remarks Iso# 1-3, Iso# 3-1

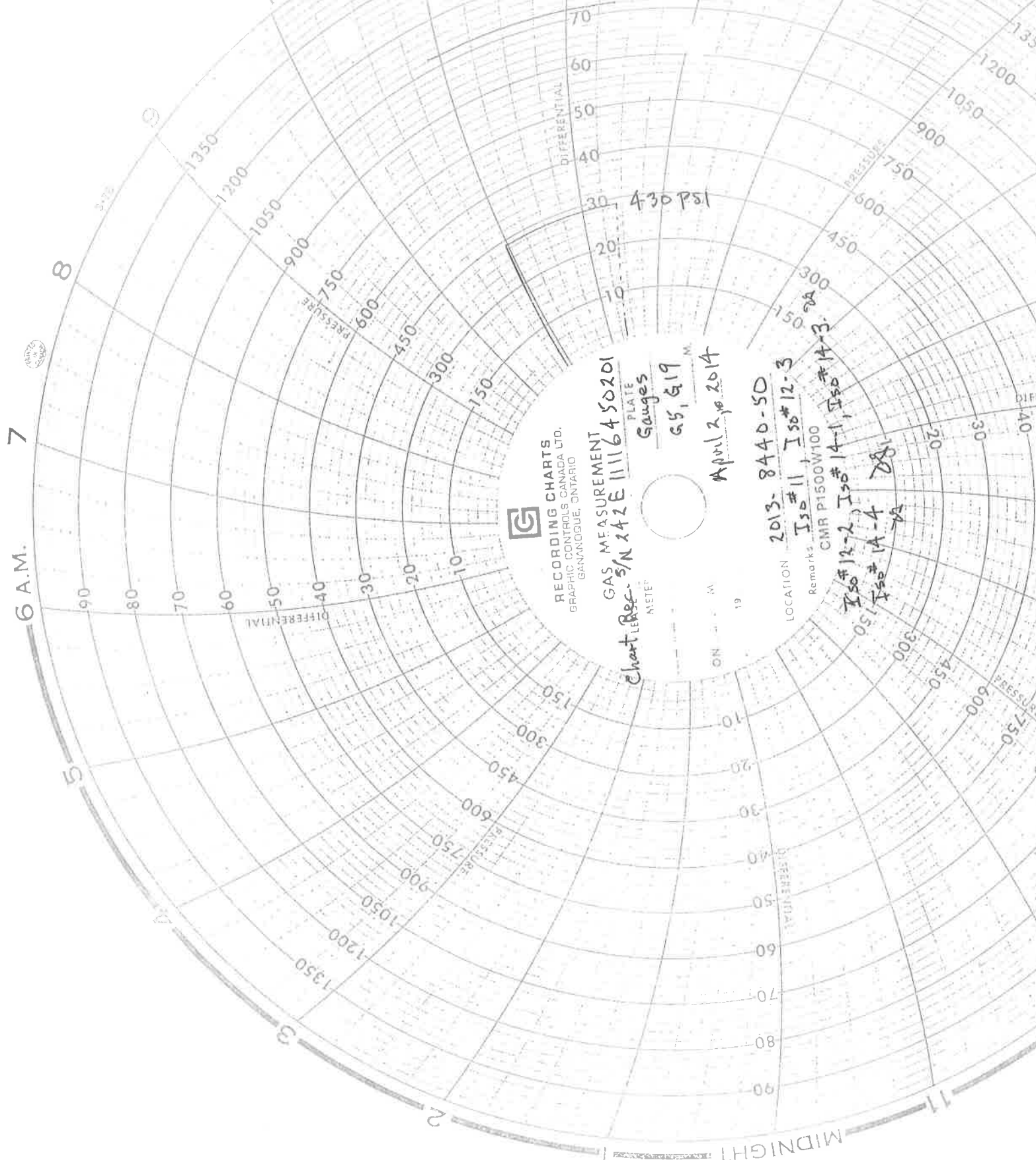
CMR P1500W100

Iso# 3-3, Iso# 5, Iso# 7

2013-8440-50 Iso# 5

28 01

6 P.M.



RECORDING CHARTS
GRAPHIC CONTROLS CANADA LTD.
GANANCOQUE, ONTARIO

GAS MEASUREMENT
PLATE
Gauges

Chart Rec. S/N 142E 1116450201
METER

65, 619

April 2, 2014

LOCATION 2013-8440-50

Remarks Iso # 11, Iso # 12-3

CMR P1500W100

Iso # 12-2, Iso # 14-1, Iso # 14-3

Iso # 14-4

188

7A

430 Psi

6 A.M.

7

8

9

5

3

2

METER

M

61

NO

April 2, 2014

LOCATION 2013-8440-50

Remarks Iso # 11, Iso # 12-3

CMR P1500W100

Iso # 12-2, Iso # 14-1, Iso # 14-3

Iso # 14-4

188

7A

430 Psi

6 A.M.

7

8

9

5

3

2

METER

M

61

NO

April 2, 2014

LOCATION 2013-8440-50

Remarks Iso # 11, Iso # 12-3

CMR P1500W100

Iso # 12-2, Iso # 14-1, Iso # 14-3

Iso # 14-4

188

7A

430 Psi



RECORDING CHARTS
GRAPHIC CONTROLS CANADA LTD.
GANANOCQUE, ONTARIO

GAS MEASUREMENT
Chart Rec LEASE 3/N 242E 1116450201

METER ON M. PLATE
Gauges 68, 611

April 1, 2014

LOCATION 2013-8440-50

Remarks Iso#7, Iso#8-1

CMR P1500W100

Iso#8-2, Iso#9-1, Iso#13-1

20

4353RST

6 P.M.

CHART No. P1500-W100

Chart Rec. 5/N 242E 1116450201

METER...

Gauges
G11, G13

TAKEN OFF
May 7, 2014

M

M

CHART PUT ON

LOCATION
2013-8440-50

REMARKS
Iso# 3-2, Iso# 6

SW piping from Iso# 10 through
bldg heater 001-UHG-10-1080
to Iso# 12 and from Iso# 12
through the TCV-1010A station
to Iso# 12 and the by-pass
SW line from Iso# 10 to Iso# 12

455 PSI

PRESSURE

PRESSURE

DIFF IN WATER

PRESSURE

PRESSURE

DIFF IN WATER

MIDNIGHT



CORIX[®]

Control Solutions

3/3

Consolidated Pressure Safety Valve Test Certificate and Serial Number File

21.18

Work Order ID: SO95093-2
 Item ID: 100460
 Customer Name: Alco Gas & Oil
 Customer PO ID: 134793 -8440-SD
 Sales Order Writer: Dale Haines

Formerly Barber Foss and Controls

As appropriate, ensure all units are specified as per customer's requirements.

Model	1-1/2" 1905-00F-1-CC-MS-31-RF-LA CONSOLIDATED RELIEF VALVE			
Size Designation	1.5	inches	Test Media	Water
Set Pressure	74	psig	Service Media	HC liquids
CDTP	74	psig	O Ring Material	n/a
Superimposed Min BP	0	psig	O Ring Durometer	n/a
Superimposed Max BP	0	psig	Province	AB
Total Back Pressure	0	psig	Code Stamp	UV
Temperature	60	F	Code Case	n/a
Capacity	81.00	GPM Water		
Tag	PSV-2012A			
Shop Requirements				
Comments				

Serial Number: \$B84680

Base Heat: B08714-0295702

Nozzle Heat: Y6048-4589401

Bonnet Heat: B08715-0295901

Code Case: _____

Spring Number: 017CR

Spring Range From: 74 To: 87

Manufacturers Hydrostatic Test Number: _____

Nozzle: H

Base: H

Checked By: LB

Conversion of Manufacturers Parts

Part Description	Reworked Dimension	Machined By	Checked By
Washer Tolerance Accepted	<input checked="" type="checkbox"/>		
Washer Machined By		<u>LB</u>	
Stamped/Checked By		<u>LB</u>	
Assembled By		<u>LB</u>	
Test Pressure 1	<u>74 psig</u>		
Test Pressure 2	<u>74 psig</u>		
Test Pressure 3	<u>74</u>		
Reseat Pressure	<u>70</u>		
Blowdown	<u>N/A</u>		
Simmer Point	<u>N/A</u>		
Ring Setting Upper	<u>-5N</u>		
Ring Setting Lower	<u>77</u>		
Liquid Trim Popping Pressure (if applicable)			
Comments	<u>B0125 .674</u>		

EVT Number: _____

Gauge Number: 002CE

Leakage Rate: Meets API 527
 OR: _____ bubbles/min

Back Pressure Test Performed At

30 psig / 205 kPag
 100 psig / 690 kPag
 Other _____
 Not Applicable

Tested By: GL

Stamping Checked By: GL

Test Date: MAR/2014

Witnessed By: _____

The valve furnished on the above order has been inspected and found to be in accordance with specifications, drawings, and requirements of this order. Consolidated Pressure Safety Valves are manufactured by Dresser Flow Solutions and assembled by Corix Control Solutions

Form.105 Rev 12

Phase # : 2013-8440-01B
Phase Title: Closed HydroCarbon Drain Vessel

TABLE OF CONTENTS

Title	Availability	
	Yes	No
1. Data Reports	X	
2. CRN's	X	
3. Nameplate Copy	X	
4. Travel Sheet	X	
5. Impact Test Reports		N/A
6. Material Control	X	
7. Material Reports	X	
8. MTR's	X	
9. NDE MPT		N/A
LPT		N/A
RADIOGRAPHY	X	
ULTRA SONIC	X	
10. Stress Relieve Charts		N/A
11. Hydrotest Report(s)	X	
12. Hydro Chart	X	
13. PSV & Valve Cert.		N/A

A633714

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by: ALCO GAS & OIL PRODUCTION EQUIPMENT LTD. - 5203 75TH STREET, EDMONTON, ALBERTA T6E 5S5, CANADA
2. Manufactured for: DEVON CANADA CORPORATION - SUITE 2000, 400 3RD AVENUE SW, CALGARY, AB, T2P 4H2
3. Location of installation: FERRIER CFP PROJECT (LSD: 11-02-039-08 W5M)
4. Type: HORIZONTAL CLOSED HYDROCARBON DRAIN VESSEL
5. ASME Code Section VIII Div 1: 2010 EDITION 2011a ADDENDA

Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell (a) Number of course (s): 2 (b) Overall Length: 20'-0" S/S
Table with columns: Course(s), Material, Thickness, Long. Joint (Cat. A), Circum. Joint (Cat. A, B, & C), Heat Treatment

7. Heads: (a) SA-516-Gr.70MT (b) SA-516-Gr.70MT
Table with columns: Location (Top, Bottom, Ends), Thickness, Radius, Elliptical Ratio, Conical Apex Angle, Hemispherical Radius, Flat Diameter, Side to Pressure, Category A

If removable, bolts used (describe other fastening) N/A
8. Type of jacket N/A Jacket closure N/A
If bar, give dimensions N/A If bolted, describe or sketch

9. MAWP 50 PSIG 15 PSIG at max temp. 300°F 300°F Min. design metal temp. -49°F at 50 PSIG
10. Impact Test NO-EXEMPT PER UCS-66 CURVE 'D' & FIG UCS-66.1, FLANGES PER UCS-66(g) & UCS-67(a) at test temperature of N/A

11. Hydro., Pneu., or comb. test press. HYDROSTATIC 65 PSIG Proof Test N/A

Items 12 and 13 to be completed for tube sections.

12. Tubesheet
13. Tubes
Table with columns: Stationary (Material spec. number), Diameter (subject to press.), (Nominal thickness), (Corr. Allow.), Attachment (welded or bolted)

Items 14-18 incl. To be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) Number of course (s): 22 (COIL) (b) Overall Length: 80'-10 3/4" S/S
Table with columns: Courses, Material, Thickness, Long. Joint (Cat A), Circum. Joint (Cat. A, B, & C), Heat Treatment

15. Heads: (a) SA-350LF2 CL1 NPS 2 CL300 RFWN (b) SA-350LF2 CL1 NPS 2 CL300 RFWN
Table with columns: Location (Top, Bottom, Ends), Thickness, Radius, Elliptical Ratio, Conical Apex Angle, Hemispherical Radius, Flat Diameter, Side to Pressure, Category A

If removable, bolts used (describe other fastening) N/A
(Material spec. number grade, size, number)

October 28, 2013

Attention: Magdi Ghobrial
ALCO GAS & OIL PRODUCTION EQUIPMENT LTD
5203 75 STREET
EDMONTON, AB T6E 5S5

The design submission, tracking number 2013-07060, originally received on September 18, 2013 was surveyed and accepted for registration as follows:

CRN : W3166.2

Accepted on: October 28, 2013

Reg Type: New Design

Drawing No. : D-2013-8440-01-001/002 Rev 0

Description	MAWP	Design Temperature	MDMT
Internal Pressure	345kPa	149 °C	-45 °C
External Pressure	103kPa	149 °C	-45 °C
Heating coil	1696kPa	149 °C	-45 °C

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 3367 or fax (780) 437-7787 or e-mail Onshchenko@absa.ca.

Sincerely,



ONSHCHENKO, TETYANA, P. Eng.



U
W
RT2

2014

Year Built

CRN W-3166.2

Certified By

ALCO  **GAS & OIL**
PRODUCTION EQUIPMENT LTD.
GP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP
 Edmonton, Alberta, Canada

50 psi at 300 °F
 Max. Allowable Working Pressure

15 psi at 300 °F
 Max. Allowable External Working Pressure

49 °F at 50 psi
 Minimum Design Metal Temperature

2013-8440-01B
 Serial Number

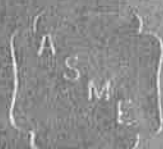
A No. (A) 655714

NAME CLOSED HYDROCARBON DRAIN VESSEL TAG

HEAD SA516-70MT 0.310 in C.A. 0.0523 in

SHELL SA516-70MT 0.310 in HYDRO 330 psi

2013-8440-50



U
W

2014

Year Built

CRN W-3166.2

Certified By

ALCO  **GAS & OIL**
PRODUCTION EQUIPMENT LTD.
GP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP
 Edmonton, Alberta, Canada

246 psi at 300 °F
 Max. Allowable Working Pressure

50 psi at 300 °F
 Max. Allowable External Working Pressure

49 °F at 246 psi
 Minimum Design Metal Temperature

2013-8440-01B
 Serial Number

A No. (A)

NAME HEATING COIL TAG

HEAD SA350L2 CL1 0.344 in C.A. 0 in

SHELL SA312-316L/SA403-316L 0.345 in HYDRO 65 psi

TRAVEL SHEET

Authorized Inspector (Signature)

Frank Jones

Date 2014-03-19

CUSTOMER / LOCATION		SERIAL NUMBER / UNIT		(A) NUMBER: FA 633714			
DEVON CANADA CORPORATION		2013-8440-01B		DRAWING NUMBER			
FERRIER CPF PROJECT, AB		LSD: 11-02-039-08 W5M		D-2013-8440-01-001/002 & 002/002			
ITEMS: CLOSED HYDROCARBON DRAIN VESSEL 78" ID X 20'-0" S/S		COMMENTS:		INITIALS HOLD QC			
				CUSTOMER HOLD (AGENT)			
				HOLD A.I.			
Repair Procedure Approved							
Approved Drawings / CRN		W-3166.2					
Material Checked / Heat Verified		REVIEWED APR 24 2014		DD Apr 25/14			
MTR Checked		REVIEWED APR 24 2014		DD Apr 25/14			
Impact Test		EXEMPT UCS-66 CURVE(d) UCS-66(d) SEP 23 2013					
Unit Layout		Apr 21, 2014		EB			
Weld Procedure Approved		REVIEWED SEP 23 2013		DD Apr 25/14			
Welder(s) Qualifications		REVIEWED APR 24 2014		DD Apr 25/14			
Fit-Up: Shell & Heads		TYPE 1 APR 24 2014					
Nozzles & Fittings		APR 24 2014		DD Apr 25/14			
Internals		APR 24 2014		DD Apr 25/14			
Externals		APR 24 2014					
Connections: Location		APR 24 2014		DD Apr 25/14			
Rating		CL150 CL300 APR 24 2014		DD Apr 25/14			
Internal Inspection		CL150 CL300 APR 24 2014		DD Apr 25/14			
Internals Installed		APR 24 2014		DD Apr 25/14			
Weld Profile, Sizes & ID		CHECKED APR 24 2014		DD Apr 25/14			
Radiographs		UW-11(a)5(b), NOZZLE BW 100% MAY 12 2014					
Other NDE		UT CAT D / MPI FILLET WELDS APR 18 2014					
Stamping		CHECKED APR 24 2014					
External Upon Completion of Welding		CHECKED EXT Except Saddles APR 24 2014					
Alternative Test							
PWHT Charts Checked		NONE					
Hydrostatic Test - CHART RECORD		VESSEL 65 PSIG GAGE# B8, B9 APR 28 2014					
		COIL 320 PSIG GAGE# G3, G6 APR 16 2014					
MDR		MAY 29 2014					
Name Plate		MAY 29 2014					
PART	MATERIAL SPEC	THICKNESS	HEAT NO.	PART	MATERIAL SPEC	THICKNESS	HEAT NO.
Heads	SA-516-70MT	0.330"	G4684/5702702051	Repads			
Shell	SA-516-70MT	C.1 0.375"	P1-154				
		C.2	PL-179				
				Tubes			
Tubesheet							

* INDICATES HOLD POINTS TO BE SIGNED OFF BY THE APPLICABLE INSPECTOR.

Heating coil = EXT. H1# 14-3-19

ALCO GAS & OIL PRODUCTION EQUIPMENT LTD.

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-01B
 CUSTOMER: DEVON CANADA CORPORATION
 DATE: APRIL 24, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED

ITEM	SIZE / RATING	MATERIAL	HEAT NUMBER	MTR	RT LS CS	UT CAT D	MPI FILLET WELDS
END HEAD	78.000"ID X 0.330" MTAF	SA-516-70MT	G9689-5702702031	✓			✓
SHELL	78"ID X 10'-0"LG X 0.375" THK	SA-516-70MT	4094P3-04	✓	✓		✓
SHELL	78"ID X 10'-0"LG X 0.375" THK	SA-516-70MT	E3A070-D10	✓	✓		✓
END HEAD	78.000"ID X 0.330" MTAF	SA-516-70MT	G9689-5702702031	✓			✓
N1 RFWN	NPS 6 CL150 XS	SA-350 LF2 CL1	83623	✓	✓	✓	✓
N2 RFWN	NPS 6 CL150 XS	SA-350 LF2 CL1	83623	✓	✓	✓	✓
N3 RFWN	NPS 4 CL150 XS	SA-350 LF2 CL1	421V2	✓	✓	✓	✓
N4 RFWN	NPS 3 CL150 XS	SA-350 LF2 CL1	4573144	✓	✓	✓	✓
N5 RFWN	NPS 2 CL150 XS	SA-350 LF2 CL1	12173144	✓	✓	✓	✓
N6 RFWN	NPS 2 CL150 XS	SA-350 LF2 CL1	12173144	✓	✓	✓	✓
N7 RFWN	NPS 4 CL150 XS	SA-350 LF2 CL1	421V2	✓	✓	✓	✓
N8 RFWN	NPS 2 CL150 S160	SA-350 LF2 CL1	4677159	✓	✓	✓	✓
N9 RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	1449/11	✓	✓	✓	✓
N10A RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	✓	✓	✓	✓
N10B RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	✓	✓	✓	✓

PREPARED BY _____

ALCO GAS & OIL PRODUCTION EQUIPMENT LTD.

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-01B
 CUSTOMER: DEVON CANADA CORPORATION
 DATE: APRIL 24, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED

ITEM	SIZE / RATING	MATERIAL	HEAT NUMBER	MTR	RT	UT CAT D	MPI FILLET WELDS
N11A RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	✓	✓	✓	✓
N11B RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	✓	✓	✓	✓
N12A RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	✓	✓	✓	✓
N12B RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	✓	✓	✓	✓
N13 RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	✓	✓	✓	✓
N14 RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	✓	✓	✓	✓
M1 RFWN	NPS 24 CL150 0.750" THK	SA-350 LF2 CL1	616V2	✓			
M1 NECK	24"OD X 7 ¹ / ₈ "LG X 0.750"THK	SA-516-70MT	365957-97274 (4-2)	✓	✓	✓	✓
M1 RF BLIND	NPS 24 CL150	SA-350 LF2 CL1	50803	✓			
M2 RFWN	NPS 24 CL150 0.750" THK	SA-350 LF2 CL1	616V2	✓			
M2 NECK	24"OD X 8 ¹ / ₁₆ "LG X 0.750"THK	SA-516-70MT	365957-97274 (3-1)	✓	✓	✓	✓
M2 RF BLIND	NPS 24 CL150	SA-350 LF2 CL1	50803	✓			

PREPARED BY _____

ALCO  **GAS & OIL**
PRODUCTION EQUIPMENT LTD.

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-01B
 CUSTOMER: DEVON CANADA CORPORATION
 DATE: APRIL 24, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED

ITEM	SIZE / RATING	MATERIAL	HEAT NUMBER	MTR					
NOZLE NECKS	NPS 6 SMLS PIPE XS	SA-333-6	2201333	✓					
	NPS 4 SMLS PIPE XS	SA-333-6	461529	✓					
	NPS 3 SMLS PIPE XS	SA-333-6	336565	✓					
	NPS 2 SMLS PIPE XS	SA-333-6	23593	✓					
	NPS 2 SMLS PIPE S160	SA-333-6	1240365	✓					
COIL	NPS 2 CL300 RFWN S80	SA-182-316L	88723 / 121728 / 12/235	✓					
	NPS 2 90° LR ELBOW S80	SA-403-316L	FK1208-120, YY12-90	✓					
	NPS 2 SMLS PIPE S80	SA-312-316L	11D0892, 1301-048	✓					

PREPARED BY _____

Serial Number: 8440-01B

Filled By: MIKE

Customer: Deron Canada Corporation

Date: April 21 2014

MATERIAL REPORT

Type of vessel: Vertical _____ Horizontal

Title	Diameter	Item #	ALCO ID #	Heat #	Slab #	Mat'l Spec	Min Thk (in)
Head	18" ID	1	✓ P1689	5702702051		SA-516-70	3/8"
	"	"	✓ "	"		"	"
	"	"	✓ "	"		"	"
Shell #	78" ID	3	✓ PL179	AC5509	4094P3	"	"
	"	"	✓ PL154	E3A070-DO	606774	"	"
	"	"	✓ "	"	"	"	"
	"	"	✓ "	KA2300	79401M	"	"
Repad	"	19824	✓ PL148	365957	97274	"	3/4" ftk
	"	19		380617	99931-02	"	1 1/4"
Nozzle	6" XH	2930	✓ PA-004			SA-333-6	XH
	4" XH	34	✓ P145	461529		"	"
	3" XH	38	✓ P418			"	"
	2" XH	42	✓ PA-045			"	"
	2" SCH160	4350333454	✓ P975			"	SCH160
Skirt / Saddle	2" SCH80	686470	✓ P969			SA-312-TP316L	SCH80
	2" SCH80	686669	✓ PA517			"	"
	5" 9/16" X 95 X 11"	789	✓ PL145			SA-516-70	42"
	8 1/2" X 5'10"	10	✓ PL167			"	7"
Miscellaneous							

8440-01X2



edmonton exchanger
& manufacturing ltd.

CERTIFICATE OF COMPLIANCE

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780.468.6722 • QC fax 780.466.4668 • sales fax 780.466.5155

Customer ALCO GAS & OIL PRODUCTION PO 132443-8446-01 Work Order C99355 Date 2013/07/04 CofC# 42122 Page 1 of 1

Item#	Description	Qty	Heat#	Brinell Hardn.	Required Min Thk	Recorded Min Thk	Form. Proc.
H99355-1	HEAD(S) - Semi-Elliptical 2:1 - 0.3750" NOM (0.3100"_MIN) X 78" ID (Material Spec: SA 516-70 Normalized) Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007	4	G9689-5702702031	MTR	0.3100"	0.3450"	1

Forming Procedure:

1. Hot Formed @ 1650F/899C and Air Cooled

Brinell Equipment: Newage Calibrated Pin
Brinell Hardness Tester

Supplementary Requirements

Normalized Material Identification Marking:

'MT' indicates normalized by the mill per ASME Code Section II, Part A, SA 20, Paragraph 13.1.1.

'GMT' indicates normalized by Edmonton Exchanger per ASME Code Section II, Part A, SA 20, Paragraph 13.1.2.

'GT' indicates normalized by Edmonton Exchanger per ASME Code Section VIII Division 1, UG-85 or ASME Code Section I, PG-77.4.

The item(s) listed above comply with the requirements of ASME Code Section I, PG-29, PG-81 and ASME Code Section VIII, Division 1, UCS-79(d), UG-79 & UG-81. All welders and procedures are qualified to ASME Code Section IX. Material being supplied conforms to the latest ASME Code Section II, Part A, 2010 Edition, Addenda July 1, 2011.

Supplementary Examination - Items



edmonton exchanger
& manufacturing ltd.

CERTIFICATE OF COMPLIANCE

MTR List

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780.468.6722 • QC fax 780.466.4668 • sales fax 780.466.5155

Customer ALCO GAS & OIL PRODUCTION PO 132443-8440-01 Work Order C99355 Date 2013/07/04 CofC# 42122 Page 1 of 1

MTR ID	Pages	Heat#	Thickness	Material Grades
16430	9	G9689-5702702031	.375"	SA 516-70 N

Heat#	Material Grades	MTR ID
G9689-5702702031	SA 516-70 N	16430

注 文 者 : HANWA CO., LTD.
 SHIPPER : 千 100-8071 東 京 都 千 代 田 区 丸 内 二 丁 目 6 番 1 号
 REFERENCE No. : 228-68511010 HEAD OFFICE : 2-6-1 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071, JAPAN
 契 約 番 号 : 1-831-H1-5-9-A101 君 津 製 鐵 所 : 千 299-1141 千 葉 県 君 津 市 君 津 1 番 地
 CONTRACT No. : KIMITSU WORKS
 商 品 名 : HOT ROLLED STEEL PLATES
 SPECIFICATION : ASME SA-516 GRADE 70-E10
 規 格 : ASME SA-516 GRADE 70-E10
 文 書 番 号 : EDMONTON EXCHANGER GROUP OF C-
 DOCUMENT No. : CUSTOMER'S CONTROL No.

新 日 本 製 鐵 株 式 會 社
Nippon Steel Corporation
 鋼 材 檢 査 証 明 書
INSPECTION CERTIFICATE
 証 明 書 番 号 : P-16084 PAGE : 16
 CERTIFICATE No. : P-16084
 發 行 年 月 日 : 2011-09-09
 DATE OF ISSUE : 2011-09-09
 需 要 家 管 理 番 号 : 1001
 CUSTOMER'S CONTROL No. : E3001P0701

寸 法	DIMENSION	QUAN- TITY	質 量	CAST No.	製 鋼 番 号	PLATE No.	SCA TION	IMPACT TEST	化 学 成 分														
									C	Si	Mn	P	S	Q	Ni	Cr	Mo	Nb	V	Ta	Co	Al	Cu
0.375" X 120.5" X 480"		1	2790	44404	G9689	5702702181	TL7207	216	214	15	37	145	6	1	1	2	2	0	12	0	3440	0	40
0.375" X 120.5" X 480"		1	2790	44405	G9689	5702702041	TL7217	228	205	15	37	145	6	1	1	2	2	0	12	0	3440	0	40
0.375" X 120.5" X 480"		1	2790	44405	G9689	5702702051	TL7217	217	205	15	37	145	6	1	1	2	2	0	12	0	3440	0	40

注 釈 NOTES : 1. Location Orientation 位 置 - 方 向, T: 頂 部 Top, B: 底 部 Bottom, L: 縱 向 方 向 Longitudinal, C: 横 向 方 向 Transverse, Z: 厚 度 方 向 Through Thickness, R: 45° 方 向 45Deg. to the Longitudinal Axis
 2. G.L. 偏 心 距 離 Gage Length, A: 50mm 平 形 試 驗 片 Rectangular, B: 80mm 平 形 試 驗 片 Rectangular, C: 200mm 平 形 試 驗 片 Rectangular, F: 80mm 半 形 試 驗 片 Round, G: 200mm 半 形 試 驗 片 Round, H: 80mm 半 形 試 驗 片 Round, I: 200mm 半 形 試 驗 片 Round, J: 80mm 半 形 試 驗 片 Round, K: 4/√So
 3. RA: 紋 理 減 少 率 Reduction of Area, YR: 降 伏 比 Yield Ratio, 5. F: 容 許 許 可 允 許 允 許 Acceptable, 6. 5. F: 容 許 許 可 允 許 允 許 Acceptable, 7. 5. F: 容 許 許 可 允 許 允 許 Acceptable, 8. 5. F: 容 許 許 可 允 許 允 許 Acceptable, 9. 5. F: 容 許 許 可 允 許 允 許 Acceptable
 7. N: 焼 焔 焼 焔 Normalized, Q: 焼 入 焼 入 Quenched, T: 焼 戻 し 焼 戻 し Tempered, CR: Controlled Rolled, N1C: NIC Process/TMC Process, C.L.C: CLC Process/TMC Process, A.R: As Rolled, T.M.R: TMR Process/TMC Process, N.R: Normalizing Rolled
 SH: 延 性 脆 性 率 Shear Fracture, C.F: 脆 性 破 断 率 Crystalinity Fracture, L.E: 裂 紋 出 現 率 Lateral Expansion, A.G.S: オ ー ス テ ー ン ナ イ ト 製 鋼 Austenite Grain Size, F.G.S: オ ー ス テ ー ン ナ イ ト 製 鋼 Ferrite Grain Size, S.R: Stress Relieved/Prost Weld Heat Treatment

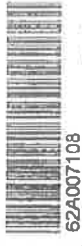
上 記 注 文 品 は 御 指 定 の 規 格 ま た は 仕 様 に 従 っ て 製 造 さ れ、 そ の 要 求 事 項 を 満 足 し て い る こ と を 証 明 し ま す。
 WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN
 MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.



Head of Department
 PLATE QUALITY CONTROL DEPT.
 KIMITSU WORKS



ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4



SO No., Item & Date:	8007393 000010 2013/02/19	Shipment No. & Date:	100032133 2013/02/23	TC No., Date & Time:	ESA-52058 2013/02/26 - 18:10:47
Sold to Customer Name and Address:	RUSSEL METALS INC 99TH STREET 4060 SCOTTFORD, Alberta, Canada T6E 3N5	Ship to Customer Name and Address:	RUSSEL METALS INC 99TH STREET 4060 SCOTTFORD, Alberta, Canada T6E 3N5	Customer PO NO./Item:	M 62007513 / 1
Customer Specification:	HR, STEEL PLATE Carbon Multi Cert ASTM A516 GR 70 (10) / ASME SA516 GR 70 (11A) Normalized Normalize Temp 1670 °F 12 min CVNL Req. 20 1/16 FT-LEF at -50.0 F Side Thickness Tol PVQ Top and Bottom Standard Surface Flatness 1/2 A20 Fine Grain Fully Killed			BOL NO.:	1000032133
				CustPart No.:	80678
				Carrier:	CN (CAD FUNDS) - BCOL 864252

Supplementary Instructions: Test Cert 1: gbayers@russemetals.com Test Cert 2: mleahy@russemetals.com
 Insp TIR : Test Report As Per Spec
 Cust Use : PVQ

ESSAR STEEL ALGOMA INC. HEREBY CERTIFIES THAT THE MATERIAL HEREIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH THE COMPANY'S STANDARD RECORD KEEPING PRACTICES. THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMA INC. IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL (705)945-4095 FOR INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT.

MEETS EN 10204:2004 TYPE 3.1
 ISO QUALITY AND ENVIRONMENTAL CERTIFICATES AVAILABLE AT WWW.ESSARSTEELALGOMA.COM

ALL HEATS FULLY KILLED.
 HEATS INDICATED WITH (*) FINE GRAINED.
 HEATS INDICATED WITH (†) MADE IN CANADA WITH DOMESTIC AND NORTH AMERICAN MATERIALS.

Dimensions (T x W x L)	Batch No.	Heat No-MS	Quantity	No. of Pcs	Dimensions (T x W x L)	Batch No.	Heat No-MS	Quantity	No. of Pcs
0.3750" x 120.000" x 480.00"	AC5508	4094P3-04	12,252 LB	2	0.3750" x 120.000" x 480.00"	AC5508	4094P3-04	12,252 LB	2
0.3750" x 120.000" x 480.00"	AC5510	4094P3-51	12,252 LB	2	0.3750" x 120.000" x 480.00"	AC5511	4094P3-54	12,252 LB	2
0.3750" x 120.000" x 480.00"	AC5512	4094P3-54	12,252 LB	2	0.3750" x 120.000" x 480.00"	AC5506	4095P3-54	12,252 LB	2
0.3750" x 120.000" x 480.00"	AC6131	4095P3-54	6,126 LB	1	0.3750" x 120.000" x 480.00"	A44589	9558M3-51	6,126 LB	1

ALGO # PL179

Heat No. (wt%)	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	Al	Nb	V	B	Ti	DO
4094P3*	0.20	1.08	0.011	0.004	0.350	0.02	0.01	0.03	0.00	0.031	0.000	0.001	0.0001	0.002	0.39
4095P3*	0.20	1.07	0.012	0.005	0.320	0.03	0.04	0.03	0.00	0.029	0.000	0.000	0.0001	0.002	0.39
9558M3*	0.21	1.08	0.016	0.007	0.340	0.03	0.03	0.08	0.01	0.035	0.000	0.001	0.0003	0.003	0.41

..... MECHANICAL PROPERTIES

CONFORMS TO SA 516-70M1
 YEAR 2010 ED 2011 APP
 JOB# 2013-0440-01
 ITEM# 3
 SIGNED BY 27 MAR 2014

4 - Stock
 Po-135808

K. UGHADPAGA
 MANAGER METALLURGICAL SERVICES

***WARNING** THE TEST RESULTS AND VALUES REPORTED HEREIN INDICATE ONLY THAT (1) THE PARTICULAR STEEL FOR WHICH THIS CERTIFICATE IS ISSUED MEETS THE MINIMUM SPECIFIED YIELD STRENGTH AND (2) THE ANALYSIS AND PHYSICAL PROPERTIES OF SUCH STEEL ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SPECIFICATION INDICATED. THE RESULTS OR VALUES REPORTED HEREIN CAN NOT BE USED TO QUALIFY THE STEEL FOR ANY SPECIFICATION OTHER THAN THE ONE INDICATED AND CAN NOT BE RELIED UPON FOR ANY PURPOSE (INCLUDING DESIGN OR CALCULATIONS) AS REPRESENTING THE ACTUAL STRENGTH OF SUCH STEEL.



ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4

SO No., Item & Date:	8007393 000010 2013/02/19	Shipment No. & Date:	1000032133 2013/02/23	TC No., Date & Time:	ESA-52068 2013/02/26 - 18:10:47
Sold to Customer Name and Address:	RUSSEL METALS INC 99TH STREET 4060 SCOTTFORD, Alberta, Canada T6E 3N5	Ship to Customer Name and Address:	RUSSEL METALS INC 99TH STREET 4060 SCOTTFORD, Alberta, Canada T6E 3N5	Customer PO NO./Item:	M 82007/F13/1
				BOL NO.:	1000032133
				Cust. Part No.:	80678
				Carrier:	CN (CAD FUNDS) - BCOL 864252

Customer Specification: HR STEEL PLATE Carbon Multi Cert, ASTM A516 GR 70 (101) / ASME SA516 GR 70 (11A) Normalized Normalize Temp. 1670 °F 12 min CVN R64, 20 / 16 FT-LBF at -50.0 F Std Thickness Tol PVQ Top and Bottom Standard Surface Flatness 1/2 A20 Fine Grain Fully Killed

Supplementary Instructions: Test Cert 1: gibbeyers@russemetals.com Test Cert 2: mieahy@russemetals.com
Insp T/R : Test: Report: As Per Spec Cust. Jsc: PVQ

ESSAR STEEL ALGOMA INC. HEREBY CERTIFIES THAT THE MATERIAL HEREIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH THE COMPANY'S STANDARD RECORD KEEPING PRACTICES.
THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMA INC. IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL (705) 945-4095 FOR INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT.

MEETS EN 10204:2004 TYPE 3.1
ISO QUALITY AND ENVIRONMENTAL CERTIFICATES AVAILABLE AT WWW.ESSARSTEELALGOMA.COM

Heat No.	Batch No.	SRCE	LAB	GAUGE	COND	METH	DIR	LOC	SIZE	TEMP(F)	FULLENERGY(ft- lbf)	FULL AVG(ft-lbf)
9568M3	AA4589	166*	ALG	0.3750	NORM	CVN	L	B	3/4	-50	90 96 87	92
4095P3	AC5506	166*	ALG	0.3750	N	CVN	L	B	3/4	-50	89 85 93	89
4094P3	AC5508	166*	ALG	0.3750	N	CVN	L	B	3/4	-50	97 93 112	101
4094P3	AC5509	166*	ALG	0.3750	N	CVN	L	B	3/4	-50	94 87 93	92
4094P3	AC5510	166*	ALG	0.3750	N	CVN	L	B	3/4	-50	94 90 81	88
4094P3	AC5511	166*	ALG	0.3750	N	CVN	L	B	3/4	-50	61 84 77	74
4094P3	AC5512	166*	ALG	0.3750	N	CVN	L	B	3/4	-50	101 90 79	90
4095P3	AC6131	166*	ALG	0.3750	N	CVN	L	B	3/4	-50	94 95 96	95

IMPACT Tests

K. UGHADPAGA
MANAGER METALLURGICAL SERVICES

WARNING THE TEST RESULTS AND VALUES REPORTED HEREIN INDICATE ONLY THAT (1) THE PARTICULAR STEEL FOR WHICH THIS CERTIFICATE IS ISSUED MEETS THE MINIMUM SPECIFIED YIELD STRENGTH AND (2) THE ANALYSIS AND PHYSICAL PROPERTIES OF SUCH STEEL ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SPECIFICATION INDICATED. THE RESULTS OR VALUES REPORTED HEREIN CAN NOT BE USED TO QUALIFY THE STEEL FOR ANY SPECIFICATION OTHER THAN THE ONE INDICATED AND CAN NOT BE RELIED UPON FOR ANY PURPOSE (INCLUDING DESIGN OR CALCULATIONS) AS REPRESENTING THE ACTUAL STRENGTH OF SUCH STEEL.



ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4

SO No., Item & Date:	8007393 000010 2013/02/19	Shipment No. & Date:	1000032133 2013/02/23	TC No., Date & Time:	ESA-52068 2013/02/26 18:10:47
Sold to Customer Name and Address:	RUSSEL METALS INC EDMONTON, Alberta, Canada	Ship to Customer Name and Address:	RUSSEL METALS INC 99TH STREET 4060 SCOTFORD, Alberta, Canada T6E 3N5	Customer PO NO./Item:	M 62007613 / 1
				BOL NO.:	1000032133
				Cust. Part No.:	80678
				Carrier:	CN (CAD FUNDS) - BCOL 864252

Customer Specification: HR STEEL PLATE Carbon Multi Cert ASTM A516 GR 70 (10) / ASME SA516 GR 70 (11A) Normalized Normalize Temp 1670 °F 12 min CVNL Req. 20 / 16 FT-LBF at -50.0 F Std Thickness Tol PVQ Top and Bottom Standard Surface Finishness 1/2 A20 Fine Grain Fully Killed

Supplementary Instructions: Test Cert 1: gpeyers@russemetals.com; Test Cert 2: mleahy@russemetals.com; Cust Use: PVQ

Insp TIR: Test Report As Per Spec

ESSAR STEEL ALGOMA INC. HEREBY CERTIFIES THAT THE MATERIAL HEREIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH THE COMPANY'S STANDARD RECORD KEEPING PRACTICES. THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMA INC. IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL (705)945-4095 FOR INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT.

MEETS EN 10204:2004 TYPE 3.1
ISO QUALITY AND ENVIRONMENTAL CERTIFICATES AVAILABLE AT WWW.ESSARSTEELALGOMA.COM

***** MECHANICAL PROPERTIES *****												
Tensile Tests												
Heat No.	Batch No.	SRCE	LAB	GAUGE	COND	METH	DIR	LOC	YIELD(KSI)	TENSILE(KSI)	EL SCALE	ELONG(%)
9568M3	AA4589	166"	ALG	0.3750	NORM	.2	T	B	51.5	74.5	8"	25
4095P3	AC5506	166"	ALG	0.3750	N	.2	T	B	53.0	76.0	8"	26
4094P3	AC5508	166"	ALG	0.3750	N	.2	T	B	54.0	77.0	8"	25
4094P3	AC5509	166"	ALG	0.3750	N	.2	T	B	53.0	76.0	8"	25
4094P3	AC5510	166"	ALG	0.3750	N	.2	T	B	52.0	77.0	8"	24
4094P3	AC5511	166"	ALG	0.3750	N	.2	T	B	53.0	77.0	8"	23
4094P3	AC5512	166"	ALG	0.3750	N	.2	T	B	53.0	76.0	8"	25
4095P3	AC5131	166"	ALG	0.3750	N	.2	T	B	51.0	73.0	8"	26

K. UGHADPAGA
MANAGER METALLURGICAL SERVICES

****WARNING**** THE TEST RESULTS AND VALUES REPORTED HEREIN INDICATE ONLY THAT (1) THE PARTICULAR STEEL FOR WHICH THIS CERTIFICATE IS ISSUED MEETS THE MINIMUM SPECIFIED YIELD STRENGTH AND (2) THE ANALYSIS AND PHYSICAL PROPERTIES OF SUCH STEEL ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SPECIFICATION INDICATED. THE RESULTS OR VALUES REPORTED HEREIN CAN NOT BE USED TO QUALIFY THE STEEL FOR ANY SPECIFICATION OTHER THAN THE ONE INDICATED AND CAN NOT BE RELIED UPON FOR ANY PURPOSE (INCLUDING DESIGN OR CALCULATION) AS REPRESENTING THE ACTUAL STRENGTH OF SUCH STEEL.



12400 Highway 43 North, Axis, Alabama 36505

Test Certificate

Form TC1: Revision 1: Date 31 Oct 2000

Customer: SAMUEL & SON LIMITED (A DIVISION OF SAMUEL SALES) 2360 DIXIE ROAD MISSISSAUGA ON L4Y1Z7		Customer P.O.No.: U01327 & 41-350443 Product Description: ASTM A516-70(10)/ASME SA516-70(11A) NACE MR0175 ANNEX A2.1.2 COMPLIANT LCVN 20 FT-LBS @ -50F/A673-P NORMALIZED		Mill Order No.: 41-350444-02 Shipping Manifest: AR152216 Ship Date: 27 Jan 13 Cert No.: 081364956 Cert Date: 27 Jan 13 (Page 1 of 1)																																
Size: 0.375 X 120.0 X 480.0 (IN) ←		Alco # PL154																																		
Tested Pieces:		Charpy Impact Tests																																		
Heat Id	Piece Id	Tst Loc	YS (KSI)	UTS (KSI)	%RA	Elong % 2in 8in	Tst Dir	Average Hardness			Abs. Energy(FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Temp	Tst Dir	Tst Siz (mm)	BDWTT Temp %Shr																				
								77	25	T							156 HBW	80	80	80	80	80	-50F	L	7.5											
E3A070	D10	C154																																		
Chemical Analysis																																				
Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	V	Ti	B	Cev	ORGN																				
E3A070	.20	.86	.014	<.001	.25	.026	.026	.27	.14	.15	.04	.005	.008	.0002	.42	USA																				
<p>MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT</p> <p>KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE</p> <p>CEV (IITW) = C + MN/6 + (CR+MO+V)/5 + (NI+CU)/15</p> <p>MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT</p> <p>CHARPY FULL SIZE EQUIVALENT = ABSORBED ENERGY AVG X 10 / TEST SIZE IN MM</p> <p>NORMALIZED PLATES. HEATED AT 1665F FOR 19 MINUTES.</p> <p>TEST COUPONS TAKEN FROM HEAT TREATED PLATE.</p> <p>PRODUCTS SHIPPED:</p> <table border="1"> <tr> <td>E3A070 D10</td> <td>6406774</td> <td>PCES:</td> <td>1, WGT:</td> <td>6177</td> </tr> <tr> <td>E3A070 D10</td> <td>6406774</td> <td>PCES:</td> <td>1, WGT:</td> <td>6177</td> </tr> <tr> <td>E3A070 D10</td> <td>6406775</td> <td>PCES:</td> <td>1, WGT:</td> <td>6221</td> </tr> <tr> <td>E3A070 D10</td> <td>6406777</td> <td>PCES:</td> <td>1, WGT:</td> <td>6221</td> </tr> </table>																	E3A070 D10	6406774	PCES:	1, WGT:	6177	E3A070 D10	6406774	PCES:	1, WGT:	6177	E3A070 D10	6406775	PCES:	1, WGT:	6221	E3A070 D10	6406777	PCES:	1, WGT:	6221
E3A070 D10	6406774	PCES:	1, WGT:	6177																																
E3A070 D10	6406774	PCES:	1, WGT:	6177																																
E3A070 D10	6406775	PCES:	1, WGT:	6221																																
E3A070 D10	6406777	PCES:	1, WGT:	6221																																
<p>WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION</p>																																				
															Justin Ward SENIOR METALLURGIST - PRODUCT																					
(P) Cust Part #:																																				

Stock
Po # 131470

CONFORMS TO EN 51670 MI
YEAR 2016 ED 2011 AFD
JOB # 2013-8440-01
ITEM # 3
SHIPPED BY UPA 23 APR 2014



12400 Highway 43 North, Axis, Alabama 36505

Test Certificate

Form TC1: Revision 1: Date 31 Oct 2000

Customer: SAMUEL & SON LIMITED
 (A DIVISION OF SAMUEL SALES)
 2360 DIXIE ROAD
 MISSISSAUGA
 ON L4Y1Z7

Customer P.O.No.: U01367 & 41-358150 Mill Order No. 41-358151-05 Shipping Manifest: AR157310

Product Description: ASTM A516-70(10)/ASME SA516-70(11A)
 NACE MR0175 ANNEX A2.1.2 COMPLIANT
 LCVN 20 FT-LBS @ -50F/A673-P
 NORMALIZED

Ship Date: 20 Apr 13 Cert No: 081377828
 Cert Date: 20 Apr 13 (Page 1 of 1)

Alco # PL167

Size: 1.000 X 120.0 X 480.0 (IN)

Heat Id	Piece Id	Tensiles:			Charpy Impact Tests			B DWTT			
		Ys (KSI)	UTS (KSI)	%RA	Elong %	Average Hardness	Abs. Energy(FTLB)		% Shear		
E3D012	C25	74	74	27	149 HBW	114	109	98	107	10	10

Heat Id	Chemical Analysis												ORGN				
	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	Cb		V	Ti	B	Cov
E3D012	.15	1.01	.010	.001	.24	.025	.24	.14	.14	.03	.002	.006	.008	.0002	.42		USA

MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT

KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
 CEV (IIV) = C + MN/6 + (CR+MO+V)/5 + (NI+CU)/15
 MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
 NORMALIZED PLATES. HEATED AT 1665F FOR 44 MINUTES.
 TEST COUPONS TAKEN FROM HEAT TREATED PLATE.
 PRODUCTS SHIPPED:

E3D012 C25 6429223 PCS: 1, WGT: 16527
 E3D012 C25 6429221 PCS: 1, WGT: 16523

E3D012 C25 6429222

PCS: 1, WGT: 16523

CONFORMS TO EN 516-70M17
 YEAR 2010 ED 2011 ADD
 JOB # 2013-2440-01
 TESTED BY 10
 DATE 23 APR 2014

1-Stock
Po-132728

(P) Cust Part # _____ WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION _____

Senior Metallurgist - Product Justin Ward



edmonton exchanger
& manufacturing ltd.

CERTIFICATE OF COMPLIANCE

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780 468.6722 • QC fax 780 466 4668 • sales fax 780 466 5155

Customer ALCO GAS & OIL PRODUCTION po 133437-8440-01 Work Order C100880 Date 2013/10/11 CofC# 44359 Page 1 of 2

Item#	Description	Qty	Heat#	Brinell Hardn.	Weld Proc.	Form. Proc.
S100880-2-1	SHELL(S) - 0.8750" NOM X 24" OD X 60" (Material Spec: SA 516-70 Normalized) <i>Conforms to NACE MR0175 / ISO 15156 2 2009 Annex A Conforms to NACE MR0103 2007</i>	1	G1133-476530707	MTR	WP600	4
S100880-3-1	SHELL(S) - 0.7500" NOM X 24" OD X 7.875" (Material Spec: SA 516-70 Normalized) <i>Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007</i>	1	365957-97274 ←	MTR	WP600	4
S100880-3-2	SHELL(S) - 0.7500" NOM X 24" OD X 7.875" (Material Spec: SA 516-70 Normalized) <i>Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007</i>	1	380617-99931-02	MTR	WP600	4
S100880-4-1	SHELL(S) - 0.7500" NOM X 24" OD X 8.6875" (Material Spec: SA 516-70 Normalized) <i>Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007</i>	1	365957-97274	MTR	WP500	4
S100880-4-2	SHELL(S) - 0.7500" NOM X 24" OD X 8.6875" (Material Spec: SA 516-70 Normalized) <i>Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007</i>	1	365957-97274 ←	MTR	WP600	4

Forming Procedure:
4. Cold Formed

Brinell Equipment: Newage Calibrated Pin
Brinell Hardness Tester

Supplementary Requirements

Normalized Material Identification Marking:
'MT' indicates normalized by the mill per ASME Code Section II, Part A, SA 20, Paragraph 13.1.1.
'GMT' indicates normalized by Edmonton Exchanger per ASME Code Section II, Part A, SA 20, Paragraph 13.1.2.
'GT' indicates normalized by Edmonton Exchanger per ASME Code Section VIII Division 1, UG-85 or ASME Code Section I, PG-77.4.

The item(s) listed above comply with the requirements of ASME Code Section I, PG-80 and ASME Code Section VIII, Division 1, UCS-79(d), UG-79 & UG-80. All welders and procedures are qualified to ASME Code Section IX. For tacking carbon steel items, roundbar used is 1018 Cold Rolled. Material being supplied conforms to the latest ASME Code Section II, Part A, 2010 Edition, Addenda July 1, 2011.



edmonton exchanger
& manufacturing ltd.

CERTIFICATE OF COMPLIANCE

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780.468.6722 • QC fax 780 466 4668 • sales fax 780 466 5155

Customer ALCO GAS & OIL PRODUCTION PO 133437 - 8440-01 Work Order C100880 Date 2013/10/11 CoC# 44359 Page 2 of 2

Supplementary Examination - Items

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CERTIFICATE OF COMPLIANCE

MTR List

edmonton exchanger
& manufacturing ltd.

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www.edmontonexchanger.com tel 780 468 6722 • QC fax 780 466 4668 • sales fax 780 466 5159

Customer ALCO GAS & OIL PRODUCTION PO 133437 -8140-01 Work Order C100880 Date 2013/10/11 Co/C# 44359 Page 1 of 1

Email to andy.jutt@alcogasoil.com

Email to brenda.abbott@alcogasoil.com

Email to nora.henke@alcogasoil.com

Email to ship-rec@alcogasoil.com

Email to ptaschuk@edmontonexchanger.com

MTR ID	Pages	Heat#	Thickness	Material Grades
16686	14	365957-97274 ←	.75"	SA 516-70 N
17634	6	380617-99931-02 ←	.75"	SA 516-70 N
17943	5	G1133-476530707	.875"	SA 516-70 N

Heat#	Material Grades	MTR ID
365957-97274	SA 516-70 N	16686
380617-99931-02	SA 516-70 N	17634
G1133-476530707	SA 516-70 N	17943



QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10	Advice of dispatch No./ Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No	Sheet
	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		406870-06.12.11	369269-002	1/...
	MATERIAL TEST REPORT (MTR)			B01 Product	
A05	Established inspecting body DH	A06 Purchaser EDMONTON STEEL, EDMON	A07.1 No. ED10580-J1010-ER	HOT ROLLED PLATES	
	Final receiver EDMONTON STEEL, EDMON	A07.2 No. SA20-S5			
B02	Steel design SA516-70				
B03	Any suppl. requirements DIL-HUE-2:R31-2010-11-22				



16686

A01-A99 Further commercial information - Concession requests

B14	B07.2	B07.1	B16	Date
Item No.	Heat No.	Roll-plate / Test No.	Concession request no.	
01	365960	96593-03	1-QZFHQ	08.11.11

B01-B99 Description of the product

B14	B08	B09	B10	B11	B12	B04	B07.2	B07.1	A09
Item No.	Number of pieces	Thickness	Width	Length	Theoretical mass	Product delivery condition	Heat No.	Test No.	Purchaser article number
			INCH		KG				
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365954	45272-01	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365954	45272-02	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365954	45272-03	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365956	02688-01	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365956	02688-02	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365956	02688-03	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96593-01	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96593-02	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96593-03	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96595-01	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96595-02	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96595-03	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96597-01	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96597-02	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96597-03	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96715-01	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96715-02	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	96715-03	
01	1	0,6250	X 120,50000	X 480,00000	4650	N	365960	97271-01	

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.



Manufacturers' mark



B. BALDAUF
Test House Manager

Inspector's stamp

Date: 07.12.11

PP 1

A01

AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

QM-System: Certification as per ISO 9001



DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations. (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)	A10	Advice of dispatch No./ Date of dispatch	406870-06.12.11	A08/ Manufacturer's order/ A03 Certificate No.	369269-002	Sheet	2/...
A05	Established inspecting body DH	A06	Purchaser EDMONTON STEEL, EDMON	A07.1	No. ED10580-J1010-ER	B01	Product HOT ROLLED PLATES	
B02	Steel design. SA516-70							
B03	Any suppl. requirements DIL-HUE-2:R31-2010-11-22							

B01-B99 Description of the product

B14	B08	B09	B10	B11	B12	B04	B07.2	B07.1	A09
Item No.	Number of pieces	Thickness	Width	Length	Theoretical mass	Product delivery condition	Heat No.	Rolled plate No./ Test No.	Purchaser article number
		INCH	INCH		KG				
01	1	0,6250	x 120,50000	x 480,00000	4650	N	365960	97271-02	
01	1	0,6250	x 120,50000	x 480,00000	4650	N	365960	97271-03	
**	21				97650				
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97272-01	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97272-02	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97272-03	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97273-01	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97273-02	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97273-03	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97274-01	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97274-02	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97274-03	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97275-01	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97275-02	
02	1	0,7500	x 96,50000	x 480,00000	4469	N	365957	97275-03	
**	12				53628				
03	1	0,8750	x 120,50000	x 480,00000	6510	N	365945	84632-01	
03	1	0,8750	x 120,50000	x 480,00000	6510	N	365945	84632-02	
03	1	0,8750	x 120,50000	x 480,00000	6510	N	365945	84632-03	
03	1	0,8750	x 120,50000	x 480,00000	6510	N	365945	87205-01	
03	1	0,8750	x 120,50000	x 480,00000	6510	N	365945	87205-02	
03	1	0,8750	x 120,50000	x 480,00000	6510	N	365945	87205-03	
03	1	0,8750	x 120,50000	x 480,00000	6510	N	365947	83863-01	

① Shell - 24" OD - 7.875" LONG.
② Shells - 24" OD - 8.6875" LONG.
8440-01
Pg - 133437

CONFORMS TO SA 516-70 MI
YEAR 2010 ED. 2010
JOB # 2013-8440-01
ITEM # #19, #24
SIGNED BY [Signature] OCT 28 2013

A04 Z01Z02Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

AG-der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

Inspector's stamp: ADB
Inspector's name: B. BAUDAUF
Test House Manager

Date: 07.12.11

PP 1

QMI-System: Certification as per ISO 9001



DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

<p>A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)</p>	<p>A10 Advice of dispatch No./ Date of dispatch 406870-06.12.11</p>	<p>A08 Manufacturer's order/ A03 Certificate No. 369269-002</p> <p>Sheet 3 /</p>
<p>A05 Established inspecting body DH</p> <p>A06 Purchaser EDMONTON STEEL, EDMON</p> <p>A07.1 No. ED10580-J1010-ER</p> <p>Final receiver EDMONTON STEEL, EDMON</p> <p>A07.2 No. SA20-S5</p>		
<p>B02/ Steel design SA516-70</p> <p>B03 Any suppl. requirements ASME-II-A:10 DIL-HUE-2:R31-2010-11-22</p>		

B01-B99 Description of the product

B14 Item No.	B08 Number of pieces	B09 Thickness	B10 Width INCH	B11 Length	B12 Theoretical mass KG	B04 Product delivery condition	B07.2 Heat No.	B07.1 Rolled plate No./ Test No.	A09 Purchaser article number
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	83863-02	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	83863-03	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84116-01	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84116-02	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84116-03	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84117-01	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84117-02	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84117-03	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84118-01	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84118-02	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84118-03	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84119-01	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84119-02	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84119-03	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84120-01	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84120-02	
03	1	0,8750 x	120,50000 x	480,00000 x	6510 N	N	365947	84120-03	
**	24				156240				
04	1	1,0000 x	96,50000 x	480,00000 x	5959 N	N	365946	84147-01	
04	1	1,0000 x	96,50000 x	480,00000 x	5959 N	N	365946	84147-02	
04	1	1,0000 x	96,50000 x	480,00000 x	5959 N	N	365946	84147-03	
04	1	1,0000 x	96,50000 x	480,00000 x	5959 N	N	365946	84149-01	
04	1	1,0000 x	96,50000 x	480,00000 x	5959 N	N	365946	84149-02	

QM-System: Certification as per ISO 9001



Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)	A10 Advice of dispatch No./ Date of dispatch	406870-06.12.11	A08/ Manufacturer's order/ A03 Certificate No.	369269-002	Sheet	4 / . . .
A05	Established inspecting body DH	A06 Purchaser EDMONTON STEEL, EDMON	A07.1 No. ED10580-J1010-ER	B01 Product	HOT ROLLED PLATES		
B02	Steel design SA516-70	Final receiver EDMONTON STEEL, EDMON	A07.2 No. SA20-S5				
B03	Any suppl. ASME-II-A:10 requirements DIL-HUE-2:R31-2010-11-22						

B01-B99 Description of the product

B14 Item No.	B08 Number of pieces	B09 Thickness	B10 Width	B11 Length	B12 Theoretical mass	B04 Product delivery condition	B07.2 Heat No.	B07.1 Rolled plate No./ Test No.	A09 Purchaser article number
04	1	1,0000 X	96,50000 X	480,00000 X	5959 N	N	365946	84149-03	
04	1	1,0000 X	96,50000 X	480,00000 X	5959 N	N	365946	84511-01	
04	1	1,0000 X	96,50000 X	480,00000 X	5959 N	N	365946	84511-02	
**	8				47672				
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84628-01	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84628-02	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84628-03	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84629-01	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84629-02	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84629-03	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84630-01	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84630-02	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84630-03	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84631-01	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84631-02	
05	1	1,0000 X	120,50000 X	480,00000 X	7440 N	N	365945	84631-03	
**	12				89280				
06	1	1,1250 X	121,00000 X	480,00000 X	8405 N	N	365946	84146-01	
06	1	1,1250 X	121,00000 X	480,00000 X	8405 N	N	365946	84146-02	
**	2				16810				
07	1	1,2500 X	97,00000 X	480,00000 X	7487 N	N	365962	93620-01	
07	1	1,2500 X	97,00000 X	480,00000 X	7487 N	N	365962	93620-02	
07	1	1,2500 X	97,00000 X	480,00000 X	7487 N	N	365962	93621-01	

A04 Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.



B. Baldauf

B. BALDAUF
Test House Manager

AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

Inspector's stamp Date 07.12.11

PP 1

QM-System: Certification as per ISO 9001



Erläuterungen siehe Rückseite/E xplanations voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		A10 Advice of dispatch No./ Date of dispatch	A08/Manufacturer's order/ A03 Certificate No.	Sheet
MATERIAL TEST REPORT (MTR)		406870-06.12.11	369269-002	5/...
A05:Established inspecting body DH	A06 Purchaser EDMONTON STEEL, EDMON	A07.1 No. ED10580-J1010-ER	B01 Product HOT ROLLED PLATES	
B02/ Steel design. SA516-70	Final receiver EDMONTON STEEL, EDMON	A07.2 No. SA20-S5		
B03 Any suppl. requirements DIL-HUE-2:R31-2010-11-22				

B01-B99 Description of the product

B14 Item No.	B08 Number of pieces	B09 Thickness	B10 Width	B11 Length	B12 Theoretical mass	B04 Product delivery condition	B07.2 Heat No.	B07.1 Rolled plate Test No.	A09 Purchaser article number
				INCH.	KG				
07	1	1,2500 x	97,0000 x	480,00000 x	7487 N	N	365962	93621-02	
07	1	1,2500 x	97,0000 x	480,00000 x	7487 N	N	365962	93622-01	
07	1	1,2500 x	97,0000 x	480,00000 x	7487 N	N	365962	93622-02	
07	1	1,2500 x	97,0000 x	480,00000 x	7487 N	N	365962	94966-01	
07	1	1,2500 x	97,0000 x	480,00000 x	7487 N	N	365962	94966-02	
07	1	1,2500 x	97,0000 x	480,00000 x	7487 N	N	365962	94968-01	
07	1	1,2500 x	97,0000 x	480,00000 x	7487 N	N	365962	94968-02	
**	10				74870				
***	89				536150				

B04 Product delivery condition

ITEM NO.: 01-07
 N: HT: 1670 GR.F +36 -27 GR.F
 SOAKING TIME TO ATTAIN THE TARGET TEMPERATURE OVER THE WHOLE SECTION: 1-1,75 MIN/MM (25-45 MIN/INCH)
 COOLING IN STILL AIR

B06 Marking of the product

ITEM NO.: 01-07
 STEEL DESIGNATION SA516 70 MTLTV SA516 60 MTLTV
 HEAT NO. / TRADEMARK / ROLLED PLATE NO.-TEST NO. / INSPECTOR'S STAMP

B07-B99 Further information about the product

ITEM NO.: 01-07
 THICKNESS REDUCTION RATIO: >= 3,0 IS FULFILLED (CF. A/SA20 PAR. 5.3)

A04	Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.	A01
		AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department
Manufacturer's mark	Inspector's stamp	Date 07.12.11
	B. BALDAUF Test House Manager	PP 1

QM-System: Certification as per ISO 9001



Erläuterungen: siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991	A10	Advice of dispatch No./ Date of dispatch	406870-06.12.11	A08/Manufacturer's order/ A03 Certificate No.	369269-002	6 /
A05	Established inspecting body DH	A06	Purchaser EDMONTON STEEL, EDMON	A07.1	No. ED10580-J1010-ER	B01	Product HOT ROLLED PLATES
B02/	Steel design. SA516-70		Final receiver EDMONTON STEEL, EDMON	A07.2	No. SA20-S5		
B03	Any suppl. requirements DIL-HUE-2:R31-2010-11-22						

C10-C29 Tensile test

B14	B07.2	B07.1	B05	C01	C02/	C03	C10	C11	C12	C13	C14-C15
Item No.	Heat No.	Roll plate/ Test No.	Reference (heat) treatment	C01	Temp. GR.F	Temp. GR.F	Temp. GR.F	Temp. GR.F	RM	A % LO=2IN	A % LO=2IN
01	365954	45272		K1 Q	RT	RT	RT	RT	75,8	26	
01	365956	02688		K1 Q	RT	RT	RT	RT	75,7	28	
01	365960	96593		K1 Q	RT	RT	RT	RT	74,1	27	
01	365960	96595		K1 Q	RT	RT	RT	RT	74,7	27	
01	365960	96597		K1 Q	RT	RT	RT	RT	74,4	26	
01	365960	96715		K1 Q	RT	RT	RT	RT	74,8	27	
01	365960	97271		K1 Q	RT	RT	RT	RT	75,0	29	
02	365957	97272		K1 Q	RT	RT	RT	RT	74,8	28	
02	365957	97273		K1 Q	RT	RT	RT	RT	74,8	27	
02	365957	97274		K1 Q	RT	RT	RT	RT	74,7	29	
02	365957	97275		K1 Q	RT	RT	RT	RT	75,0	28	
03	365945	84632		K1 Q	RT	RT	RT	RT	75,1	29	
03	365945	87205		K1 Q	RT	RT	RT	RT	74,5	29	
03	365947	83863		K1 Q	RT	RT	RT	RT	74,8	29	
03	365947	84116		K1 Q	RT	RT	RT	RT	75,1	28	
03	365947	84117		K1 Q	RT	RT	RT	RT	75,7	28	
03	365947	84118		K1 Q	RT	RT	RT	RT	75,1	29	
03	365947	84119		K1 Q	RT	RT	RT	RT	74,7	28	
03	365947	84120		K1 Q	RT	RT	RT	RT	75,0	30	
04	365946	84147		K1 Q	RT	RT	RT	RT	75,3	29	
04	365946	84149		K1 Q	RT	RT	RT	RT	74,7	29	
04	365946	84511		K1 Q	RT	RT	RT	RT	75,0	28	
05	365945	84628		K1 Q	RT	RT	RT	RT	74,1	29	

A04	201Z02/203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.	A01	AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection: department
	Manufacturer's mark	Inspector's stamp	Date 07.12.11
		Test House Manager	PP 1



QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPÉCTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10	Advice of dispatch No./ Date of dispatch	Sheet	
	INSPÉCTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		406870-06.12.11	7/...	
	MATERIAL TEST REPORT (MTR)		369269-002		
A05	Established Inspecting body DH	A06	Purchaser EDMONTON STEEL, EDMON	B01	Product HOT ROLLED PLATES
	Final receiver EDMONTON STEEL, EDMON	A07.1	No. ED10580-J1-010-ER		
B02/	Steel design. SA516-70	A07.2	No. SA20-S5		
B03	Any suppl. requirements DIL-HUE-2:R31-2010-11-22				

C10-C29 Tensile test

B14	B07.2	B07.1	B05	C01	C02/C03	C10	C11	C12	C13	A	A	C14-C15
Item No.	Heat No.	Rollplate/ Test No.	Reference (heat) treatment	C01	Temp. GR.F	Temp. GR.F	KSI RP02	RM		% LO=BIN	% LO=ZIN	
05	365945	84629		K1 Q	RT	RT	49,7	74,5		28		
05	365945	84630		K1 Q	RT	RT	50,2	74,2		30		
05	365945	84631		K1 Q	RT	RT	49,6	74,4		32		
06	365946	84146		K1 Q	RT	RT	50,0	74,7		29		
07	365962	93620		K1 QV	RT	RT	48,9	74,4			36	
07	365962	93621		K1 QV	RT	RT	49,9	74,0			35	
07	365962	93622		K1 QV	RT	RT	50,9	74,1			35	
07	365962	94966		K1 QV	RT	RT	49,7	74,7			36	
07	365962	94968		K1 QV	RT	RT	52,8	75,0			35	

C30-C39 Hardness test

B14	B07.2	B07.1	B05	C01	C02/C03	C03	C30	C31	C32
Item No.	Heat No.	Rollplate/ Test No.	Reference (heat) treatment	C01	Temp. GR.F	Temp. GR.F	Method of test	Individual values	Mean value
01	365954	45272		K1	RT	RT	HBW 10/3000	HB 150	150
01	365956	02688		K1	RT	RT	HBW 10/3000	HB 150	150
01	365960	96593		K1	RT	RT	HBW 10/3000	HB 146	147
01	365960	96595		K1	RT	RT	HBW 10/3000	HB 148	148
01	365960	96597		K1	RT	RT	HBW 10/3000	HB 147	147
01	365960	96715		K1	RT	RT	HBW 10/3000	HB 149	149
01	365960	97271		K1	RT	RT	HBW 10/3000	HB 148	148
02	365957	97272		K1	RT	RT	HBW 10/3000	HB 146	147
02	365957	97273		K1	RT	RT	HBW 10/3000	HB 147	148
02	365957	97274		K1	RT	RT	HBW 10/3000	HB 147	147
02	365957	97275		K1	RT	RT	HBW 10/3000	HB 147	147



QMS-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)	A10- Advice of dispatch, No./ Date of dispatch	406870-06.12.11	A08/ Manufacturer's order/ A03: Certificate No.	369269-002 8/
A05	Established/Inspecting body DH	A06 Purchaser EDMONTON STEEL, EDMON	A07.1 No. ED10580-J1010-ER	B01 Product HOT ROLLED PLATES	
B02/	Steel design. SA516-70	Final receiver EDMONTON STEEL, EDMON	A07.2 No. SA20-S5		
B03	Any suppl. requirements DIL-HUB-2:R31-2010-11-22				

C-30-C39 Hardness test

B14 Item No.	B07.2 Heat No.	B07.1 Rol./plate/ Test No.	B05 Reference (heat) treatment	C01	C02/C01	C03 Temp. GR.F	C30 Method of test	C35 Individual values	C32 Mean value
03	365945	84632		K1	O	RT	HBW 10/3000	HB 148	149
03	365945	87205		K1	O	RT	HBW 10/3000	HB 145	148
03	365947	83863		K1	O	RT	HBW 10/3000	HB 148	147
03	365947	84116		K1	O	RT	HBW 10/3000	HB 150	149
03	365947	84117		K1	O	RT	HBW 10/3000	HB 148	148
03	365947	84118		K1	O	RT	HBW 10/3000	HB 146	147
03	365947	84119		K1	O	RT	HBW 10/3000	HB 147	144
03	365947	84120		K1	O	RT	HBW 10/3000	HB 145	145
04	365946	84147		K1	O	RT	HBW 10/3000	HB 147	148
04	365946	84149		K1	O	RT	HBW 10/3000	HB 147	146
04	365946	84511		K1	O	RT	HBW 10/3000	HB 145	145
05	365945	84628		K1	O	RT	HBW 10/3000	HB 146	146
05	365945	84629		K1	O	RT	HBW 10/3000	HB 145	145
05	365945	84630		K1	O	RT	HBW 10/3000	HB 145	145
05	365945	84631		K1	O	RT	HBW 10/3000	HB 146	145
06	365946	84146		K1	O	RT	HBW 10/3000	HB 146	146
07	365962	93620		K1	O	RT	HBW 10/3000	HB 147	144
07	365962	93621		K1	O	RT	HBW 10/3000	HB 143	142
07	365962	93622		K1	O	RT	HBW 10/3000	HB 144	144
07	365962	94966		K1	O	RT	HBW 10/3000	HB 147	147
07	365962	94968		K1	O	RT	HBW 10/3000	HB 147	147

A04		Z011202/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.	AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department	Inspector's stamp:	Date: 07.12.11	PP 1
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QM-System: Certification as per ISO 9001



DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10	Advice of dispatch No./ Date of dispatch	A08/Manufacturer's order/ A03-Certificate No.	Sheet	
	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		406870-06.12.11	369269-002	9 / ...	
	MATERIAL TEST REPORT (MTR)			B01 Product		
A05	Established inspecting body	A06	Purchaser	EDMONTON STEEL, EDMON	A07.1	No. ED10580-J1010-ER
DH			Final receiver	EDMONTON STEEL, EDMON	A07.2	No.
B02/	Steel design	SA516-70				SA20-S5
B03	Any suppl. requirements	ASME-II-A:10 DIL-HUE-2:R31-2010-11-22				

C40-C49 Impact test

B14	B07.2	B07.1	B05	C01	C02/	C03	C41	C40	C44	C46	C45	C42	C43
Item	Heat No.	Roll plate/ Test No.	Reference (heat) treatment	C01	C01	Temp. GR.F	Width of test piece	Type of test piece	Testing method	Energy	Individual values AV=FT/LBF	Mean value	
01	365954	45272		K1	LV	-51		CHP-V			AV 205	134	141
01	365956	02688		K1	LV	-51		CHP-V			AV 114	124	111
01	365960	96593		K1	LV	-51		CHP-V			AV 90	129	130
01	365960	96595		K1	LV	-51		CHP-V			AV 131	130	151
01	365960	96597		K1	LV	-51		CHP-V			AV 197	202	197
01	365960	96715		K1	LV	-51		CHP-V			AV 137	140	148
01	365960	97271		K1	LV	-51		CHP-V			AV 121	134	126
02	365957	97272		K1	LV	-51		CHP-V			AV 126	189	155
02	365957	97273		K1	LV	-51		CHP-V			AV 201	131	178
02	365957	97274		K1	LV	-51		CHP-V			AV 201	99	144
02	365957	97275		K1	LV	-51		CHP-V			AV 115	131	98
03	365945	84632		K1	LV	-51		CHP-V			AV 125	110	123
03	365945	87205		K1	LV	-51		CHP-V			AV 121	83	109
03	365947	83863		K1	LV	-51		CHP-V			AV 106	130	117
03	365947	84116		K1	LV	-51		CHP-V			AV 128	109	114
03	365947	84117		K1	LV	-51		CHP-V			AV 108	162	136
03	365947	84118		K1	LV	-51		CHP-V			AV 105	150	129
03	365947	84119		K1	LV	-51		CHP-V			AV 145	162	157
03	365947	84120		K1	LV	-51		CHP-V			AV 152	188	148
04	365946	84147		K1	LV	-51		CHP-V			AV 108	117	113
04	365946	84149		K1	LV	-51		CHP-V			AV 138	147	135
04	365946	84511		K1	LV	-51		CHP-V			AV 69	115	95
05	365945	84628		K1	LV	-51		CHP-V			AV 134	148	140
05	365945	84629		K1	LV	-51		CHP-V			AV 124	117	113

A04 Z01/Z02/Z03: We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

Manufacturer's mark

B. BALDAUF
Test House Manager

AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
inspection department

Inspector's stamp Date 07.12.11

PE 1

QM-System: Certification as per ISO:9001



DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION: CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION: CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)	A10	Advice of dispatch No./ Date of dispatch 406870-06.12.11	A08/ Manufacturer's order/ A03 Certificate No. 369269-002	Sheet 10/
A05	Established/inspecting body DH	A06 Purchaser EDMONTON STEEL, EDMON	A07.1 No. ED10580-J1010-ER	B01 Product HOT ROLLED PLATES	
B02/	Steel design. SA516-70	Final receiver EDMONTON STEEL, EDMON	A07.2 No. SA20-S5		
B03	Any suppl. requirements DIL-HUE-2:R31-2010-11-22				

C-40-C49 Impact test

B14	B07.2	B07.1	B05	C01	C02/	C03	C41	C40	C44	C46	C45	C42	C43
Item	Heat No.	Rollplate/ Test No.	Reference (heat) treatment	C01	C01	Temp. GR:F	Width of test piece	Type of test piece	Testing method	Energy	Individual values AV=FT.LBF	Mean value	Mean value
05	365945	84630		K1	LV	-51		CHP-V		AV 98	125	90	104
05	365945	84631		K1	LV	-51		CHP-V		AV 110	125	86	107
06	365946	84146		K1	LV	-51		CHP-V		AV 107	77	103	96
07	365962	93620		K1	LV	-51		CHP-V		AV 53	119	78	83
07	365962	93621		K1	LV	-51		CHP-V		AV 96	103	89	96
07	365962	93622		K1	LV	-51		CHP-V		AV 106	116	119	114
07	365962	94966		K1	LV	-51		CHP-V		AV 86	113	130	110
07	365962	94968		K1	LV	-51		CHP-V		AV 120	73	110	101

C70-C99 Chemical composition % - Heat analysis

B07.2	C70	C	SI	MN	P	S	N	CU	MO	NI	CR	V	NB	SN	TI
365945	Y	0,176	0,371	1,18	0,008	0,0008	0,0060	0,039	0,023	0,059	0,035	0,000	0,000	0,001	0,002
365946	Y	0,179	0,384	1,19	0,008	0,0011	0,0064	0,030	0,016	0,047	0,028	0,001	0,000	0,001	0,002
365947	Y	0,176	0,382	1,19	0,007	0,0011	0,0078	0,043	0,022	0,051	0,020	0,001	0,001	0,001	0,002
365954	Y	0,182	0,372	1,17	0,008	0,0012	0,0060	0,042	0,019	0,071	0,029	0,002	0,000	0,001	0,002
365956	Y	0,178	0,375	1,17	0,007	0,0010	0,0084	0,047	0,023	0,071	0,016	0,001	0,000	0,001	0,002
365957	Y	0,177	0,380	1,18	0,008	0,0008	0,0057	0,035	0,015	0,061	0,024	0,001	0,000	0,001	0,002
365960	Y	0,189	0,376	1,16	0,009	0,0009	0,0060	0,033	0,016	0,067	0,033	0,001	0,000	0,000	0,002
365962	Y	0,171	0,385	1,18	0,008	0,0014	0,0064	0,036	0,015	0,051	0,027	0,000	0,000	0,000	0,001

A04 Z01Z02/203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

A01 AG der Dillinger Hüttenwerke
Postfach 1580; D-66748 Dillingen/Saar
Inspection department

B. BALDAUF
Test House Manager

Inspector's stamp
AHB

Date 07.12.11

PP 1

QIM-System: Certification as per ISO 9001



Erläuterungen: siehe Rückseite/Explications voir: au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)	A10	Advice of dispatch Date of dispatch 406870-06.12.11	A08/A03	Manufacturers order/ Certificate No. 369269-002	Sheet 11/
A05	Established inspecting body DH	A06	Purchaser EDMONTON STEEL, EDMON	A07.1	No. ED10580-J1010-ER	
			Final receiver EDMONTON STEEL, EDMON	A07.2	No. SA20-S5	
B02	Steel design SA516-70					
B03	Any suppl. requirements DIL-HUE-2:R31-2010-11-22					

C70-C99 Chemical composition % - Heat analysis

	C70	B	CA	AL-T
B07.2 Heat	Y	0,0002	0,0027	0,032
365945	Y	0,0002	0,0031	0,034
365946	Y	0,0002	0,0016	0,032
365947	Y	0,0002	0,0019	0,033
365954	Y	0,0003	0,0027	0,031
365956	Y	0,0003	0,0023	0,036
365957	Y	0,0000	0,0024	0,035
365960	Y	0,0002	0,0030	0,040

C94 Heat analysis Carbon equivalent / Alloying restrictions

B07.2 Heat	FO-02=	0,39	FO-51=	0,000	FO-55=	0,16	FO-78=	0,06	FO-91=	6,7
365945	FO-02=	0,39	FO-51=	0,001	FO-55=	0,12	FO-78=	0,04	FO-91=	6,6
365946	FO-02=	0,39	FO-51=	0,002	FO-55=	0,14	FO-78=	0,04	FO-91=	6,8
365947	FO-02=	0,39	FO-51=	0,002	FO-55=	0,16	FO-78=	0,05	FO-91=	6,4
365954	FO-02=	0,39	FO-51=	0,001	FO-55=	0,16	FO-78=	0,04	FO-91=	6,6
365956	FO-02=	0,40	FO-51=	0,001	FO-55=	0,15	FO-78=	0,04	FO-91=	6,7
365957	FO-02=	0,38	FO-51=	0,000	FO-55=	0,13	FO-78=	0,04	FO-91=	6,1
365960	FO-02=	0,38	FO-51=	0,000	FO-55=	0,13	FO-78=	0,04	FO-91=	6,9

C95 Ladle treatment

ITEM NO.: 01-07

HEAT OF THE INDICATED ITEM: VACUUM DEGASSED / SULPHIDE SHAPE CONTROL

A04



Z01/Z02/Z03: We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

B. Baldauf



AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

B. BALDAUF
Test House Manager

Inspector's stamp Date 07.12.11

PP 1

A01



QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10	Advice of dispatch/No./Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		406870-06.12.11	369269-002	12/
	MATERIAL TEST REPORT (MTR)				
A05	Established inspecting body	A06	Purchaser	B01	Product
DH			EDMONTON STEEL, EDMON	A07.1	NO. ED10580-J1010-ER
			Final receiver	A07.2	NO. SA20-S5
B02	Steel design.				
	SA516-70				
B03	Any suppl. requirements				
	ASME-II-A:10				
	DIL-HUE-2:R31-2010-11-22				

C95 Further information about ladle treatment

ITEM NO.: 01-07
CALCIUM TREATED

C70-C99 Chemical composition % - Product analysis

B07.2 Heat	B07.1 Test No.	C01	C	SI	MN	P	S	N	CU	MO	NI	CR	V	NB	SN	TI
365945	84629	K1	0,177	0,366	1,17	0,008	0,0007	0,0055	0,037	0,023	0,058	0,034	0,000	0,000	0,001	0,001
365945	87205	K1	0,178	0,359	1,16	0,008	0,0011	0,0066	0,037	0,023	0,059	0,034	0,000	0,000	0,001	0,001
365946	84147	K1	0,176	0,390	1,18	0,008	0,0011	0,0066	0,029	0,015	0,046	0,027	0,000	0,000	0,001	0,002
365946	84150	K1	0,178	0,384	1,19	0,008	0,0013	0,0067	0,031	0,016	0,047	0,028	0,001	0,000	0,000	0,002
365946	84513	K1	0,174	0,383	1,18	0,008	0,0006	0,0054	0,037	0,024	0,059	0,034	0,000	0,001	0,001	0,001
365947	84117	K1	0,175	0,379	1,18	0,007	0,0008	0,0060	0,037	0,018	0,048	0,022	0,001	0,000	0,001	0,002
365954	45272	K1	0,179	0,379	1,16	0,007	0,0010	0,0053	0,039	0,026	0,076	0,034	0,001	0,000	0,001	0,001
365956	02688	K1	0,178	0,364	1,15	0,006	0,0008	0,0103	0,045	0,023	0,071	0,017	0,000	0,000	0,000	0,002
365957	97739	K1	0,174	0,375	1,16	0,008	0,0010	0,0053	0,034	0,014	0,062	0,024	0,000	0,000	0,000	0,002
365960	96713	K1	0,171	0,370	1,15	0,009	0,0009	0,0055	0,033	0,015	0,066	0,031	0,001	0,000	0,001	0,002
365962	93622	K1	0,172	0,377	1,17	0,008	0,0017	0,0063	0,034	0,015	0,055	0,028	0,000	0,000	0,001	0,001

B07.2 Heat

B07.1 Test No.

C01

B

CA

AL-T

K1

0,0002

0,0027

0,032

K1

0,0002

0,0026

0,030

K1

0,0002

0,0030

0,034

K1

0,0002

0,0029

0,037

K1

0,0001

0,0023

0,033

K1

0,0002

0,0019

0,032

K1

0,0000

0,0022

0,036

K1

0,0002

0,0027

0,029

A04 Z01Z02Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.



Manufacturer's mark

B Baldauf

B: BALDAUF
Test/ House Manager



AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

Inspector's stamp

Date 07.12.11

PP 1

QM-System: Certification as per ISO 9001



DILLINGER HÜTTE

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204 :2004	A10	Advice of dispatch No./ Date of dispatch	406870-06.12.11	A03/ Manufacturer's order/ Certificate No.	369269-002	Sheet	13 /
A05	Established Inspecting body DH	A06 Purchaser	EDMONTON STEEL, EDMON	A07.1 No.	ED10580-J1010-ER	B01 Product	HOT ROLLED PLATES	
B02/	Steel design	Final receiver	EDMONTON STEEL, EDMON	A07.2 No.	SA20-S5			
B03	Any suppl. requirements		ASME-II-A:10 DIL-HUE-2:R31-2010-11-22					

C70-C99 Chemical composition % - Product analysis

B07.2	B07.1	C01	B	CA	AL-T
Heat	Test No.				
365957	97739	K1	0,0001	0,0021	0,035
365960	96713	K1	0,0002	0,0020	0,035
365962	93622	K1	0,0002	0,0027	0,036

C94 Product analysis Carbon equivalent / Alloying restrictions

B07.2	B07.1	C01	FO-02=	FO-51=	FO-55=
Heat	Test No.				
365945	84629	K1	0,39	0,000	0,15
365945	87205	K1	0,39	0,000	0,15
365946	84147	K1	0,39	0,000	0,12
365946	84150	K1	0,39	0,001	0,12
365946	84513	K1	0,39	0,001	0,15
365947	84117	K1	0,39	0,001	0,13
365954	45272	K1	0,39	0,001	0,18
365956	02688	K1	0,39	0,000	0,16
365957	97739	K1	0,38	0,000	0,13
365960	96713	K1	0,38	0,001	0,15
365962	93622	K1	0,38	0,000	0,13

C94 Carbon equivalent formula / Alloying restrictions

FO-02 = C + (Mn/6) + (CR+MO+V) / 5 + (NI+CU) / 15
 FO-51 = V +NB
 FO-55 = CU+MO+NI+CR
 FO-78 = CR+MO
 FO-91 = MN/C

A04	Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.	A01	AG:der.Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department
	B. BALDAUF Test House Manager.		Inspector's stamp
			Date 07.12.11
			PP 1



QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991	A10 Advice of dispatch No./ Date of dispatch 406870-06.12.11	A08/ Manufacturer's order/ A03 Certificate No. 369269-002	Steel 14
A05	DH Established inspecting body A06 Purchaser EDMONTON STEEL, EDMON	A07.1 No. ED10580-J1010-ER	B01 Product HOT ROLLED PLATES	
B02/	Steel design. SA516-70	Final receiver EDMONTON STEEL, EDMON		
B03	Any suppl. requirements DIL-HUE-2:R31-2010-11-22	A07.2 No. SA20-S5		

D01 Marking and identification, surface appearance, shape and dimensional properties

ITEM NO.: 01-07

RESULT OF MARKING, SURFACE, SHAPE AND DIMENSIONS: NO REMARKS

SURFACE AS PER ASME-SA20

THICKNESS AS PER ASME-SA20

LENGTH AND WIDTH AS PER ASME-SA20

FLATNESS AS PER 1/2-ASME-SA20

A04



Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

B. Baldauf

B. BALDAUF
Test House Manager



Inspector's stamp

Date 07.12.11

PP 1

AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department





QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)	A10 Advice of dispatch No./ Date of dispatch	442736-16.C1.13	A08/ Manufacturer's order/ A03 Certificate No.	380161-002 1/...	Sheet
A05	Established inspecting body DH	A06 Purchaser EDMONTON STEEL, EDMON	A07.1 No. ED10609-J1010-ER	B01 Product HEAVY PLATES	 17634	
B02	Steel design. SA516-70	Final receiver EDMONTON STEEL, EDMON	A07.2 No. SA20-S5			
B03	Any suppl. requirements	ASME-11A:2010+ADDENDA-2011A DIL-HUE-2:R33-2012-10-01				

B01-B99 Description of the product

B14 Item No.	B08 Number of pieces	B09 Thickness	B10 Width	B11 Length	B12 Theoretical mass	B04 Product delivery condition	B07.2 Heat No.	B07.1 Rolled plate Test No.	A09 Purchaser article number
01	1	0,6250	120,50000	480,00000	4650	N	380614	01001-02	
01	1	0,6250	120,50000	480,00000	4650	N	380617	99936-03	
**	2			9300					
02	1	0,7500	120,50000	480,00000	5580	N	380614	01148-01	
02	1	0,7500	120,50000	480,00000	5580	N	380614	01148-02	
02	1	0,7500	120,50000	480,00000	5580	N	380614	01148-03	
02	1	0,7500	120,50000	480,00000	5580	N	380617	99931-02	
**	4			22320					
03	1	0,8750	96,50000	480,00000	5214	N	380616	99947-01	
03	1	0,8750	96,50000	480,00000	5214	N	380616	99947-02	
03	1	0,8750	96,50000	480,00000	5214	N	380616	99947-03	
03	1	0,8750	96,50000	480,00000	5214	N	380616	99949-01	
03	1	0,8750	96,50000	480,00000	5214	N	380616	99949-02	
03	1	0,8750	96,50000	480,00000	5214	N	380616	99949-03	
**	6			31284					
04	1	0,8750	178,00000	356,00000	7133	N	380616	99946-01	
***	13			70037					

B04 Product delivery condition

ITEM NO.: 01-05

N: HT: 1670 GR.F +36 -27 GR.F

SOAKING TIME TO ATTAIN THE TARGET TEMPERATURE OVER THE WHOLE SECTION: 1-1,75 MIN/MM (25-45 MIN/INCH);

COOLING IN STILL AIR

CONFORMS TO 3. 516-70MT
 YEAR: 2010 ED, 2011 ADD
 JOB # 1613-8440-01
 ITEM # 19
 SIGNED BY: OCT 28 2013

8440-01
 Po-133437
 ① Shell: 24" OD-7.875" I.D.

A04	Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.	AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department	A01
	B. BALDAUF Test House Manager	Inspector's stamp	Date 17.01.13
			PP 1



QM-System: Certification as per ISO 9001

Erfüllungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)	A10	Advice of dispatch No. Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
A05	Established inspecting body DH	EDMONTON STEEL, EDMON	442736-16.01.23	380151-002	2/...
A05	Final receiver	EDMONTON STEEL, EDMON		301 Product	
B02/	Steel design.	SA516-70		HEAVY PLATES	
B03	Any suppl. requirements	ASME- IIA:2010+ADDENDA-2011A DIL-HUE-2:R33-2012-10-01			

B06 Marking of the product

ITEM NO.: 01-05
 STEEL DESIGNATION SA516 70 MTLTV SA516 60 MTLTV
 HEAT NO. / TRADEMARK / ROLLED PLATE NO.-TEST NO. / INSPECTOR'S STAMP

B07-B99 Further information about the product

ITEM NO.: 01-05
 THICKNESS REDUCTION RATIO >= 3,0 IS FULFILLED (CF. A/SA20 PAR. 5.3)

C10-C29 Tensile test

B14	B07.2	B07.1	B05	C01	C02/	C03	C10	C11	C12	C13	C35	C31	C32
Item No.	Heat No.	Rollplate/ Test No.	Reference (heat) treatment	C01 Temp. GR.F	C01	Temp. GR.F	KSI	RP02	RM	A % L0=8IN	Individual values	Mean value	
01	380614	01001		RT	K1	Q	51,2	51,2	76,7	28	147	147	
01	380617	99936		RT	K1	Q	50,9	50,9	75,5	27	142	141	
02	380614	01148		RT	K1	Q	50,6	50,6	75,7	28	144	144	
02	380617	99931		RT	K1	Q	49,6	49,6	74,8	29	142	141	
03	380616	99947		RT	K1	Q	49,7	49,7	75,3	29	147	147	
03	380616	99949		RT	K1	Q	50,2	50,2	75,4	29	144	144	
04	380616	99946		RT	K1	Q	49,6	49,6	76,4	30	140	141	

C30-C39 Hardness test

B14	B07.2	B07.1	B05	C01	C02/	C03	C30	C31	C32
Item No.	Heat No.	Rollplate/ Test No.	Reference (heat) treatment	C01	C01	Temp. GR.F	Method of test	Individual values	Mean value
01	380614	01001		K1	O	RT	RT HBW 10/3000	147	147
01	380617	99936		K1	O	RT	RT HBW 10/3000	141	141
02	380614	01148		K1	O	RT	RT HBW 10/3000	144	144
02	380617	99931		K1	O	RT	RT HBW 10/3000	142	140

A04	Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.	AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department	AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department	Date 17.01.13	PP 1
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QM-System: Certification as per ISO 9001



Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10	Advice of dispatch No / Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		442736-16.01.13	380151-002	3/...
	MATERIAL TEST REPORT (MTR)				
A05	Established inspecting body	A06	Purchaser	A07.1	No. ED10609-J1010-ER
	DH		EDMONTON STEEL, EDMON		
		A07.2	Final receiver		
			EDMONTON STEEL, EDMON		
B02/	Steel design.	SA516-70		S01	Product
					HEAVY PLATES
B03	Any suppl. requirements	ASME - IIA: 2010+ADDENDA - 2011A			
		DIL-HUE-2:R33-2012-10-01			

C30-C39 Hardness test

B14 Item No.	B07.2 Heat No.	B07.1 Rol.plate/ Test No.	B05 Reference (heat) treatment	C01	C02/C01	C03 Temp. GR.F	C30 Method of test	C35 Individual values	C31 Individual values	C46 Energy	C45 Individual values AV=FT.LBF	C43 Mean value
03	380616	99947		K1	O	RT	HBW 10/3000	HB 145	HB 144	146	144	145
03	380616	99949		K1	O	RT	HBW 10/3000	HB 143	HB 143	140	143	142
04	380616	99946		K1	O	RT	HBW 10/3000	HB 142	HB 142	142	142	142

C40-C49 Impact test

B14 Item No.	B07.2 Heat No.	B07.1 Rol.plate/ Test No.	B05 Reference (heat) treatment	C01	C02/ C01	C03 Temp. GR.F	C41 Width of test piece	C40 Type of test piece	C44 Testing method	C46 Energy	C45 Individual values AV=FT.LBF	C43 Mean value
01	380614	01001		K1	LV	-51		CHP-V	CHP-V	122	122	123
01	380617	99936		K1	LV	-51		CHP-V	CHP-V	189	189	166
02	380614	01148		K1	LV	-51		CHP-V	CHP-V	105	105	101
02	380617	99931		K1	LV	-51		CHP-V	CHP-V	130	130	146
03	380616	99947		K1	LV	-51		CHP-V	CHP-V	97	97	96
03	380616	99949		K1	LV	-51		CHP-V	CHP-V	119	119	114
04	380616	99946		K1	LV	-51		CHP-V	CHP-V	96	96	120

C70-C99 Chemical composition % - Heat analysis

B07.2 Heat	C70	C	SI	MN	P	S	N	CU	MO	NI	CR	V	NB	SN	TI
380614	Y	0,184	0,368	1,19	0,011	0,0008	0,0062	0,031	0,025	0,056	0,039	0,001	0,000	0,000	0,003
380616	Y	0,187	0,375	1,19	0,009	0,0014	0,0055	0,026	0,015	0,041	0,040	0,001	0,000	0,000	0,003
380617	Y	0,176	0,374	1,18	0,009	0,0006	0,0060	0,022	0,024	0,050	0,070	0,001	0,000	0,000	0,003

A04

Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

B. Baldauf

B. BALDAUF
Test House Manager

Inspector's stamp

Date 17.01.13

AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

A01

PP I

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)



A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10	Advice of dispatch No./ Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		442736-16.01.13	380161-002	4/...
MATERIAL TEST REPORT (MTR)					
A05	Established inspecting body DH	A06	Purchaser EDMONTON STEEL, EDMON	A07.1	No. ED10609-J1010-ER
			Final receiver EDMONTON STEEL, EDMON	A07.2	No. SA20-S5
B02/	Steel design. SA516-70				
B03	Any suppl. ASME-IIA: 2010+ADDENDA-2011A				
	requirements DIL-HUE-2: R33-2012-10-01				

C70-C99 Chemical composition % - Heat analysis

B07.2	Heat	C70	B	CA	AL-T															
380614	Y	0,0002	0,0016	0,034																
380616	Y	0,0003	0,0018	0,038																
380617	Y	0,0002	0,0015	0,035																
C94 Heat analysis Carbon equivalent / Alloying restrictions																				
B07.2	Heat																			
380614		FO-02=	0,40	FO-51=	0,001	FO-55=	0,15	FO-78=	0,06	FO-91=	6,5									
380616		FO-02=	0,40	FO-51=	0,001	FO-55=	0,12	FO-78=	0,06	FO-91=	6,4									
380617		FO-02=	0,40	FO-51=	0,001	FO-55=	0,17	FO-78=	0,09	FO-91=	6,7									

C95 Ladle treatment

ITEM NO.: 01-05
HEAT OF THE INDICATED ITEM: VACUUM DEGASSED / SULPHIDE SHAPE CONTROL

C95 Further information about ladle treatment

ITEM NO.: 01-05
CALCIUM TREATED

C70-C99 Chemical composition % - Product analysis

B07.2	Heat	B07.1	Test No.	C	SI	MN	P	S	N	CU	MO	NI	CR	V	NB	SN	TI
380614	01001	K1	0,185	0,381	1,18	0,010	0,0011	0,0059	0,028	0,021	0,039	0,001	0,000	0,000	0,000	0,000	0,003
380614	01148	K1	0,180	0,351	1,16	0,010	0,0009	0,0061	0,029	0,023	0,037	0,001	0,000	0,000	0,000	0,000	0,003
380616	99940	K1	0,184	0,371	1,17	0,009	0,0020	0,0058	0,025	0,012	0,059	0,000	0,000	0,000	0,000	0,000	0,003
380616	99952	K1	0,184	0,374	1,18	0,009	0,0017	0,0058	0,026	0,013	0,041	0,000	0,000	0,000	0,000	0,000	0,003
380616	99992	K1	0,183	0,378	1,17	0,009	0,0015	0,0054	0,025	0,014	0,042	0,001	0,000	0,000	0,000	0,000	0,003
380617	99931	K1	0,172	0,361	1,15	0,008	0,0005	0,0059	0,020	0,023	0,049	0,070	0,000	0,000	0,000	0,000	0,003

A04 Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.



B. BALDAUF
Test House Manager



AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

Inspector's stamp

Date 17.01.13

pp 1

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)



A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10	Advice of dispatch No./ Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991		442736-16.01.13	380161-002	5 /
	MATERIAL TEST REPORT (MTR)				
A05	Established inspecting body	A06	Purchaser	A07.1	No.
DH		EDMONTON STEEL, EDMON		ED10609-J1010-ER	
	Final receiver	EDMONTON STEEL, EDMON	A07.2	No.	
B02/	Steel design.	SA516-70			
B03	Any suppl. requirements	ASME-IIA:2010+ADDENDA-2011A DIL-HUE-2:R33-2012-10-01			

C70-C99 Chemical composition % - Product analysis

Heat	Test No.	C	SI	MN	P	S	N	CU	MO	NI	CR	V	NB	SN	TI
B07.2	B07.1	C01													
380617	99936	K1	0,187	0,362	1,15	0,008	0,0010	0,0057	0,021	0,047	0,066	0,001	0,000	0,000	0,003
B07.2	B07.1	C01													
380614	01001	K1	0,0002	0,0016	0,033										
380614	01148	K1	0,0002	0,0018	0,033										
380616	99940	K1	0,0001	0,0018	0,037										
380616	99952	K1	0,0002	0,0019	0,036										
380616	99992	K1	0,0001	0,0019	0,035										
380617	99931	K1	0,0002	0,0014	0,032										
380617	99936	K1	0,0003	0,0015	0,032										

C94 Product analysis Carbon equivalent / Alloying restrictions

Heat	Test No.	FO-02=	FO-51=	FO-55=
B07.2	B07.1	C01		
380614	01001	K1	FO-02= 0,40	FO-51= 0,14
380614	01148	K1	FO-02= 0,39	FO-51= 0,14
380616	99940	K1	FO-02= 0,39	FO-51= 0,11
380616	99952	K1	FO-02= 0,40	FO-51= 0,12
380616	99992	K1	FO-02= 0,39	FO-51= 0,12
380617	99931	K1	FO-02= 0,39	FO-51= 0,16
380617	99936	K1	FO-02= 0,40	FO-51= 0,16

A04



Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

B. Baldauf

B. BALDAUF
Test House Manager



Inspector's stamp

AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
Inspection department

Date 17.01.13

PP 1

A01

QM-System: Certification as per ISO 9001

Erläuterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)



A02	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR)	A10 Advice of dispatch/No./ Date of dispatch 442736-16.01.13	A08/ Manufacturer's order/ A03 Certificate No. 380161-002	Sheet 6
A05	Established inspecting body DH	A06 Purchaser EDMONTON STEEL, EDMON	A07.1 No. ED10609-J1010-ER	B01 Product HEAVY PLATES
B02/	Steel design. SA516-70	Final receiver EDMONTON STEEL, EDMON	A07.2 No. SA20-S5	
B03	Any suppl. requirements ASME- IIA: 2010+ADDENDA-2011A DIL-HUE-2: R33-2012-10-01			

C94 Carbon equivalent formula / Alloying restrictions

- FO-02 = $C + (Mn/6) + (CR+MO+V) / 5 + (NI+CU) / 15$
- FO-51 = V +NB
- FO-55 = CU+MO+NI+CR
- FO-78 = CR+MO
- FO-91 = MN/C

D01 Marking and identification, surface appearance, shape and dimensional properties

ITEM NO.: 01-05

EXAMINATION OF MARKING, SURFACE, SHAPE AND DIMENSIONS: THE RESULTS MEET THE REQUIREMENTS.

- SURFACE AS PER ASME-SA20
- THICKNESS AS PER ASME-SA20
- LENGTH AND WIDTH AS PER ASME-SA20
- FLATNESS AS PER 1/2-ASME-SA20



A04



Z01Z02Z03 We hereby certify that the above mentioned materials have been delivered in accordance with the terms of order.

B. Baldauf



AG der Dillinger Hüttenwerke
Postfach 1580, D-66748 Dillingen/Saar
inspection department

A01

Manufacturer's mark

B. BALDAUF
Test House Manager

Inspector's stamp

Date 17.01.13

PP 1



23815 Cortarova (Lecco)
 ITALY
 Largo De Vecchi 11
 P.o. box 11
 Tel. 0341.88341
 Fax 0341.881488 - 983487
 E-mail: info.uberti@melesi.it

CERTIFICATO DI COLLAUDO
WORKS CERTIFICATE
CERTIFICAT D'ESSAIS

N. 81822 DATA / DATE 11/06/12 SHEET / PAGE 1/1

ORDINE / ORDER / C.D.E.

DATA / DATE 16/11/11 COMMESSA 47615

FLANGE E FORGIATI

N. REF.	ITEM	N / QUANTITY	DESCRIZIONE / DESCRIPTION / DÉSIGNATION	NOTE
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LB881	40	50	A350LP2 24" DL 150 RF	125-250 RMS
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N.	MATERIALE / MATERIAL / MATÉRIEL	HEAT / COULEE	ACCIAIERIA / STEEL PLANT / ACIÈRIE	ORIGIN. CERT. / CERT. D'ORIGINE
----	---------------------------------	---------------	------------------------------------	---------------------------------

LB881	ASTM A350LP2 CL1 07	50803	EBB ELLWOOD STEEL BELGIUM	A.00802
-------	---------------------	-------	---------------------------	---------

N. REF.	ANALISI CHIMICA / CHEMICAL ANALYSIS / COMPOSITION CHIMIQUE													
	C	Mn	Si	P	S	Cr	Ni	Mo	Nb	V	Cu	Al	Sn	* C.Eq

LB881Lad	0,163	1,158	0,284	0,010	0,006	0,153	0,091	0,035	0,003	0,006	0,127	0,040	0,011	0,409
----------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

LB881Check	0,165	1,158	0,290	0,015	0,007	0,158	0,095	0,036	0,004	0,007	0,128	0,045	0,012	0,413
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N. REF.	PROVE MECCANICHE / MECHANICAL TESTS / ESSAIS MÉCANIQUES										RESILLENZA / IMPACT TEST / RESILIENCE		HARDNESS / DURETÉ
	σ _{TS}	σ _{0.2}	EL	RS-YIELD LIMIT	R-TENSILE RUPTURE	A % ELONG. ALLOWANCE	G % REDUCT. STRAIN	MEMO / AVERAGE ENERGY	MEMO ENERGY	TPO TYPE	TEMP.	Brinell	

LB881	12,70	126,65	50,80	313,70	521,60	30,00	58,00	44	41	50	KV	- 60	154/158
-------	-------	--------	-------	--------	--------	-------	-------	----	----	----	----	------	---------

N. REF.	TRATTAMENTI TERMICI / HEAT TREATMENTS / TRAITEMENTS THERMIQUES	
---------	--	--

LB881 Normalizzazione/Normalization At 900°C

Acc. DIN50049 3.1B/SN10204 3.1 Surface and dimensional check according to relevant standard.
 Steel made by electric furnace fully killed fine grain practice. (*)CEq. by long formula.
 Material acc. to NACE MR 01-75.
 Material acc. to ASME SA350LP2 CL1 ASME section II part A ed. 2010 pl us addenda.

2-8440-01
 P0-133415

CONFORMS TO SA 350LP2CL1
 YEAR 2010ED, 2nd ADD
 JOB # 2013-8440-01
 ITEM # #20
 SIGNED BY [Signature] SEP 26 2010

ENTO DILLS PROVE / TEST ISSUE / RESULT DES ESSAIS: FAVOREVOLA SATISFACTORY SATISFAISANT

TRADE MARK	P. OFF. A. MELESI & C.	COLLAUDATORE / INSPECTOR / INSPECTEUR	ENTE COLLAUDATORE / INSPECTION AGENCY / AUTORITÉ DE RECVETTE
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[Signature]

Uberti p.i. Lino

ENTE COLLAUDATORE / INSPECTION AGENCY / AUTORITÉ DE RECVETTE

SAN ENG STEEL FORGING CO LTD
 311, Jen Hein Road, Jen Wu District
 Kaohsiung, Taiwan, R.O.C.
 TEL:07-3724248 ; FAX:07-3712823
 URL: www.saneng.com.tw
 e-mail: saneng@ksis.seed.net.tw



MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50049/3.1.B)
 Customer: SEYBOLD INTERNATIONAL CORP.
 Order No.: 7006135(3)-VL

Certificate No.: SE-6135C
 Date: 01/04/2013
 Page: 4 OF 5

PRODUCT		MATERIAL SPECIFICATIONS		DIMENSIONAL SPECIFICATIONS													
FORGED CARBON STEEL FLANGES		ASTM A350 LF2-11 CL.1/ASME SA350 LF2-11 CL.1		ASME B16.5-09 CSA Z245.12													
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)											CE(*)		
				C	SI	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb		N	
31	24589-LF2	300 WNRFS160 3" LF2	15 PCE	0.208	0.300	0.600	0.014	0.040	0.400	0.120	0.080	0.020	-	-	-	-	0.386
32	22186-LF2	300 WNRFS160 4" LF2	169 PCE	0.210	0.200	1.150	0.017	0.005	0.010	0.005	0.005	0.001	0.005	0.004	0.005	0.005	0.406
33	22186-LF2	300 WNRFS160 4" LF2	6 PCE	0.200	0.210	1.100	0.011	0.003	0.100	0.050	0.009	0.001	0.008	0.008	0.001	0.008	0.408
34	24626-LF2	600 WNRFS160 4" LF2	20 PCE	0.220	0.240	1.180	0.017	0.005	0.008	0.030	0.010	0.001	0.007	0.007	0.001	0.007	0.427
35	37560-LF2	300 WNRFS160 4" LF2	20 PCE	0.220	0.210	1.100	0.011	0.003	0.100	0.060	0.010	0.009	0.001	0.008	0.001	0.008	0.408
36	22118-LF2	300 BLRF 4" LF2	15 PCE	0.220	0.250	1.150	0.015	0.004	0.007	0.010	0.003	0.004	0.001	0.005	0.001	0.005	0.416
37	24578-LF2	150 WNRFS160 4" LF2	20 PCE	0.210	0.210	1.140	0.017	0.004	0.007	0.020	0.010	0.002	0.003	0.001	0.008	0.008	0.406
38	24590-LF2	300 WNRFS160 4" LF2	20 PCE	0.220	0.200	1.170	0.012	0.002	0.008	0.010	0.010	0.002	0.003	0.001	0.006	0.006	0.419
39	22172-LF2	150 WNRFS160 6" LF2	33 PCE	0.210	0.210	1.110	0.013	0.006	0.160	0.050	0.060	0.013	0.009	0.009	0.005	0.005	0.424
40	22172-LF2	150 WNRFS160 6" LF2	27 PCE	0.200	0.220	1.100	0.012	0.004	0.150	0.080	0.060	0.012	0.009	0.001	0.011	0.011	0.418

Item No.	Heat No.	T.S.(*) (MPA)		Y.S.(*) (MPA)	E.L.(%)	Hardness (HB)	R.A.(%)	Impact Test			Material Supplier	REMARKS
		Min	Max					Temp: -46°C	Minimum: 20.0 Joule	1		
31	931274	609.9	485.0	325.6	34.8	154/152	65.0	27.0	26.0	37.0	NTMK	890°Cx3HRS CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15196.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A. CONFORMS WITH Z245.12 CAT II GR248 SOUR SERVICE-09 AND GR290 CAT II M45C SS(FOR USE AS WELDING NECK AND BLIND FLANGES ONLY) TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN ORIENTATION: TRANSVERSE IMPACT TEST TEMP.: -46°C
32	4554034	520.0	465.0	362.0	34.0	153/151	69.5	72.0	39.0	45.0	ACOMINAS	
33	80399	539.4	485.0	378.5	36.6	155/151	71.3	30.0	61.0	101.0	WEI CHIH STEEL	
34	4009477	539.4	485.0	358.0	31.0	154/151	68.8	86.0	87.0	99.0	ACOMINAS	
35	80399	539.4	485.0	378.5	36.6	155/151	71.3	30.0	81.0	101.0	WEI CHIH STEEL	
36	4443573	517.8	485.0	363.8	34.6	152/150	71.3	87.0	87.0	44.0	ACOMINAS	
37	4417903	543.3	485.0	408.0	34.0	157/155	75.4	70.0	84.0	80.0	ACOMINAS	
38	4390813	521.7	485.0	357.9	34.0	154/151	68.6	50.0	92.0	104.0	ACOMINAS	
39	83623	537.4	485.0	399.1	34.4	155/153	68.6	90.0	84.0	83.0	WEI CHIH STEEL	
40	82004	531.5	485.0	387.4	32.6	158/152	70.4	88.0	88.0	64.0	WEI CHIH STEEL	



*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.
 *2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S,T=Solution Treated, S,R=Stress Relieved
 A,C=Air Cooled, F,C=Furnace Cooled, W,C=Water Cooled, O,C=Oil Cooled.
 *3: C.E. Value = C + (Mn/6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

CONFORMS TO SA 350 LF2-11
 YEAR 1998-2013
 JOB # 2013-8440-01
 ITEM # 28
 SIGNED BY [Signature] SEP 26 2013

4-8440-01
 Po-133A15

Manager of Quality Assurance Dept

SCOT INDUSTRIES, INC.

3020 FORON RD.
1121 HARRISON AV PMB 293
CENTRALIA WA 98531

Material Test Report

Manufactured by:
Jindal Saw LTD
A-59-60, Malegaon MIDC, Sindr

Customer Order No: 133352125-001

Scot Order No: 789849.03

INDIA, AICO # P ACOA IN

ALCO GAS & OIL PRODUCTION EQUIP
5203 - 75 STREET

Material Supplier: 99312.00
Part Number: 6" SCH XH SA333 G6 HONED
Scot Rec. No: 10137004

EDMONTON AB T6E 5S5

Heat Number: 2201333	Grade:	Dimensions: 6.625" OD 5.753" / 5.769" ID X	CONFORMS TO SA 353-6
Scot Spec: MS-	ASTM Spec: A106-B/C / A333-3	Other Spec: API 5L X42	VS19 2016 ED 2011 ADD
Description: HFS NORMALIZED STEEL TUBING *MERCURY FREE *NO WELD REPAIR		JOB #: 2013-8446-01	
		ITEM #: 29, 30	
		SIGNED BY: [Signature] 23 APR 2014	

Meter Run Stock
PO - 133352

Chemical Analysis		C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	CE
	Yield Strength (PSI)	0.20	1.13	0.012	0.006	0.29	0.005	0.008	0.009	0.003	0.001	0.388
	Tensile Strength (PSI)											
	Elongation: (%) in 2" G.L.											
	ROA: (%)											
	Hardness											

Mechanical Test Results

49407	74194	39.96	158 (BHN)
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Charpy Impact Energy

Temp	Energy (Joules)			Avg
	1	2	3	
-45 C	58.00	84.00	90.00	77.33

Orientation - Longitudinal

Temp	Shear Area (%)			Avg
	1	2	3	

Eddy Current
OK

[Signature]

Quality Assurance

10/21/13

The reported analysis and test results are certified to be the same as furnished to us by our supplier. All records and test reports covering the above materials are on file at Scot Industries and may be examined by your personnel or by any agent authorized by you.



INSPECTION CERTIFICATE

Customer : SEAMLESS LOW TEMPERATURE CARBON (MILL TEST)
 Product : STEEL BUTT WELD FITTINGS CHUP HSIN ENTERPRISE CO., LTD.
 Spec : ASME SA/ ASTM A420 WPL6-10 17, TUNG LI ROAD HSIAO KANG,
 [DIN 50049/3.1B]EN10204 3.1/NACE MR KAOSHIUNG, TAIWAN, R.O.C.
 0175-03 TEL:(07)831-9157 FAX:(07)821-7500, 831-2942
 Certificate No : 00100114-0202
 Order No : E000256
 Date : 2013/04/17

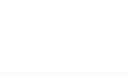
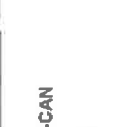
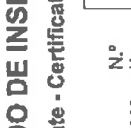
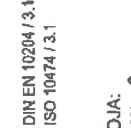
Starting Material		Specification for Inspection		Visual Inspection		Dimensional Inspection											
ASTM A333 GR-6		ASME B16.9-2010		GOOD		GOOD											
Item	Description	Quantity	Heat ID	Heat No	Raw Certificate No.	NDE	Impact Test										
							Test Temp °C	Charpy V-Notch Impact Value J	Ave.								
23	90 E/S/R SMLS WPL6 STD	25	768A	J7L1768	SUMITOMO BYYM2454		-45	10 X 5.0 X 55	48	80	68	65.33					
25	RED TEE SMLS WPL6 STD	50	0350	J8L0350	SUMITOMO BYYK3263		-45	10 X 5.0 X 55	30	32	28	30					
27	RED TEE SMLS WPL6 XS	50	229B	J7L8229	SUMITOMO BYYK2508		-45	10 X 7.5 X 55	112	118	122	117.33					
28	90 E/S/R SMLS WPL6 STD	20	5673	J8L5673	SUMITOMO BYYK3261		-45	10 X 5.0 X 55	46	78	54	59.33					
29	45 E/L/R SMLS WPL6 XS	30	B243	J0L6243	SUMITOMO BYYM8307		-45	10 X 10 X 55	58	62	60	60					
Specification	Chemical Composition%					Hardness Test	Heat Treatment	REMARK									
	C	Si	Mn	P	S				CU	NI	CR	MO	V	Nb	C.E	Y.S	T.S
Min:	15	40	135	35	40	40	40	30	12	80	20	50	35000	60000	30	197	
Max:	30	27	67	15	7	5	3	3	1	0	0	30	47600	68000	41	138	
	19	27	100	11	4	9	4	4	2	0	0	35	52200	77600	40	138	
	18	27	52	20	9	2	1	3	2	0	0	26	42500	65400	41	135	
	17	26	81	11	6	10	4	3	1	0	0	25	40400	62600	40	132	
	12	19	81	11	6	10	4	3	1	0	0	30	46400	68900	41	138	
	13	24	97	8	2	7	3	4	1	0	0	30	46400	68900	41	138	
Normalized: 910°C x 0.5HR AC								CONFORMS TO SA 420WPL6		YEAR 2013		JOB # 2013-8440-01		ITEM # #31		SIGNED BY Air SEP 26 2013	

2-8440-01
 Po-133415
 CONFORMS TO SA 420WPL6
 YEAR 2013
 JOB # 2013-8440-01
 ITEM # #31
 SIGNED BY Air SEP 26 2013

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

L.S. Tsai
 Chief of Quality Assurance Section



Bº Zubillaga, 3 - Apto. 14
 20560 ORATI (Gipuzkoa) SPAIN
 Tel.: 34 - 943 780552
 Fax: 34 - 943 781808
 E-mail: ulma@ulmapiping.com
Packing List: 96872

Certified acc: PED 97723/EC-AD2000-W0
 by TÜV Rheinland
 N° 01 202 EQ 02 7443
 MARCA DEL FABRICANTE
 Mark of factory
 Marque du fabricant

SGI 1922164
 SGI 6002234
 SGI 6002234
 SGI 1922164

DIN EN 10204 / 3.1
 ISO 10074 / 3.1
 HOJA: 2
 Page: 2

DE
 of. - de 30/08/2012
 MARCA DEL FABRICANTE
 Mark of factory
 Marque du fabricant

DEPARTAMENTO QUALITY ASSURANCE
 Section
 Département

CERTIFICADO DE INSPECCION
 Inspection Certificate - Certificat de Réception

FECHA: 19/10/2012
 Date: 19/10/2012
 N.º No.
 151903

PRODUCTO
 Article - Produit
 FLANGES
 ASME B16.5-09

MATERIAL CORRESPONDIENTE
 ASTM A350LF2CL1-11
 MODO DE FUSION (*)
 Steel Making - Elaboration de l'acier
 E = Elec. Y = Oxígeno básico

PRODUCTO
 Article - Produit
 FLANGES
 ASME B16.5-09

MATERIAL CORRESPONDIENTE
 ASTM A350LF2CL1-11
 MODO DE FUSION (*)
 Steel Making - Elaboration de l'acier
 E = Elec. Y = Oxígeno básico

SU PEDIDO N.º
 Your Order No.
 Votre Cda. N.º
 45001569

NACE MR0175/ISO15156-2-09 & MR0103-10
 Clause 7.2.1.4, Annex A.2 and SSC Region 3.
 CSA-Z245.12-09 GR249 CAT II -SS

DESCRIPCION
 Description
 Description

LOTE
 2782
 2602
 1752
 2602
 2582
 2402
 2552
 2502
 2532

DESCRIPCION
 Description
 Description

DESCRIPCION
 Description
 Description

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	LOTE	OBSERVACIONES Remarks Observations (*)	DOLADA N.º Heat No. N.º Coudée		LIMITE ELAST Y Strength 0.2 % N/mm²		ALARGAMA Elongation Lo. 4 g %		ESTRICCION Red. Area Striction %		RESILIENCIA Impact test Résilience Joules		CHARPY V 10x10mm MEDIA Average Moyenne °C		DUREZA Hardness Dureté HBW
					233V2	452V2	532	523	27.90	26.80	57.60	47	53	52	55		
5 24550	70	WN 2 1500LB XS/80 RF A350LF2	2782	NE	233V2	452V2	532	523	27.90	26.80	57.60	47	53	52	55	-50	159 164
10 22200	105	WN 3 600LB XS/80 RF A350LF2	2602	NE	452V2	233V2	516	307	26.80	34.20	55.30	65	63	61	63	-50	154 156
13 24573	24	WN 3 800LB XS/80 RF A350LF2	1752	NE	417V2	417V2	528	325	25.60	25.60	54.00	50	63	58	57	-50	154 164
16 24625	17	WN 3 600LB XGS RF A350LF2	2602	NE	444V2	444V2	502	284	34.00	34.00	66.40	47	45	43	45	-50	166 161
21 22202	41	WN 4 600LB XS/80 RF A350LF2	2582	NE	447V2	447V2	513	305	30.80	30.80	61.40	56	54	53	55	-50	147 155
21 22202	31	WN 4 600LB XS/80 RF A350LF2	2402	NE	421V2	421V2	519	315	29.40	29.40	57.30	57	57	52	55	-50	151 156
23 22170	196	WN 4 150LB XS/80 RF A350LF2	2552	NE	455V2	455V2	529	317	30.20	30.20	60.70	59	60	60	59	-50	148 152
34 22188	36	WN 6 300LB STD40 RF A350LF2	2502	NE	447V2	447V2	515	307	30.00	30.00	60.40	58	57	56	57	-50	151 157
37 22119	8	BLIND 6 300LB RF A350LF2	2532	NE	447V2	447V2	515	307	30.00	30.00	60.40	58	57	56	57	-50	151 156

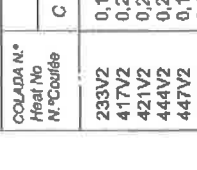
COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE														
C %	SI %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	N %	CEq %
0.195	0.220	1.090	0.021	0.006	0.050	0.100	0.025	0.000	0.002	0.280	0.020	0.000	0.000	0.417
0.207	0.193	0.930	0.012	0.003	0.070	0.140	0.032	0.000	0.004	0.242	0.023	0.000	0.000	0.409
0.210	0.240	0.880	0.011	0.002	0.170	0.100	0.040	0.003	0.003	0.240	0.035	0.000	0.000	0.422
0.200	0.240	0.860	0.008	0.006	0.230	0.100	0.060	0.001	0.001	0.250	0.044	0.000	0.000	0.425
0.189	0.204	0.940	0.011	0.004	0.270	0.120	0.028	0.000	0.004	0.270	0.024	0.000	0.000	0.432
0.187	0.183	0.920	0.011	0.004	0.080	0.120	0.027	0.000	0.004	0.229	0.021	0.000	0.000	0.386
0.178	0.256	1.135	0.014	0.003	0.130	0.110	0.027	0.000	0.007	0.280	0.020	0.000	0.000	0.424

CONFORMES TO SA 350LF2CL1
 YEAR 2012-2013
 JOB # 2013-8440-01
 ITEM # #33
 SIGNED BY [Signature] SEP 26 2013

OBSERVACIONES:
 Remarks
 Observations

TEST SPECIMEN: SIZE STANDARD (10X10), ORIENTATION TRANSVERSE.
 N NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR

EL INSPECTOR
 Works Inspector - L'Inspecteur
 ULMA FORJA S.COOP.
 Dpto. de Garantía de calidad
 Quality Assurance Dept.



ULMA FORJA S.COOP.
 Quality Assurance Dept.

- Las dimensiones y la condición superficial se hallaron satisfactorias.
 - Dimension and surface condition were found acceptable.
 - Les dimensions et états de surface sont satisfaisants.

- Los materiales citados cumplen las normas aplicables.
 - Manufacturing requirements are satisfied.
 - Les normes applicables sont respectées.

CONFORMES TO SA 350LF2CL1
 YEAR 2012-2013
 JOB # 2013-8440-01
 ITEM # #33
 SIGNED BY [Signature] SEP 26 2013

OBSERVACIONES:
 Remarks
 Observations

TEST SPECIMEN: SIZE STANDARD (10X10), ORIENTATION TRANSVERSE.
 N NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR

EL INSPECTOR
 Works Inspector - L'Inspecteur
 ULMA FORJA S.COOP.
 Dpto. de Garantía de calidad
 Quality Assurance Dept.



ULMA FORJA S.COOP.
 Quality Assurance Dept.

VL QA Approved

P145



1445300
1128129

ipsco koppel tubulars corporation

TUBE TEST REPORT

Page 1 of 2

ORDER: T13629 005	HEAT: 461529	P.O.: 1964768-OR-2100	PART NO.
SOLD TO: CE FRANKLIN P.O. BOX 6776 STATION D CALGARY, ALBERTA T2P 2E8		SHIP TO: CE FRANKLIN LTD. RAIL SPUR 6585 EDMONTON TRANSFER EDMONTON, AB	
SPECIFICATION(S): ASME ASTM SA/A333-05 GR 1 & 6 CERTIFIED NACE MR0175 2003-12-15 & ✓ EN 10204 TYPE 3.1 JAN 2005			
GRADE: 1012 M	SIZE: 4.500 X 0.337 DRL	WPF: 15.00	QUALITY: SEAMLESS HOT FINISH

CONDITION (SPECIAL): NORMALIZE
TEST METHODS USED: ASTM E415

TEST RESULTS CONFORM TO THE STANDARDS AND SPECIFICATION LISTED ABOVE.

	C	Mn	Si	P	Si	Cr	Mo	Cu	Al	V	Ca	S
L	.11	.77	.003	.007	.29	.17	.13	.05	.25	.018	.003	.0004
SP	.11	.72	.006	.006	.27	.16	.12	.05	.24	.015	.001	.0009
P	.11	.73	.006	.006	.27	.16	.12	.05	.24	.016	.001	.0009

MATERIAL 100% MELTED AND MANUFACTURED IN THE USA.

Specimen ASTM#	Yield KSI	Tensile KSI	ELNG 2"	R/A	C.E.	Rockwell		Hydrotest
						ASTM B10	Avg	
1.000 * ST	48.0 48.4	87.0 88.7	44.0		.31		87 72 69 70 RB	3000 PSI 5 Sec Hold

NORMALIZED @ 1850 DEGREES F.
FOR APPROXIMATELY 1 HR. @ TEMP.
TENSILE TEST (S) - 1" STRIP LONGITUDINAL
FLAT (S) - SATISFACTORY
REVISED TO ADD SPEC REV DATE - 04/29/2008
REVISED TO REPORT LONGITUDINAL
CHARPY - 08/23/08

CONFORMS TO SA	333-6
YEAR	2010 ED 2011 ADD
JOB #	2013-8440-01
ITEM #	34
SIGNED BY	Wet 23 APR 2014

PS
4" x H
2014

Paul Hightberger

6/23/08
DATE QA MGR/PRIMARY OPERATIONS

MATERIAL WAS NOT EXPOSED TO MERCURY DURING PROCESSING.
NO WELDING OR WELD REPAIR PERFORMED ON THIS MATERIAL.
MATERIAL IS FREE OF HARMFUL RADIATION.

THIS CERTIFICATION MAY NOT BE REPRODUCED EXCEPT IN FULL.

IPSCO KOPPEL WORKS
P.O. BOX 780
BEAVER FALLS, PA 15010

IPSCO AMBRIDGE WORKS
P.O. BOX 410
AMBRIDGE, PA 15003

IPSCO BAYTOWN WORKS
2600 SPUR 55
BAYTOWN, TX 77520

ipsco koppel tubulars corporation

TUBE TEST REPORT

Page 2 of 2

ORDER: T13829	005	HEAT: 461529	P.O.: 1984769-OR-2100	PART NO.
SOLD TO: CE FRANKLIN P.O. BOX 6776 STATION D CALGARY, ALBERTA T2P 2E8			SHIP TO: CE FRANKLIN LTD. RAIL SPUR 8585 EDMONTON TRANSFER EDMONTON, AB	
SPECIFICATION(S): ASME ASTM SA/A333-05 GR 1 & 6 CERTIFIED NACE MR0175 2003-12-15 & EN 10204 TYPE 3.1 JAN 2005				
GRADE: 1012 M	SIZE: 4.500 X 0.337	DRL	WPF: 15.00	QUALITY: SEAMLESS HOT FINISH

CHARPY TEST RESULTS

ASTM E23

PC #	DIRECTION	SIZE	NOTCH TYPE	TEMP (F)	ENERGY (FT-LBS)	LATERAL EXPANSION (IN)	PERCENT FRACTURE
TK-1	LONGITUDINAL	7MM X 10MM	V	-50	76	0.091	90
TK-2					68	0.087	90
TK-3					82	0.093	90
AVG					75		


SAN ENG STEEL FORGING CO LTD
 311, Jen Hsin Road, Jen Wu District
 Kaohsiung, Taiwan, R.O.C.
 TEL: 07-3724249 ; FAX: 07-3712923
 URL: www.saneng.com.tw
 e-mail: seeng@sis.seeng.net.tw

MINIMUM REQUIREMENT CERTIFICATE

EN 10204-3.1 B(DIN50049/3.1.B)
Customer: YIP FITTINGS & FLANGES (CANADA)
Order No.: D000458

Certificate No.: SE102128
 Date: 03/11/2013
 Page: 1 OF 1

PRODUCT		DIMENSIONAL SPECIFICATIONS													
FORGED CARBON STEEL FLANGES		ASME B16.5-9 CSA Z245.12													
QUANTITY		CHEMICAL COMPOSITION (%)													
Item No.	CODE NO	DESCRIPTION	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N	SE(*)
1	160 WNRFD STD 3" LF2	280 PCEE	0.300	0.150	0.600	0.021	0.040	0.400	0.300	0.400	0.120	0.060	0.020	-	0.350
2	150 WNRFD XS 3" LF2	50 PCEE	0.180	0.210	1.180	0.021	0.007	0.007	0.020	0.010	0.004	0.004	0.001	0.005	0.380
3	100 WNRFD STD 8" LF2	50 PCEE	0.220	0.200	1.170	0.022	0.005	0.006	0.020	0.010	0.003	0.005	0.001	0.006	0.422
4	800 WNRFD X8 2" LF2	300 PCEE	0.220	0.220	1.180	0.016	0.006	0.007	0.020	0.020	0.005	0.005	0.001	0.007	0.424
5	300 WNRFD S160 2" LF2	100 PCEE	0.220	0.220	1.180	0.018	0.008	0.007	0.020	0.020	0.005	0.005	0.001	0.007	0.424
6	600 WNRFD S160 2" LF2	175 PCEE	0.220	0.220	1.180	0.016	0.008	0.007	0.020	0.020	0.005	0.005	0.001	0.007	0.424

Item No.	Heat No.	T.S.(*) (MPa)	Y.S.(*) (MPa)	EL.(%)	Hardness (HRC)	R.A.(%)	min. Test Temp: -46°C	Material Supplier	HEAT TREATMENT(*)	REMARKS
1	4523144	522.0	372.0	34.0	183/181	58.5	2	ACOMINAS	900°C/3HRS	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO 15156-2-08 CLAUSE 7.2.1.1 REGION 3 AND ANNEX A
2	4573144	522.0	372.0	34.0	153/151	69.5	3	ACOMINAS	93.0	CONFORMS WITH 2245.12 CAT II CR248 SOUR SERVICE-09 (FOR USE AS WELDING NECK AND BLIND FLANGES ONLY)
3	4935058	518.8	373.6	34.0	183/150	70.4	2	ACOMINAS	42.0	TEST SPECIMEN SIZE: 10X10
4	4603012	528.0	356.0	35.0	153/151	71.3	3	ACOMINAS	51.0	IMPACT TEST TEMP.: -46°C
5	4603012	529.0	356.0	34.0	153/151	71.3	2	ACOMINAS	90.0	
6	4603012	528.0	356.0	34.0	143/151	71.3	3	ACOMINAS	51.0	

*1: T.S. = Tensile Strength, Y.S. = Yield Strength, EL. = Elongation, R.A. = Reduction of Area.
 *2: N=Normalized, A=Annealed, O=Quenched, T=Tempered, S=Solution Treated, S.R.=Stress Relieved.
 A.C.=Air Cooled, F.C.=Furnace Cooled, W.C.=Water Cooled, O.C.=Oil Cooled.

*3: C.E. Value = C + (Mn/8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 16

We hereby certify that the material has been tested in accordance with the above specifications and also with the requirements called for by the above order.

CONFORMS TO SA 350LF2CL1
 YEAR 2010ED, 2011ADD
 JOB # 2013-8440-01
 ITEM # # 37
 SIGNED BY [Signature] SEP 26 2013
 Manager of Quality Assurance Dept.

2-8440-01
 80-133415
 HT#4573144



V&M FRANCE TUBERIE SAINT SAULVE SAINT SAULVE ZONE INDUSTRIELLE 59880 SAINT SAULVE	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT - INSPECTION CERTIFICATE 3.1 EN 10204 : 2004 No. : 3645Sv11 Page: 1 / 5 Date: 07.04.2011
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21715 stock

V&M FRANCE	V&M-Order-No. SC0484
Customer VAN LEEUWEN PIPE & TUBE (CANAD) 2875 - 64TH AVENUE EDMONTON, ALBERTA T6P 1R1	Suborder Order-No. VM2527
Orderer VALLOUREC TUBES CANADA INC. / BURLINGTON, ONTARIO L7L 6G4	Order-No. VM2527 Date 16.11.2010
	Order-No. 45001981
Description of the product	Hot finished seamless pipes for low-temperature service Sour service Ends bevelled, angle 30° (+5 / -0), root face 1.6 mm (± 0.8) Inside without rust protection Outside dry varnish ASTM A 333 - 10 ASTM A 999 - 04a ASME SA 333, Edition 2010 / ASME SA 999, Edition 2007 ASME Boiler and Pressure Vessel Code, Sect. II, Part. A, Edition 2010 Nace MR 0175 / ISO 15156-2:2003 / COR.1:2005 / EN ISO 15156-2:2003, Annex A.2.1.2 Nace Standard MR 0103-2005, Paragraph 2.1 CSA Z 245.1:2008 Grade 6 Grade 290 acc. to CSA Z 245.1, Cat. II . Carbon equivalent = max. 0.40 . Mn/C ratio min. 3:1

CONFORMS TO SA 333-6
 YEAR 2010 Ed 2011 A17
 JOB # 2013-0440-01
 ITEM # 38
 SIGNED BY [Signature] **123 APR 2014**

P418
 HT# 336565
 3" 80

(A13) V&M Item	(A09) Cust. Item	(B14) Item text	(B09) Dimensions	(B10) Single length
2		Item 1	NPS 3 SCH 80 OD-Tolerance + 0.031 in - 0.031 in WT-Tolerance + 15 % - 12.5 %	Random length from 38 to 44 Ft

APPROVED


V&M FRANCE TUBERIE SAINT SAULVE SAINT SAULVE ZONE INDUSTRIELLE 59860 SAINT SAULVE	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT - INSPECTION CERTIFICATE 3.1 EN 10204 : 2004 No. : 3845Sv11 Page: 2 / 5 Date: 07.04.2011
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(A13) V&M Item	(A09) Cust. Item	(B07.1) Heat	(B08) Quantity	(B11) Total length ft	(B13) Weight lb
2		336565	28	1.158,040	11.722

CONFORME TO SA 333-6

YEAR _____

JOB # _____

ITEM # _____

SIGNED BY _____

(C71)

HEAT CHEMICAL ANALYSIS

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.

(B07.1) Heat	(B15) Process	C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %	Cu %	Ti %
min	-	-	0,10	0,28	-	-	-	-	-	-	-
max	-	0,26	0,50	1,06	0,025	0,01	-	-	-	-	-
336565	Oxygen (BOF)	0,12	0,19	1,29	0,011	0,00	0,080	0,010	0,050	0,040	0,01

(B07.1) Heat	Nb/Cb %	V %	B %	2528 -	0014 %	1003 %	1099 %				
min	-	-	-	3,00	-	-	-				
max	0,11	0,11	0,001	-	1,00	0,40	0,40				
336565	0,01	0,01	0,000	10,75	0,19	0,36	0,31				

2528	MN/C
0014	CR+CU+MO+NI+V
1003	CE = C+MN/8+(CR+MO+V)/5+(NI+CU)/15
1099	C+F(MN/8+SI/24+CU/15+NI/20+((CR+MO+V+NB)/5)+5*B)

Heats fully killed

(B94)


HEAT TREATMENT

NORMALIZED CONDITION MIN 920°C (1688 F) COOLING AIR

TENSILE TEST RESULTS

Type (C10.1)	Tube strip specimen
Test temperature (C03)	Room temperature
Direction (C02)	longitudinal

SIMPLE LENGTH

V&M FRANCE TUBERIE SAINT SAULVE SAINT SAULVE ZONE INDUSTRIELLE 59680 SAINT SAULVE	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT - INSPECTION CERTIFICATE 3.1 EN 10204 : 2004
		No. : 3645Sv11 Page: 3 / 5 Date: 07.04.2011

TENSILE TEST RESULTS

(B07.1) Heat	(C00.1) Test Piece	(C10.2) Dimension	(C11) YS	(C12) TS	(C13.2) Elong.						
		ln / sq ln	R _{p0.2} psi	R _m psi	Z' %						
min		-	42000	60000	33,0						
max		-	-	-	-						
336565	01EC104	0,75x0,31 0,23	45265	66592	39,0						
336565	02EC104	0,76x0,32 0,25	42944	63980	38,0						

(C10.2) Dimension	Test piece dimensions Test piece area
----------------------	--

CONFORMS TO SA <u>333-6</u> YEAR _____ JOB # _____ ITEM # _____ SIGNED BY _____

IMPACT TEST RESULTS

Type (C40)	Charpy V
Test temperature (C03)	-49 °F
Direction (C02)	longitudinal

(B07.1) Heat	(C00.1) Test Piece	(C41) Dimension	(C42.1) Impact1	(C42.1) Impact2	(C42.1) Impact3	(C43.1) Mean	(C42.2) Shear fr1	(C42.2) Shear fr2	(C42.2) Shear fr3	(C43.2) Mean
		ln / sq ln	ft-lbf	ft-lbf	ft-lbf	ft-lbf	%	%	%	%
min		-	8,9	8,9	8,9	13,3	60	60	60	-
max		-	-	-	-	-	-	-	-	-
336565	01EC104	0,26x0,39 0,08	170,0	173,8	164,8	169,6	100	100	100	100
336565	02EC104	0,26x0,39 0,08	179,1	178,8	155,7	171,2	100	100	100	100

(C41) Dimension	Test piece dimensions Test piece area
--------------------	--

HARDNESS TEST RESULTS

Method of test (C30)	Brinell
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V&M FRANCE TUBERIE SAINT SAULVE SAINT SAULVE ZONE INDUSTRIELLE 58680 SAINT SAULVE	 VALLOUREC & MANNESMANN TUBES Vallourec Group	MATERIAL TEST REPORT - INSPECTION CERTIFICATE 3.1 EN 10204 : 2004 No. : 36455v11 Page: 4 / 5 Date: 07.04.2011
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HARDNESS TEST RESULTS

(B07.1) Heat	(C00.1) Test Piece	(C31.1) HB	(C31.1) HB	(C31.1) HB	(C32.1) Mean						
min		-	-	-	-						
max		200,0	200,0	200,0	-						
336566	01EC104	135,0	135,0	135,0	135,0						

(C50)

TECHNOLOGICAL AND OTHER TESTS ON SPECIMENS

Test	Conditions	Test rate	Result
Flattening test	Flattening test (specific)		Satisfactory


(D54)

OTHER TESTS ON PIPE

Test	Conditions	Test rate	Result
Hydrostatic test	3000 PSI 5 SEC	100% each lot	Satisfactory
Appearance & Dimensions	Aspect & Dimensions (spécifique)	100% each lot	Satisfactory
Eddy Current test	CSA Z245-1	100% each lot	Satisfactory

(A84, B05)


MARKING, IDENTIFICATION

2	Paint stenciled on one side		V & M FRANCE A/SA333 Z245.1-07 6 + 290 CAT II HF SCH 80 S LT 50 F 3 1/2 X 0.300 88.90 X 7.62 SS 20.7 MPA 3000 PSI HT HEAT NU MBER LENGTH LENGTH DATE OF MARKING VM2527 45001381
---	-----------------------------	---	---

(Z01)

The supplied products are in compliance with the requirements of the order

(A05, Z02, Z03)

Date	07.04.2011
Validated by	Inspection Representative Valérie DELACROIX 
☎	+ (33) 3 27 23 14 58
☎	+ (33) 3 27 23 15 25
@	valerie.delacroix@vmtubes.fr
Stamp	

V&M FRANCE TUBERIE SAINT SAULVE SAINT SAULVE ZONE INDUSTRIELLE 59880 SAINT SAULVE	 VALLOUREC & MANNESMANN TUBES Vallorec Group	MATERIAL TEST REPORT - INSPECTION CERTIFICATE 3.1 EN 10204 : 2004
No. : 3645Sv11 Page: 5 / 5 Date: 07.04.2011		

This testimonial and certification respectively may neither be modified nor used for other products. Offenses are regarded as falsification of documents and will be subject to criminal prosecution.



SAM ENG STEEL FORGING CO LTD
 311, Jen Hsin Road, Jen Wu District
 Keelung, Taiwan, R.O.C.
 TEL: 07-3724546; FAX: 07-3712925
 URL: www.sameng.com.tw
 e-mail: sameng@bbs.com.tw

MILL TEST CERTIFICATE

EN10204-3.1, BATHING 1 FN
 Customer:
 Order No.: Z088183-SCITE

Certificate No.: SESS1922
 Date: 08/20/2013
 Page: 1 OF 1

PRODUCT		MATERIAL SPECIFICATIONS		DIMENSIONAL SPECIFICATIONS														
FORGED CARBON STEEL FLANGES		ASTM A-360 LF2-11 CL.1/ASME SA-360 LF2-11 CL.1		ASME B18.5-09 CSA Z245.12														
Item No.	Code No	Description	Quantity	CHEMICAL COMPOSITION (%)											CE(%)			
			Min/Max	C	P	S	Si	Mn	Phosphorus	Al	Ca	Cl	Ni	Mo	V	Nb	N	
1	59120TZ	150 VANRF STD 3" LF2	300 PCE	0.220	0.019	0.008	0.230	1.170	0.005		0.007	0.010	0.010	0.000	0.006	0.001	0.007	0.420
2	75800S4	150 VANRF STD 2" LF2	50 PCE	0.220	0.019	0.008	0.230	1.170	0.005		0.007	0.010	0.010	0.000	0.006	0.001	0.007	0.420
3	75800S7	150 SORF 3" LF2	30 PCE	0.230	0.015	0.004	0.250	1.150	0.004		0.007	0.010	0.010	0.003	0.004	0.001	0.006	0.415
4	75800S9	150 SORF 6" LF2	28 PCE	0.230	0.015	0.008	0.200	1.160	0.008		0.008	0.008	0.010	0.005	0.006	0.001	0.007	0.428
5	75900S9	150 SORF 6" LF2	54 PCE	0.220	0.021	0.003	0.200	1.150	0.021		0.008	0.010	0.010	0.002	0.004	0.001	0.005	0.418
6	75900S3	150 THRF 3" LF2	90 PCE	0.210	0.019	0.008	0.220	1.150	0.019		0.008	0.010	0.010	0.002	0.004	0.001	0.007	0.405
Item No.	Heat No.	T.S.(*) (MPa)	Y.S.(*) (MPa)	EL.(%)	Hardness (HRC)	RA.(*) (%)	Impact Test (Joule)	Material Supplier	HEAT TREATMENT(2)									
		Min/Max					Min/Max		B IN									
1	4522159	527.0	364.0	33.5	157/70	70.4	98.0	ACOMINAS	890°C/3HRS									
2	4677188	527.0	364.0	33.8	157/70	70.4	98.0	ACOMINAS	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15155-2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A									
3	4413573	517.8	363.8	34.8	162/150	71.3	97.0	ACOMINAS	CONFORMS WITH Z245.12 CAT II GR248 80UR SERVICE-09 (FOR USE AS WELDING NECK AND BLIND FLANGES ONLY)									
4	4510629	541.3	395.2	33.2	165/163	68.6	54.0	ACOMINAS	TEST SPECIMEN SIZE: 10X10									
5	4553962	535.0	354.0	33.8	154/152	68.6	37.0	ACOMINAS	TEST SPECIMEN ORIENTATION: TRANSVERSE									
6	4443561	523.7	373.6	34.0	153/161	70.4	97.0	ACOMINAS	IMPACT TEST TEMP: -46°C									
Mn to C-RATIO SHALL BE GREATER THAN 3.0*																		



CONFORMS TO SA 3505FLCL1
 YEAR 2013-01-10-11 ADD
 JOB # 2013-8440-01
 ITEM # #40
 SIGNED BY J. SEP 26 2013

*1: T.S. = Tensile Strength, Y.S. = Yield Strength, EL. = Elongation, RA. = Reduction of Area.
 *2: N=Normalized, Av=Annealed, C=Quenched, T=Tempered, & T=Solution Treated, & R=Stress Relieved, A.C=Air Cooled, F.C=Fluoride Cooled, W.C=Water Cooled, O.C=Oil Cooled.
 *3: C.E. Value = C + (Mn/8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 16

We hereby certify that the material has been tested in accordance with the above specifications and also with the requirements called for by the above order.

HT # 4677159

Manager of Quality Assurance Dept

LA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 2475 Del/Dated 30.04.2013 Fattura / Invoice N. 1640 Del/Dated 29.04.2013
 DDT / Del Note N. 1911 Del/Dated 29.04.2013 Ns.Ord. / Our ref. N.
 SEYBOLD INTERNATIONAL CORP. Dest.: VAN LEEUWEN
 20 Holly Street, Suite 205 EDMONTON ALBERTA CA

Q.D. COL. / TEST SPECIMEN	COLATA / LUNG. mm	POS. ITEM	VS. ORDINE / YOUR REFERENCE	Q.TA' / DESCRIPTION	DESCRIZIONE / DESCRIPTION	DUREZZA / HARDNESS	CONTRAZIONE / REDUCTION OF AREA	ALLUNGAMENTO / ELONGATION	ROTTURA / TENSILE STRENGTH	SNERVAMENTO / YIELD POINT	FORMA / SHAPE	RESILIENZA / IMPACT TEST	SNERVAMENTO / YIELD POINT	VS. DIMENS. / VIS. & DIMENS.		
ECT. mm2	LENGTH mm	1	C%	S%	P%	Cr%	Ni%	Mo%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%	B%
126,60	50,80	1	331,0	526,0	58,0	58,0	31,0	58,0	526,0	331,0	1	46	63	69	68	0,00
I MATERIALE / MATERIAL STM A350 LF2 CL1/2 (LADLE) → 0,195 TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR 011a																
I MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO STM/ASME A 350/SA 350 M - 12 ASME CODE SECT. II, PART A, ED. 2010 ADD. :SA Z245.12 GRADE 248 CAT.II SOUR SERVICE																

Q.D. COL. / TEST SPECIMEN	COLATA / LUNG. mm	POS. ITEM	VS. ORDINE / YOUR REFERENCE	Q.TA' / DESCRIPTION	DESCRIZIONE / DESCRIPTION	DUREZZA / HARDNESS	CONTRAZIONE / REDUCTION OF AREA	ALLUNGAMENTO / ELONGATION	ROTTURA / TENSILE STRENGTH	SNERVAMENTO / YIELD POINT	FORMA / SHAPE	RESILIENZA / IMPACT TEST	SNERVAMENTO / YIELD POINT	VS. DIMENS. / VIS. & DIMENS.		
ECT. mm2	LENGTH mm	1 <th>C%</th> <th>S%</th> <th>P%</th> <th>Cr%</th> <th>Ni%</th> <th>Mo%</th> <th>Ti%</th> <th>Cu%</th> <th>V%</th> <th>Nb%</th> <th>N%</th> <th>Al%</th> <th>C.E.%</th> <th>B%</th>	C%	S%	P%	Cr%	Ni%	Mo%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%	B%
126,60	50,80	1	331,0	526,0	58,0	58,0	31,0	58,0	526,0	331,0	1	46	63	69	68	0,00
I MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO STM/ASME A 350/SA 350 M - 12 ASME CODE SECT. II, PART A, ED. 2010 ADD. :SA Z245.12 GRADE 248 CAT.II SOUR SERVICE																

Q.D. COL. / TEST SPECIMEN	COLATA / LUNG. mm	POS. ITEM	VS. ORDINE / YOUR REFERENCE	Q.TA' / DESCRIPTION	DESCRIZIONE / DESCRIPTION	DUREZZA / HARDNESS	CONTRAZIONE / REDUCTION OF AREA	ALLUNGAMENTO / ELONGATION	ROTTURA / TENSILE STRENGTH	SNERVAMENTO / YIELD POINT	FORMA / SHAPE	RESILIENZA / IMPACT TEST	SNERVAMENTO / YIELD POINT	VS. DIMENS. / VIS. & DIMENS.		
ECT. mm2	LENGTH mm	1 <th>C%</th> <th>S%</th> <th>P%</th> <th>Cr%</th> <th>Ni%</th> <th>Mo%</th> <th>Ti%</th> <th>Cu%</th> <th>V%</th> <th>Nb%</th> <th>N%</th> <th>Al%</th> <th>C.E.%</th> <th>B%</th>	C%	S%	P%	Cr%	Ni%	Mo%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%	B%
126,60	50,80	1	331,0	526,0	58,0	58,0	31,0	58,0	526,0	331,0	1	46	63	69	68	0,00
I MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO STM/ASME A 350/SA 350 M - 12 ASME CODE SECT. II, PART A, ED. 2010 ADD. :SA Z245.12 GRADE 248 CAT.II SOUR SERVICE																

Q.D. COL. / TEST SPECIMEN	COLATA / LUNG. mm	POS. ITEM	VS. ORDINE / YOUR REFERENCE	Q.TA' / DESCRIPTION	DESCRIZIONE / DESCRIPTION	DUREZZA / HARDNESS	CONTRAZIONE / REDUCTION OF AREA	ALLUNGAMENTO / ELONGATION	ROTTURA / TENSILE STRENGTH	SNERVAMENTO / YIELD POINT	FORMA / SHAPE	RESILIENZA / IMPACT TEST	SNERVAMENTO / YIELD POINT	VS. DIMENS. / VIS. & DIMENS.		
ECT. mm2	LENGTH mm	1 <th>C%</th> <th>S%</th> <th>P%</th> <th>Cr%</th> <th>Ni%</th> <th>Mo%</th> <th>Ti%</th> <th>Cu%</th> <th>V%</th> <th>Nb%</th> <th>N%</th> <th>Al%</th> <th>C.E.%</th> <th>B%</th>	C%	S%	P%	Cr%	Ni%	Mo%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%	B%
126,60	50,80	1	331,0	526,0	58,0	58,0	31,0	58,0	526,0	331,0	1	46	63	69	68	0,00
I MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO STM/ASME A 350/SA 350 M - 12 ASME CODE SECT. II, PART A, ED. 2010 ADD. :SA Z245.12 GRADE 248 CAT.II SOUR SERVICE																

CONFORMS TO SA 350LF2CL1
 YEAR 2013
 JOB # 2013-8440-01
 ITEM # 41
 SIGNED BY: [Signature] SEP 26 2013

4-8440-01
 10-133415



VL QA Approved

NOTE 100% MANUFACTURED IN ITALY	OFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY	MARCHIO PRODUZIONE / MANUFACTURER'S SYMBOL
NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE	[Signature]		[Logo]



INSPECTION CERTIFICATE

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

Number / Número: **680950**

Page / Página: **1 / 9**

Date / Día: **September 04, 2012**

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) INC - VAN LEE**

Customer's Order Item / Orden Cliente - Item: **45001527-00007**

Customer's Reference / Ref. del Cliente: **N/A**

Manufacturer's Works Order N° / Confirmación de Venta: **57553205**

Manufacturing Process / Proceso de Manufactura: **SEAMLESS HOT ROLLED**

Product Type / Tipo de Producto: **CARBON STEEL FOR LOW TEMPERATURE SERVICE**

Surface / Superficie: **INT BARE / EXT VARNISHED**

Standard or Specification / Normas o Especificaciones: **ASTM/AISME A53A333-10+CSA Z245.1-07 CAT II-SS+PSP00374+NACE MR0175/103+IPRO LP-006**

Steel Grade / Grado de acero: **116338 CAT II SS**

Ends / Extremos: **BEVELLED AT 30 DEG. ASTM**

Dimensions / Dimensiones: **2 3/8 X 0.218 INCH**

Schedule / Cédula: **080**

Quantity / Cantidad: **247 Pieces**

Nominal Weight / Peso Nominal: **5.02 LB/FT**

60.30 X 5.54 MM

SRL (SP)

4680.87 FT

7.48 KG/IM

TENSILE TEST / ENSAYO DE TENSION

Heat N° Cofada N°	Sample N° Muestra N°	Zone Zona	Lot N° Lote N°	Pipe N° Tubo N°	Specimen condition Condición de la probeta	Specimen dimensions Dimensiones de la probeta		Test Temp. ensayo	Y.S. Eul 0.50 %	U.T.S.		Elongation / Alargamiento		Obl.
						Size Tamaño	Area Sección			Req. Min:	Max: Max:	Lo Z"	Min. %	
23593	1926726	E1	25216	5	E AM	L	11.32	RT	436	501	50.8	30.0	33.8	
23553	1926738	E2	25216	25	E AM	L	19.13 x 5.54	RT	445	506	50.8	30.0	32.7	
23593	1926739	E1	25216	50	E AM	L	19.40 x 5.69	RT	441	507	50.8	30.0	33.7	
23593	1926740	E2	25216	75	E AM	L	19.51 x 5.86	RT	432	503	50.8	30.0	33.5	
23593	1926741	E1	25216	85	E AM	L	19.38 x 5.75	RT	433	504	50.8	30.0	34.7	
23593	1926742	E2	25217	104	E AM	L	18.73 x 5.28	RT	441	509	50.8	30.0	31.9	
23593	1926743	E1	25217	108	E AM	L	18.91 x 5.71	RT	434	506	50.8	30.0	35.2	
48635	1703601	E1	21331	5	E AM	L	19.43 x 5.70	RT	447	527	50.8	30.0	31.6	
48635	1703602	E2	21331	12	E AM	L	18.90 x 5.75	RT	437	511	50.8	30.0	31.6	
48635	1714008	E1	21507	5	E AM	L	19.59 x 5.50	RT	475	524	50.8	30.0	35.4	
48635	1714013	E2	21507	25	E AM	L	19.41 x 5.57	RT	439	510	50.8	30.0	30.8	
48635	1714016	E1	21507	45	E AM	L	19.41 x 5.44	RT	458	527	50.8	30.0	31.7	
48635	1714021	E2	21507	65	E AM	L	19.12 x 5.53	RT	452	522	50.8	30.0	32.8	
48635	1714022	E1	21507	85	E AM	L	19.14 x 5.62	RT	453	518	50.8	30.0	34.7	
48635	1724470	E1	21717	5	E AM	L	19.01 x 5.54	RT	422	509	50.8	30.0	31.0	
48635	1724488	E2	21717	25	E AM	L	18.68 x 5.62	RT	411	495	50.8	30.0	31.6	

Stock
Po-133980
CONFIRMS TO: 333-6
YEAR 2010 ED 2011 ADD
JOB # 2013-8440-011
ITEM # 42
SIGNED BY 4/12 123 APR 2014

AM: As manufactured / Según proceso de fabricación

La: Location of sample / Ubicación de la muestra

U.T.S: Ultimate tensile strength / Resistencia

E: Body / Cuerpo

Max: Maximum / Máximo

Req. Max: Required maximum / Máximo requerido

Y.S: Yield strength / Fluencia

E1 / E2: Ends of Sampling / Extremos de Muestra

Min: Minimum / Mínimo

Req: Required / Requerido

RT: Room temperature / Temperatura ambiente

This certificate is issued by a computerized system and it is void with electronic signatures. On the original certificate the red-mark green colored printing is stamped. In case the owner of the original certificate would release a copy of it, he must attach to conformity to the original one using blue carbon paper, otherwise the responsibility for any alteration or falsification will be subjected to the sign.

Este certificado de análisis mecánico es emitido por un sistema computarizado y es válido con firmas electrónicas. El original con firma impresa en verde y en color rojo se emite en el momento de la conformidad. En caso de que el poseedor del certificado entregue una copia, deberá garantizar la conformidad con el original haciéndolo responsable por cualquier uso ilegal o indebido. Cualquier alteración, falsificación o modificación será sancionada.

FOR03171



VI QA Approved



INSPECTION CERTIFICATE

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

Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE	Number / Número: 680950
Customer's Order / Orden de Cliente: 145001527-00007	Date / Día: September 04, 2012
Manufacturer's Works Order N° / Confirmación de Venta: 5753205	

3300 55 3 1 1
 PO BOX 200 155
 PRETORIA 2000 01
 SOUTH AFRICA
 TEL: +27 11 450 3311
 FAX: +27 11 450 3312

Product Type / Tipo de Producto: CARBON STEEL FOR LOW TEMPERATURE SERVICE	Surface / Superficie: INT BARE / EXT VARNISHED
Steel Grade / Grado de acero: 1.78359 CAT II SS	Ends / Extremos: BEVELLED AT 30 DEG. ASTM
Quantity / Cantidad: 247 Pcs/pz 4680.87 FT 1426.73 MTS	Nominal Weight / Peso Nominal: 5.02 LB/FT 7.48 KG/M
Schedule / Cedula: 080	Dimensions / Dimensiones: 2 3/8 X 0.218 INCH 60.30 X 5.54 MM

TENSILE TEST / ENSAYO DE TENSION

Obt: Obtained / Obtenido
 Ori: Orientation / Orientación
 S: Strip specimen / Muestra rectangular

CHEMICAL COMPOSITION / COMPOSICION QUIMICA

Heat N° Colado N°	Sample N° Muestra N°	Lot N° Lote N°	Pipe N° Tubo N°	Composition % / Composición %																													
				C	Mn	SI	Cr	Mo	Al	so	S	P	Ni	V	Cu	Al	Sn	As	Nb	Ti	Pb	Sb	Co	Zr	Bi	Ca	B	N	Mg	W	Ce 1 / Ce 2		
	Max																																
23583	1926738	25216	25	8	104	28	6	6	3	1	10	32	3	60	26	5	3	17	3	1	1	20	22	21	2	50	5	20	28	21			
23593	1926740	25216	25	8	104	25	6	6	—	1	11	34	3	70	25	7	3	18	4	2	2	7	20	22	2	53	3	20	28	21			
23593	1926741	25216	95	8	105	25	8	6	—	1	10	34	3	70	25	7	3	20	4	2	2	7	20	22	2	47	3	20	29	21			
23593	1926739	25216	50	8	104	25	6	6	—	1	10	34	3	70	25	7	3	18	4	2	2	7	20	22	2	53	3	20	28	21			
23593	1926743	25216	108	8	104	24	6	6	—	1	10	34	3	70	25	7	3	18	4	2	2	7	20	22	2	54	3	20	28	21			
23593	1926726	25216	5	8	103	25	6	6	—	1	11	34	3	60	24	7	3	18	3	2	2	7	20	22	2	53	3	20	28	21			
23593	1926742	25217	104	8	104	25	6	6	—	1	10	32	3	70	27	7	3	17	2	2	2	7	20	22	2	53	3	20	28	21			
48635	1703601	21331	5	10	105	25	5	4	2	—	8	39	3	122	19	7	4	21	2	1	1	7	20	22	7	2	44	4	20	30	24		
48635	1703602	21331	12	9	105	23	6	4	—	3	10	44	2	120	20	7	5	22	2	1	2	7	20	22	11	2	49	3	10	30	24		
48635	1714008	21507	5	8	105	25	5	4	—	1	9	40	2	119	21	8	4	20	2	1	2	7	20	22	7	2	43	5	10	29	23		

This certificate is issued by a computerized system and is valid with e-signatures. On the original certificate the trade-mark of Tenaris is always stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one taking full responsibility for its accuracy and validity. Any statement and/or falsification will be subject to the law.

Este certificado es emitido mediante sistema automatizado y es válido con firmas electrónicas. El certificado original siempre llevará el logotipo de Tenaris estampado. En caso de que el poseedor del certificado emitido otorgue una copia, deberá garantizar la conformidad con el original haciéndose responsable por cualquier uso falso o incorrecto. Cualquier afirmación y/o falsificación estará sujeta a la ley.

FOR05171



INSPECTION CERTIFICATE

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

Page / Página: 3 / 9

Number / Número: 680950
Date / Día: September 04, 2012

Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) INC - VAN LEE	Customer's Order / Orden Cliente / Item: 45001527-00007	Customer's Reference / Ref. del Cliente: N/A	Manufacturer's Works Order N°: Confirmation de Vente: 57632/05
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED	Product Type / Tipo de Producto: CARBON STEEL FOR LOW TEMPERATURE SERVICE	Surface / Superficie: INT BARE / EXT VARNISHED	
Standard / Especificación / Normas o Especificaciones: ASTM A533-10+CSA Z245-1-07 CATII-SS+PSP00374+NACE MR0175+103+IPRO LP-006	Steel Grade / Grado de acero: 1/6359 CAT II SS	Ends / Extremos: BEVELLEC AT 30 DEG. ASTM	
Dimensions / Dimensiones: 2 3/8 X 0.218 INCH 50.30 X 5.54 MM	Schedule / Cédula: 080	Quantity / Cantidad: 247 Pcs/pz 4660.87 FT 1426.73 MTS	Nominal Weight / Peso Nominal: 5.02 LB/FT 7.48 KG/M
	Length / Longitud: SRL (SP)		

CHEMICAL COMPOSITION / COMPOSICION QUIMICA

Heat N° Colada N°	Sample N° Muestra N°	Lot N° Lote N°	Pipe N° Tubo N°	Composition % / Composición %																												
				x 100							x 1000							x 100														
C	Mn	Si	Cr	Mo	Al sol	S	P	Ni	V	Cu	Al	Sn	AS	Nb	Ti	Pb	Sb	Co	Zr	Bi	Ca	B	N	Mg	W	Ce 1	Ce 2					
H Max	25	135	50	30	12	-	10	25	400	80	400	-	-	-	110	110	-	-	-	-	-	-	10	-	-	-	-	42	40			
Min	40	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
P	25	135	50	30	12	-	10	25	400	80	400	-	-	-	110	110	-	-	-	-	-	-	10	-	-	-	-	-	-	42	40	
Min	40	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	9	105	25	5	4	-	1	9	40	2	119	21	8	4	20	2	1	2	7	20	22	7	3	46	3	10	28	23				
Min	10	103	24	4	4	-	1	9	40	2	120	19	7	4	21	2	1	2	7	20	22	5	2	41	3	20	30	24				
P	9	105	26	5	4	-	1	9	40	3	120	22	9	5	21	3	4	2	7	40	22	9	3	46	4	10	29	23				
Min	9	105	25	5	4	-	1	9	41	3	119	21	8	4	20	2	2	2	7	30	22	7	2	48	3	10	29	23				
P	10	103	25	5	4	-	1	8	42	2	118	21	7	4	20	2	1	2	7	20	22	10	2	54	7	20	30	24				
Min	10	105	25	5	4	-	1	9	42	2	119	21	7	4	20	2	1	2	7	20	22	7	2	46	3	10	30	24				

Ce 1: C+(MnB)(CR+MO+V)/5+(NiCU)/15
Ce 2: ((MnB)(SIZ)+((CU)/15)+(NiZn)+(CR+MO+V+NB)/5)
(5*B)
H: Heat / Colada
Max: Maximum / Máximo
Min: Minimum / Mínimo
P: Product / Producto

THROUGH WALL HARDNESS / DUREZA EN EL ESPESOR

Heat N° Colada N°	Sample N° Muestra N°	Zone Zona	Individuals / Individuales		Average / Promedio		Hardness type HV10 Tipo de dureza		Var.				
			Min	Max	Min	Max	OD	ID					
23583	1926738	E2	25216	26	160.0	166.0	154.0	166.6	158.0	152.0	153.0	155.3	1.3

This certificate is issued by a computerized system and is valid with electronic signature. On the original certificate the trade-max's green colored "Recod" is stamped. In case the owner of the original certificate would release a copy of it, he must stamp it conformly to the original one using green ink. This stamp is stamped on the original certificate. Any alteration or modification will be subject to the law.
Este certificado es emitido por un sistema automatizado y es válido con firma electrónica. El certificado original posee impreso el logo "Recod" en color verde. En caso de que el poseedor del certificado entregue una copia, deberá parafear la conformidad con el original haciéndose responsable por cualquier uso ilegal o indebido. Cualquier alteración o modificación será sujeta a la ley.



INSPECTION CERTIFICATE

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

Number / Número: **680950**
 Page / Página: **4 / 9**
 Date / Día: **September 04, 2012**

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE** Customer's Order Item / Orden Cliente - Item: **45001527-00007** Manufacturer's Works Order N° / Confirmación de Venta: **57532/05**

Product Type / Tipo de Producto: **CARBON STEEL FOR LOW TEMPERATURE SERVICE** Surface / Superficie: **INT BARE/EXT VARNISHED**

Standard or Specification / Normas o Especificaciones: **ASTM/AASME A/SA333-10+CSA Z245.1-07 CATH-SS+PSP00374+NACE MR0175H03+IPRO LP 406** Steel Grade / Grado de acero: **1/61359 CAT II SS**

Schedule / Cadena: **080** Length / Longitud: **SRL (SP)** Quantity / Cantidad: **247 Pcs/ps** Nominal Weight / Peso Nominal: **5.02 LB/FT**
50.30 X 5.54 MM **1426.73 MTS** **10955 KG**

Ends / Extremos: **BEVELLED AT 30 DEG. ASTM**

THROUGH WALL HARDNESS / DUREZA EN EL ESPESOR

Heat N° Caldera N°	Sample N° / Zona Muestra N° / Zona	Pipe N° Tubo N°	Specimen condition Ls	Average / Promedio				Hardness type HV10				Var.				
				Min. -		Max. -		Tipo de dureza								
				1	2	3	4	1	2	3	4		Avg.			
48635	1703601	E1	25217	108	154.0	157.0	194.0	153.0	154.5	156.0	156.0	151.0	152.0	153.0	0.8	
48635	1703602	E2	21331	5	180.0	182.0	173.0	171.0	176.5	178.0	177.0	176.0	172.0	175.8	0.8	
48635	1714008	E1	21507	5	166.0	169.0	160.0	159.0	163.3	161.0	159.0	155.0	163.0	159.5	3.8	
48635	1714013	E2	21507	25	158.0	168.0	158.0	152.0	161.0	165.0	162.0	158.0	157.0	160.5	0.5	
48635	1714021	E1	21507	45	165.0	168.0	159.0	161.0	162.0	161.8	157.0	168.0	162.0	159.0	161.5	0.3
48635	1714022	E2	21507	65	162.0	157.0	157.0	155.0	157.8	145.0	155.0	159.0	151.0	152.8	5.0	
48635	1724470	E1	21717	5	162.0	157.0	155.0	151.0	158.3	158.0	150.0	154.0	157.0	154.8	1.5	
48635	1724498	E2	21717	25	153.0	153.0	149.0	152.0	151.8	153.0	158.0	155.0	155.0	154.0	2.3	
					170.0	157.0	162.0	150.0	159.8	165.0	153.0	153.0	143.0	153.5	6.3	

Avg. Average / Promedio
 B. Body / Cuerpo
 E.1 / E2. Ends of Sampling / Extremos de Muestra

ID: Internal diameter / Diámetro interno
 Ls: Location of sample / Ubicación de la muestra
 Max: Maximum / Máximo

Min: Minimum / Mínimo
 OD: Outside diameter / Diámetro externo
 Quad: Quadrant / Cuadrante

Var: Variación / Variación

This certificate is issued by a computerized system and it is valid with no further signature. On this original certificate the traditional green inked "Tenaris" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one using a blue inked box, respecting the size and color of the stamp. Any alteration and/or indication will be subjected to the law.

Este certificado es emitido mediante sistema automatizado y es válido con firma electrónica. El certificado original posee impresa el logo Tenaris color verde. En caso de que el poseedor del certificado emita una copia, deberá poner la conformidad con el original haciendo un recuadro por cuadrante con el color azul. Cualquier alteración o indicación estará sujeta a la ley.



INSPECTION CERTIFICATE

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

Number / Número: **680950**
 Date / Día: **September 04, 2012**

Page / Página: **5 / 9**

Customer / Cliente: **VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE** Customer's Order Item / Orden Cliente - Item: **45001527-00007** Manufacturer's Works Order N° / Confirmación de Venta: **57532/05**

Product Type / Tipo de Producto: **CARBON STEEL FOR LOW TEMPERATURE SERVICE** Surface / Superficie: **INT BARE / TEXT VARNISHED**

Specification or Specification / Normas o Especificaciones: **ASTM A516 A/SA333-10+CSA Z245.1-07 CATHI-SS+PSP00374+MACE MR0175103+IPRO LP-006** Ends / Extremos: **BEVELLED AT 30 DEG. ASTM**

Dimensions / Dimensiones: **2 3/8 X 0.218 INCH** Schedule / Cédula: **080** Nominal Weight / Peso Nominal: **5.02 LB/FT**
60.30 X 5.54 MM Length / Longitud: **SRL (SP)** Quantity / Cantidad: **247 Pcs/lpz** **10855 KG**

IMPACT TEST / ENSAYO DE IMPACTO

Heat N° / Colada N°	Sample N° / Muestra N°	Lot N° / Lote N°	Pipe N° / Tubo N°	Orientation/Orientación: L		Unit / Unidad: J			
				Temp. -55	Temp. -20	Ind. Min. Req. 4	Results / Resultados	Req. Min. Avg. 7	
				T.T	Size / Tamaño	mm			
23593	1926738	25216	25	AM	10.0 x 3.3	69.0	73.0	71.0	71.0
23593	1926743	25217	108	AM	10.0 x 3.3	77.0	70.0	82.0	76.3
48635	1703601	21331	5	AM	10.0 x 3.3	73.0	78.0	70.0	73.7
48635	1714000	21507	5	AM	10.0 x 3.3	71.0	74.0	87.0	77.3
48635	1724470	21717	5	AM	10.0 x 3.3	85.0	78.0	89.0	84.0

As manufactured / Según proceso de fabricación Ind. Min. Req. Individual Minimum Required / Requerido Mínimo Individual

Avg. Average / Promedio Req. Min. Avg. Required minimum average / Promedio

Book / Carpeta L: Longitudinal / Longitudinal

Sc. Specimen condition / Condición de la probeta Ls: Location of sample / Ubicación de la muestra

T.T: Test temperature / Temperatura de ensayo Req. Min. Avg. Required minimum average / Promedio

Temp: Temperature / Temperatura mínimo requerido

FLATTENING TEST / ENSAYO DE APLASTAMIENTO

Standard / Norma:		Standard / Norma:		Standard / Norma:	
Heat N° / Colada N°	Sample N° / Muestra N°	Lot N° / Lote N°	Sample N° / Muestra N°	Lot N° / Lote N°	Sample N° / Muestra N°
23593	1926726	1926726	1926742	B	Good / Bueno
23593	1926738	1926743	1926743	B	Good / Bueno
23593	1926739	1926740	1703601	B	Good / Bueno
23593	1926740	1926740	1703602	B	Good / Bueno
23593	1926741	1926741	1714008	B	Good / Bueno
48635	1714003	21507	1714013	B	Good / Bueno
48635	1714016	21507	1714016	B	Good / Bueno
48635	1714021	21507	1714021	B	Good / Bueno
48635	1714022	21507	1714022	B	Good / Bueno
48635	1724470	21717	1724470	B	Good / Bueno

This certificate is valid only if accompanied by the original signed copy. On the original certificate the inspection is signed by the inspector. In case the owner of the original certificate would release a copy of the material to a third party, the inspector is liable for any alteration and falsification. Any alteration and falsification will be subjected to the law.

Este certificado es válido solamente si se acompaña con una copia original firmada. El certificado original tiene inscrito el nombre del inspector. En caso de que el poseedor del certificado, entregue una copia, deberá garantizar la conformidad con el original. Cualquier alteración o falsificación será sujeta a la ley.



INSPECTION CERTIFICATE

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

Number / Número: **680950**
 Page / Página: **6 / 9**

Date / Día: **September 04, 2012**

Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE	Customer's Order Item / Orden Cliente - Item: 45001527-00007	Manufacturer's Works Order N° / Confirmación de Venta: 57532/05
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED	Product Type / Tipo de Producto: CARBON STEEL FOR LOW TEMPERATURE SERVICE	Surface / Superficie: INT BARE / EXT VARNISHED
Standard or Specification / Normas o Especificaciones: ASTM A537M / SA333-10 + CSA Z245.1-07 CATHI-SS+SP00374+HACE MR0175/103+IPROLP-006	Steel Grade / Grado de acero: 15/350 CAT II SS	Ends / Extremos: BEVELLED AT 30 DEG. ASTM
Dimensions / Dimensiones: 2 3/8 X 0.218 INCH 60.30 X 5.54 MM	Schedule / Calcula: 080	Nominal Weight / Peso Nominal: 5.02 LB/FT 7.48 KG/M
Length / Longitud: SRL (SP)	Quantity / Cantidad: 247 Pcs/pz 4680.87 FT 1426.73 MTS	

FLATTENING TEST / ENSAYO DE APLASTAMIENTO

Standard / Norma:	Lot N° / Muestra N°	Sample N° / Ls	Result / Resultado
A537M	21717	1724998 B	Good / Bueno

Ls: Location of sample / Ubicación de la muestra

HYDROSTATIC TEST / PRUEBA HIDRAULICA

Pressure / Presión	Time / Tiempo	Results / Resultado
Value / Valor: 3,000	Seconds / Segundos: 5	Satisfactory / Satisfactorio

HEAT TREATMENT / TRATAMIENTO TERMICO

Heat Treatment / Tratamiento Térmico: PIPE / TUBO	Temperature / Temperatura	Tolerance / Tolerancia	Duration / Duración (Mins.)
Medium / Medio de Tratamiento Térmico: WATER	880	±10	21

This certificate is issued by a computerized system and is valid with electronic signature. On the original certificate the trace-mark green colored marks is employed. In case the owner of the original certificate would request a copy of it, he must attest its conformity to the original one being responsible for cualquier uso legal o no de este. Cualquier alteración o falsificación será detectada por la ley.

FOR03171



INSPECTION CERTIFICATE

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

Number / Número: **680950**
 Page / Página: **7 / 9**
 Date / Día: **September 04, 2012**

Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE	Customer's Order Item / Orden Cliente - Item: 45001527-00007	Customer's Reference / Ref. del Cliente: N/A	Manufacturer's Works Order # / Confirmación de Venta: 57532105
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED	Product Type / Tipo de Producto: CARBON STEEL FOR LOW TEMPERATURE SERVICE	Surface / Superficie: INT BARE / EXT VARNISHED	
Standard or Specification / Norma o Especificación: ASTM A533-10+CSA Z245.1-07 CAT II-SS+P00374+NACE MR0175/103+IPRO LP-006	Steel Grade / Grado de acero: 1/6359 CAT II SS	Ends / Extremos: BEVELLED AT 30 DEG. ASTM	
Dimensions / Dimensiones: 2 3/8 X 0.218 INCH 60.30 X 5.54 MM	Schedule / Cédula: 080	Nominal Weight / Peso Nominal: 5.02 LB/FT 7.48 KG/M	
Length / Longitud: SRL (SP)	Quantity / Cantidad: 247 Pcs/pz		

HEAT TREATMENT / TRATAMIENTO TERMICO

Heat Treatment / Tratamiento Térmico: Pipe / Tubo	Medium / Medio of heat treatment process / Medio de enfriamiento del tratamiento térmico: WATER
Temperature Scale / Escala de Temperatura: Celsius	
Type / Tipo: TEMPERED	Duration / Duración (Mins.): 72
	Tolerance / Tolerancia: 5

SPECIAL REQUIREMENTS / REQUERIMIENTOS ESPECIALES

Condition / Condición: NON LIFTABLE CLOSED PLASTIC PROTECTOR FOR FLAT / BEVELED PIPE. SUPPLIER METALCENTRO.
Description / Descripción: 30 GAUSS

SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA

Supplementary Information / Información Suplementaria	<p>MANUFACTURED BY TENARIS SIDERCA</p> <p>ACERAGE PROCESS</p> <p>PIPE MAKING PROCESS: E.F.F. AND CONTINUOUS CASTING - FULL ALUMINIUM KILLED AND FINE GRAIN PRACTICE</p> <p>THE LP PRACTICE INCLUDES ARGON RINSE AND A FINAL INJECTION OF CALCIUM SILICIDE WIRE FOR MICROINCLUSION SHAPE CONTROL.</p> <p>MATERIAL FREE FROM MERCURY CONTAMINATION.</p>
Supplementary Information / Información Suplementaria	<p>FABRICADO POR TENARIS SIDERCA</p> <p>PROCESO DE ACERACIÓN</p> <p>FABRICACIÓN DE ACERO: FUNDICIÓN POR ARCO ELÉCTRICO Y COLADO CONTINUO - ACERO CALMADO AL ALUMINIO - LA PRÁCTICA DE GRANO FINO</p> <p>LA PRÁCTICA DE AFINO EN EL HORNO - CUCHARA INCLUYE AGITACIÓN POR ARGÓN Y UNA INYECCIÓN FINAL DE VARILLA DE SILICIO DE CALCIO PARA OBTENER UNA FORMA GLOBULAR DE EVENTUALES MICROINCLUSIONES</p> <p>MATERIAL LIBRE DE CONTAMINACIÓN DE MERCURIO.</p>

This certificate is issued by a computerized system and is a valid electronic signature. On the original certificate the trademark given below is stamped. In case the owner of the original certificate would request a copy of it, the mark attests to conformity to the original one taking upon himself the responsibility for any further or not intended use. Any alteration and/or falsification will be subjected to the law.

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Tenaris

INSPECTION CERTIFICATE

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

Number / Número: **680950**

Page / Página: **8 / 9**

Date / Día: **September 04, 2012**

Customer's Reference / Ref. del Cliente:
N/A

Manufacturer's Works Order N° / Confirmación de Venta:
57532/05

Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE	Customer's Order Item / Orden Cliente - Item: 45001527-00007	Product Type / Tipo de Producto: CARBON STEEL FOR LOW TEMPERATURE SERVICE	Surface / Superficie: INT BARE / EXT VARNISHED
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED	Schedule / Cédula: 080	Steel Grade / Grado de acero: 1/6359 CAT II SS	Ends / Extremos: BEVELLED AT 30 DEG. ASTM
Standard or Specification / Normas o Especificaciones: ASTM/ASME A5A333-10+CSA Z245.1-07 CAT II-SS+PS00374+NACE MR0175/103+IPRO LP 006	Length / Longitud: SRL (SP)	Quantity / Cantidad: 247 Pcs/pz	Nominal Weight / Peso Nominal: 5.02 LB/FT 7.48 KG/IM
Dimensions / Dimensiones: 2 3/8 X 0.218 INCH 60.30 X 5.54 MM			

SUPPLEMENTARY INFORMATION / INFORMACIÓN SUPLEMENTARIA

<p>Supplementary Information / Información Suplementaria</p> <p>*ROLLING PROCESS* -MANUFACTURING PROCESS : SEAMLESS HOT ROLLED.</p> <p>*CONTROLS* -VISUAL AND DIMENSIONAL INSPECTION : SATISFACTORY.</p> <p>*MATERIAL CONDITIONS* -NO : REPAIRED BY WELDING</p> <p>*STANDARDS* -EDITION OF REGULATION : ASTM A 333-11</p> <p>*EDITION OF REGULATION : ASME SA 333/ 2010</p> <p>*EDITION OF REGULATION : NACE MR-01-03 EDITION 2010</p> <p>*EDITION OF REGULATION : NACE MR 01-75 - ISO 15156-2 2009</p> <p>*EDITION OF REGULATION : CSA Z245 : 2007</p>	<p>Supplementary Information / Información Suplementaria</p> <p>*PROCESO DE LAMINACIÓN* -FABRICACIÓN DE TUBO: LAMINADO EN CALENTE Y SIN COSTURA.</p> <p>*CONTROLES* -CONTROL VISUAL Y DIMENSIONAL: SATISFACTORY.</p> <p>*CONDICIONES DEL MATERIAL* -NO REPARADO POR SOLDADURA.</p> <p>*NORMAS* -EDICIÓN DE LA NORMA: ASTM A 333-11</p> <p>-EDICIÓN DE LA NORMA: ASME SA 333/ 2010</p> <p>-EDICIÓN DE LA NORMA: NACE MR-01-03 EDITION 2010</p> <p>-EDICIÓN DE LA NORMA: NACE MR 01-75 - ISO 15156-2 : 2009</p> <p>-EDICIÓN DE LA NORMA: CSAZ245: 2007</p>
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Additional Information / Información Adicional	Additional Information / Información Adicional
NOTCH 10 %	NOTCH 10 %
ONE YELLOW BAND ON EACH END.	ONE YELLOW BAND ON EACH END.

MARKING / MARCACION

Marking / Marcación	Marking / Marcación
-NNNNN = Número de tubo / Nbr of pipe	-NNNNN = Número de tubo / Nbr of pipe

This certificate is valid with electronic signature. On the original certificate the trademark, green colored "TENARIS" is stamped. In case the owner of the original certificate would release a copy of it, the mark above its conformity to the original one taking upon himself the responsibility for any unfair use. Any alteration and/or falsification will be subjected to the law.

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INSPECTION CERTIFICATE

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

Page / Página: 9 / 9

Number / Número: 680950

Date / Día: September 04, 2012

Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) IN -VAN LEE	Customer's Order / Item / Orden Cliente - Item: 45001527-00007	Customer's Reference / Ref. del Cliente: N/A	Manufacturer's Works Order N. / Confirmación de Venta: 57532/05
Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED	Product Type / Tipo de Producto: CARBON STEEL FOR LOW TEMPERATURE SERVICE	Surface / Superficie: INT BARE / EXT VARNISHED	
Standard or Specification / Normas o Especificaciones: ASTM/A516 A/S333-10+CSA Z245.1-07 CAT II-SS+SP00374+NACE MR0175/103+HPO LP-006	Steel Grade / Grado de acero: 1/6/358 CAT II SS	Ends - Extremos: BEVELLED AT 30 DEG. ASTM	
Dimensions / Dimensiones: 2 3/8 X 0.218 INCH 80.30 X 5.54 MM	Schedule / Código: 080	Nominal Weight / Peso Nominal: 5.02 LB/FT 7.48 KG/M	
	Length / Longitud: SRL (SP)	Quantity / Cantidad: 247 Pcs/lpz 4680.87 FT 1426.73 MTS	

MARKING / MARCACION

U.L.L. = Length / Longitud P.P.P. = Peso / Weight L.G. = Manufacturing / Manufactura API	Marking / Marcación M.M.M.Y.Y. = Mes / Año Month / Year Y.T. = Año / Trimestre Year / Quarter H.N.XXXXXX = Colada / Heat
Stencilling (Pipe) / Estarcido (Tubo) TENARIS 50 MM XX ASTM/A516 A/S333 60.3 5.54 7.48 2 SCH80 XS 1/6/358 CAT II SS HQ OT MISC L1-H60	Stencilling (Pipe) / Estarcido (Tubo) SEAMLESS 207KPA X 100 N.D.E. CSA Z245.1-07 45001527 MADE IN ARGENTINA HX333XX NNNNN LULL PIPPPP

This is to certify that the product described here has been manufactured, sampled, tested, and inspected in accordance with purchaser order requirements. This certificate is not a declaration of origin nor may it be used as a declaration of origin.

CUSTOMER - THIRD PARTY

INSPECTION COMPANY
 COMPAÑIA DE INSPECCION
 Company Name: N/A
 Employee Name: N/A

TENARIS QUALITY DEPARTMENT SIGNATURE

GAJO Gabriel
 DEPTO. DE CERTIFICACION DE CALIDAD
 RESPONSABLE DE CERTIFICACION DE CALIDAD

AYERBE Eduardo
 C-HEF OF QUALITY CERTIFICATION DEPT
 RESPONSABLE DEL DEPTO. DE CERTIFICACION DE CALIDAD

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Order#: 308583 Seq: 1 PO#: 133509-125-001 Heat#: 1240365 Mill: Chengdu Steel
 Part#: P 2 160 S3 S B Part Desc: Pipe 2 (634mm O.D.) SCH 160 SMI S A/SA333-6 SRL BEVELLED FND (344W)

CLIENT: CHINA INDUSTRIAL METAL CO., LTD

SHIPPING PO E1-2886
 MARKS:

DESCRIPTION: SEAMLESS CARBON STEEL PIPES



MULL TEST CERTIFICATE

PANGANG GROUP CHENGDU STEEL & VANADIUM CO., LTD.

ADDRESS: CHENGDU SICHUAN TEL: 028-89930979 FAX: 028-89930378

CONTRACT No: CSST20121229
 STEEL GRADE: QF 6/280 CAT II SF
 STANDARD: ASTM A333-10/ASME SA333-2010,
 CSA Z245.1-2007/NACE MR0175 2003/
 ISO 15156, 2-2009/NACE MR0103 2007SS

TOTAL: 104 PIPES 3567.968 METERS 35066 KG

SIZE	PIECES	METERS	WEIGHT (KG)	HEAT No	MELTING METHOD	DELIVERY CONDITION	SAMPLE SIZE (mm)	Y/S (MPa)	TS (MPa)	Y S (TS)	EL (%)	SA (%)	IMPACT (J)	IMPACT TEST			AVG(U)	SHEAR AREA (M ²)			TYPE OF THREAD
														1(U)	2(U)	3(U)		1	2	3	
8" x 0.506" x 40'	7	55.344	9495	1280906 EAF+VD	H452040137 NOR	LOH 12.7	320/335	455/455	38.5	37	38.5	V-45°C LON 10X10X55	292/300	299/302	300/307	297/301	Aico #P975				
8" x 0.906" x 40'	6	97.516	10856	1280906 EAF+VD	H452040138 NOR	LOH 12.7	320/335	455/455	37.5	38	37.5	V-45°C LON 10X10X55	300/302	300/302	300/306	300/306	CONFORMS TO SA 333-6				
8" x 0.500" x 40'	1	32.192	788	1280907 EAF+VD	H452030083 NOR	LOH 38.1	350/330	485/485	47.5	46	47.5	V-45°C LON 10X10X55	299/299	298/298	298/288	298/288	YEAR: 2010 2011 ADD				
16" x 0.375" x 40'	2	24.384	2272	1240365 EAF+VD	H452040018 NOR	LOH 38.1	380/380	485/485	43.5	46	43.5	V-45°C TRA 7.5X10X55	99.1	93.4	89.9	94	JOB # 203-4440-01				
2" x 0.344" x 40'	33	402.016	4471	1240365 EAF+VD	H452030164 NOR	LOH 19.1	345/350	485/490	37	37	37	V-45°C LON 6.67X10X55	174/150	162/150	155/152	162/152	JOB # 203-4440-01				
2" x 0.344" x 40'	32	390.144	4335	1240365 EAF+VD	H452030165 NOR	LOH 19.1	345/345	485/480	37.5	38.5	37.5	V-45°C LON 6.67X10X55	155/154	161/149	172/165	163/156	43.10.12.13.14.15.16.17.18.19.20.21.22.23.24.25.26.27.28.29.30.31.32.33.34.35.36.37.38.39.40.41.42.43.44.45.46.47.48.49.50.51.52.53.54.55.56.57.58.59.60.61.62.63.64.65.66.67.68.69.70.71.72.73.74.75.76.77.78.79.80.81.82.83.84.85.86.87.88.89.90.91.92.93.94.95.96.97.98.99.100				
2" x 0.344" x 40'	21	255.032	2845	1240365 EAF+VD	H452030166 NOR	LOH 19.1	330/355	485/500	38.5	38.5	38.5	V-45°C LON 6.67X10X55	174/143	156/167	170/159	170/159	YEAR: 2010 2011 ADD				

SIZE	PIECES	METERS	WEIGHT (KG)	HEAT No	MELTING METHOD	DELIVERY CONDITION	SAMPLE SIZE (mm)	Y/S (MPa)	TS (MPa)	Y S (TS)	EL (%)	SA (%)	IMPACT (J)	IMPACT TEST			AVG(U)	SHEAR AREA (M ²)			TYPE OF THREAD
														1(U)	2(U)	3(U)		1	2	3	
125/125/127/127/120/125	ACC	ACC	ACC	2800/35	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC
124/124/123/123/124/124	ACC	ACC	ACC	2800/35	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC
131/131/130/131/130/131	ACC	ACC	ACC	1000/55	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC
131/131/132/132/131/132	ACC	ACC	ACC	2500/55	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC
128/132/133/130/133/131	ACC	ACC	ACC	2500/55	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC
130/130/132/131/130/131	ACC	ACC	ACC	2500/55	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC	UT/1.3	ACC

APPROVED BY QUALITY MANAGER: [Signature]

REMARKS: 1. THIS IS TO CERTIFY THAT THE PRODUCT HAS BEEN INSPECTED AS PER RELEVANT SPECIFICATION AS STIPULATED IN THE ORIGINAL ORDER WITH ALL THE DATA IN COMPLIANCE WITH THE SPECIFICATION
 2. THE ORIGINAL CERTIFICATE IS THE FOUNDATION OF ACCEPTANCE WHILE THE COPY IS NOT ACCEPTANCE VOUCHER AND ONLY FOR REFERENCE
 3. CONDITION OF SUPPLY: QUENCHED AND TEMPERED-Q-T, HOT ROLLED-HR, QUENCHED-Q, NORMALIZED-N, ANNEALED-A, TEMPERED-T, HOT EXPANDED-HE
 4. Hydro = hydraulic, Fla = Flattening, Def = Deflect, ACC = ACCEPTABLE

SAN ENG STEEL FORGING CO LTD
 311, Jen Hei Road, Jen Wu District
 Kaohsiung, Taiwan, R.O.C.
 TEL: 07-3724249; FAX: 07-3712923
 URL: www.saneng.com.tw
 e-mail: saneng@kmts.eeed.net.tw

MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50049/3.1.B)
 Customer: SEYBOLD INTERNATIONAL CORP.
 Order No.: Z006135(3)-VL

Certificate No.: SE-6135C
 Date: 01/04/2013
 Page: 2 OF 5

DIMENSIONAL SPECIFICATIONS

ASME B16.5-09
 CSA Z245.12

Item No.	CODE NO	DESCRIPTION	QUANTITY		CHEMICAL COMPOSITION (%)											CE(*)
			Min	Max	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	
11	22114-LF2	300 BLRF 1" LF2	20 PCE	0.210	0.300	0.150	0.600	1.150	0.035	0.040	0.400	0.120	0.080	0.020	0.406	
12	22160-LF2	150 WNRF STD 1" LF2	20 PCE	0.210	0.300	0.150	0.600	1.150	0.035	0.040	0.400	0.120	0.080	0.020	0.424	
13	22145-LF2	150 SWRF XS 1 1/2" LF2	50 PCE	0.210	0.300	0.150	0.600	1.150	0.035	0.040	0.400	0.120	0.080	0.020	0.406	
14	33629-LF2	900/1500 SWRTJ S160 1 1/2" LF2	20 PCE	0.208	0.290	0.140	0.550	1.020	0.014	0.008	0.012	0.054	0.005	0.005	0.387	
15	37602-LF2	300 HUB BLRF 1 1/2" LF2	25 PCE	0.220	0.300	0.160	0.600	1.150	0.021	0.003	0.010	0.002	0.004	0.001	0.416	
16	22115-LF2	300 BLRF 1 1/2" LF2	15 PCE	0.210	0.300	0.150	0.600	1.150	0.035	0.040	0.400	0.120	0.080	0.020	0.410	
17	24618-LF2	300 WNRF XS 1 1/2" LF2	15 PCE	0.200	0.280	0.110	0.500	1.110	0.011	0.006	0.060	0.040	0.015	0.003	0.407	
18	24721-LF2	1500 WNRTJ S160 1 1/2" LF2	15 PCE	0.222	0.300	0.160	0.600	1.150	0.015	0.014	0.022	0.083	0.122	0.009	0.417	
19	24688-LF2	300 WNRF S160 2" LF2	100 PCE	0.220	0.300	0.150	0.600	1.150	0.016	0.006	0.007	0.020	0.005	0.005	0.417	
20	24705-LF2	600 THRF 2" LF2	50 PCE	0.220	0.300	0.150	0.600	1.150	0.016	0.006	0.007	0.020	0.005	0.005	0.424	

Item No.	Heat No.	T.S.(*) (MPa)		Y.S.(*) (MPa)	E.L.(%)	Hardness (HB)	R.A.(%)	Impact Test Temp: -46°C Minimum: 20.0 Joule	Material Supplier	HEAT TREATMENT(*)	REMARKS
		Min	Max								
11	4554034	520.0	655.0	362.0	34.0	153/151	69.5	39.0	ACOMINAS	850°CX3HRS	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A.
12	83623	537.4	657.4	399.1	34.4	155/153	68.6	64.0	WEI CHIH STEEL		CONFORMS WITH Z245.12 CAT II GR248 SOUR SERVICE-09 AND GR280 CAT II M45C SS(FOR USE AS WELDING NECK AND BLIND FLANGES ONLY)
13	4554034	520.0	655.0	362.0	34.0	153/151	69.5	39.0	ACOMINAS		TEST SPECIMEN SIZE: 10X10
14	921027	511.9	643.2	343.2	32.8	155/153	66.0	37.0	NTMK		IMPACT TEST TEMP.: -46°C
15	4553962	535.0	655.0	354.0	33.8	154/152	68.6	67.0	ACOMINAS		
16	4522439	535.0	655.0	368.0	34.0	154/152	71.3	80.0	ACOMINAS		
17	37320	519.8	648.1	348.1	34.2	150/150	65.9	29.0	OEMK		
18	931232	517.8	639.3	339.3	32.2	157/154	64.0	38.0	NTMK		
18	4803012	529.0	656.0	356.0	35.0	153/151	71.3	51.0	ACOMINAS		
20	4803012	529.0	656.0	356.0	35.0	153/151	71.3	51.0	ACOMINAS		

*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.
 *2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S,T=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.
 *3: C.E. Value = C + (Mn/8) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

CONFORMS TO SA 350LF2H
 YEAR 2013
 JOB # 2013-8440-01
 ITEM # #48
 SIGNED BY [Signature] SEP 26 2013

19-8440-01
 Pa-133415

QUALITY ASSURANCE DEPT
 Manager: Safety Assurance Dept



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STABILIMENTO:
 20061 CERVIGNA BRIANZA (LC) - Italy
 Via G. Pardini, 28
 Tel. +39 031.6551441
 Fax +39 031.655149
 qualify@mfe@farmss.com

STAMPAGGIO A CALDO DI ACCIARI COMUNI - LEGATI E INOSSIDABILI
 SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DIN
 = ISO 9001:2008 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 2881	Del/Dated 07.06.2012	Fattura / Invoice N. 1976	Del/Dated 06.06.2012
DDT / Del Note N. 2303	Del/Dated 06.06.2012	Ns.Ord. / Our ref. N.	
SEYBOLD INTERNATIONAL CORP.		Dest.: VAN LEEUWEN	
20 Holly Street, Suite 205 TORONTO M4S3B1		CA	ALBERTA
		CA	CA

COD. COL. HEAT CODE	COLATA HEAT	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA' QTY	DESCRIZIONE DESCRIPTION	DUREZZA HARDNESS HBW	RESILLENZA / IMPACT TEST - JOULE/cm2	SNERVAMENTO YIELD POINT N/mm2	SNERVAMENTO YIELD POINT N/mm2	VISIVO E DIMENS. VIS. & DIMENS.
10/33022	1449/11	018	7005408	50,00	W/N 300 RF 2" 160 LF2CL1	166,0 - 170,0	58,0	30,0	345,0	SATISFACTORY
ASTM A360	LF2 CL1/2 (LADLE)		0,190							
PROVETTA / TEST SPECIMEN SEZ. mm2	FORMA SHAPE	SNERVAMENTO YIELD POINT N/mm2	ROTURA TENSILE STRENGTH N/mm2	ALLUNGAMENTO ELONGATION %	CONTRAZIONE REDUCTION OF AREA %					
126,60	50,80	1	345,0	30,0	58,0					
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 CSA Z245.12 GRADE 248 CAT.II SOUR SERVICE										
TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR										
FORNO / FURNACE ELECTRIC FURNACE						RESILLENZA / IMPACT TEST - JOULE/cm2		SNERVAMENTO YIELD POINT N/mm2		ORIGINE / ORIGIN EUROPE
						KV		N/mm2		
						-50		64		
						69		70		

COD. COL. HEAT CODE	COLATA HEAT	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA' QTY	DESCRIZIONE DESCRIPTION	DUREZZA HARDNESS HBW	RESILLENZA / IMPACT TEST - JOULE/cm2	SNERVAMENTO YIELD POINT N/mm2	SNERVAMENTO YIELD POINT N/mm2	VISIVO E DIMENS. VIS. & DIMENS.
10/33022	10/33022	022	7005408	15,00	S/O 150 RF 2" LF2CL1	163,0 - 165,0	60,0	30,0	362,0	SATISFACTORY
ASTM A360	LF2 CL1/2 (LADLE)		0,190							
PROVETTA / TEST SPECIMEN SEZ. mm2	FORMA SHAPE	SNERVAMENTO YIELD POINT N/mm2	ROTURA TENSILE STRENGTH N/mm2	ALLUNGAMENTO ELONGATION %	CONTRAZIONE REDUCTION OF AREA %					
126,60	50,80	1	541,0	30,0	60,0					
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 CSA Z245.12 GRADE 248 CAT.II SOUR SERVICE										
TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR										
FORNO / FURNACE ELECTRIC FURNACE						RESILLENZA / IMPACT TEST - JOULE/cm2		SNERVAMENTO YIELD POINT N/mm2		ORIGINE / ORIGIN EUROPE
						KV		N/mm2		
						-50		66		
						68		66		
						68		66		

CONFORMS TO SA 350/SA 350
 YEAR 2013
 JOB # 2013-8440-01
 ITEM # 48
 SIGNED BY SEP 26 2013

3-8440-01
 Per-133415

NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 15156-2009 - SOUR SERVICE	UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT S. Corti Corti	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO / PRODUZIONE MANUFACTURER'S SYMBOL
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PROFILES LTD. (FORGING DIVISION)

INSPECTION CERTIFICATE & MILL TEST REPORT - EN 10204 3.1

Customer : UNIFIED ALLOYS - EDMONTON 8835-50 AVENUE EDMONTON ALBERTA CANADA T6E 5H4	ISO 9001:2008-TUV NORD REG.No-44100011170-E3 EXPIRY DATE : 21.01.2013	INVOICE NUMBER / MTR NO. 936888/ 3
	AD 2000 MERKBLATT WO-072021423 WP 1022/11 ASPER W/2/AV/AV10 EXPIRY DATE: FEBRUARY 2014	DATE 22.03.2012
	PED 97/23/EC QMS REG.NO.072021423 WZ 1022/11 EXPIRY DATE: FEBRUARY 2014	MATERIAL SPECIFICATION ASTM A182/A182M-11 / ASME SA182/SA182M-11
		PURCHASE ORDER NO. EP-93964/EDMONTON
		DESCRIPTION STAINLESS STEEL FORGED FLANGES

CHEMICAL ANALYSIS

Sr.No	Item Description	Dimension Specification	Heat No	Qty	%C	%Mn	%Si	%S	%P	%Cr	%Ni	%Mo	%Ti	%N
12	316/316L 6" SORF 150#	B16.5	88736	106.000	0.0200	1.750	0.460	0.0080	0.0380	16.850	10.080	2.020	0.0030	0.08000
13	316/316L 8" WNRF 300# S40S	B16.5	88717	22.000	0.0250	1.750	0.380	0.0100	0.0380	16.750	10.100	2.010	0.0020	0.07500
14	316/316L 2" WNRF 150# S40S	B16.5	88720	157.000	0.0260	1.730	0.480	0.0110	0.0380	16.780	10.060	2.030	0.0040	0.07300
15	316/316L 2" WNRF 150# S80S	B16.5	88720	55.000	0.0260	1.730	0.480	0.0110	0.0380	16.780	10.060	2.030	0.0040	0.07300
16	316/316L 3" THRF 150#	B16.5	88723	83.000	0.0200	1.730	0.430	0.0060	0.0370	16.680	10.040	2.020	0.0030	0.07500
17	316/316L 2" WNRF 300# S80S	B16.5	88723	54.000	0.0200	1.730	0.430	0.0060	0.0370	16.680	10.040	2.020	0.0030	0.07500

MECHANICAL PROPERTIES

Sr.No	Heat No.	Tensile Strength (MPa)	Proof Stress Rp=0.2% (MPa)	Proof Stress Rp=1.0% (MPa)	% Elongation LO-4D	% Reduction of Area	Hardness			IMPACT TEST CHARPY V-NOTCH AT +20 DEG. C (JOULES)		
							BHN	1	2	3	AVG	
12	88736	525.860	245.370	291.770	56.40	71.62	216.0	231.0	206.0	218.0		
13	88717	560.370	274.170	316.870	58.60	73.21	146.0	193.0	184.0	188.0		
14	88720	590.630	278.810	326.520	58.60	72.11	151.0	154.0	170.0	179.0	168.0	
15	88720	590.630	278.810	326.520	58.60	72.11	151.0	154.0	170.0	179.0	168.0	
16	88723	556.590	272.040	312.000	57.20	71.71	145.0	175.0	165.0	169.0	170.0	
17	88723	556.590	272.040	312.000	57.20	71.71	145.0	175.0	165.0	169.0	170.0	

MATERIAL CONFORMS TO NACE MR 0175 / ISO 15156 - 2009 & NACE MR 0103 - 2010

- : INDUCTION / AOD (HRS) / CONCAST
- : SOLUTION ANNEALED AT 1050°C AND WATER QUENCHED
- : CONFORM WITH THE SPECIFICATION (100% INSPECTED)
- : SATISFACTORY
- : NO OBJECTION (100% TESTED WITH MOBILE SPECTRO)
- : PASSED IGC TEST IN ACCORDANCE WITH ASTM A262 PRACTICE E
- : NO CARBIDE PRECIPITATION OBSERVED ON GRAIN BOUNDARIES
- : ALL THE ABOVE MATERIAL IS TESTED FOR RADIOACTIVITY AND FOUND WITH IN THE LIMIT OF BACKGROUND RADIATION

INTERGRANULAR CORROSION TEST
MICRO OBSERVATION
RADIOACTIVITY TEST



WE CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE ORDER/CONTRACT AND IS OF INDIAN ORIGIN



MANUFACTURER'S SYMBOL

CONFORMS TO SA **182-316L**
 YEAR **10 E D, 2011 ADD**
 JOB # **203-8440-01**
 ITEM # **# 66**
 SIGNED BY **[Signature]** OCT 01 2013

3-8440-01
PO-133456





CHANDAN STEEL LIMITED

(GOVT. OF INDIA RECOGNISED EXPORT HOUSE)

ISO 9001 : 2008 CERTIFICATE No. 04 100 011022-E3

AD 2000 - MERKBLATT W0 - REGN.No. 07 202 1423 WP 1261 09

PED 97/23/EC - CERTIFICATE No. 07 202 1423 WZ 1261/09

ADM. OFFICE: 504, SUKH SAGAR, N. S. PATKAR MARG,
MUMBAI 400 007, INDIA

Tel.: 91-22- 66290600. Fax.: 91-22-66290633/34

Website : www.chandansteel.net

Email : csl@chandansteel.net

L/c. No. : —

L/c. Date: —

WORKS: Plot No. 35, G. I. D. C., Umbergaon
Dist Valsad, Gujarat - 396 171.

Tel.: 91-260-256 2066 / 4367 / 1166. Fax.: 91-260-256 2287

E-mail : exports@chandansteel.net

F824 QC 09 / 01 / 01.06.2010

MATERIAL TEST CERTIFICATE ACCORDING TO EN 10204 - 3.1

UNIFIED ALLOYS (EDMONTON) 8835 - 50 AVENUE, EDMONTON, ALBERTA, CANADA T6E 5H4	Test Certificate No. : EXP/0945-09/2011-12 Date of Issue : 07.03.2012 P. O. No. : EP-95256 & CP-55627 Invoice No. & Date : EXP/0945/2011-12 Dtd. 07.03.2012
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ITEM DESCRIPTION STAINLESS STEEL FORGED & FULLY MACHINED FLANGES

Sr.No	Heat No.	Pcs	Box No.	Wt.Kgs	Grade	Item	Process Route
							Electric Induction Melting, A.O.D. Refining, Continuous Casting & Hot Forging
1	12/262	44	5	338.80	316/L	6" SORF 150 LBS	
2	12/235	75	6	262.50	316/L	2" WNRF 300 LBS S-80S	
3	12/147	9	6	63.90	316/L	4" WNRF 150 LBS S-10S	

CHEMICAL COMPOSITION (Weight %)

Sr.No	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	N	OTHERS
1	0.027	0.41	1.45	0.037	0.020	17.04	2.02	10.10	-	-	0.0620	-
2	0.025	0.62	1.73	0.038	0.013	16.85	2.02	10.02	-	-	0.0700	-
3	0.025	0.52	1.64	0.036	0.008	16.96	2.03	10.02	-	-	0.0550	-

MECHANICAL PROPERTIES

Sr.No	0.2% Yield Strength N/mm ² (R _{p0.2})	Tensile Strength N/mm ² (R _m)	Elongation %	Reduction of Area %	Hardness (B. H. N.)
1	273	579	54	73	174-178
2	266	594	55	75	175-179
3	271	595	50	76	181-185

Remarks:

- The material is solution annealed at minimum 1050 °C and water quenched.
- Material is free from mercury and radio-active contamination and is found within the limits of the background radiation.
- PMI test 100% satisfactory.
- Micro Structure Reveals Austenitic grains with annealing twins and is free from carbide (At 500 X).
- Inter-Granular Corrosion Test as per ASTM A - 262 - 10 (Pr.E) satisfactory.
- The material conforms to ASTM A 182 - 11, ASME SA 182 - 10 & ASME B16.5 - 09 Specification.
- Visual and Dimensions inspection 100% satisfactory.
- The material conforms to NACE MR 0175 / ISO 15156-1:2009 (E).



2-8440-01
Po-133456

CONFORMS TO SA 182-316L
YEAR 2010 ED, 2011 ADD
JOB # 2013-8440-01
ITEM # #66
SIGNED BY [Signature] OCT 01 2013

[Signature]
B. S. RAUTELA
WORKS INSPECTOR

We hereby certify that, the material described herein,
and supplied are in compliance with the requirements of the order.



CHANDAN STEEL LIMITED

(GOVT. OF INDIA RECOGNISED EXPORT HOUSE)

ISO 9001 : 2008 CERTIFICATE No. 04 100 011022-E3
 AD 2000 - MERKBLATT WD - REGN.No. 07 202 1423 WP 1261 09
 PED 97 / 23 / EC - CERTIFICATE No. 07 202 1423 WZ 1261/09

ADM. OFFICE: 504, SUKH SAGAR, N. S. PATKAR MARG,
 MUMBAI 400 007, INDIA
 Tel.: 91-22- 66290600. Fax: 91-22-66290633/34
 Website : www.chandansteel.net
 Email : csl@chandansteel.net
 L/c. No. : —
 L/c. Date: —

WORKS: Plot No. 35, G. I. D. C., Umbergaon
 Dist Valsad, Gujarat - 396 171.
 Tel.: 91-260-256 2066 / 4367 / 1166. Fax: 91-260-256 2287
 E-mail : exports@chandansteel.net

F824 QC 09A / 02 / 28.03.2012

INSPECTION CERTIFICATE 3.1 ACCORDING TO EN 10204

UNIFIED ALLOYS (EDMONTON) 8835 - 50 AVENUE, EDMONTON, ALBERTA, CANADA T6E 5H4	Test Certificate No. : EXP/0250-05/2012-13 Date of Issue : 13.07.2012 P. O. No. : CP-56575 Invoice No. & Date : EXP/0250/2012-13 Dtd. 13.07.2012
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ITEM DESCRIPTION STAINLESS STEEL FORGED & FULLY MACHINED FLANGES

Sr.No.	Heat No.	Pcs	Box No.	Wt.Kgs	Grade	Item	Process Route
							Electric Induction Melting, A.O.D. Refining, Continuous Casting & Hot Forging
1	12/572	10	21	28.80	F 316/L	2" SORF 300 LBS	
2	12/732	28	21	149.52	F 316/L	3" WNRF 150 LBS S-40S	
3	12/535	81	31	216.27	F 316/L	2" WNRF 150 LBS S-10S	
4	12/710	35	31	139.65	F 316/L	3" SORF 150 LBS	
5	12/728	27	31	99.09	F 316/L	2" WNRF 300 LBS S-80S ←	

CHEMICAL COMPOSITION (Weight %)

Sr.No.	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	N	OTHERS
1	0.024	0.45	1.71	0.036	0.013	17.15	2.02	10.04	-	-	0.0520	-
2	0.022	0.43	1.63	0.036	0.020	17.10	2.02	10.02	-	-	0.0440	-
3	0.028	0.42	1.65	0.043	0.006	17.00	2.02	10.06	-	-	0.0630	-
4	0.026	0.43	1.62	0.044	0.017	16.92	2.02	10.05	-	-	0.0530	-
5	0.024	0.42	1.59	0.035	0.008	17.00	2.04	10.02	-	-	0.0500	- ←

MECHANICAL PROPERTIES

Sr.No.	0.2% Yield Strength N/mm ² (R _{p0.2})	Tensile Strength N/mm ² (R _m)	Elongation %	Reduction of Area %	Hardness (B. H. N.)
1	267	558	51	74	169-173
2	269	572	53	76	172-177
3	271	566	55	70	169-173
4	274	581	56	72	169-173
5	308	596	60	76	182-186 ←

Remarks:

- The material is solution annealed at minimum 1050 °C and water quenched.
- Material is free from mercury and radio-active contamination and is found within the limits of the background radiation.
- PMI test 100% satisfactory.
- Micro Structure Reveals Austenitic grains with annealing twins and is free from carbide precipitation (At 500 X).
- Inter-Granular Corrosion Test as per ASTM A - 262 - 10 (Pr.E) satisfactory.
- The material conforms to ASTM A 182 - 11/ ASME SA 182 - 10 & Dimension confirms to ANSI B16.5 - 09 Specification.
- Visual and Dimensions inspection 100% satisfactory. ←
- The material conforms to NACE MR 0175 / ISO 15156-1:2009 (E).



3-8440-01
 Po-133456

CONFORMS TO SA 182-316L
 YEAR 2010 ED, 2011 ADD
 JOB # 2013-8440-01
 ITEM # # 06
 SIGNED BY [Signature] OCT 01 2013
 Page 5 of 7

Pratik R. Patel
 PRATIK R. PATEL
 WORKS INSPECTOR

We hereby certify that, the material described herein,
 and supplied are in compliance with the requirements of the order.



SHANGHAI MAX FITTINGS CO., LTD
 No. 9885 Puwei Road, Fengxian District, Shanghai, China
 MILL TEST CERTIFICATE IN ACC. WITH EN 10204/3.1

ISO 9001:2008
 Directive 97/23/EC
 AD 2000-Merkblatt WC

Cert. No.: 01 100 106091
 Cert. No.: 01 202 CHI/Q-10 0410
 Cert. No.: 01 202 CHI/Q-10 0410

Client		UNIFIED ALLOYS				Certificate No		20130624 -003	
Contract No.		MF20130215	PO No.	EP-103638	Delivery Conditions		Solution Annealed, pickled and passivated		
Product		STAINLESS STEEL COLD FORMED BUTT WELD FITTINGS							
Item	Quantity	Size	Description	Grade	Heat No.	Heat treatment	Quenching		
40	11	1/2"	SCH80S	Long Radius Elbows 90°	ZJD1204-331	1050° 15 min.	RWQ		
42	241	2"	SCH80S	Long Radius Elbows 90°	YY12-90	1050° 15 min.	RWQ		
47	5	2"	SCH160	Long Radius Elbows 90°	JMS1109-797	1050° 15 min.	RWQ		
48	2	4"	SCH160	Equal Tees	JMS1111-1081	1050° 15 min.	RWQ		
53	11	3"	SCH10S	STUB END "TYPE A" SHORT PATTERN	J1012-061	1050° 15 min.	RWQ		
54	11	3"	SCH10S	Long Radius Elbows 45°	ZA1211020	1050° 15 min.	RWQ		
56	2	12"	SCH10S	Long Radius Elbows 45°	130277	1050° 15 min.	RWQ		

Heat No.	Chemical Composition (%)									
	C	Mn	P	S	Si	Cr	Ni	Mo		
ZJD1204-331	0.023	0.78	0.038	0.006	0.29	16.35	10.04	2.05	CONFORMS TO SA 403-316L	
YY12-90	0.019	0.99	0.035	0.002	0.46	16.79	10.07	2.06	YEAR: MAR 2011 ADD	
JMS1109-797	0.020	0.79	0.039	0.002	0.32	16.14	10.05	2.05	JOB #: 2013-8440-01	
JMS1111-1081	0.022	0.79	0.039	0.003	0.34	16.37	10.05	2.05	ITEM #: # 67	
J1012-061	0.018	1.02	0.031	0.001	0.35	18.08	8.09	8.05	9-8440-01	
ZA1211020	0.020	1.18	0.039	0.003	0.37	18.28	8.05	8.02	10-133456	
130277	0.019	1.14	0.038	0.006	0.44	18.17	8.02	8.02	APPROVED BY: [Signature] 08/01/2013	

Heat No.	Mechanical Properties				NACE MR0175	IC Test ASTM A262E	Impact Test	Non-destructive Test		PMI	Visual	Dimensional
	TS(Mpa)	YS (Mpa)	EL(%)longitudinal	Hardness				PT				
ZJD1204-331	570	260	65	N/A	OK	OK	N/A	OK	OK	OK	OK	
YY12-90	560	270	60	N/A	OK	OK	N/A	OK	OK	OK	OK	
JMS1109-797	565	260	60	N/A	OK	OK	N/A	OK	OK	OK	OK	
JMS1111-1081	570	260	65	N/A	OK	OK	N/A	OK	OK	OK	OK	
J1012-061	560	290	63	N/A	OK	OK	N/A	OK	OK	OK	OK	
ZA1211020	565	260	62	N/A	OK	OK	N/A	OK	OK	OK	OK	
130277	565	270	60	N/A	OK	OK	N/A	OK	OK	OK	OK	

MARKINGS: MAX - SPEC - GRADE - SIZE - SCH - HEAT NO CHINA

1. Materials have been manufactured in complete accordance with the purchasers order
 2. Free of weld repair as per ASTM A 960 Supplementary Requirement S66
 3. Free of mercury
 4. Free of radiation
 5. 100% PMI test
 6. Material complies with NACE MR0109-2010, NACE MR0175-2009, and ISO 15156-2009
 7. Product also satisfies the requirements of ASTM A 403-10
 8. Manufacturing and inspection process complies with BS EN10204 type "3.1"
 9. We hereby state that the fittings are made in CHINA



Signed: [Signature]
 Date: 24-Juli-13



SHANGHAI MAX FITTINGS CO., LTD
 No. 9885 Puwei Road, Fengxian District, Shanghai, China
 MILL. TEST CERTIFICATE IN ACC.WITH EN 10204/3.1

ISO 9001:2008
 Directive 97/23/EC
 AD 2000-Merkblatt WC

Cert. No.: 01 100 106091
 Cert. No.: 01 202 CHI/Q-10 0410
 Cert. No.: 01 202 CHI/Q-10 0410

Client		UNIFIED ALLOYS		Certificate No		20130529 -005	
Contract No.		PO No.		Delivery Conditions		Solution Annealed, pickled and passivated	
Product		Description		Specification		ASME SA403-10, ASTM A403-10A ASME B16.9-07 MSS SP-25-2008	
Item	Quantity	Size	Description		Grade	Heat No.	Heat treatment
39	5	2"	Short Radius Elbows 90°		WP316/316L-S	3185	1050° 15 min.
41	20	1 1/2"	Long Radius Elbows 90°		WP316/316L-S	463	1050° 15 min.
41	21	1 1/2"	Long Radius Elbows 90°		WP316/316L-S	YY12-498	1050° 15 min.
42	34	2"	Long Radius Elbows 90°		WP316/316L-S	FK1208-120	1050° 15 min.
43	27	3"	Long Radius Elbows 90°		WP316/316L-S	FK1212-134	1050° 15 min.
44	22	4"	Long Radius Elbows 90°		WP316/316L-S	YD12-396	1050° 15 min.
45	11	3"	Long Radius Elbows 45°		WP316/316L-S	HT12-0612	1050° 15 min.

Chemical Composition (%)										
Heat No.	C	Mn	P	S	Si	Cr	Ni	Mo	CONFORMS TO SA 403-316L	
3185	0.019	0.88	0.039	0.003	0.43	16.17	10.06	2.05	YEAR 2013	
463	0.013	0.98	0.038	0.003	0.44	16.88	10.18	2.09	JOB # 1013-8440-01	
YY12-498	0.018	0.84	0.035	0.005	0.44	16.3	10.06	2.06	ITEM # 1013-8440-01	
FK1208-120	0.019	0.694	0.033	0.003	0.33	16.22	10.10	2.08	SIGNED BY 1001012013	
FK1212-134	0.015	0.62	0.039	0.003	0.35	16.37	10.07	2.07		
YD12-396	0.016	0.90	0.039	0.005	0.37	16.50	10.05	2.04		
HT12-0612	0.022	1.11	0.044	0.004	0.33	16.11	10.03	2.06		

Mechanical Properties											
Heat No.	TS(Mpa)	YS(Mpa)	Hardness		NACE MR0175		IC Test ASTM A262E		Non-destructive Test		
			EL(%)(longitudinal)	Hardness	Impact Test	PT	PMI	Visual	Dimensional		
3185	565	255	56	N/A	OK	OK	N/A	OK	OK	OK	OK
463	580	265	50	N/A	OK	OK	N/A	OK	OK	OK	OK
YY12-498	577	273	53	N/A	OK	OK	N/A	OK	OK	OK	OK
FK1208-120	580	265	50	N/A	OK	OK	N/A	OK	OK	OK	OK
FK1212-134	565	250	60	N/A	OK	OK	N/A	OK	OK	OK	OK
YD12-396	580	285	56	N/A	OK	OK	N/A	OK	OK	OK	OK
HT12-0612	575	295	55	N/A	OK	OK	N/A	OK	OK	OK	OK



MARKINGS: MAX - SPEC -GRADE -SIZE - SCH - HEAT NO CHINA

- Materials have been manufactured in complete accordance with the purchasers order
- Free of weld repair as per ASTM A 960 Supplementary Requirement S66
- Free of mercury
- Free of radiation
- 100% PMI test
- Material complies with NACE MR0103-2010, NACE MR0175-2009, and ISO 15156-2009
- Product also satisfies the requirements of ASTM A 403-10
- Manufacturing and inspection process complies with BS EN10204 type "3.1"
- We hereby state that the fittings are made in CHINA

Signed: _____
 Date: 29-May-13



ZHEJIANG STELLAR PIPE INDUSTRY CO.,LTD
 XIAOZHI INDUSTRY PARK, QINGTIAN ZHEJIANG 323900 CHINA
MILL TEST CERTIFICATES to EN 10204/3.1 PED 97/23
 PED Certificate no.:331/2007/MUC

Customer : UNIFIED ALLOYS
 Contract No. : EP-93405
 Specification : ASTM/ASME A/SA312-2009
 Steel Grade : TP316/316L
 Goods : SEAMLESS STAINLESS STEEL PIPES

Alco # P 969
 Cert No. : ST111024-48
 Delivery Condition : A & P
 Appearance : Solution Treated

Heat No.		Chemical Composition (%)										
		C	Si	Mn	P	S	Cr	Ni	Mo	Ti		
Spec.	Min.						16.00	11.00	2.00			
	Max.	0.035	1.00	2.00	0.045	0.030	18.00	14.00	3.00			
Ladle Analysis		0.020	0.34	1.05	0.038	0.004	16.75	11.08	2.06			
Product Analysis		0.020	0.37	1.06	0.038	0.004	17.06	11.09	2.07			
Batch No.		Size			Quantity			Visual Examination				
C110712068		2" SCH80S*20" FT ←			30 PCS			1382 KGS			182.88 M 600 FT	OK
Test No.	Tensile Test			Technological Tests								
	Tensile Strength	Proof Strength	Elongation	Flattening Test	Ring Tensile Test	Drift Expanding Test	Ring Expanding Test	Impact Test	Hardness Test			
	MPa	MPa	A(%)						HRB			
Spec.	Min.	615	205	35								
	Max.								90			
	L58	560	285	59	GOOD	/	/	/	/	77.6 ←		
Leak Tightness Test		Non-destructive Testing			Intergranular Corrosion Test							
Hydrostatic Test		Eddy Current Test			Ultrasonic Test			Acc to ASTM A262-E				
Acc to ASTM A 99E		Acc to ASTM E42E			Acc to ASTM E213							
/		GOOD			/			/				
<p align="center">8440-01 P0-133419</p> <p align="right">CONFORMS TO SA <u>312-316L</u> YEAR <u>2010</u> EP, 2011 ASD JOB # <u>2013-8440-01</u> ITEM # <u># 08, 09, 10</u> SIGNED BY <u>[Signature]</u> SEP 24 2013</p>												
Additional Remarks:												
1. Country of Origin: China			2. No weld repair			3. 100% PMI			4. Hardness acc. to NACE MR 0175-2003, MR103-2003 ←			
5. Solution Temperature :1050°C. Hold 30 minutes. Rapid Water Cooling.												
We hereby certify that the material described above has been tested and complies with the terms of the Contract & the specification, and we confirm that P.M.I has been done.												
24/10/2011 Data					Quality Technology Director							

EP-93405 2S80316LSP



ZHEJIANG STELLAR PIPE INDUSTRY CO.,LTD
 XIAOZHI INDUSTRIAL PARK,QINGTIAN ZHEJIANG 323900 CHINA
MILL TEST CERTIFICATES to EN 10204/3.1 PED 97/23
 PED Certificate no. 331/2007/MUC

Customer	: ARMOR ALLOYS LTD	Order No.	: PE1110462
Contract No	: T13YKZ0419-02	Cert No.	: ST130522-10
Specification	: ASTM A312/ASME SA312	Delivery Condition	: Solution Treated
Steel Grade	: TP316/316L	Appearance	: Pickling
Goods	: STAINLESS STEEL SEAMLESS PIPES		

Heat No		Chemical Composition (%)																			
		C	Si	Mn	P	S	Cr	Ni	Mo	Ti											
Spec.	Min.						16.00	11.00	2.00												
	Max.	0.035	1.00	2.00	0.045	0.030	18.00	14.00	3.00												
Ladle Analysis	1301-048	0.015	0.43	0.84	0.036	0.001	16.61	11.06	2.06												
Product Analysis		0.017	0.38	0.82	0.034	0.003	16.58	11.04	2.03												
Batch No.	Size	Quantity				Visual Examination															
C130419050	60 33*5.54 2**SCH80S*18-24'FT	68 PCS		3414 KGS		461 61 M 1514 46 FT		OK													
Mechanical Properties (Acc to ASTM A370)																					
Test No		Tensile Strength	Yield Strength	Elongation	Flattening	Ring	Flaring	Ring	Impact	Hardness											
		MPa	MPa	GL 50mm	Test	Tensile	Test	Expanding	Test	Test											
Spec.		Min	Max	A(%)		Test		Test		HRB											
		515	205	35						90											
L40		575	280	59	GOOD	/	/	/	/	74.3											
Leak Tightness Test			Non-destructive Testing			Intergranular Corrosion Test															
Hydrostatic Test		Eddy Current Test		Ultrasonic Test		Acc to ASTM A262-E															
Acc to ASTM 999		Acc to ASTM E426		Acc to ASTM E213																	
/		GOOD		/		GOOD															
				PA-157		8440-01 STOCK PO-135102															
<table border="1"> <tr> <td>CONFORMS TO SA</td> <td>312 TP316L</td> </tr> <tr> <td>YEAR</td> <td>2010 00 2011 00</td> </tr> <tr> <td>JOB #</td> <td>2013-8440-01</td> </tr> <tr> <td>ITEM #</td> <td>69-70</td> </tr> <tr> <td>SIGNATURE</td> <td>MARCO L. ALBERICI</td> </tr> </table>												CONFORMS TO SA	312 TP316L	YEAR	2010 00 2011 00	JOB #	2013-8440-01	ITEM #	69-70	SIGNATURE	MARCO L. ALBERICI
CONFORMS TO SA	312 TP316L																				
YEAR	2010 00 2011 00																				
JOB #	2013-8440-01																				
ITEM #	69-70																				
SIGNATURE	MARCO L. ALBERICI																				
Additional Remarks:																					
1 Country of Origin China				2 100% PMI				3 No weld repair													
4 Hardness acc to NACE MR 0175 latest edition /ISO 15156- 2009						5 Solution Temperature 1050°C Hold 30minutes Rapid Water Cooling															
We hereby certify that the material described above has been tested and complies with the terms of the Contract & the specification, and we confirm that PMI has been done																					
Aug/21/2013						Data															

浙江泰明钢管有限公司
 Quality Technology Director
 质量技术总监
 SPECIAL BADGE OF QUALITY

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Contr. N. 5410 Del/Date 16.11.2012 Fatura / Invoice N. 3757 Del/Date 16.11.2012
 DDT / Del Note N. 4424 Del/Date 16.11.2012 No.Ord. / Our ref. N.
 Dest.: TRANS AM PIPING PRODUCTS LTD
 8335 ENDEAVOR DRIVE S.E.
 T3SS 0A1 CALGARY, ALBERTA CA

COMPANY WITH QUALITY MANAGEMENT
 SYSTEM CERTIFIED BY DNV
 = ISO 9001:2008 =
 SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Pirelli, 28
 Tel. +39 031.655441
 Fax +39 031.655148
 quality.mff@tames.com

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT
 STABILIMENTO A CALDO DI ACCIUMINI - LEGATI E NOBILIARI

COD. COL. COLATA	POS. ITEM	VS.ORDINE	Q.TA	DESCRIZIONE	Q.TY	DESCRIZIONE	DIM.IN ACC. A	VS. E DIMENS.							
1272687	201	CI-12-430	125,00	SW 800 RF 1" XXS A105N			ASME/ANSI B16.5-2009	SATISFACTORY							
MATERIALE / MATERIAL															
ASTM A106 (LADLE)			C% 0,200	Si% 0,210	Mn% 0,930	P% 0,015	Cr% 0,150	Ni% 0,060	Mo% 0,020	Cu% 0,180	V% 0,003	Nb% 0,002	N% 0,000	Al% 0,025	C.E.% 0,406
PROFETTA / TEST SPECIMEN	FORMA / SHAPE	ROTTURA / TENSILE STRENGTH	ALLUNGAMENTO / ELONGATION	CONTRAZIONE / REDUCTION OF AREA	DUREZZA / HARDNESS	REBILICITA' / IMPACT TEST	TPO / TYPE	RESILIEZZA / IMPACT TEST	SERVAMENTO / YIELD POINT	No. RT. OUR REF.					
SECT. max	LEIGHT mm	N/mm ²	%	%	HBW	Joule	KV	°C	N/mm ²						
126,80	50,80	628,0	31,0	58,0	159,0 - 103,0	20	86	82	88						
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO															
ASTMASME A 106/SA 106 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD.															
TRATTAMENTO TERMICO / HEAT TREATMENT															
NORMALIZED AT 920 C - COOLED IN STILL AIR															
FORMO / FURNACE															
ELECTRIC FURNACE															
ORIGINE / ORIGIN OF STEEL															
EUROPEAN UNION															

COD. COL. COLATA	POS. ITEM	VS.ORDINE	Q.TA	DESCRIZIONE	Q.TY	DESCRIZIONE	DIM.IN ACC. A	VS. E DIMENS.							
1230884	039	CI-12-478	100,00	BLIND 300 RF 2"		LF2CL1	ASME/ANSI B16.5-2009	SATISFACTORY							
MATERIALE / MATERIAL															
ASTM A360 LF2 CL1 (LADLE)			C% 0,200	Si% 0,220	Mn% 0,910	P% 0,013	Cr% 0,140	Ni% 0,060	Mo% 0,020	Cu% 0,017	V% 0,002	Nb% 0,001	N% 0,000	Al% 0,025	C.E.% 0,397
PROFETTA / TEST SPECIMEN	FORMA / SHAPE	ROTTURA / TENSILE STRENGTH	ALLUNGAMENTO / ELONGATION	CONTRAZIONE / REDUCTION OF AREA	DUREZZA / HARDNESS	REBILICITA' / IMPACT TEST	TPO / TYPE	RESILIEZZA / IMPACT TEST	SERVAMENTO / YIELD POINT	No. RT. OUR REF.					
SECT. max	LEIGHT mm	N/mm ²	%	%	HBW	Joule	KV	°C	N/mm ²						
126,80	60,80	518,0	31,0	59,0	166,0 - 109,0	-50	66	63	67						
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO															
ASTMASME A 360/SA 360 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD.															
TRATTAMENTO TERMICO / HEAT TREATMENT															
NORMALIZED AT 830 C - COOLED IN STILL AIR															
FORMO / FURNACE															
ELECTRIC FURNACE															
ORIGINE / ORIGIN OF STEEL															
EUROPEAN UNION															

CONFORMS TO SA 350LF2CL1
 YEAR 2010 SEP, 2011 600
 JOB # 2012-8440-01
 ITEM # #1
 SIGNED BY [Signature] SEP 20 2013

8-8440-01
 20-133383

Algo to drill 3/4" NPT hole.

NOTE 100% MANUFACTURED IN ITALY NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATIONS	UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL
MATERIAL IN ACCORDANCE WITH NACE MR-01752009 ISO 15156-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-01032010 - SOUR SERVICE	[Signature]		[MFF Logo]

20111a
 CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE
 2011a
 ASTMASME A 106/SA 106 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD.
 TRATTAMENTO TERMICO / HEAT TREATMENT
 NORMALIZED AT 920 C - COOLED IN STILL AIR
 FORMO / FURNACE
 ELECTRIC FURNACE
 ORIGINE / ORIGIN OF STEEL
 EUROPEAN UNION

ALCO GAS & OIL RADIOGRAPHY REPORT

PRODUCTION EQUIPMENT LTD.

CUSTOMER: DEVON CANADA CORP.	DESCRIPTION: 78"ID X 20' DRAIN VESSELS	ALCO JOB NUMBER: 2013-8440-01B
DATE: NOV 20 2013	TECHNIQUE # USED: RT P#4 REV # 5	CODE: SECTION VIII DIV 1
MATERIAL: P1	MAT'L THICKNESS: 3/8"	EDITION: 2010 ADDENDA: 2011 ACCEPTANCE: UW-51 UW-11a FULL

1 NO. OF FILMS PER CASSETTE

LEGEND:	* - WELDER SYMBOL	HL - HI LO	S - SLAG	CRACK	<input checked="" type="checkbox"/> SINGLE WALL EXPOSURE
	IP - INCOMPLETE PENETRATION	LC - LOW COVER	P - POROSITY	(1) SLIGHT	<input type="checkbox"/> DOUBLE WALL EXPOSURE
	BT - BURN THROUGH	UC - UNDER CUT	I - ICICLE	(2) MEDIUM	<input checked="" type="checkbox"/> SINGLE WALL VIEWING
	IC - INTERNAL CONCAVITY	AS - ARC STRIKE	C - CRATER	(3) SEVERE	<input type="checkbox"/> DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC		REMARKS	ACC	REJECT
M2L1	0-8"	17													✓	

COSTING

SOURCE TYPE: IR 192	HRS.	@	\$0.00
STRENGTH: 36 CI	1	@	\$0.00
SOD: 19.250"	8" FILM	@	\$0.00
OFD: .750"	17" FILM	@	\$0.00
FILM TYPE: AGFA D5 CLASS 1	PIPE	@	\$0.00
FOCAL SPOT SIZE: .11"	PIPE	@	\$0.00
	PIPE	@	\$0.00
	PIPE	@	\$0.00

COMMENTS: _____ TOTAL EXPOSURES: 1 TOTAL COSTS: \$0.00

PAGE 1 OF 1 EXAMINER: BARRY RASMUSSEN LEVEL SNT III CGSB II #235

ALCO GAS & OIL RADIOGRAPHY REPORT

PRODUCTION EQUIPMENT LTD.

CUSTOMER: DEVON CANADA CORP.	DESCRIPTION: 78"ID X 20' DRAIN VESSELS	ALCO JOB NUMBER: 2013-8440-01B
DATE: NOV 20 2013	TECHNIQUE # USED: RT P#4 REV # 5	CODE: SECTION VIII DIV 1
MATERIAL: P1	MAT'L THICKNESS: 3/4"	EDITION: 2010 ADDENDA: 2011 ACCEPTANCE: UW-51 UW-11a FULL

1 NO. OF FILMS PER CASSETTE

- LEGEND: * - WELDER SYMBOL HL - HI LO S - SLAG CRACK SINGLE WALL EXPOSURE
 IP - INCOMPLETE PENETRATION LC - LOW COVER P - POROSITY (1) SLIGHT DOUBLE WALL EXPOSURE
 BT - BURN THROUGH UC - UNDER CUT I - ICICLE (2) MEDIUM SINGLE WALL VIEWING
 IC - INTERNAL CONCAVITY AS - ARC STRIKE C - CRATER (3) SEVERE DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC	REMARKS	ACC	REJECT
M2L1	0-8"	17												✓	

COSTING

SOURCE TYPE:	IR 192	HRS.		@	\$0.00
STRENGTH:	36 Ci	1	8" FILM	@	\$0.00
SOD:	19.250"		17" FILM	@	\$0.00
OFD:	.750"		PIPE	@	\$0.00
FILM TYPE:	AGFA D5 CLASS 1		PIPE	@	\$0.00
FOCAL SPOT SIZE:	11"		PIPE	@	\$0.00
			PIPE	@	\$0.00

COMMENTS: _____ TOTAL EXPOSURES: TOTAL COSTS:

RADIOGRAPHY REPORT

CUSTOMER: DEVON CANADA CORP.		DESCRIPTION: 78"ID X 20' DRAIN VESSELS		ALCO JOB NUMBER: 2013-8440-01B	
DATE: NOV 21 2013		TECHNIQUE # USED: RT P#4 REV # 5		CODE: SECTION VIII DIV 1	
MATERIAL: P1		MAT'L THICKNESS: 3/4"		EDITION: 2010 ADDENDA: 2011 ACCEPTANCE: UW-51 UW-11a FULL	

NO. OF FILMS PER CASSETTE

LEGEND: * - WELDER SYMBOL	HL - HI LO	S - SLAG	CRACK	<input checked="" type="checkbox"/> SINGLE WALL EXPOSURE
IP - INCOMPLETE PENETRATION	LC - LOW COVER	P - POROSITY	(1) SLIGHT	<input type="checkbox"/> DOUBLE WALL EXPOSURE
BT - BURN THROUGH	UC - UNDER CUT	I - ICICLE	(2) MEDIUM	<input checked="" type="checkbox"/> SINGLE WALL VIEWING
IC - INTERNAL CONCAVITY	AS - ARC STRIKE	C - CRATER	(3) SEVERE	<input type="checkbox"/> DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC	REMARKS	ACC	REJECT
M1L1	0-B"	17												✓	

COSTING

SOURCE TYPE:	IR 192	HRS.	@		\$0.00
STRENGTH:	35 Ci	1	@		\$0.00
SOD:	19.250"		@		\$0.00
OFD:	.750"		@		\$0.00
FILM TYPE:	AGFA D5 CLASS 1		@		\$0.00
FOCAL SPOT SIZE:	11"		@		\$0.00
			@		\$0.00

COMMENTS: _____ TOTAL EXPOSURES: 1 TOTAL COSTS \$0.00

ALCO GAS & OIL RADIOGRAPHY REPORT

PRODUCTION EQUIPMENT LTD.

CUSTOMER: DEVON CANADA CORP.	DESCRIPTION: 78"ID X 20' DRAIN VESSELS	ALCO JOB NUMBER: 2013-8440-01B
DATE: MAR 20 2014	TECHNIQUE # USED: RT P#10 REV # 5	CODE: SECTION VIII DIV 1
MATERIAL: P1	MAT'L THICKNESS: 3/8"	EDITION: 2010 ADDENDA: 2011 ACCEPTANCE: UW-51 UW-11a FULL

1 NO. OF FILMS PER CASSETTE

LEGEND: * - WELDER SYMBOL HL - HI LO S - SLAG CRACK SINGLE WALL EXPOSURE

IP - INCOMPLETE PENETRATION LC - LOW COVER P - POROSITY (1) SLIGHT DOUBLE WALL EXPOSURE

BT - BURN THROUGH UC - UNDER CUT I - ICICLE (2) MEDIUM SINGLE WALL VIEWING

IC - INTERNAL CONCAVITY AS - ARC STRIKE C - CRATER (3) SEVERE DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC	REMARKS	ACC	REJECT
L1	0-14	12												✓	
	14-28													✓	
	28-42													✓	
	42-56													✓	
	56-70													✓	
	70-84													✓	
	84-98													✓	
	98-112													✓	
	112-END													✓	
L2	0-14	12												✓	
	14-28													✓	
	28-42													✓	
	42-56													✓	
	56-70													✓	
	70-84													✓	
	84-98													✓	
	98-112													✓	
	112-END													✓	

COSTING

SOURCE TYPE:	IR 192	HRS.	
STRENGTH:	48 Ci	8" FILM	
SOD:	29.625"	17" FILM	18
OFD:	.375"	PIPE	
FILM TYPE:	AGFA D5 CLASS 1	PIPE	
FOCAL SPOT SIZE:	.11"	PIPE	
		PIPE	

@		
@		
@		
@		
@		
@		
@		

COMMENTS: _____ TOTAL EXPOSURES: 10 TOTAL COSTS \$0.00

ALCO GAS & OIL RADIOGRAPHY REPORT

PRODUCTION EQUIPMENT LTD.

CUSTOMER: DEVON CANADA CORP.	DESCRIPTION: 78"ID X 20' DRAIN VESSELS	ALCO JOB NUMBER: 2013-8440-01B
DATE: APRIL 20 2014	TECHNIQUE # USED: RT P#7 REV # 5	CODE: SECTION VIII DIV 1
MATERIAL: P1	MAT'L THICKNESS: 3/8"	EDITION: 2010 ADDENDA: 2011 ACCEPTANCE: UW-52 UW-11a-5b SPOT

1 NO. OF FILMS PER CASSETTE

LEGEND:

* - WELDER SYMBOL	HL - HI LO	S - SLAG	CRACK	<input checked="" type="checkbox"/> SINGLE WALL EXPOSURE
IP - INCOMPLETE PENETRATION	LC - LOW COVER	P - POROSITY	(1) SLIGHT	<input type="checkbox"/> DOUBLE WALL EXPOSURE
BT - BURN THROUGH	UC - UNDER CUT	I - ICICLE	(2) MEDIUM	<input checked="" type="checkbox"/> SINGLE WALL VIEWING
IC - INTERNAL CONCAVITY	AS - ARC STRIKE	C - CRATER	(3) SEVERE	<input type="checkbox"/> DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC	REMARKS	ACC	REJECT
C1	0-6	30/12												✓	
C3	0-6	30/12												✓	

COSTING

SOURCE TYPE:	IR 192	HRS	@		
STRENGTH:	36 Ci	2	@		
SOD:	19.625"		@		
OFD:	375"		@		
FILM TYPE:	AGFA D5 CLASS 1		@		
FOCAL SPOT SIZE:	.11"		@		
			@		

COMMENTS: _____ TOTAL EXPOSURES: 2 TOTAL COSTS \$0.00

RADIOGRAPHY REPORT

CUSTOMER: DEVON CANADA CORP.	DESCRIPTION: 78"ID X 20' DRAIN VESSELS	ALCO JOB NUMBER: 2013-8440-01B
DATE: MAY 11 2014	TECHNIQUE # USED: RT P#7 REV # 5	CODE: SECTION VIII DIV 1
MATERIAL: P1	MAT'L THICKNESS: SCH 160	EDITION: 2010 ADDENDA: 2011 ACCEPTANCE: UW-51 UW-11a FULL

1 NO. OF FILMS PER CASSETTE


LEGEND: * - WELDER SYMBOL HL - HI LO S - SLAG CRACK SINGLE WALL EXPOSURE
 IP - INCOMPLETE PENETRATION LC - LOW COVER P - POROSITY (1) SLIGHT DOUBLE WALL EXPOSURE
 BT - BURN THROUGH UC - UNDER CUT I - ICICLE (2) MEDIUM SINGLE WALL VIEWING
 IC - INTERNAL CONCAVITY AS - ARC STRIKE C - CRATER (3) SEVERE DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC	REMARKS	ACC	REJECT
N10A	2" SCH 160	11												✓	
N10B	2" SCH 160	11								1				✓	

COSTING

SOURCE TYPE: IR 192	HRS:	@		
STRENGTH: 30 Ci	8" FILM	@		
SOD: 2.031"	17" FILM	@		
OFD: .344"	PIPE	@		
FILM TYPE: AGFA D4 CLASS 1	PIPE	@		
FOCAL SPOT SIZE: 11"	PIPE	@		
	PIPE	@		

COMMENTS: _____ TOTAL EXPOSURES: 8 TOTAL COSTS \$0.00

PAGE 1 OF 1 EXAMINER: BARRY RASMUSSEN  LEVEL SNT III CGSB II #235

ALCO  **GAS & OIL RADIOGRAPHY REPORT**
PRODUCTION EQUIPMENT LTD.

CUSTOMER: DEVON CANADA CORP.		DESCRIPTION: 78"ID X 20' DRAIN VESSELS		ALCO JOB NUMBER: 2013-8440-01B	
DATE: MAR 26 2014		TECHNIQUE # USED: RT P#7 REV # 5		CODE: SECTION VIII DIV 1	
MATERIAL: P1		MAT'L THICKNESS: 3/8"		EDITION: 2010 ADDENDA: 2011 ACCEPTANCE: UW-52 UW-11a-5b SPOT	

1	NO. OF FILMS PER CASSETTE					
LEGEND:	* - WELDER SYMBOL	HL - HI LO	S - SLAG	CRACK	<input type="checkbox"/>	SINGLE WALL EXPOSURE
	IP - INCOMPLETE PENETRATION	LC - LOW COVER	P - POROSITY	(1) SLIGHT	<input checked="" type="checkbox"/>	DOUBLE WALL EXPOSURE
	BT - BURN THROUGH	UC - UNDER CUT	I - ICICLE	(2) MEDIUM	<input checked="" type="checkbox"/>	SINGLE WALL VIEWING
	IC - INTERNAL CONCAVITY	AS - ARC STRIKE	C - CRATER	(3) SEVERE	<input type="checkbox"/>	DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC	REMARKS	ACC	REJECT
C2	0-6	22/19													✓

COSTING

SOURCE TYPE: IR 192 HRS.
 STRENGTH: 46 Ci 8" FILM
 SOD: 19.625" 17" FILM
 OFD: 375" PIPE
 FILM TYPE: AGFA D5 CLASS 1 PIPE
 FOCAL SPOT SIZE: 11" PIPE

@		
@		
@		
@		
@		
@		
@		

COMMENTS _____ TOTAL EXPOSURES: 1 \$0.00

PAGE 1 OF 1 EXAMINER: BARRY RASMUSSEN  LEVEL SNT III CGSB II #235
 TOTAL COSTS

T H Consulting Services

109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GU13875

ULTRASONIC INSPECTION REPORT

Client <u>Alco Gas & Oil</u> <u>5203 - 75 St.</u> <u>Edmonton, Alberta</u>	Page <u>1-1</u>
Test Method <u>ASME V Article 4</u>	Time <u>1:00 PM</u>
Acceptance Criteria <u>ASME VIII Div. 1 App. 12</u>	Date <u>Mar 21, 2014</u>
Object _____	P.O. No. _____
	Job No. <u>2013-8440-01B</u>

Procedure <u>UT- General and UT- 8 Rev. 4</u>	Calibration Standards <u>ASME 1/2" T 1/16" N</u>	Couplant <u>Light oil</u>
Instrument <u>Olympus Epoch 600 S/N 120404409</u>	Calibration Due - <u>4 Oct 2014</u>	Reference Gain - <u>64 dB</u>
<input checked="" type="checkbox"/> Panametrics 12.5 S/N 170279	<input checked="" type="checkbox"/> Panametrics 25 S/N 677551	<input checked="" type="checkbox"/> Pana-wedges 45/60/70 ABWM-5T
<input type="checkbox"/> Panametrics 12.5 S/N 174928	<input type="checkbox"/> Panametrics 12.5 S/N 579307	<input type="checkbox"/> Panametrics 5x5xD S/N 505065
<input type="checkbox"/> Panametrics .25" S/N 97250	<input type="checkbox"/> DAC Block S/N 22539 thru 22548	<input type="checkbox"/> ASME V Block S/N 22608
<input type="checkbox"/> IIW Block S/N 11091	<input type="checkbox"/> Step Block S/N A03412	

Material - P1	Thickness - 3/8"	Temp - 10° C to 52°C	Surface Condition - Clean / As welded			
Transducer	Frequency	Size	FSH or %	Scan	Range	Cable Type
0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mm	"
70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mm	"

The following Cat "D" welds were scanned.

- 0° Lamination scan
- 60° Full and Half skip as available
- 70° Full and Half skip as available

Nozzles: N9, N11A, N11B, N12A, N12B, N13, N14 and M2.

No relevant indications were found.

CGSB # 11841					
Operator <u>Gord Sieben</u>	St	OT	KM	Client Representative	
	ASNT II CGSB II	2			

T H Consulting Services

109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GU14031

ULTRASONIC INSPECTION REPORT

Client	Alco Gas & Oil 5203 - 75 St. Edmonton, Alberta	Page	1-1
Test Method	ASME V Article 4	Time	1:00 PM
Acceptance Criteria	ASME VIII Div. 1 App. 12	Date	Apr 09, 2014
Object		P.O. No.	
		Job No.	2013-8440-01B

Procedure UT- General and UT- 8 Rev. 4	Calibration Standards ASME 1/2" T 1/16" N	Couplant Light oil
Instrument Olympus Epoch 600 S/N 120404409	Calibration Due - 4 Oct 2014	Reference Gain - 64 dB
<input checked="" type="checkbox"/> Panametrics 12.5 S/N 170279 <input checked="" type="checkbox"/> Panametrics 25 S/N 677551 <input checked="" type="checkbox"/> Pana-wedges 45/60/70 ABWM-5T <input type="checkbox"/> Other <input type="checkbox"/> Panametrics 12.5 S/N 174928 <input type="checkbox"/> Panametrics 12.5 S/N 579307 <input type="checkbox"/> Panametrics 5x5xD S/N 505065 <input type="checkbox"/> Panametrics .25" S/N 97250 <input type="checkbox"/> DAC Block S/N 22539 thru 22548 <input type="checkbox"/> ASME V Block S/N 22608 <input checked="" type="checkbox"/> IIW Block S/N 11091 <input type="checkbox"/> Step Block S/N A03412		

Material - P1	Thickness - 3/8"	Temp - 10° C to 52°C	Surface Condition - Clean / As welded			
Transducer	Frequency	Size	FSH or %	Scan	Range	Cable Type
0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mm	"
70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mm	"

The following Cat "D" welds were scanned.

- 0° Lamination scan
- 60° Full and Half skip as available
- 70° Full and Half skip as available

Nozzles: N1, N2, N4, N5, N7 and M1.

No relevant indications were found.

CGSB # 11841						
Operator Gord Sieben	St	OT	KM	Client Representative		
	ASNT II CGSB II	2				

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109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GU14066

ULTRASONIC INSPECTION REPORT

Client	Alco Gas & Oil 5203 - 75 St. Edmonton, Alberta	Page	1-1
Test Method	ASME V Article 4	Time	1:00 PM
Acceptance Criteria	ASME VIII Div. 1 App. 12	Date	Apr 15, 2014
Object		P.O. No.	
		Job No.	2013-8440-01B

Procedure UT- General and UT- 8 Rev. 4	Calibration Standards ASME 1/2" T 1/16" N	Couplant Light oil
Instrument Olympus Epoch 600 S/N 120404409	Calibration Due - 4 Oct 2014	Reference Gain - 64 dB
<input checked="" type="checkbox"/> Panametrics 12.5 S/N 170279	<input checked="" type="checkbox"/> Panametrics 25 S/N 677551	<input checked="" type="checkbox"/> Pana-wedges 45/60/70 ABWM-5T
<input type="checkbox"/> Panametrics 12.5 S/N 174928	<input type="checkbox"/> Panametrics 12.5 S/N 579307	<input type="checkbox"/> Panametrics 5x5xD S/N 505065
<input type="checkbox"/> Panametrics .25" S/N 97250	<input type="checkbox"/> DAC Block S/N 22539 thru 22548	<input type="checkbox"/> ASME V Block S/N 22608
<input type="checkbox"/> IIW Block S/N 11091	<input type="checkbox"/> Step Block S/N A03412	



Material - P1	Thickness - 3/8"	Temp - 10° C to 52°C	Surface Condition - Clean / As welded			
Transducer	Frequency	Size	FSH or %	Scan	Range	Cable Type
0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mm	"
70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mm	"

The following Cat "D" welds were scanned.

- 0° Lamination scan
- 60° Full and Half skip as available
- 70° Full and Half skip as available

Nozzles: N1, N7, N3, N10A and N10B.

No relevant indications were found.

CGSB # 11841							
Operator Gord Sieben	St	OT	KM	Client Representative			
	ASNT II CGSB II	,5					

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109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GU14065

ULTRASONIC INSPECTION REPORT

Client	Alco Gas & Oil 5203 - 75 St. Edmonton, Alberta	Page	1-1
Test Method	ASME V Article 4	Time	1:00 PM
Acceptance Criteria	ASME VIII Div. 1 App. 12	Date	Apr 15, 2014
Object		P.O. No.	
		Job No.	2013-8440-01B

Procedure UT- General and UT- 8 Rev. 4 Calibration Standards ASME 1/2" T 1/16" N Couplant Light oil
Instrument Olympus Epoch 600 S/N 120404409 Calibration Due - 4 Oct 2014 Reference Gain - 64 dB
 Panametrics 12.5 S/N 170279 Panametrics 25 S/N 677551 Pana-wedges 45/60/70 ABWM-5T Other
 Panametrics 12.5 S/N 174928 Panametrics 12.5 S/N 579307 Panametrics 5x5xD S/N 505065 Panametrics .25" S/N 97250
 DAC Block S/N 22539 thru 22548 ASME V Block S/N 22608 IIW Block S/N 11091 Step Block S/N A03412

Material - P1	Thickness - 1/2"	Temp - 10° C to 52°C	Surface Condition - Clean / As welded	Transducer	Frequency	Size	FSH or %	Scan	Range	Cable Type
				0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
				60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mm	"
				70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mm	"

The following Cat "D" welds were scanned.

0° Lamination scan
60° Full and Half skip as available
70° Full and Half skip as available

Nozzles: N1, N7, N10A and N10B.

No relevant indications were found.

CGSB # 11841

Operator Gord Sieben

St OT KM

Client Representative

ASNT II
CGSB II

5

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109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GM14142

MAGNETIC PARTICLE INSPECTION REPORT

Client	Alco Gas & Oil 5203 - 75 St. Edmonton, Alberta	Page	1-1
Test Method	ASME V SE 709-06	Time	11:00 AM
Acceptance Criteria	ASME VIII Div. 1 App. 6	Date	Apr 18, 2014
Object		P.O. No.	
		Job No.	2013-8440-01B

Procedure-MT-General and MT- 1V Rev. 4 Pre Heat Treatment Post Heat Treatment Post Hydrotest

Test Equipment ES-X Flex Ferrous Probe S/N - 16512 Blacklight B/L Meter XR-1000 S/N - 1815543

Black on White Contrast - Magnaflux WCP 2 White Contrast Batch # 7HF Prepared Bath Batch #

Medium- Magnaflux - Type 14 A partical batch # carrier batch # 8R 12F008 Other

<input checked="" type="checkbox"/> Dry	<input type="checkbox"/> Wet	<input type="checkbox"/> Fluorescent	<input checked="" type="checkbox"/> Red	<input type="checkbox"/> Grey	<input type="checkbox"/> B/White	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Yoke	<input type="checkbox"/> Prod	<input type="checkbox"/> Coil	<input checked="" type="checkbox"/> A/C	<input type="checkbox"/> D/C	<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Residual
<input checked="" type="checkbox"/> Base Metal	<input checked="" type="checkbox"/> Ground	<input type="checkbox"/> Machined	<input type="checkbox"/> Painted	<input type="checkbox"/> Shot Blasted	<input type="checkbox"/> Central Cond.	<input type="checkbox"/> Demag

Viewing Light Source in excess of 100fc. Ambient Trouble Light Flashlight W/L Meter S/N B100448

Material - P1 Thickness - Temp. - 10° C to 52° C Surface Condition - Clean Bare Steel

All Internal and External Fillet welds on the Vessel were tested.

No relevant indications were found.

CGSB # 11841

Operator Gord Sieben	St	OT	KM	Client Representative
	ASNT II CGSB II	2		

T H Consulting Services

109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GU14127

ULTRASONIC INSPECTION REPORT

Client	Alco Gas & Oil 5203 - 75 St. Edmonton, Alberta	Page	1-1
		Time	1:00 PM
Test Method	ASME V Article 4	Date	Apr 22, 2014
Acceptance Criteria	ASME VIII Div. 1 App. 12	P.O. No.	
Object		Job No.	2013-8440-01B

Procedure UT- General and UT- 8 Rev. 4	Calibration Standards ASME 1/2" T 1/16" N	Couplant Light oil
Instrument Olympus Epoch 600 S/N 120404409	Calibration Due - 4 Oct 2014	Reference Gain - 64 dB
<input checked="" type="checkbox"/> Panametrics 12.5 S/N 170279 <input checked="" type="checkbox"/> Panametrics 25 S/N 677551 <input checked="" type="checkbox"/> Pana-wedges 45/60/70 ABWM-5T <input type="checkbox"/> Other <input type="checkbox"/> Panametrics 12.5 S/N 174928 <input type="checkbox"/> Panametrics 12.5 S/N 579307 <input type="checkbox"/> Panametrics 5x5xD S/N 505065 <input type="checkbox"/> Panametrics .25" S/N 97250 <input type="checkbox"/> DAC Block S/N 22539 thru 22548 <input type="checkbox"/> ASME V Block S/N 22608 <input checked="" type="checkbox"/> IIW Block S/N 11091 <input type="checkbox"/> Step Block S/N A03412		

Material - P1	Thickness - 3/8"	Temp - 10° C to 52°C	Surface Condition - Clean / As welded			
Transducer	Frequency	Size	FSH or %	Scan	Range	Cable Type
0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mm	"
70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mm	"

The following Cat "D" welds were scanned.

- 0° Lamination scan
- 60° Full and Half skip as available
- 70° Full and Half skip as available

Nozzles: N6 and N8.

No relevant indications were found.

CGSB # 11841 Operator Gord Sieben	St	OT	KM	Client Representative
	ASNT II CGSB II	1		



QUALITY ASSURANCE INSPECTION SUMMARY (ABOVE-GRADE)

P#133732
8440-01

DATE: MAY 22/14	LOAD#	N/A	TRAILER#	N/A
PRODUCT: MANWAY COVERS	PROJECT:		N/A	
CUSTOMER: ALCO	OWNER: DEVON			
CUSTOMER Ref.No.: QUOTE 84134 REV1	NORPOINT Ref.No.: 13-0261			
CUSTOMER REPRESENTATIVE: MTL INSPECTION	NORPOINT REPRESENTATIVE: MANDY M'CAFFREY			

COMPRESSOR: 900 CFM	DRYER: Desiccant		MICROMETER S/N PNT673 4.1 MIL
NO. OF NOZZLES: 1	PRESSURE @ NOZZLE: 115 psi		
ABRASIVE: Silica	SIZE: # 7		
CLEAN STND: SSPC-SP5	PH N/A		

HYDROMETER 12040840 ST-TEMP PROBE S/N 092513026-35100-K

ENVIRONMENT	AIR	WET BULB	STEEL	RH %	DEW POINT	WEATHER	DATE	RELEASED BY
BLAST	25.2°C	13.0°C	26.1°C	21.5%	2.9°C	BLAST PIT	MAY 22/14	MM
COAT #1	26.9°C	15.3°C	24.7°C	21.2%	4.5°C	SHOP 2	MAY 22/14	MM
COAT #2	29.7°C	15.7°C	30.1°C	17.9%	5.5°C	SHOP 2	MAY 23/14	MM
COAT #3								
COAT #4								

PAINT SYSTEM - ALCO ABOVE GRADE INTERNAL / EXTERNAL.

COATING	MANUFACTURER	PRODUCT	BATCH NUMBER	APPLICATION METHOD	COLOR
COAT #1	HIGHLAND	74	B-1404-31477 C-1401-31242	CONVENTIONAL	GREEN
COAT #2	HIGHLAND	74	B-1404-31477 C-1401-31242	CONVENTIONAL	GREEN
COAT #3			B- C- 		
COAT #4			B- C- 		

DFT GAUGE 727140

COATINGS	DFT BEFORE THIS COAT		WFT MEASUREMENTS		DFT MEASUREMENTS		
COAT #1	MIN: 0	MAX: 0	MIN: 4	MAX: 8.5	MIN: 5.1	MAX: 6.7	
COAT #2	MIN: 3.1	MAX: 4.7	MIN: 4	MAX: 8.5	MIN: 9.4	MAX: 12.1	
COAT #3	MIN:	MAX:	MIN:	MAX:	MIN:	MAX:	
COAT #4	MIN:	MAX:	MIN:	MAX:	MIN:	MAX:	
NUMBER OF READINGS			14		AVGERAGE DFT		10.95

MIXING	TYPE	AMOUNT	BATCH #	METHOD	SWEAT IN	CHECKED BY, PLEASE PRINT NAME
COAT #1	740	5%	1403-31343	Power Mix	N/A	NELSON
COAT #2	740	5%	1403-31343	Power Mix	N/A	NELSON
COAT #3				Power Mix		
COAT #4				Power Mix		

HOLIDAY TEST: Low Voltage - 67.5 volts: YES: NO: SCAT TEST PASSED <3 PPM

GENERAL COMMENTS: 2 x Manway covers for Vessel 002-V-10-1010
COATING IS ACCEPTABLE MM

FINAL ACCEPTANCE & WORK RELEASE

Norpoint Acceptance: MANDY M'CAFFREY M'CAFFREY	Customer Release: NATHAN KENNEDY (REVIEW ONLY)
Date: MAY 27/14 NACE 42852.	Date: MAY 27/2014



QUALITY ASSURANCE INSPECTION SUMMARY (ABOVE-GRADE)

DATE: MAY 22/14	LOAD# N/A	TRAILER# N/A
PRODUCT: MANWAY COVERS.		PROJECT: N/A
CUSTOMER: ALCO		OWNER: DEVON
CUSTOMER Ref.No.: QUOTE 86138 REV 1		NORPOINT Ref.No.: 13-0261
CUSTOMER REPRESENTATIVE: M7L INSPECTION		NORPOINT REPRESENTATIVE: MANDY M'CAFFREY

COMPRESSOR: 900 CFM	DRYER: Desiccant		
NO. OF NOZZLES: 1	PRESSURE @ NOZZLE: 115 psi		
ABRASIVE: Silica	SIZE: # 7		
CLEAN STND: SSPC - SP 10	PH N/A		

Hydrometer 1204090 ST. TEMP PROBE 3N 042513026-35100-K

ENVIRONMENT	AIR	WET BULB	STEEL	RH %	DEW POINT	WEATHER	DATE	RELEASED BY
BLAST	25.2°C	13.0°C	24.1°C	21.5%	2.8°C	BLAST PIT	MAY 22/14	MM
COAT #1	21.1°C	15.5°C	23.2°C	52.3%	10.9°C	SHOP 2	MAY 26/14	MM
COAT #2								
COAT #3								
COAT #4								

PAINT SYSTEM - ALCO ABOVE GRADE EXTERNAL.

COATING	MANUFACTURER	PRODUCT	BATCH NUMBER	APPLICATION METHOD	COLOR
COAT #1	CLOVERDALE	CLOVALINE	B- W1358072 C- W13K8798	AIRLESS.	MED. GREY
COAT #2			B- C-		
COAT #3			B- C-		
COAT #4			B- C-		

DFT Gauge 727140

COATINGS	DFT BEFORE THIS COAT		WFT MEASUREMENTS		DFT MEASUREMENTS	
COAT #1	MIN: 0	MAX: 0	MIN: 8	MAX: 10	MIN: 4.1	MAX: 8.7
COAT #2	MIN:	MAX:	MIN:	MAX:	MIN:	MAX:
COAT #3	MIN:	MAX:	MIN:	MAX:	MIN:	MAX:
COAT #4	MIN:	MAX:	MIN:	MAX:	MIN:	MAX:
NUMBER OF READINGS			22		AVGERAGE DFT	
					6.74	

MIXING	TYPE	AMOUNT	BATCH #	METHOD	SWEAT IN	CHECKED BY, PLEASE PRINT NAME
COAT #1	C25	10%	W13K8449	Power Mix	N/A	NELSON
COAT #2				Power Mix		
COAT #3				Power Mix		
COAT #4				Power Mix		

HOLIDAY TEST: Low Voltage - 67.5 volts: YES: NO: SCAT TEST PASS <3PPM
M/1 S/N 20211 CAL DUE 07/03/15

GENERAL COMMENTS: EXTERNAL MANWAY COVERS FOR VESSEL 002-V-10-1010.
COATING IS ACCEPTABLE mm

FINAL ACCEPTANCE & WORK RELEASE	
Norpoint Acceptance: MANDY M'CAFFREY <i>M.M'</i>	Customer Release: NATHAN KENNEDY <i>N.K.</i> (REVIEW ONLY)
Date: MAY 27/14 NACE 42952	Date: MAY 27/2014



QUALITY ASSURANCE INSPECTION SUMMARY (ABOVE-GRADE)

DATE: MAY 15, 2013	LOAD#	N/A	TRAILER#	N/A
PRODUCT: VESSEL	PROJECT: MIN			
CUSTOMER: ALCO	OWNER: DEVON			
CUSTOMER Ref.No.: QUOTE 86134 REV 1	NORPOINT Ref.No.: 13-0261			
CUSTOMER REPRESENTATIVE: MTL INSPECTION	NORPOINT REPRESENTATIVE: MANDY M'CAFFREY			

COMPRESSOR: 900 CFM	DRYER: Desiccant		MICROMETER S/N PNT 673 3.9 MIL
NO. OF NOZZLES: 1	PRESSURE @ NOZZLE: 115 psi		
ABRASIVE: Silica	SIZE: # 7		
CLEAN STND: SSPC -SP 9	PH N/A		

HYDROMETER / ST. TEMP GAUGE P/N 130707672.

ENVIRONMENT	AIR	WET BULB	STEEL	RH %	DEW POINT	WEATHER	DATE	RELEASED BY
BLAST	17.5°C	9.1°C	15°C	41.4%	3.9°C	TENT	MAY 15/14	MM
COAT #1	22.2°C	11.8°C	25.7°C	25.6%	1.1°C	ALCO SHOP	MAY 16/14	MM
COAT #2	21.4°C	10.9°C	22.6°C	23.2%	4.2°C	ALCO SHOP	MAY 17/14	MM
COAT #3	24.3°C	12.2°C	25.3°C	32.3%	5.1°C	ALCO SHOP	MAY 19/14	MM
COAT #4								

PAINT SYSTEM - ALCO ABOVE GRADE INTERNAL SPEC.

COATING	MANUFACTURER	PRODUCT	BATCH NUMBER	APPLICATION METHOD	COLOR
COAT #1	HIGHLAND	74	B-1401-31243 C-1404-31475	AIRLESS + CONVENTIONAL	GREEN
COAT #2	HIGHLAND	74	B-1403-31344 C-1404-31475	AIRLESS + CONVENTIONAL	YELLOW
COAT #3	HIGHLAND	74	B-1401-31243 C-1404-31475	AIRLESS + CONVENTIONAL	GREEN
COAT #4			B- C-		

DFT GAUGE 727140.

COATINGS	DFT BEFORE THIS COAT		WFT MEASUREMENTS		DFT MEASUREMENTS		
COAT #1	MIN: 0	MAX: 0	MIN: 4	MAX: 6	MIN: 3	MAX: 7	
COAT #2	MIN: 3	MAX: 7	MIN: 4	MAX: 6	MIN: 6	MAX: 12	
COAT #3	MIN: 6	MAX: 12	MIN: 3	MAX: 5	MIN: 9.5	MAX: 16.5	
COAT #4	MIN	MAX	MIN	MAX	MIN	MAX	
NUMBER OF READINGS			1000		AVGERAGE DFT		12.82

MIXING	TYPE	AMOUNT	BATCH #	METHOD	SWEAT IN	CHECKED BY, PLEASE PRINT NAME
COAT #1	740	5%	1403-31343	Power Mix	5 min	NELSON
COAT #2	740	5%	1403-31343	Power Mix	5 min	NELSON
COAT #3	740	5%	1403-31343	Power Mix	5 min	NELSON
COAT #4				Power Mix		

HOLIDAY TEST: Low Voltage - 67.5 volts: YES: NO: - 11 hot found. Repaired May 21/14.
SCRT TEST PASSED <3PPM. KITAGAWA TUBE # 252143.

GENERAL COMMENTS: VESSEL 002-V-10-1010.
* MANWAY COVERS ARE BEING BLASTED
COATING IS ACCEPTABLE mm AND COATED AT SHOP (NORPOINT) mm.

FINAL ACCEPTANCE & WORK RELEASE

Norpoint Acceptance: MANDY M'CAFFREY M'CAFFREY	Customer Release: NATHAN KENNEDY (REVIEW ONLY)
Date: MAY 22 / 14 NACE 42852.	Date: MAY 22 / 2014



QUALITY ASSURANCE INSPECTION SUMMARY (ABOVE-GRADE)

DATE: MAY 20/14	LOAD# N/A	TRAILER# N/A
PRODUCT: VESSEL	PROJECT: N/A	
CUSTOMER: ALCO	OWNER: DEVON	
CUSTOMER Ref.No.: QUOTE 86134 REV1	NORPOINT Ref.No.: 13-0261	
CUSTOMER REPRESENTATIVE: MTC INSPECTION	NORPOINT REPRESENTATIVE: MANDY M'CAFFEY	

COMPRESSOR: 900 CFM	DRYER: Desiccant	Testex PRESS-O-FILM™ HT <small>www.testexape.com</small> NLCO EXTERNAL 20 38 (C+XC)/2 64 XC 0.8 1.5 2.5 4.0 1.5 to 4.5 mil X-Coarse 38 to 115 µm Made in USA 115 µm MAY 20/14 4.0 MIL.
NO. OF NOZZLES: 1	PRESSURE @ NOZZLE: 115 psi	
ABRASIVE: Silica	SIZE: # 7	
CLEAN STND: SSPC - SP 10	PH N/A	

HYDROMETER / ST. TEMP GAUGE S/N 130707672

ENVIRONMENT	AIR	WET BULB	STEEL	RH %	DEW POINT	WEATHER	DATE	RELEASED BY
BLAST	22.2°C	11.4°C	25.7°C	25.4%	1.1°C	BLAST TON	MAY 20/14	MM
COAT #1								
COAT #2								
COAT #3								
COAT #4								

PAINT SYSTEM - ALCO ABOVE GRADE EXTERNAL SPEC.

COATING	MANUFACTURER	PRODUCT	BATCH NUMBER	APPLICATION METHOD	COLOR
COAT #1	CLOVERDALE	CLUVALINE 8329	B- W1338072 C- WBK 8798	AIRLESS	GREY
COAT #2			B- C-		
COAT #3			B- C-		
COAT #4			B- C-		

DFT GAUGE 727140

COATINGS	DFT BEFORE THIS COAT		WFT MEASUREMENTS		DFT MEASUREMENTS		
COAT #1	MIN: 0	MAX: 0	MIN: 8	MAX: 10	MIN: 5.7	MAX: 9.9	
COAT #2	MIN:	MAX:	MIN:	MAX:	MIN:	MAX:	
COAT #3	MIN:	MAX:	MIN:	MAX:	MIN:	MAX:	
COAT #4	MIN:	MAX:	MIN:	MAX:	MIN:	MAX:	
NUMBER OF READINGS			86.		AVGERAGE DFT		7.87

MIXING	TYPE	AMOUNT	BATCH #	METHOD	SWEAT IN	CHECKED BY, PLEASE PRINT NAME
COAT #1	C 25	10%	W1338072	Power Mix	N/A	NELSON
COAT #2				Power Mix		
COAT #3				Power Mix		
COAT #4				Power Mix		

HOLIDAY TEST: Low Voltage - 67.5 volts: YES: NO: - SCAT TEST PASSED <3PPM - KITAGAWA TUBE #252143.

GENERAL COMMENTS: EXTERNAL VESSEL 002 - V - 10 - 1010.
COATING IS ACCEPTABLE.

FINAL ACCEPTANCE & WORK RELEASE

Norpoint Acceptance: MANDY M'CAFFEY M-JM/4/14	Customer Release: NATHAN KENNEDY NR-2 (REVIEW ONLY)
Date: MAY 22/14 NACE 42452	Date: MAY 22/2014



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-01B

DESCRIPTION: CLOSED HYDROCARBON DRAIN VESSEL

NAME OF AUTHORIZED INSPECTION AGENCY: ABSA

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 65 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: Water **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: B8 & B9

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.



QC INSPECTOR/ ALCO GAS & OIL 4/28/2014

DATE



3RD PARTY INSPECTOR 4/28/2014

DATE



AUTHORIZED INSPECTOR 4/28/2014

DATE



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-01B

DESCRIPTION: HEATING COIL

NAME OF AUTHORIZED INSPECTION AGENCY: ABSA

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 320 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

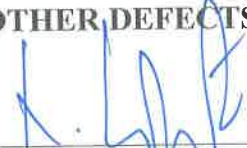


TEST FLUID: Water **TEST TEMPERATURE** > 60 F

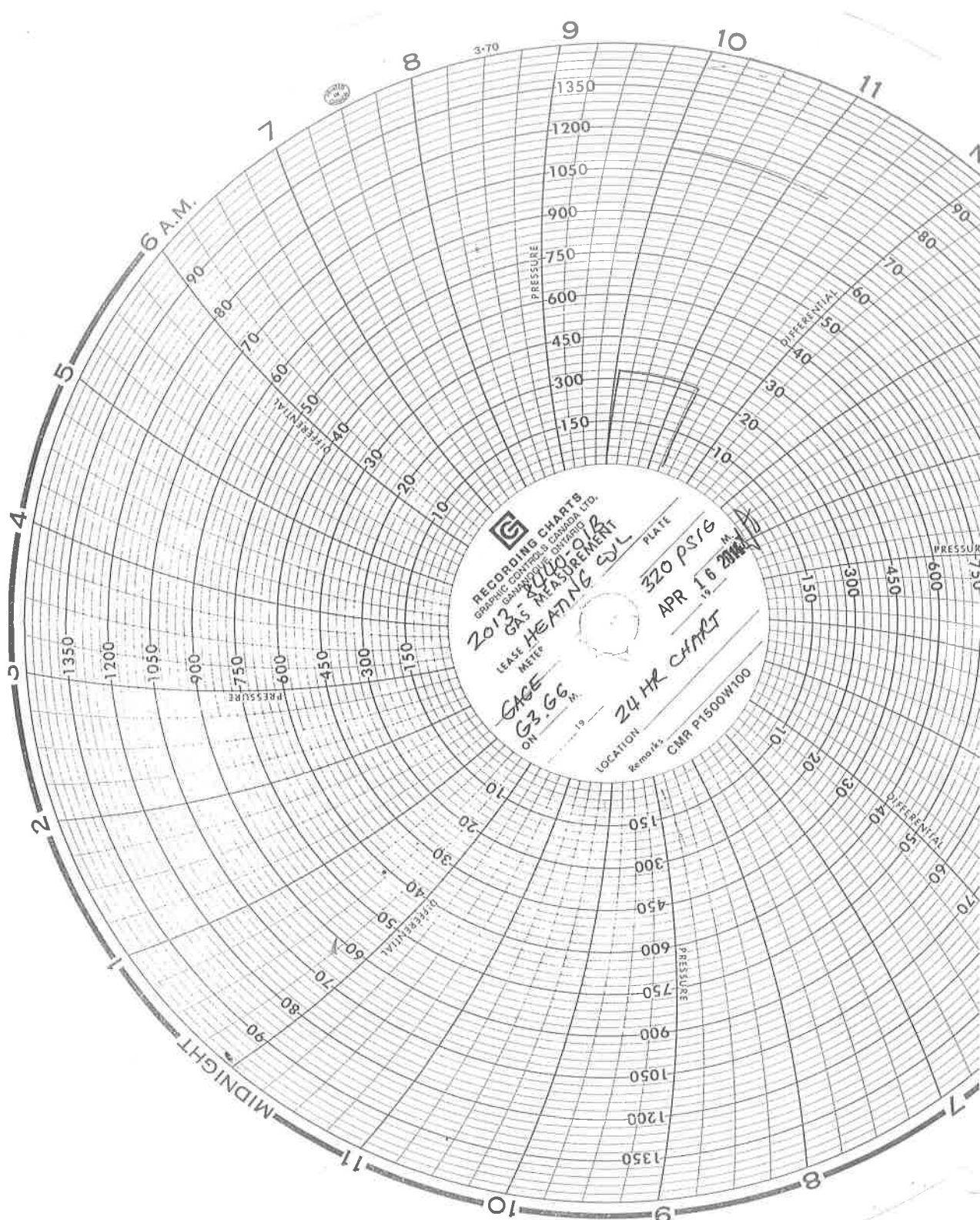
TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: G3 & G6

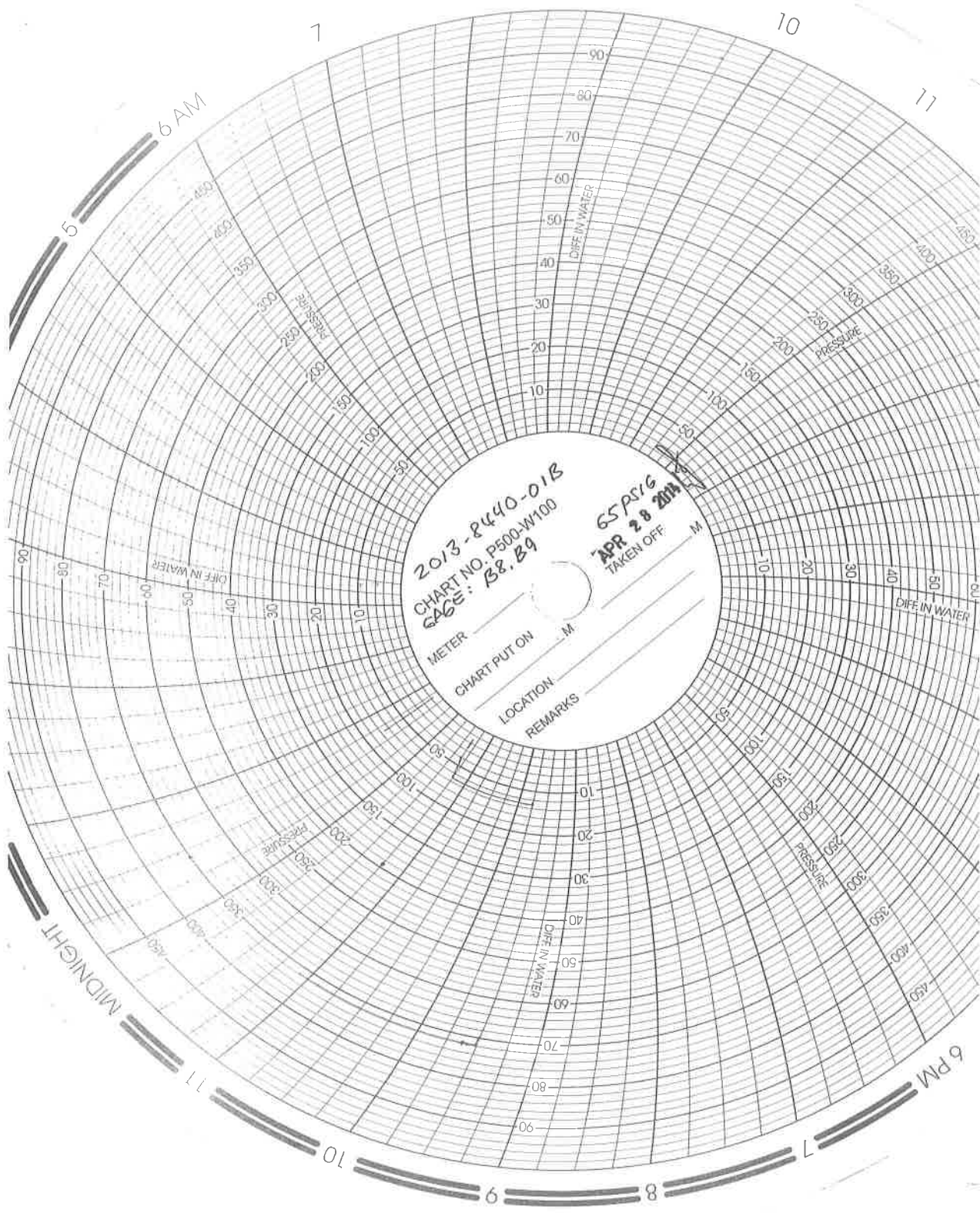
PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

 <hr style="border: 0; border-top: 1px solid black;"/> QC INSPECTOR/ ALCO GAS & OIL	<hr style="border: 0; border-top: 1px solid black;"/> 4/16/2014 <hr style="border: 0; border-top: 1px solid black;"/> DATE
 <hr style="border: 0; border-top: 1px solid black;"/> 3RD PARTY INSPECTOR	<hr style="border: 0; border-top: 1px solid black;"/> 4/16/2014 <hr style="border: 0; border-top: 1px solid black;"/> DATE
 <hr style="border: 0; border-top: 1px solid black;"/> AUTHORIZED INSPECTOR	<hr style="border: 0; border-top: 1px solid black;"/> 4/16/2014 <hr style="border: 0; border-top: 1px solid black;"/> DATE



RECORDING CHARTS
GRAPHIC CONTROLS & CAMERON LTD.
2013 GAS MEASUREMENT METER
LEASE HEATING SVL
GAGE ON G3.66 M.
320 PSIG
APR 16 2013
24 HR CHART
LOCATION Remarks: CMR P1500W100
PLATE



2013-2440-01B
CHART NO. P500-W100
GAGE: B8.29

65 PSIG
APR 28 2014
TAKEN OFF

METER _____ M
CHART PUT ON _____ M
LOCATION _____
REMARKS _____

Phase # : 2013-8440-02A
Phase Title: Structural Steel Skid

TABLE OF CONTENTS

Title	Availability	
	Yes	No
1. Data Reports		N/A
2. CRN's		N/A
3. Nameplate Copy		N/A
4. Travel Sheet		N/A
5. Impact Test Reports		N/A
6. Material Control		N/A
7. Material Reports		N/A
8. MTR's		N/A
9. NDE MPT	X	
LPT		N/A
RADIOGRAPHY		N/A
ULTRA SONIC		N/A
10. Stress Relieve Charts		N/A
11. Hydrotest Report(s)		N/A
12. Hydro Chart		N/A
13. PSV & Valve Cert.		N/A

T H Consulting Services

109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GM14537

MAGNETIC PARTICLE INSPECTION REPORT

Client	Alco Gas & Oil 5203 - 75 St. Edmonton, Alberta	Page	1-1
Test Method	ASME V SE-709-06 / Dry Powder	Time	11:00 AM
Acceptance Criteria	ASME VIII Div. 1 App. 6	Date	May 13, 2014
Object		P.O. No.	
		Job No.	2013-8440-02A

Procedure -MT-General and MT- 1V Rev. 4		<input type="checkbox"/> Pre Heat Treatment	<input type="checkbox"/> Post Heat Treatment	<input type="checkbox"/> Post Hydrotest
Test Equipment	ES-X Flex Ferrous Probe S/N - 16512	<input type="checkbox"/> Blacklight	<input type="checkbox"/> B/L Meter XR-1000 S/N - 1815543	
Black on White Contrast - Magnaflux		<input type="checkbox"/> WCP 2 White Contrast Batch #	<input type="checkbox"/> 7HF Prepared Bath Batch #	
Medium- Magnaflux - Type	<input type="checkbox"/> 14 A partical batch #	carrier batch #	<input checked="" type="checkbox"/> 8R 12F008	Other
<input checked="" type="checkbox"/> Dry	<input type="checkbox"/> Wet	<input type="checkbox"/> Fluorescent	<input checked="" type="checkbox"/> Red	<input type="checkbox"/> Grey
<input checked="" type="checkbox"/> Yoke	<input type="checkbox"/> Prod	<input type="checkbox"/> Coil	<input checked="" type="checkbox"/> A/C	<input type="checkbox"/> D/C
<input checked="" type="checkbox"/> Base Metal	<input checked="" type="checkbox"/> Ground	<input type="checkbox"/> Machined	<input type="checkbox"/> Painted	<input type="checkbox"/> Shot Blasted
Viewing Light Source in excess of 100fc.		<input type="checkbox"/> Ambient	<input type="checkbox"/> Trouble Light	<input checked="" type="checkbox"/> Flashlight
Material - P1	Thickness - 1-3/8"	Temp. - 10° C to 52° C	Surface Condition - Clean	

The (8) Lift Lug welds on the Skid were tested.

No relevant indications were found.

CGSB # 11841	Operator Gord Sieben	St	OT	KM	Client Representative
		ASNT II CGSB II	.5		

Phase # : 2013-8440-03A
Phase Title: Level Transmitter Cage

TABLE OF CONTENTS

Title	Availability	
	Yes	No
1. Data Reports		N/A
2. CRN's		N/A
3. Nameplate Copy		N/A
4. Travel Sheet	X	
5. Impact Test Reports		N/A
6. Material Control	X	
7. Material Reports	X	
8. MTR's	X	
9. NDE MPT	X	
LPT		N/A
RADIOGRAPHY	X	
ULTRASONIC		N/A
10. Stress Relieve Charts		N/A
11. Hydrotest Report(s)	X	
12. Hydro Chart	X	
13. PSV & Valve Cert.		N/A

TRAVEL SHEET

Authorized Inspector (Signature) _____

Date _____

CUSTOMER / LOCATION		SERIAL NUMBER / UNIT		(A) NUMBER :			
DEVON CANADA CORPORATION		2013-8440-03A		DRAWING NUMBER			
FERRIER CPF PROJECT, AB		LSD: 11-02-039-08 W5M		C-2013-8440-03-001/001			
ITEMS: LEVEL TRANSMITTER CAGE FOR GWR ROSEMOUNT 5300 NPS 4 CL300 STD		COMMENTS:		INITIALS			
				HOLD QC		CUSTOMER HOLD (AGENT)	HOLD A.I.
Repair Procedure Approved							
Approved Drawings / CRN							
Material Checked / Heat Verified		REVIEWED					
MTR Checked		REVIEWED 14 MAR 2014					
Impact Test		EXEMPT TABLE A-1 SEP 23 2013					
Unit Layout		Mar. 13, 2014					
Weld Procedure Approved		REVIEWED SEP 23 2013					
Welder(s) Qualifications		REVIEWED 14 MAR 2014					
Fit-Up: Shell & Heads		TYPE 1 14 MAR 2014					
Nozzles & Fittings		14 MAR 2014					
Internals							
Externals		14 MAR 2014					
Connections: Location		14 MAR 2014					
Rating		CL300 CL3000 14 MAR 2014					
Internal Inspection							
Internals Installed							
Weld Profile, Sizes & ID		CHECKED 14 MAR 2014					
Radiographs		10% TO ASME B31.3					
Other NDE		MPI 10% ON FILLET WELDS		MAR 20 2014			
Stamping		CHECKED 14 MAR 2014					
External Upon Completion of Welding		CHECKED 14 MAR 2014					
Alternative Test							
PWHT Charts Checked		NONE					
Hydrostatic Test - CHART RECORD		75 PSIG GAGE# B184		MAR 18 2014			
MDR							
Name Plate							
PART	MATERIAL SPEC	THICKNESS	HEAT NO.	PART	MATERIAL SPEC	THICKNESS	HEAT NO.
Heads	SA-420 WPL6	0.237" NOM	12433101	Repads			
Shell	SA-333-6	0.237"	P-912				
				Tubes			
Tubesheet							

* INDICATES HOLD POINTS TO BE SIGNED OFF BY THE APPLICABLE INSPECTOR.

ALCO  **GAS & OIL**
PRODUCTION EQUIPMENT LTD.

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-03A
 CUSTOMER: DEVON CANADA CORPORATION
 DATE: MARCH 31, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED

ITEM	SIZE / RATING	MATERIAL	HEAT NUMBER	MTR	RT	MPI FILLET WELDS
#1 RF HUB BLIND	NPS 4 CL300	SA-350 LF2 CL1	4401629	✓		
#4 RFWN (N1)	NPS 4 CL300 STD	SA-350 LF2 CL1	12/34030	✓		
#6 WELD CAP	NPS 4 STD	SA-420 WPL6	12H33101	✓	✓	
#7 SMLS PIPE	NPS 4 STD	SA-333-6	4120885B	✓		
#11 WOL	NPS 2 STD	SA-350 LF2 CL1	58912	✓		✓
N2A RFWN	NPS 2 CL300 STD	SA-350 LF2 CL1	12/30722	✓		
N2B RFWN	NPS 2 CL300 STD	SA-350 LF2 CL1	12/30722	✓		
C1 DRILL & TAPPED	NPT 1 1/2	*****	*****			
C2 TOL	NPT 1 1/2 CL3000	SA-350 LF2 CL1	59172	✓		

PREPARED BY 

Serial Number: 8440-03A Filled By: Wans

Customer: Devon Canada Date: 11 March 2014

MATERIAL REPORT

Type of vessel _____ Vertical _____ Horizontal _____

Title	Diameter	Item #	ALCO ID #	Heat #	Slab #	Mat'l Spec	Min Thk (in)
Head	4"	6		✓ 12H33101		SA-420-WPLG	Std
Shell	4"	7	✓ P912			SA-333GR.6	Std
Repad							
Nozzle							
Skirt / Saddle							
Miscellaneous							

8440-03x2

SAN ENG STEEL FORGING CO. LTD
 311, Jen Hsin Road, Jen Wu District
 Kaohsiung, Taiwan, R.O.C.
 TEL: 87-3724249; FAX: 87-3712523
 URL: www.saneng.com.tw
 e-mail: saneng@hsts.seed.net.tw



MILL TEST CERTIFICATE
 EN10204-3.1.(DIN50004/3.1.B)
 Customer: **W.M.E.FITTINGS & FLANGES (CANADA) LTD.**

Certificate No.: SE101455
 Date: 12/19/2011
 Page: 3 OF 4

Order No.: E000117

MATERIAL SPECIFICATIONS

ASTM A350 LF2-11 CL.1/ASME SA350 LF2-11 CL.1

ASTM A350 LF2-11 CL.1/ASME SA350 LF2-11 CL.1

DIMENSIONAL SPECIFICATIONS

ASME B16.5-09

Item No.	Code No.	Description	Quantity		Chemical Composition (%)											CE(%)	
			Min	Max	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb		N
21		150 THRF 2"x1" A105NLF2N	50	PCE	0.220	0.250	1.150	0.035	0.040	0.400	0.300	0.400	0.120	0.080	0.080	0.005	0.415
22		150 THRF 2"x1 1/2" A105NLF2N	25	PCE	0.220	0.260	1.150	0.015	0.004	0.007	0.010	0.003	0.004	0.001	0.005	0.415	
23		300 THRF 2"x1/2" A105NLF2N	25	PCE	0.220	0.250	1.150	0.015	0.004	0.007	0.010	0.003	0.004	0.001	0.005	0.415	
24		300 THRF 2"x1" A105NLF2N	31	PCE	0.220	0.250	1.150	0.015	0.004	0.007	0.010	0.003	0.004	0.001	0.005	0.415	
25		150 THRF 4"x1" A105NLF2N	25	PCE	0.210	0.220	1.150	0.019	0.006	0.008	0.010	0.002	0.004	0.001	0.007	0.405	
26		150 THRF 4"x1 1/2" A105NLF2N	25	PCE	0.210	0.220	1.150	0.019	0.006	0.008	0.010	0.002	0.004	0.001	0.007	0.405	
27		150 THRF 4"x2" A105NLF2N	25	PCE	0.210	0.220	1.150	0.019	0.006	0.008	0.010	0.002	0.004	0.001	0.007	0.405	
28		150 THRF 4"x3" A105NLF2N	10	PCE	0.210	0.220	1.150	0.019	0.006	0.008	0.010	0.002	0.004	0.001	0.007	0.405	
29		300 THRF 4"x1" A105NLF2N	10	PCE	0.210	0.220	1.120	0.020	0.008	0.007	0.020	0.010	0.002	0.003	0.001	0.402	
30		300 THRF 4"x1 1/2" A105NLF2N	10	PCE	0.210	0.220	1.120	0.020	0.008	0.007	0.020	0.010	0.002	0.003	0.001	0.402	

Item No.	Heat No.	T.S.(MPA)	Y.S.(MPA)	E.L.(%)	Hardness (HB)	R.A.(%)	Impact Test		Material Supplier	REMARKS
							Temp: -46°C	Temp: 20.0°C		
21	4443573	485.0	250.0	22.0	197	30.0	1	2	ACOMINAS	880°C X3HRS CONFORMS WITH NACE MR0103-07 AND NACE MR0175/ISO15156.2-03 TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN ORIENTATION: TRANSVERSE IMPACT TEST TEMP: -46°C
22	4443573	517.8	363.8	34.6	152/150	71.3	87.0	97.0	ACOMINAS	
23	4443573	517.8	363.8	34.6	152/150	71.3	87.0	97.0	ACOMINAS	
24	4443573	517.8	363.8	34.6	152/150	71.3	87.0	97.0	ACOMINAS	
26	4443561	523.7	373.6	34.0	153/151	70.4	102.0	97.0	ACOMINAS	
27	4443561	523.7	373.6	34.0	153/151	70.4	102.0	97.0	ACOMINAS	
28	4443561	523.7	373.6	34.0	153/151	70.4	102.0	97.0	ACOMINAS	
29	4401629	515.8	365.8	34.0	148/151	69.5	85.0	77.0	ACOMINAS	
30	4401629	515.8	365.8	34.0	148/151	69.5	85.0	77.0	ACOMINAS	



CONFORMS TO SA 350 LF 2.1.1
 YEAR 2010 ED, Nail ADD
 JOB # 1413-8440-03
 ITEM # #1
 SIGNED BY [Signature] OCT 02 2013

1. T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.
 2. N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved
 A.C=Air-Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.
 3. C.E. Value = C+(Mn/16) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15
 We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

2-8440-03
 PO-133431

CL BORE 300 W/N FLANGE RF STD
 BORE 300 W/N FLANGE RF STD
 4 :
 BY : SB



METALFAR
 PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Pirelli, 28
 Tel. +39 031.655441
 Fax +39 031.655148
 quality.mff@farmas.com

COMPANY WITH
 QUALITY SYSTEM
 CERTIFIED BY DINV
 - ISO 9001 -

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 899 DDT / Del Note N. 870	Del/Dated 12.02.2013 Del/Dated 11.02.2013	Fattura / Invoice N. 577 Ns.Ord. / Our ref. N.	Del/Dated 11.02.2013
TRANS AM PIPING PRODUCTS LTD 9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA CA		Dest.: TRANS AM PIPING PRODUCTS LTD 9335 - Endeavor Drive S.E. T3S 0A1 Calgary, ALBERTA CA	

Page 1 - 5

COD. COL.	COLATA	POS.	VS. ORDINE	Q.TA'	DESCRIZIONE	DUREZZA	RESILLENZA	ALLUNGAMENTO	CONTRAZIONE	CONTRAZIONE	RESILLENZA	IMPACT TEST	SHVERNAMENTO	DIM. IN ACC. A	VS. ORDINE	VS. DIMENS.
HEAT CODE	HEAT	ITEM	YOUR REFERENCE	Q.TY	DESCRIPTION	HARDNESS	IMPACT	ELONGATION	REDUCTION OF AREA	REDUCTION OF AREA	TENSILE STRENGTH	CHARPY	MINIMUM	DIM. ACCORDANCE TO	YOUR REFERENCE	& DIMENS.
1272869	011	CH-12-284	0,195	0,220	0,840	0,015	0,090	0,060	0,010	0,019	0,002	0,003	0,000	ASME/ANSI B16.5-2009	A7%	C.E.%
ASTM A105 (LADLE)			0,195	0,220	0,840	0,015	0,090	0,060	0,010	0,019	0,002	0,003	0,000	ASME/ANSI B16.5-2009	A7%	C.E.%
126,60	50,80	1	325,0	31,0	58,0	163,0 - 165,0	20	84	86	82	0,0	0,0	82	ASME/ANSI B16.5-2009	A7%	C.E.%
TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 920 C - COOLED IN STILL AIR																
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD.																
CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE																

COD. COL.	COLATA	POS.	VS. ORDINE	Q.TA'	DESCRIZIONE	DUREZZA	RESILLENZA	ALLUNGAMENTO	CONTRAZIONE	CONTRAZIONE	RESILLENZA	IMPACT TEST	SHVERNAMENTO	DIM. IN ACC. A	VS. ORDINE	VS. DIMENS.
HEAT CODE	HEAT	ITEM	YOUR REFERENCE	Q.TY	DESCRIPTION	HARDNESS	IMPACT	ELONGATION	REDUCTION OF AREA	REDUCTION OF AREA	TENSILE STRENGTH	CHARPY	MINIMUM	DIM. ACCORDANCE TO	YOUR REFERENCE	& DIMENS.
12734030	022	CI-12-311	0,200	0,240	0,960	0,010	0,120	0,070	0,020	0,017	0,002	0,000	0,026	ASME/ANSI B16.5-2009	A1%	C.E.%
ASTM A350 LF2 CL-1/2 (LADLE)			0,200	0,240	0,960	0,010	0,120	0,070	0,020	0,017	0,002	0,000	0,026	ASME/ANSI B16.5-2009	A1%	C.E.%
126,60	50,80	1	344,0	31,0	58,0	156,0 - 159,0	50	64	60	66	0,0	0,0	66	ASME/ANSI B16.5-2009	A1%	C.E.%
TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR																
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD.																
CSA Z246.12 GRADE 248 CAT.II SOUR SERVICE																

CONFORMS TO SA 350LF2CL1
 YEAR 2010 ED. 2010 ADD
 JOB # 2013-8440-03
 ITEM # #4
 SIGNED BY [Signature] OCT 02 2013

2-8440-03
 Po-133431

NOTE 100% MANUFACTURED IN ITALY	UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL
NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION	[Signature]		[MFF Logo]
MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 16156-2009 - SOUR SERVICE			
MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE			

Purchaser: TRANS-AM PIPING PRODUCTS LTD.

INSPECTION CERTIFICATE



Thai Benkan Co., Ltd.
 58 Soi Watkrnai, Bangkoku, Prapaetang,
 Samutprakarn, 10130 Thailand

TO EN10204 3.1

Job No: MC-750
 Purchase Order No. CI-12-258 C/O:1
 Date of Issue: 20/09/2012
 Certificate No: 2012060959

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection													
MC-750	ASTM A420-106/ASME SA420-10 WPL6 CSA Z46.11 Gr.241-08 CAT 55 ANSINACE WFO175/ISO 16192-2-2008	ASME B16.9-2007 B16.25-2007	Good	Good													
MFG. No. (Heat Identification No.)	Product & Size → C WPL6 4 S40	(T*1) CONFORMS TO SA 420 WPL6 YEAR: 2011 ADD JOB#: 2013-8440-03 ITEM # 6 SIGNED BY: OCT 12 2013	Quantity 27/50	Hardness Actual Data HB: 125-145 ←													
Material Manufacturer	Material Heat No. J2K3479	ORIGINAL															
Chemical Composition %																	
Specification	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y.S.	T.S.	E	Impact Test (J)
	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 1000	X 100	MPa	%	%	10-X, 7.5-X, 2V
Min.	100	15	50											240	415	30	192
Max.	30	40	135	35	40	40	30	12	80	20	585	209	AVE 208	300	458	50	222
	→ 12	26	128	8	6	3	2	11	0	0	36	0					AT -45 °C ←

NORMALIZING 910 C X 0.5 HR. AIR COOLING
 The fittings was manufactured, sampled, tested, and inspected in accordance with this specification, and was found to meet the requirements.

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
 We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.
 * 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
 Form TZ 6C/2

MAGNETIC PARTICLE EXAMINATION FOR FEE ONLY.
 Ratchaporn Kamolratanon
 Quality Assurance Manager
 Thai Benkan Co., Ltd.



江阴双生无缝钢管总厂
JIANGYIN SHUANGSHENG STEEL TUBE FACTORY

产品质量证明书 (EN10204.3.1) MILL TEST CERTIFICATE

江苏双生钢管有限公司
No. 195, Zhongyuan Road, Jiangyin City, Jiangsu Province, P.R. China
Tel: 86-510-84800000 Fax: 86-510-84800000

总厂分厂总件数 Total Pieces	407	总重量 Total Weight	25.713	日期 Date	2012年05月14日	客户名称 Customer	NORVALZLD (Temperature 880°C-910°C)
-------------------------	-----	---------------------	--------	------------	-------------	------------------	-------------------------------------

规格 Specification	NPS 4" SCH40 *11580	合同编号 Contract No.	ALCO# P912				
---------------------	---------------------	----------------------	------------	--	--	--	--

NO	Heat No.	Spec	BOLTS	PCS	WT	尺寸 Dimension			长度 Length	屈服强度 Tensile	抗拉强度 Tensile	伸长率 E.L	尺寸 Dimension	温度 Temperature	冲击值 Impact Value		硬度 Hardness
						外径 OD	壁厚 WT	内径 ID							纵向 Longitudinal	横向 Transverse	
1	4120885(B)	B120S-135-2	41	407	75.743	*1-A3	50.8	59.7	59.7	797	797	28.20	D3	-45°C	300	71	20

NO	Heat No.	Spec	BOLTS	PCS	WT	化学成分(%) Chemical Composition															
						C	Mn	P	S	Cr	Ni	Mo	V	Nb	Ti	B	As	Se	Si	Al	Ca
R	18	11	018	015	12	05	15	001	007	002	001	0.41	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45

NO	Heat No.	Spec	BOLTS	PCS	WT	力学性能 Mechanical Analysis																
						屈服强度 Yield	抗拉强度 Tensile	伸长率 E.L	冲击功 Impact	硬度 Hardness	晶粒度 Grain	显微组织 Microstructure	脱碳层 Decarburized	中心疏松 Central Porosity	偏析 Segregation	夹杂物 Inclusions	非金属夹杂物 Non-metallic Inclusions					
OK						OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

1. 本证明书仅适用于所列之产品。其他规格之产品，其化学成分及力学性能，应符合相应之标准。
2. 本证明书之有效期为一年。如超过一年，其化学成分及力学性能，应符合相应之标准。
3. 本证明书之解释权归本公司所有。
4. 本证明书之有效期为一年。如超过一年，其化学成分及力学性能，应符合相应之标准。
5. 本证明书之解释权归本公司所有。

333-6
2010-20 2011A
2013-28440-03
13 MAR 2014

胡才军
Quality Manager

839050
Stock
P0-132594

胡才军
Auditor

CGL BORM A350 W/N LFN CL 1
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CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Centric N. 4071 Del/Dated 03.08.2012 Fattura / Invoice N. 2772 Del/Dated 31.06.2012
 DDT / Del Note N. 3244 Del/Dated 31.06.2012 No.Ord. / Our ref. N.
 Dest.: TRANS AM PIPING PRODUCTS LTD
 8935 ENDEAVOR DRIVE S.E. 9335 - Endeavor Drive S.E.
 T3S 0A1 CALGARY, ALBERTA CA T3S 0A1 Calgary, ALBERTA CA

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DIN = ISO 9001:2008 =

SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Parini, 28
 Tel. +39 031.655441
 Fax +39 031.655149
 quality.mff@arness.com

METALFAR
 PRODOTTI INDUSTRIALI S.P.A.
 STABILIMENTO A CALDO DI ACCIAI COMINI - LEGATI E INOSSIDABILI

COD. COL. COLATA HEAT	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA' DESCRIPTION	Q.TY DESCRIPTION	TRATTAMENTO TERMICO / HEAT TREATMENT	ORIGINE / ORIGIN OF STEEL
12/30722	019	CI-12-311	132,00 W/N 300 RF 2" STD LF2CL1	54,00 W/N 300 RF 8" STD LF2CL1	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR	EUROPEAN UNION
ASTM A350 LF2 CL-1/2 (LADLE)		C% 0,195 Mn% 0,950 Si% 0,230 P% 0,008 S% 0,012 Cr% 0,100 Ni% 0,050 Mo% 0,010 Nb% 0,002 Cu% 0,120 V% 0,001 Ti% 0,019	ALLUNGAMENTO ELONGATION % 31,0 CONTRAZIONE REDUCTION OF AREA % 58,0 DUREZZA HARDNESS HBW 186,0 - 159,0 ROTTURA TENSILE STRENGTH N/mm2 >= 514,0 ROTTURA TENSILE STRENGTH N/mm2 >= 514,0 ROTTURA TENSILE STRENGTH N/mm2 >= 514,0	ALLUNGAMENTO ELONGATION % 31,0 CONTRAZIONE REDUCTION OF AREA % 58,0 DUREZZA HARDNESS HBW 159,0 - 163,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0	FORNO / FURNACE ELECTRIC FURNACE	EUROPEAN UNION
PROVETTA / TEST SPECIMEN SEZ. mm2 126,60 LUNG. mm 50,80 LENGHT mm 1	FORMA SHAPE 1-O 2-D	SNERVAMENTO YIELD POINT N/mm2 >= 0,2% 340,0 ROTTURA TENSILE STRENGTH N/mm2 >= 514,0	CONTRAZIONE REDUCTION OF AREA % 58,0	CONTRAZIONE REDUCTION OF AREA % 58,0		
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/A588 A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 CSA Z245.12 GRADE 248 CAT.II						

COD. COL. COLATA HEAT	POS. ITEM	VS. ORDINE YOUR REFERENCE	Q.TA' DESCRIPTION	Q.TY DESCRIPTION	TRATTAMENTO TERMICO / HEAT TREATMENT	ORIGINE / ORIGIN OF STEEL
12/30223	024	CI-12-311	126,60 W/N 300 RF 2" STD LF2CL1	54,00 W/N 300 RF 8" STD LF2CL1	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR	EUROPEAN UNION
ASTM A350 LF2 CL-1/2 (LADLE)		C% 0,195 Mn% 0,960 Si% 0,220 P% 0,007 S% 0,010 Cr% 0,100 Ni% 0,050 Mo% 0,010 Nb% 0,001 Cu% 0,140 V% 0,002 Ti% 0,017	ALLUNGAMENTO ELONGATION % 31,0 CONTRAZIONE REDUCTION OF AREA % 58,0 DUREZZA HARDNESS HBW 159,0 - 163,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0	ALLUNGAMENTO ELONGATION % 31,0 CONTRAZIONE REDUCTION OF AREA % 58,0 DUREZZA HARDNESS HBW 159,0 - 163,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0	FORNO / FURNACE ELECTRIC FURNACE	EUROPEAN UNION
PROVETTA / TEST SPECIMEN SEZ. mm2 126,60 LUNG. mm 50,80 LENGHT mm 1	FORMA SHAPE 1-O 2-D	SNERVAMENTO YIELD POINT N/mm2 >= 0,2% 340,0 ROTTURA TENSILE STRENGTH N/mm2 >= 519,0	CONTRAZIONE REDUCTION OF AREA % 58,0	CONTRAZIONE REDUCTION OF AREA % 58,0		
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/A588 A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 CSA Z245.12 GRADE 248 CAT.II						

CONFORMS TO SA 350LF2CL1
 YEAR 2010 ED. 2011A00
 JOB # 2013-8440-03
 ITEM # #10-N2A/B
 SIGNED BY [Signature] OCT 02 2013

4-8440-03
 Po-133431

NOTE: 100% MANUFACTURED IN ITALY	UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL
NOTES: MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15186-2009 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010	[Signature]		MFF



Manufacturer of Piping and Pressure Vessel Components

4404 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bonney Forge Company

Sold To: TRANS AM PIPING PRODUCTS
 LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 248,632

PO #: CI-13-217

Sales Order #: C001303122

Date: 03/04/2013

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

Material: A/SA350 00a LF2 CL1

Item	Quantity	Description
28	50	6 - 3 1/2 X 2 STD BWP A350LF2 CL1

Certified Material Test Report

Heat Code: 58912

CONFORMS TO SA	350LF2CL1
YEAR	COBED, 2011 A00
JOB #	2013-8440-03
ITEM #	#11 - N2A/B
SIGNED BY	[Signature] OCT. 02 2013

4-8440-03
 Po-133431

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.195	0.04	0.090	1.05	0.007	0.015	0.03	0.012
	S	SI	V					
	0.021	0.20	0.003					

Carbon Equivalency: Ladle 0.39

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	73,292	48,638	29.15	61.34	130 BHN
Charpy V-Notch Properties:			Test Temperature:		-50 F
	FT LBS: 49/43/29	% Shear: NB/NB/NB			MLE: NB/NB/NB

Normalized

LAW NACE MR0175/ ISO 15156- 2009

Marie Dehmer
 Quality Assurance Representative

PO# 133431 Item# 7
 Heat Number: 59172
 Trans Am Piping Products 'd.
 Shipment/Seq #: S 13 - 16

Rev'd By: SB
 43

1/2X3/4-36 CL 3000 FS THREADED PIPET
 A350-LF2 CL 1



Manufacturer of Piping and Pressure Vessel Components

4404 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bonney Forge Company

Page 42 of 48

Sold To: TRANS AM PIPING
 PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 261,037
 PO #: CI-13-502

Sales Order #: C001313455

Date: 09/12/2013

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

Certified Material Test Report

Heat Code: 59172

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

CONFORMS TO SA	3501P2CL1
YEAR	2008ED, 2011ADD
JOB #	2013-8440-03
ITEM #	# 13 - C2
SIGNED BY	[Signature] OCT 02 2013

2-8440-03
 Po-133431

Material: A/SA350 11 LF2 CL1

Item	Quantity	Description
48	300	36 - 3/4 X 1/2 3M THP A350LF2 CL1

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.210	0.03	0.050	1.04	0.005	0.016	0.02	0.004
	S	SI	V					
	0.018	0.20	0.003					

Carbon Equivalency: Ladle 0.40

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
Charpy V-Notch Properties:	79,000	50,000	28.00	65.00	163 BHN
			Test Temperature:		165 BHN
					-50 F

FT LBS: 45/32/23

% Shear: NB/NB/NB

MLE: NB/NB/NB

Normalized

IAW NACE MR0175/ ISO 15156-2009

Marie Dehmer
 Quality Assurance Representative

T H Consulting Services

109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GM13827

MAGNETIC PARTICLE INSPECTION REPORT

Client	Alco Gas & Oil 5203 - 75 St. Edmonton, Alberta	Page	1-1
Test Method	ASME V SE-709-01 / Dry Powder	Time	11:00 AM
Acceptance Criteria	ASME VIII Div. 1 App. 6	Date	Mar 18, 2014
Object		P.O. No.	
		Job No.	2013-8440-03

Procedure-MT-General and MT- 1V Rev. 4 Pre Heat Treatment Post Heat Treatment Post Hydrotest

Test Equipment ES-X Flex Ferrous Probe Blacklight B/L Meter XR-1000 S/N - 1815543
S/N - 16512

Black on White Contrast - Magnaflex WCP 2 White Contrast Batch # 7HF Prepared Bath Batch #

Medium- Magnaflex - Type 14 A partical batch # carrier batch # 8R 12F008 Other

<input checked="" type="checkbox"/> Dry	<input type="checkbox"/> Wet	<input type="checkbox"/> Fluorescent	<input checked="" type="checkbox"/> Red	<input type="checkbox"/> Grey	<input type="checkbox"/> B/White	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Yoke	<input type="checkbox"/> Prod	<input type="checkbox"/> Coil	<input checked="" type="checkbox"/> A/C	<input type="checkbox"/> D/C	<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Residual
<input checked="" type="checkbox"/> Base Metal	<input type="checkbox"/> Ground	<input type="checkbox"/> Machined	<input type="checkbox"/> Painted	<input type="checkbox"/> Shot Blasted	<input type="checkbox"/> Central Cond.	<input type="checkbox"/> Demag

Viewing Light Source in excess of 100fc. Ambient Trouble Light Flashlight W/L Meter S/N B100448

Material - P1 Thickness - Temp. - 10° C to 52° C Surface Condition - Clean / As welded

A better than 10% of the fillet welds on the Level Transmitter Cage were tested.

No relevant indications were found.

CGSB # 11841

Operator Gord Sieben

St OT KM

Client Representative

	ASNT II CGSB II	1			
--	--------------------	---	--	--	--



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-03A

DESCRIPTION: 4" CL300 LEVEL TRANSMITTER CAGE

NAME OF AUTHORIZED INSPECTION AGENCY: N/A

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 75 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: Water **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: B-1 & B-4

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.



QC INSPECTOR/ ALCO GAS & OIL 3/18/2014

DATE

3RD PARTY INSPECTOR 3/18/2014

DATE

AUTHORIZED INSPECTOR DATE

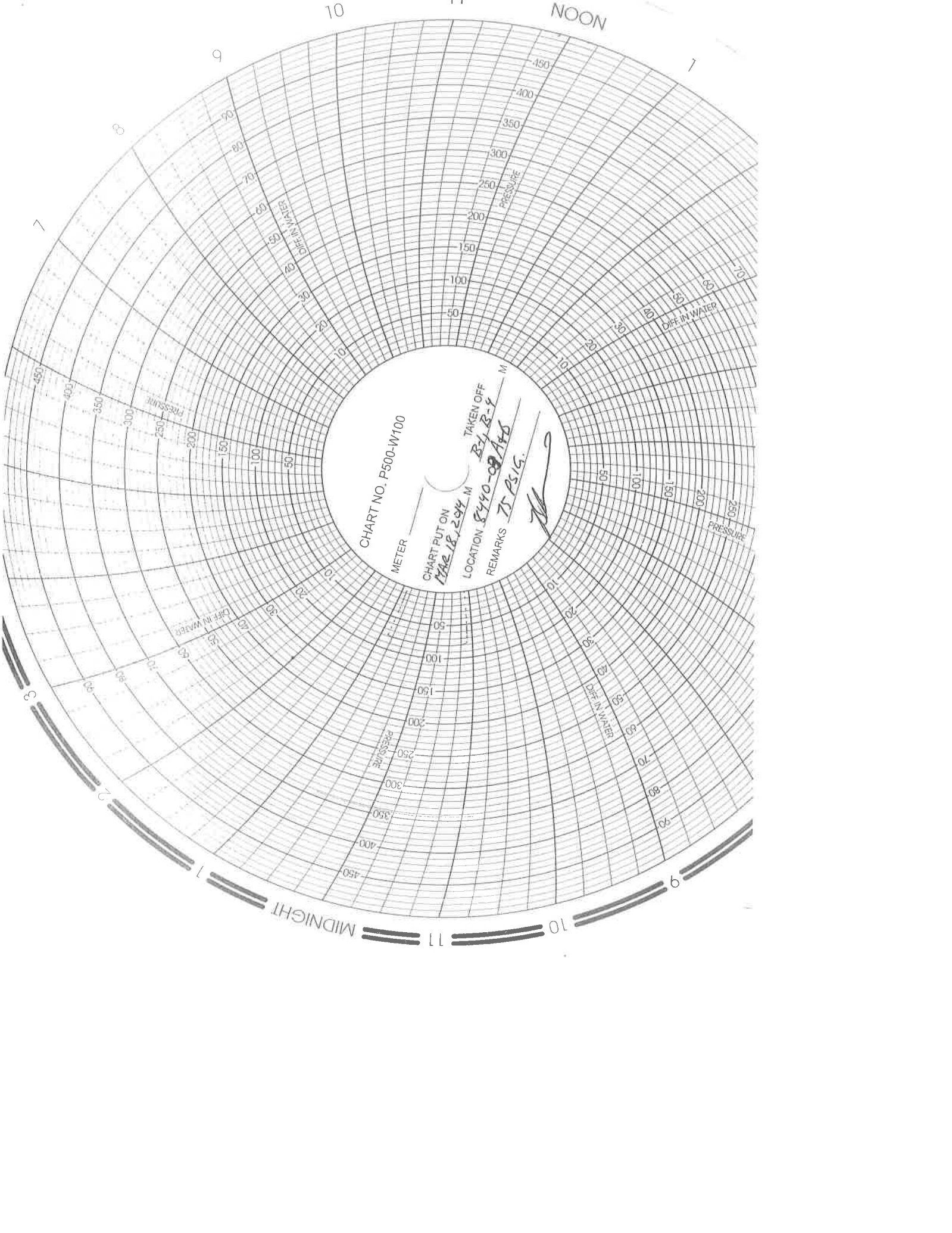


CHART NO. P500-W100

METER

CHART PUT ON
THE 18/294 M

LOCATION 8440-08146 M

REMARKS 75 PSIG.

TAKEN OFF
BY R-S

NOON

MIDNIGHT

7

8

9

10

11

1

3

2

1

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10

9

Phase # : 2013-8440-04A
Phase Title: Level Transmitter Cage

TABLE OF CONTENTS

Title	Availability	
	Yes	No
1. Data Reports		N/A
2. CRN's		N/A
3. Nameplate Copy		N/A
4. Travel Sheet	X	
5. Impact Test Reports		N/A
6. Material Control	X	
7. Material Reports	X	
8. MTR's	X	
9. NDE MPT	X	
LPT		N/A
RADIOGRAPHY	X	
ULTRA SONIC		N/A
10. Stress Relieve Charts		N/A
11. Hydrotest Report(s)	X	
12. Hydro Chart	X	
13. PSV & Valve Cert.		N/A

TRAVEL SHEET

Authorized Inspector (Signature) _____

Date _____

CUSTOMER / LOCATION	SERIAL NUMBER / UNIT	(A) NUMBER :					
DEVON CANADA CORPORATION	2013-8440-04A	DRAWING NUMBER					
FERRIER CPF PROJECT, AB	LSD: 11-02-039-08 W5M	C-2013-8440-04-001/001					
ITEMS: LEVEL TRANSMITTER CAGE FOR GWR ROSEMOUNT 5300 NPS 4 CL300 STD	COMMENTS:	INITIALS					
		HOLD QC	CUSTOMER HOLD (AGENT)	HOLD A.I.			
Repair Procedure Approved							
Approved Drawings / CRN							
Material Checked / Heat Verified	REVIEWED 14 MAR 2014						
MTR Checked	REVIEWED 14 MAR 2014						
Impact Test	EXEMPT TABLE A-1 SEP 23 2013						
Unit Layout	Mar. 13, 2014						
Weld Procedure Approved	REVIEWED SEP 23 2013						
Welder(s) Qualifications	REVIEWED 14 MAR 2014						
Fit-Up: Shell & Heads	TYPE 1 14 MAR 2014						
Nozzles & Fittings	14 MAR 2014						
Internals							
Externals	14 MAR 2014						
Connections: Location	14 MAR 2014						
Rating	CL300 CL3000						
Internal Inspection							
Internals Installed							
Weld Profile, Sizes & ID	CHECKED 14 MAR 2014						
Radiographs	10% TO ASME B31.3						
Other NDE	MPI 10% ON FILLET WELDS						
Stamping	CHECKED						
External Upon Completion of Welding	CHECKED						
Alternative Test							
PWHT Charts Checked	NONE						
Hydrostatic Test - CHART RECORD	75 PSIG GAGE# D-12, D-10						
MDR							
Name Plate							
PART	MATERIAL SPEC	THICKNESS	HEAT NO.	PART	MATERIAL SPEC	THICKNESS	HEAT NO.
Heads	SA-420 WPL6	0.237" NOM	12H33101	Repads			
Shell	SA-333-6	0.237"	P-912	Tubes			
Tubesheet							

* INDICATES HOLD POINTS TO BE SIGNED OFF BY THE APPLICABLE INSPECTOR.

ALCO  **GAS & OIL**
PRODUCTION EQUIPMENT LTD.

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-04A
 CUSTOMER: DEVON CANADA CORPORATION
 DATE: MARCH 31, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED

ITEM	SIZE / RATING	MATERIAL	HEAT NUMBER	MTR	RT	MPI FILLET WELDS		
#1 RF HUB BLIND	NPS 4 CL300	SA-350 LF2 CL1	4401629	✓				
#4 RFWN (N1)	NPS 4 CL300 STD	SA-350 LF2 CL1	12/34030	✓				
#6 WELD CAP	NPS 4 STD	SA-420 WPL6	12H33101	✓	✓			
#7 SMLS PIPE	NPS 4 STD	SA-333-6	4120885B	✓				
#11 WOL	NPS 2 STD	SA-350 LF2 CL1	58912	✓		✓		
N2A RFWN	NPS 2 CL300 STD	SA-350 LF2 CL1	12/30722	✓				
N2B RFWN	NPS 2 CL300 STD	SA-350 LF2 CL1	12/30722	✓				
C1 DRILL & TAPPED	NPT 1 1/2	-----	-----					
C2 TOL	NPT 1/2 CL3000	SA-350 LF2 CL1	59172	✓				
C3A TOL	NPT 3/4 CL3000	SA-350 LF2 CL1	58337	✓				
C3B TOL	NPT 3/4 CL3000	SA-350 LF2 CL1	58337	✓				

PREPARED BY 

Serial Number: 8440-04A Filled By: Wans

Customer: Devon Canada Date: 11 March 2014

MATERIAL REPORT

Type of vessel _____ Vertical _____ Horizontal _____

Title	Diameter	Item #	ALCO ID #	Heat #	Slab #	Mat'l Spec	Min Thk (in)
Head	4"	6	✓ 12433101			SA-420-WPL6	Std
Shell	4"	7	✓ P912			SA-333 DR6	Std
Repad							
Nozzle							
Skirt / Saddle							
Miscellaneous							

8440-04x2



SAN ENG STEEL FORGING CO. LTD.
 311, Jen Han Road, Jen Wu District,
 Kaohsiung, Taiwan, R.O.C.
 TEL: 07-3724249; FAX: 07-372923
 URL: www.saneng.com.tw
 e-mail: saneng@ksst.seed.net.tw

MILL TEST CERTIFICATE

EN10204-3.1 B01NS00493.1.B)
W.A.F. FITTINGS & FLANGES (CANADA)
 Customer: LTD.
 Order No.: E000117

Certificate No.: SE5101455
 Date: 12/19/2011
 Page: 3 OF 4

PRODUCT		MATERIAL SPECIFICATIONS		DIMENSIONAL SPECIFICATIONS												
FORGED CARBON STEEL FLANGES		ASTM A350 LF2-11 CL.1/ASME SA350 LF2-11 CL.1		ASME B16.5-08												
Item No.	Code No.	Description	Quantity	CHEMICAL COMPOSITION (%)											CE(%)	
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb		N
21		150 THRF 2"X1 1/2" A105N/FL2N	50 PCE	0.300	0.220	0.250	0.035	0.040	0.400	0.120	0.080	0.080				0.415
22		150 THRF 2"X1 1/2" A105N/FL2N	25 PCE	0.220	0.250	1.150	0.015	0.004	0.010	0.003	0.004	0.001	0.005			0.415
23		300 THRF 2"X1 1/2" A105N/FL2N	25 PCE	0.220	0.250	1.150	0.015	0.004	0.010	0.003	0.004	0.001	0.005			0.415
24		300 THRF 2"X1 1/2" A105N/FL2N	31 PCE	0.220	0.250	1.150	0.015	0.004	0.010	0.003	0.004	0.001	0.005			0.415
25		150 THRF 4"X1 1/2" A105N/FL2N	25 PCE	0.210	0.220	1.150	0.019	0.006	0.010	0.002	0.004	0.001	0.007			0.405
26		150 THRF 4"X1 1/2" A105N/FL2N	25 PCE	0.210	0.220	1.150	0.019	0.006	0.010	0.002	0.004	0.001	0.007			0.405
27		150 THRF 4"X2" A105N/FL2N	10 PCE	0.210	0.220	1.150	0.019	0.006	0.010	0.002	0.004	0.001	0.007			0.405
28		150 THRF 4"X3" A105N/FL2N	10 PCE	0.210	0.220	1.150	0.019	0.006	0.010	0.002	0.004	0.001	0.007			0.405
29		300 THRF 4"X1 1/2" A105N/FL2N	10 PCE	0.210	0.220	1.120	0.020	0.008	0.010	0.002	0.004	0.001	0.009			0.402
30		300 THRF 4"X1 1/2" A105N/FL2N	10 PCE	0.210	0.220	1.120	0.020	0.008	0.010	0.002	0.004	0.001	0.009			0.402



Manager of Quality Assurance Dept.

CONFORMS TO SA 350LF2CL1
 YEAR 2012
 JOE # 2013-8440-04
 ITEM # #1
 SIGNED BY [Signature] OCT 02 2013

2-8440-04
 PO-133431

1. T.S. = Tensile Strength, Y.S. = Yield Strength, E.L. = Elongation, R.A. = Reduction of Area.
 2. N=Normalized, A=Annealed, Q=Cooled, T=Tempered, S.T.=Stress Relieved
 A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.
 3. C.E. Value = C + (Mn/8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15
 We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.

Item No.	Heat No.	T.S. (MPa)		Y.S. (MPa)	E.L. (%)	Hardness (HB)	R.A. (%)	Impact Test			Material Supplier	REMARKS
		Min	Max					Temp. -40°C	Temp. 20.0 Joule	Temp. 3		
21	4443573	517.8	363.8	363.8	34.6	197	71.3	97.0	44.0	ACOMINAS	690°C X3HRS CONFORMS WITH NACE MR0103-07 AND NACE MR0175/ISO15158-2-03 TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN ORIENTATION: TRANSVERSE IMPACT TEST TEMP.: -46°C	
22	4443573	517.8	363.8	363.8	34.6	197	71.3	97.0	44.0	ACOMINAS		
23	4443573	517.8	363.8	363.8	34.6	197	71.3	97.0	44.0	ACOMINAS		
24	4443573	517.8	363.8	363.8	34.6	197	71.3	97.0	44.0	ACOMINAS		
25	4443551	523.7	373.6	373.6	34.0	197	70.4	102.0	76.0	ACOMINAS		
26	4443551	523.7	373.6	373.6	34.0	197	70.4	102.0	76.0	ACOMINAS		
27	4443551	523.7	373.6	373.6	34.0	197	70.4	102.0	76.0	ACOMINAS		
28	4443551	523.7	373.6	373.6	34.0	197	70.4	102.0	76.0	ACOMINAS		
29	4401829	515.8	365.8	365.8	34.0	197	69.5	77.0	86.0	ACOMINAS		
30	4401829	515.8	365.8	365.8	34.0	197	69.5	77.0	86.0	ACOMINAS		

1 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 899 Del/Dated 12.02.2013 Fattura / Invoice N. 577 Del/Dated 11.02.2013
 DDT / Del Note N. 870 Del/Dated 11.02.2013 Nr.Ord. / Our ref. N.
 TRANS AM PIPING PRODUCTS LTD Dest.: TRANS AM PIPING PRODUCTS LTD
 9336 ENDEAVOR DRIVE S.E. 9335 - Endeavor Drive S.E.
 T3S 0A1 CALGARY, ALBERTA CA T3S 0A1 CALGARY, ALBERTA CA

COMPANY WITH
 QUALITY SYSTEM
 CERTIFIED BY DNV
 - ISO 9001 -

SEDE AMMINISTRATIVA STABILIMENTO:
 23861 CESANA BRIANZA (LO) - Italy
 Via G. Pardini, 28
 Tel. +39 031.655441
 Fax +39 031.655149
 quality_mff@ammas.com

METALFAR
 PRODOTTI INDUSTRIALI S.P.A.
 SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

COD. COL. COLATA	POS. VS. ORDINE	DESCRIZIONE	Q.TA' Q.TY	DUREZZA / HARDNESS	RESILLENZA / IMPACT TEST	SNERVAMENTO / YIELD POINT	ALLUNGAMENTO / ELONGATION	ROTTURA / TEMBLE STRENGTH	CONTRAZIONE / REDUCTION OF AREA	TRATTAMENTO TERMICO / HEAT TREATMENT	ORIGINE / ORIGIN OF STEEL
1272869	011	W/N 160 RF 2" XS A100N	729,00	163,0 - 165,0	20 84 86 82	325,0	31,0	530,0	58,0	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 920 C - COOLED IN STILL AIR	EUROPEAN UNION
ASTM A106 (LADLE)											

COD. COL. COLATA	POS. VS. ORDINE	DESCRIZIONE	Q.TA' Q.TY	DUREZZA / HARDNESS	RESILLENZA / IMPACT TEST	SNERVAMENTO / YIELD POINT	ALLUNGAMENTO / ELONGATION	ROTTURA / TEMBLE STRENGTH	CONTRAZIONE / REDUCTION OF AREA	TRATTAMENTO TERMICO / HEAT TREATMENT	ORIGINE / ORIGIN OF STEEL
12734030	022	W/N 300 RF 4" STD LF2CL1	180,00	166,0 - 169,0	20 84 86 82	344,0	31,0	523,0	59,0	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR	EUROPEAN UNION
ASTM A350 LF2 CL1/2 (LADLE)											

CONFORMS TO SA 350LF2-CL1
 YEAR 2013-08-11-10-00
 JOB # 2013-8440-04
 ITEM # 4
 SIGNED BY [Signature] OCT 02 2013

2-8440-04
 Po-133431

NOTE	UFFICIO CONTROLLO QUALITA' / QUALITY CONTROL DEPARTMENT	ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY	MARCHIO PRODUZIONE / MANUFACTURER'S SYMBOL
100% MANUFACTURED IN ITALY MATERIAL IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH NACE MR-01752009 ISO 16166-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE	[Signature]		MFF



Thai Benkan Co., Ltd.
58 Soi Watkranaui, Bangkok, Prapadaeng,
Samutprakan, 10130 Thailand

INSPECTION CERTIFICATE

Purchaser: TRANS-AM PIPING PRODUCTS LTD.

TO EN10204 3.1

Job No. 2012060659
Purchase Order No. CL-12-258 C/O 1
Date: 20/09/2012

Product & Size
ASME B16.9-2007, B16.25-2007

Specification for Material
ASTM A420-106/ASME SA420-10 WPL6
CSA Z46.11 Ex.241-09 CAT # SS ANSINACE IP017/ISO 16 158-2-2009

Specification for Inspection
ASME B16.9-2007, B16.25-2007

Visual Examination
Good

Dimensional Inspection
Good

E-No. MC-760	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection
MFG. No. (Heat Identification No.) 12H33101	Product & Size → C WPL6 4 S40	CONFORMS TO SA 420 WPL6 YEAR 2008, 2011, 2012 JOB # 2012-8440-01 ITEM # 6	Quantity 2750	Hardness Actual Data HB: 125-145 ←
Material Manufacturer	Material Heat No. J2K3479	SIGNED BY: OCT 02 2013	ORIGINAL	

Specification	Chemical Composition %											Tension Test				Impact Test (J)
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y.S.	T.S	
Min.	100	100	100	100	100	100	100	100	100	1000	1000	1000	100	240	415	30
Max.	30	40	135	35	40	40	40	90	12	80	20	585		309	458	50
	12	26	128	8	6	3	2	1	1	0	0	36	309	458	222	
NORMALIZING 910°C X 0.5 HR. AIR COOLING The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.																

Signature:

Quality Assurance Manager
Thai Benkan Co., Ltd.

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.
* 1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
Form TZ 6C2

江阴市无缝钢管总厂

Jiangyin Seamless Steel Tube Factory

产品质量证明书 (EN10204.3.1)

MILL TEST CERTIFICATE

订单号 Order No: 407 总支数 Total Pieces: 407 总重量 Total Weight: 75.713 日期 Date: 2012年05月14日 客户名称 Customer: Alcoa # P912

产品名称 Product: LOW TEMPERATURE AND SOLE SERVICE STEEL PIPE 技术规格 Spec: ASTM A533 Type 1 合同编号 Contract No:

规格 Size: WFL (mm) 牌号 Steel Grade: NPS 1" SCH40 * 11.580 交货状态 Delivery Status: NORMALIZED (Temperature: 880°C)

NO	Spec	Thick	Hard	WJ	Wt	PCS	拉伸试验 Tensile Test			尺寸 Dimension (mm)	屈服强度 Yield Strength (MPa)	抗拉强度 Tensile Strength (MPa)	伸长率 EL (%)	尺寸 Dimension (mm)	温度 Temperature (°C)	冲击功 Impact Value
							屈服强度 Yield Strength (MPa)	抗拉强度 Tensile Strength (MPa)	伸长率 EL (%)							
1	4120883B	11.580	135.2	41	407	75.743	*1-A3	50.8	581.0/565.6	792.7/290.5	28.29	0.3	-45°C	7.1		

元素 Element	化学成分 (%) Chemical Composition										金属分析 Metallurgical Analysis									
	C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Nb	Ti	B	OPH Wt	CECSM	显微组织 Microstructure	夹杂物 Inclusion	非金属夹杂物 Non-metallic Inclusion		
C	0.18	0.14	0.12	0.05	0.15	0.01	0.007	0.002	0.001	0.41	0.45	0.15	0.01	0.45	FF	8.5	1	2	3	4

*1-碳当量 (Equivalent Carbon): 0.45 *2-珠光体 (Pearlite) 含量: 100% *3-铁素体 (Ferrite) 含量: 0% *4-马氏体 (Martensite) 含量: 0% *5-残余奥氏体 (Residual Austenite) 含量: 0%

无损检测 (NDE): 射线探伤 (RT) 超声波探伤 (UT) 涡流探伤 (ET) 硬度测试 (HT) 冲击试验 (CV) 拉伸试验 (TS) 弯曲试验 (B) 压扁试验 (F) 水压试验 (HT) 水压试验 (HT) 水压试验 (HT)

备注 (Remarks): 1. NO WELD REPAIRS WERE PERFORMED. 2. PIPES ARE FREE OF MERCURY AND SULFUR. 3. CEED WITH MAXIMUM OF 5% (IN CURVE). CEEG SAC C-1. 4. MPA-S-25-Cu-15-Ni-20-Cr-Mo-V-Nb-Si-B. 5. ON THEORETICAL WEIGHT BASIS. 6. ASTM A53 (2002) ASME A106 (2007). 7. ASME SA33 (2002) ASME SA33 (2002). 8. ASME SA33 (2002) ASME SA33 (2002). 9. ASME SA33 (2002) ASME SA33 (2002). 10. ASME SA33 (2002) ASME SA33 (2002). 11. ASME SA33 (2002) ASME SA33 (2002). 12. ASME SA33 (2002) ASME SA33 (2002). 13. ASME SA33 (2002) ASME SA33 (2002). 14. ASME SA33 (2002) ASME SA33 (2002). 15. ASME SA33 (2002) ASME SA33 (2002). 16. ASME SA33 (2002) ASME SA33 (2002). 17. ASME SA33 (2002) ASME SA33 (2002). 18. ASME SA33 (2002) ASME SA33 (2002). 19. ASME SA33 (2002) ASME SA33 (2002). 20. ASME SA33 (2002) ASME SA33 (2002).

质量检验员: 胡才梁 日期: 2012年05月14日 审核: 胡才梁 日期: 2012年05月14日 批准: 胡才梁 日期: 2012年05月14日

文件编号: 333-b 日期: 2012年05月14日 作业号: 2012-0440-04 项目号: 7 日期: 13 MAR 2014

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 4071 **Del/Date** 03.09.2012 **Fattura / Invoice N.** 2772 **Del/Date** 31.08.2012
 DDT / Del Note N. 3244 **Del/Date** 31.08.2012 **No. Ord. / Our ref. N.**
TRANS AM PIPING PRODUCTS LTD
 Dest.: TRANS AM PIPING PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E. **9335 - Endeavor Drive S.E.**
 T3S 0A1 CALGARY, ALBERTA CA T3S 0A1 Calgary, ALBERTA CA

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV = ISO 9001:2008

METALFAR
 SEDE AMMINISTRATIVA E STABILIMENTO:
 23861 CESANA BRIANZA (LC) - Italy
 Via G. Pardi, 28
 Tel. +39 031.655441
 Fax +39 031.655140
 quality.metalfar.com

PRODOTTI INDUSTRIALI S.P.A.
 STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INOSSIDABILI

COD. COL. COLATA HEAT CODE HEAT	POS. ITEM	VS.ORDINE YOUR REFERENCE	Q.TA' QTY	DESCRIZIONE DESCRIPTION	TRATTAMENTO TERMICO / HEAT TREATMENT	FORNO / FURNACE	ORIGINE / ORIGIN OF STEEL
1230722	019	CI-12-311	132,00	WIN 300 RF 2" STD LF2CL1	NORMALIZED AT 830 C - COOLED IN STILL AIR	ELECTRIC FURNACE	EUROPEAN UNION
MATERIALE / MATERIAL ASTM A350 LF2 CL1/2 (LADLE) C% 0,195 S% 0,009 P% 0,012 Cr% 0,100 Mn% 0,950 Ni% 0,060 Mo% 0,010 N% 0,002 V% 0,001 Cu% 0,120 Ti% 0,019 Nb% 0,002 N% 0,000 C.E.% 0,387 PROVA / TEST SPECIMEN FORMA / SHAPE LUNG. mm / LENGTH mm 1-O 2-D 1 340,0 SHERVAMENTO / YIELD POINT Minmed 340,0 N/mm2 340,0 ALLUNGAMENTO / ELONGATION 58,0 % CONTRAZIONE / REDUCTION OF AREA 58,0 % DUREZZA / HARDNESS 156,0 - 159,0 HBW RESILLENZA / IMPACT TEST - JOULE/ECCHE TEMPERATURA °C TIPO / TYPE 1618mm KV -50 84 66 64 INNEVAMENTO / YIELD POINT Minmed 0,0 N/mm2 0,0							
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 CSA Z245.12 GRADE 248 CAT.II							

COD. COL. COLATA HEAT CODE HEAT	POS. ITEM	VS.ORDINE YOUR REFERENCE	Q.TA' QTY	DESCRIZIONE DESCRIPTION	TRATTAMENTO TERMICO / HEAT TREATMENT	FORNO / FURNACE	ORIGINE / ORIGIN OF STEEL
1230203	024	CI-12-311	64,00	WIN 300 RF 8" STD LF2CL1	NORMALIZED AT 830 C - COOLED IN STILL AIR	ELECTRIC FURNACE	EUROPEAN UNION
MATERIALE / MATERIAL ASTM A350 LF2 CL1/2 (LADLE) C% 0,195 S% 0,007 P% 0,010 Cr% 0,100 Mn% 0,960 Ni% 0,060 Mo% 0,010 N% 0,001 V% 0,002 Cu% 0,140 Ti% 0,017 Nb% 0,001 N% 0,000 C.E.% 0,390 PROVA / TEST SPECIMEN FORMA / SHAPE LUNG. mm / LENGTH mm 1-O 2-D 1 340,0 SHERVAMENTO / YIELD POINT Minmed 340,0 N/mm2 340,0 ALLUNGAMENTO / ELONGATION 58,0 % CONTRAZIONE / REDUCTION OF AREA 58,0 % DUREZZA / HARDNESS 159,0 - 163,0 HBW RESILLENZA / IMPACT TEST - JOULE/ECCHE TEMPERATURA °C TIPO / TYPE 1618mm KV -50 84 66 62 INNEVAMENTO / YIELD POINT Minmed 0,0 N/mm2 0,0							
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 CSA Z245.12 GRADE 248 CAT.II							

CONFORMS TO SA 350LF2CL1
 YEAR 2013-08-04
 JOB # 2013-8440-04
 ITEM # #10, N2A/B
 SIGNED BY [Signature] OCT 02 2013

4-8440-04
 Po-133431

NOTE 100% MANUFACTURED IN ITALY NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010	UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTMENT <i>S. Corti</i>	ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY	MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL
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Manufacturer of Piping and Pressure Vessel Components
 4404 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bonney Forge Company

Sold To: TRANS AM PIPING PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 248,632

PO #: CI-13-217

Sales Order #: C001303122

Date: 03/04/2013

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

Certified Material Test Report

Heat Code: 58912

CONFORMS TO SA	350LF2CL1
YEAR	2010ED, 2011A00
JOB #	2013-8440-04
ITEM #	#11 - N2A1B
SIGNED BY	[Signature] OCT 02 2010

4-8440-04
 Po-133431

Material: A/SA350 00a LF2 CL1

Item	Quantity	Description
28	50	6-3 1/2 X 2 STD BWP A350LF2 CL1

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.195	0.04	0.090	1.05	0.007	0.015	0.03	0.012
	S	SI	V					
	0.021	0.20	0.003					

Carbon Equivalency: Ladle 0.39

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
Charpy V-Notch Properties:	73,292	48,638	29.15	61.34	130 BHN
FT LBS: 49/43/29					-50 F
		% Shear: NB/NB/NB			MLE: NB/NB/NB

Normalized

LAW NACE MR0175/ ISO 15156- 2009



Manufacturer of Piping and Pressure Vessel Components

4404 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bonney Forge Company

Sold To: TRANS AM PIPING
 PRODUCTS LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 261,037

PO #: CI-13-502

Sales Order #: C001313455

Date: 09/12/2013

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

Certified Material Test Report

Heat Code: 59172

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

CONFORMS TO SA	3501F2CL1
YEAR	2010 ED, 2011 Add
JOB	2013-8440-04
ITEM #	#13 - C2
SIGNED BY	[Signature] OCT 02 2013

2-8440-04
 Po-133431

Material: A/SA350 11 LF2 CL1

Item	Quantity	Description
48	300	36 - 3/4 X 1/2 3M THP A350LF2 CL1

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.210	0.03	0.050	1.04	0.005	0.016	0.02	0.004
	S	SI	V					
	0.018	0.20	0.003					

Carbon Equivalency: Ladle 0.40

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	79,000	50,000	28.00	65.00	163 BHN
Charpy V-Notch Properties:			Test Temperature:		165 BHN
	FT LBS: 45/32/23	% Shear: NB/NB/NB			-50 F
					MLE: NB/NB/NB

Normalized

IAW NACE MR0175/ ISO 15156-2009



Manufacturer of Piping and Pressure Vessel Components

4407 Haygood St - Houston, TX 77022
 Phone: 713-695-3633 Fax: 713-695-3528
 A Bonney Forge Company

Sold To: TRANS AM PIPING PRODUCTS
 LTD
 9335 ENDEAVOR DRIVE S.E.
 CALGARY AB T3S 0A1

MTR #: 219,786
 PO #: CI-11-671

Sales Order #: C001115548 Date: 12/01/2011

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with EN10204 3.1.

Certified Material Test Report

Heat Code: 58337

CONFORMS TO SA	A350LF2 CL1
YEAR	2010ED, 2011ADD
JOB #	2013-8440-04
ITEM #	#14-C3A/B
SIGNED BY	[Signature] OCT 02 2013

4-8440-04
 PO - 133431

Material: A/SA350 00a LF2 CL1

Item	Description
40	36 - 1 1/2 X 3/4 3M THP LF2 A350LF2 CL1

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.210	0.04	0.080	1.06	0.000	0.012	0.03	0.008
	S	SI	V					
	0.017	0.19	0.004					

Carbon Equivalency: Ladle 0.40

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
Charpy V-Notch Properties:	81,250	51,875	31.00	64.20	153 BHN
			Test Temperature:		156 BHN
					-50 F
FT.LBS: 30/68/35		% Shear: NB/NB/NB			MLE: NB/NB/NB

Normalized

LAW NACE MR0175/ISO 15156-2009

Marie Dehmer
 Quality Assurance Representative

T H Consulting Services

109 Grand Meadow Crescent
Edmonton, Alberta T6L 1X1
Telephone: (780) 909-5470
gord@thcs.net

Report - GM13828

MAGNETIC PARTICLE INSPECTION REPORT

Client	Alco Gas & Oil 5203 - 75 St. Edmonton, Alberta	Page	1-1
Test Method	ASME V SE-709-01 / Dry Powder	Time	11:00 AM
Acceptance Criteria	ASME VIII Div. 1 App. 6	Date	Mar 18, 2014
Object		P.O. No.	
		Job No.	2013-8440-04

Procedure-MT-General and MT- 1V Rev. 4	<input type="checkbox"/> Pre Heat Treatment	<input type="checkbox"/> Post Heat Treatment	<input type="checkbox"/> Post Hydrotest
Test Equipment ES-X Flex Ferrous Probe S/N - 16512	<input type="checkbox"/> Blacklight	<input type="checkbox"/> B/L Meter XR-1000 S/N - 1815543	
Black on White Contrast - Magnaflux	<input type="checkbox"/> WCP 2 White Contrast Batch #	<input type="checkbox"/> 7HF Prepared Bath Batch #	
Medium- Magnaflux - Type <input type="checkbox"/> 14 A	partical batch #	carrier batch #	<input checked="" type="checkbox"/> 8R 12F008 Other
<input checked="" type="checkbox"/> Dry	<input type="checkbox"/> Wet	<input type="checkbox"/> Fluorescent	<input checked="" type="checkbox"/> Red
<input checked="" type="checkbox"/> Yoke	<input type="checkbox"/> Prod	<input type="checkbox"/> Coil	<input checked="" type="checkbox"/> A/C
<input checked="" type="checkbox"/> Base Metal	<input type="checkbox"/> Ground	<input type="checkbox"/> Machined	<input type="checkbox"/> Painted
Viewing Light Source in excess of 100fc. <input type="checkbox"/> Ambient		<input type="checkbox"/> Trouble Light	<input checked="" type="checkbox"/> Flashlight
Material - P1	Thickness -	Temp. - 10° C to 52° C	Surface Condition - Clean / As welded

A better than 10% of the fillet welds on the Level Transmitter Cage were tested.

No relevant indications were found.

CGSB # 11841 Operator Gord Sieben		St	OT	KM	Client Representative
	ASNT II CGSB II	1			

ALCO GAS & OIL RADIOGRAPHY REPORT

PRODUCTION EQUIPMENT LTD.

CUSTOMER: DEVON CANADA CORP.	DESCRIPTION: 4" CL300 LEVEL TRANSMITTER CAGE	ALCO JOB NUMBER: 2013-8440-04
DATE: MAR 13 2014	TECHNIQUE # USED: RT P#2 REV # 5	CODE: B31.3
MATERIAL: P1	MAT'L THICKNESS: STD	EDITION: 2012 ADDENDA: ACCEPTANCE: 10% RANDOM

1 NO. OF FILMS PER CASSETTE

LEGEND: * - WELDER SYMBOL HL - HI LO S - SLAG CRACK SINGLE WALL EXPOSURE
 IP - INCOMPLETE PENETRATION LC - LOW COVER P - POROSITY (1) SLIGHT DOUBLE WALL EXPOSURE
 BT - BURN THROUGH UC - UNDER CUT I - ICICLE (2) MEDIUM SINGLE WALL VIEWING
 IC - INTERNAL CONCAVITY AS - ARC STRIKE C - CRATER (3) SEVERE DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC	REMARKS	ACC	REJECT
XR1	4" SCH 40	14												✓	

COSTING

SOURCE TYPE: IR 192	HRS:	@	
STRENGTH: 51 Ci	8" FILM	@	
SOD: 4.263"	17" FILM	@	
OFD: .237"	PIPE	@	
FILM TYPE: AGFA D4 CLASS 1 1 4" SCH 40	PIPE	@	
FOCAL SPOT SIZE: 11"	PIPE	@	
	PIPE	@	

COMMENTS: _____ TOTAL EXPOSURES: 3 \$0.00

TOTAL COSTS

CUSTOMER: DEVON CANADA CORP.		DESCRIPTION: 4" CL300 LEVEL TRANSMITTER CAGE			ALCO JOB NUMBER: 2013-8440-04	
DATE: MAR 13 2014		TECHNIQUE # USED: RT P#2 REV # 5		CODE: B31.3		
MATERIAL: P1		MAT'L THICKNESS: STD			EDITION: 2012 ADDENDA: -	
ACCEPTANCE: 10% RANDOM						

1 NO. OF FILMS PER CASSETTE

LEGEND:	* - WELDER SYMBOL HL - HI LO S - SLAG CRACK		<input type="checkbox"/> SINGLE WALL EXPOSURE
IP - INCOMPLETE PENETRATION	LC - LOW COVER P - POROSITY (1) SLIGHT		<input checked="" type="checkbox"/> DOUBLE WALL EXPOSURE
BT - BURN THROUGH	UC - UNDER CUT I - ICICLE (2) MEDIUM		<input checked="" type="checkbox"/> SINGLE WALL VIEWING
IC - INTERNAL CONCAVITY	AS - ARC STRIKE C - CRATER (3) SEVERE		<input type="checkbox"/> DOUBLE WALL VIEWING

Film #	Location	*	IP	S	C	BT	LC	UC	HL	P	I	IC	REMARKS	ACC	REJECT
XR2	4" SCH 40	17								1				✓	

COSTING

SOURCE TYPE: IR 192	HRS	@	
STRENGTH: 49 Ci	8" FILM	@	
SOD: 4 263"	17" FILM	@	
OFD: 237"	PIPE	@	
FILM TYPE: AGFA D4 CLASS 1	1	@	
FILM TYPE: 4" SCH 40	PIPE	@	
FOCAL SPOT SIZE: .11"	PIPE	@	
FOCAL SPOT SIZE: .11"	PIPE	@	

COMMENTS: _____	TOTAL EXPOSURES: 3	TOTAL COSTS: \$0.00
PAGE 1 OF 1 EXAMINER: BARRY RASMUSSEN	LEVEL: SNT III CGSB II #235	



5203-75 Street,
Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER: 2013-8440-04A

DESCRIPTION: 4" CL300 LEVEL TRANSMITTER CAGE

NAME OF AUTHORIZED INSPECTION AGENCY: N/A

TYPE OF TEST: HYDROSTATIC
PNEUMATIC
HYDROTATIC-PNEUMATIC

TEST PRESSURE: 75 psig

POSITION OF THE UNIT TESTED HORIZONTAL
VERTICAL

TEST FLUID: Water **TEST TEMPERATURE** > 60 F

TEST PROCEDURE: ALCO QCP-71

PRESSURE GAUGE(S) NUMBER: D-12 & D-10

PRESSURE TEST CHART RECORDED: YES NO

WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.

[Signature] 3/18/2014
QC INSPECTOR/ ALCO GAS & OIL DATE

3RD PARTY INSPECTOR 3/18/2014
DATE

AUTHORIZED INSPECTOR DATE

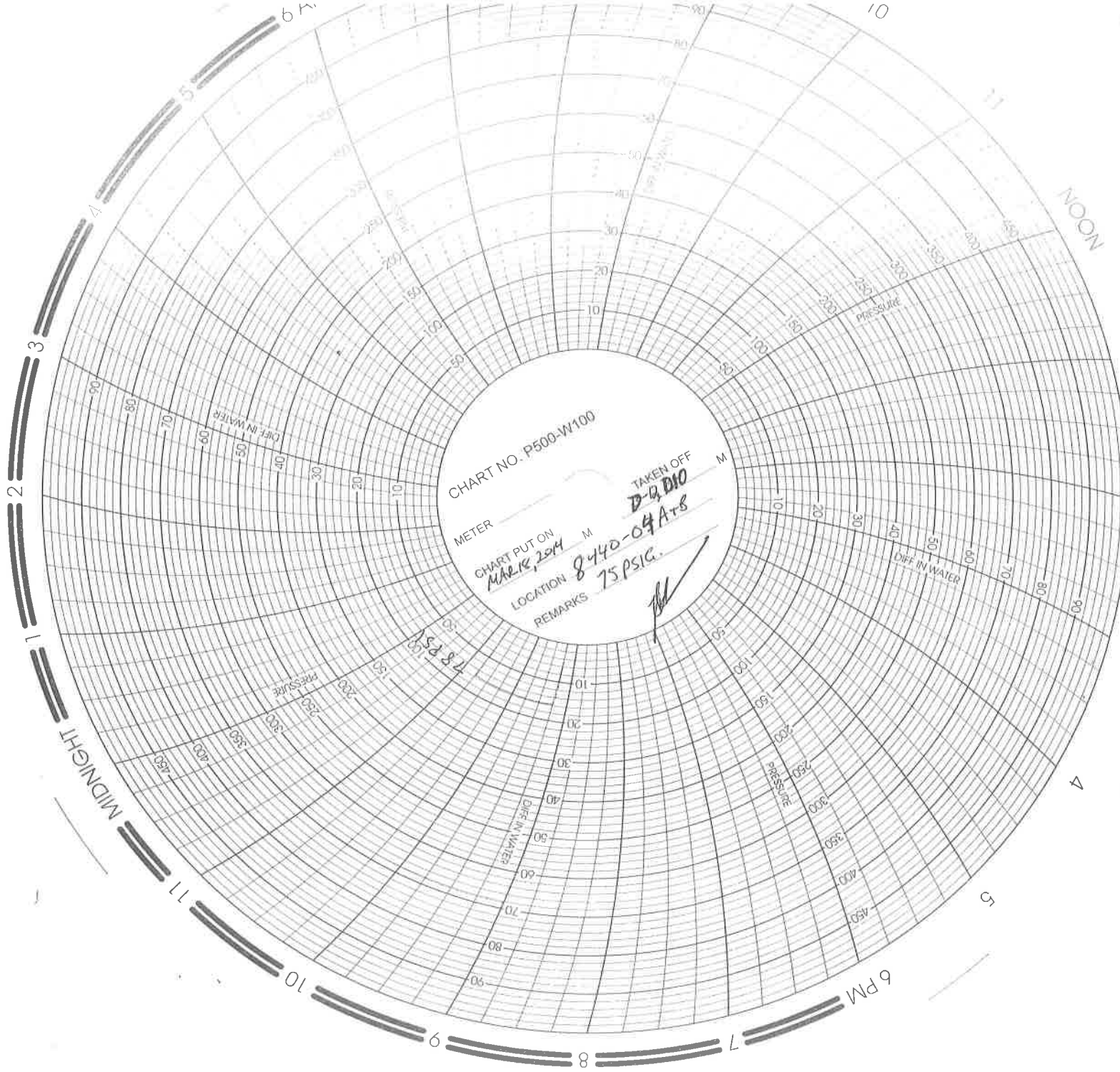


CHART NO. P500-W100

METER _____

CHART PUT ON
MAR 16, 2014

LOCATION 8440-04A+B

REMARKS 75 PSIG.

TAKEN OFF
D-G, D10

[Signature]

MIDNIGHT

NOON

6 PM