



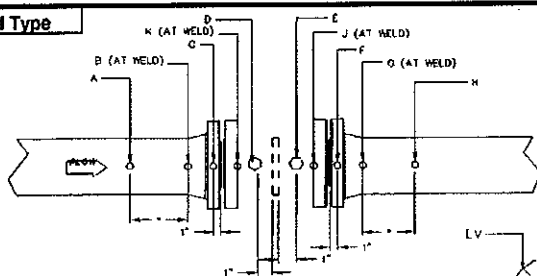
MEASUREMENT SYSTEMS

Meter Tube Calibration Record

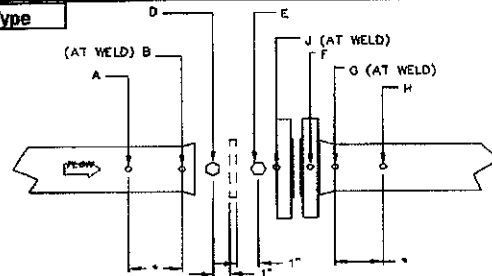
General Specifications

Customer:	RJV GASFIELD SERVICES	Date:	
Location:	HUSKY	P.O. Number:	116080
Serial No.	11196133901	Work Order No.	111961339
Assembly Part No.	9A-MR-53-0129E	Part No.	40553-34221
Orifice Fitting:	3" 600# SCH. 80 DUAL CHAMBER	Meter Tube Type No.	2
Flow Conditioner:		Yes	No
			X

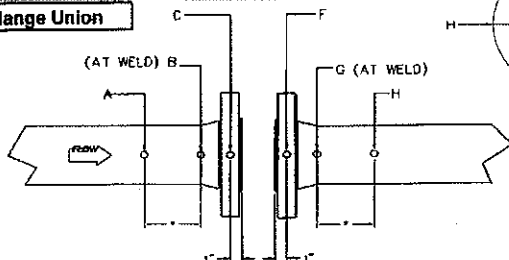
Type 1 Flanged Type



Type 2 Flangeweld Type



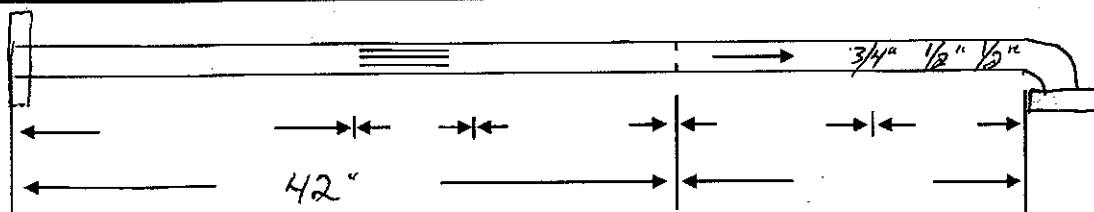
Type 3 Orifice Flange Union



Type 4 weldneck Type Valve or Door
Check Location Point A-B-D on Upstream Tube,
Point E-G-H on Downstream Tube

*Cross section 'A' and 'H' shall be one pipe diameter
except if such Cross Section falls within the lifting or weld
it shall be made 1" inside the pipe

Location	Upstream Meter Tube					Downstream Meter Tube				
	A	B	C	D	K	E	F	G	H	J
V	2.900	2.893		2.897		2.898	2.898	2.898	2.898	2.901
LV	2.898	2.897		2.898		2.899	2.899	2.901	2.892	2.897
RV	2.901	2.894		2.898		2.898	2.898	2.903	2.901	2.898
H	2.900	2.894		2.899		2.899	2.898	2.893	2.901	2.898
Average	2.900	2.895		2.898		2.899	2.898	2.899	2.898	2.899
Upstream Mean Average to Stamp on I.D. Plate				2.898		Downstream Mean Average to Stamp on I.D. Plate				2.899



AGA/API Figure	3P (1991)	BETA	0.70	Meter Tap Location	Upstream	1"	Downstream	1"
Remarks:	68°F			Inspector:				

Certificate of Authorization Permit

Quality Management System

Expiry Date: **January 19, 2013**

Reg. No.: **AQP-5046**

This is to certify that:

**CAMERON
MEASUREMENT SYSTEMS DIVISION
3707 - 97 STREET
EDMONTON, ALBERTA**

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

Manufacture Category 'F' Fittings in accordance with CSA B51

Alter Category 'C' Fittings in accordance with CSA B51

at the above SHOP address.



Dated at Edmonton, this 1st day of February, 2010

Chief Inspector and Administrator

Certificate No.: 7277



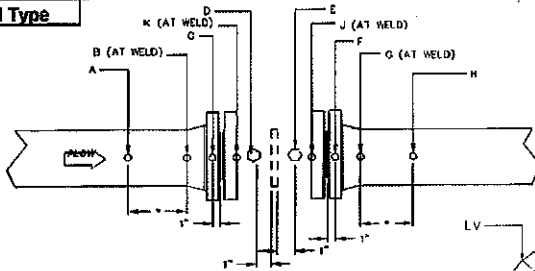
MEASUREMENT SYSTEMS

Meter Tube Calibration Record

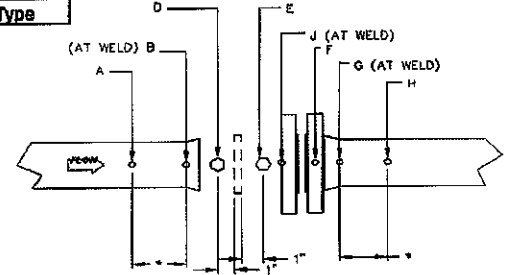
General Specifications

Customer:	RJV GASFIELD SERVICES	Date:	
Location:	HUSKY	P.O. Number:	116080
Serial No.	11196133901	Work Order No.	111961339
Assembly Part No.	9A-MR-53-0129E	Part No.	40553-34221
Orifice Fitting:	3" 600# SCH. 80 DUAL CHAMBER	Meter Tube Type No.	2
Flow Conditioner:		Yes	No
			X

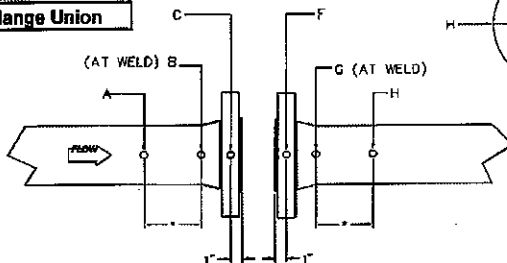
Type 1 Flanged Type



Type 2 Flangeweld Type



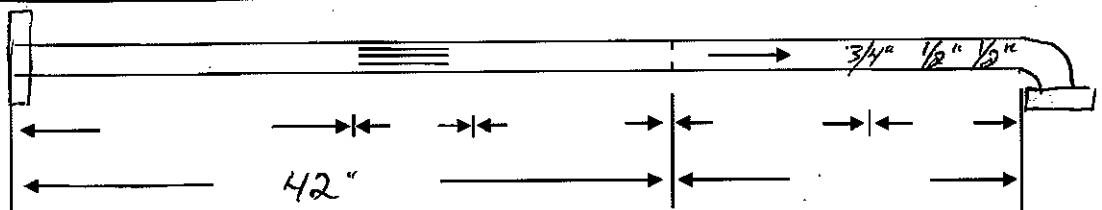
Type 3 Orifice Flange Union



Type 4 weldneck Type Valve or Door
Check Location Point A-B-D on Upstream Tube,
Point E-G-H on Downstream Tube

*Cross section 'A' and 'H' shall be one pipe diameter
except if such Cross Section falls within the lifting or weld
It shall be made 1" inside the pipe

Location	Upstream Meter Tube					Downstream Meter Tube				
	A	B	C	D	K	E	F	G	H	J
V	2.900	2.893		2.897		2.898	2.898	2.898	2.898	2.901
LV	2.898	2.897		2.898		2.899	2.899	2.901	2.892	2.897
RV	2.901	2.894		2.898		2.898	2.898	2.903	2.901	2.898
H	2.900	2.894		2.899		2.899	2.898	2.893	2.901	2.898
Average	2.900	2.895		2.898		2.899	2.898	2.899	2.898	2.899
Upstream Mean Average to Stamp on I.D. Plate				2.898		Downstream Mean Average to Stamp on I.D. Plate				2.899



AGA/API Figure	3P (1991)	BETA	0.70	Meter Tap Location	Upstream	1"	Downstream	1"
Remarks:	68°F			Inspector:				

**NUFLO™ DUAL CHAMBER
ORIFICE FITTING**

PART NO. **40553-34221**
SERIAL NO. **11196133901**
SIZE **3.0** BORE **2.900**
SWP **1480** FLG **600**
TRIM **SWEET**

CRN (ASME CODE) 0F01120.2C

 **CAMERON**
EDMONTON, ALBERTA, CANADA

TO REMOVE PLATE FROM CHAMBER

1. CLOSE ORIFICE CHAMBER (INDEX ORIFICE OUT OF OPERATION).
2. OPEN BLEED VALVE.
3. OPEN CHAMBER LID (REMOVE TWO TOP NUTS ONLY).
4. REMOVE ORIFICE PLATE (PRY ON HOLES IN RETAINER HANDLE).

TO PLACE ORIFICE PLATE IN OPERATION

1. REPLACE ORIFICE WITH OUTLET ON PLATE AND SEAL ON RETAINER FACING UPWARD.
2. CLOSE LID.
3. CLOSE BLEED VALVE.
4. OPEN EQUALIZING VALVE.
5. OPEN ORIFICE CHAMBER (INDEX ORIFICE INTO OPERATION).
6. CLOSE EQUALIZING VALVE.

NUFLO™ METER RUN

ASSY
NO.

9A-MR-53-0129E

SERIAL NO. **11196133901**
PIPE SIZE **3.0**
AGA / API **3D (1991)**
W.O. NO. **111961339**

UIS DIA. **2.898**
SCH **80**
MAT'L **WCB**

D/S DIA. **2.899**
RATING **600**
DATE **01/11**

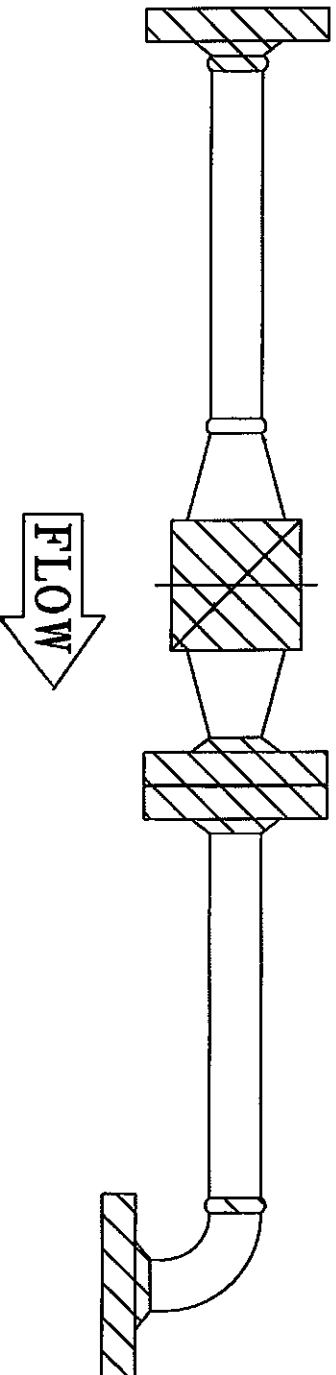
CALIBRATION
CERT'D BY

CAMERON

CRN (ASME CODE) 0F01120.2C

 **CAMERON**
EDMONTON, ALBERTA, CANADA

WELD IDENTIFICATION MAP

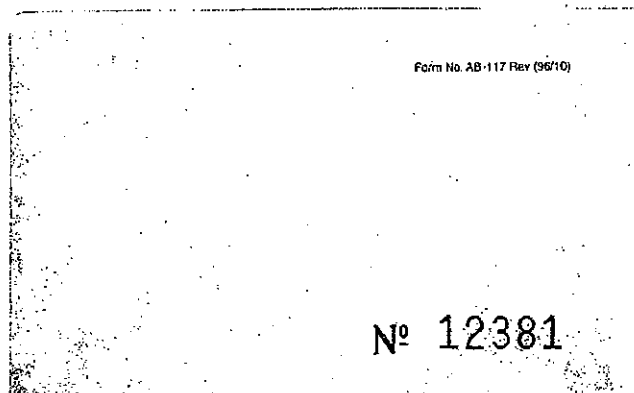
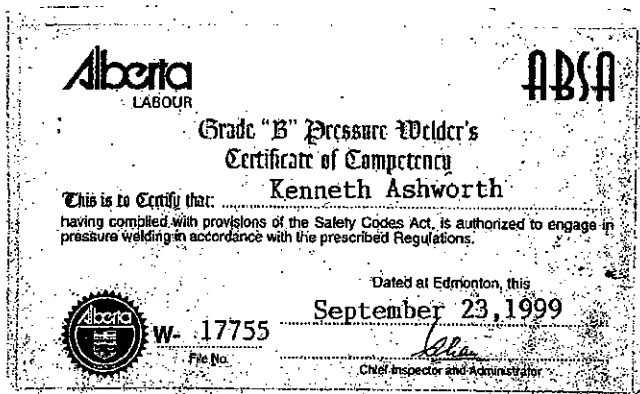


DESCRIPTION: 3" 600# SCH 80 DUAL CHAMBER METER RUN
SERIAL No.: 11196133901
CUSTOMER: RJV GASFIELD
P/O No.: 116080 TAG No.:
W/O No.: 111961339 END USER: HUSKY OIL
WELDER: KEN ASHWORTH FILE No.: W-17755
DATE: JANUARY 18/ 2011 Bryan O'Neill
SYMBOL: J INSPECTOR



Cameron
Measurement Systems

3707 97th Street
Edmonton, Alberta
T6E 6J2



PERFORMANCE QUALIFICATION

06295

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

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

Max. Deposited Weld Metal 0.188 in. 0.684 in. Position(s) Qualified Flat

Backing With or Without With Backing Gas N/A

Progression N/A N/A

October 19, 2012
P.Q. Expiry Date

Welding Examiner Signature

E-00324
Examiner File No.



LUDWIG ASSOCIATES LTD.

Materials and Welding Consulting

WELDER PERFORMANCE QUALIFICATION CARD

Name: Kenneth Ashworth ABSA File No.: W-17755

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

October 19, 2010
Date of Test

Kyle Melville
Welding Examiner

Signature of Welder or Machine Operator

Card No.: 06295

PERFORMANCE QUALIFICATION

05294

Process(es) GMAW FCAW Materials (P.No) P1 to P1

Filler Metal Group (F.No) F6 F6 Min. Outside Diameter 1.0 in.

Max. Deposited Weld Metal 0.110 in. 0.672 in. Position(s) Qualified GMAW: SP 0.45° & Flat FCAW: Flat

Backing With or Without With Backing Gas With or Without

Progression Downhill N/A

October 19, 2012
P.Q. Expiry Date

Welding Examiner Signature

E-00324
Examiner File No.



LUDWIG ASSOCIATES LTD.

Materials and Welding Consulting

WELDER PERFORMANCE QUALIFICATION CARD

Name: Kenneth Ashworth ABSA File No.: W-17755

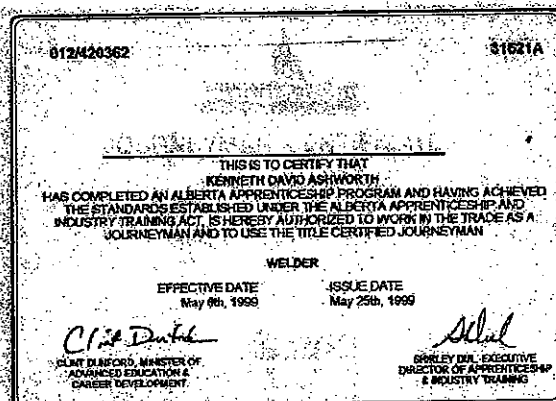
This card is issued pursuant to the Alberta Safety Codes Act and the Pressure Welding Regulation. The performance qualification is in accordance with ASME Section IX of the ASME Code and subject to the limitations on the reverse side.

October 19, 2010
Date of Test

Kyle Melville
Welding Examiner

Signature of Welder or Machine Operator

Card No.: 05294



MST1201
10/03/06

Highland Foundry Ltd.
CHEMICAL AND PHYSICAL ANALYSIS

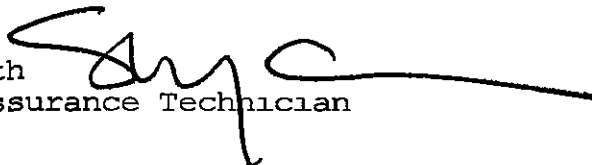
Page 1
14:46.25

Product# . . . : 40713-001
Customer Part#: 40713-001
Customer . . . : NUFLO MEASUREMENT SYSTEMS
ACCOUNTS PAYABLE
7944 10TH STREET N.E.
CALGARY AB T2E 8W1
CANADA

Order/Item# . 28590 / 2
Customer P.O.# XP61363

3" DUAL CHAMBER BODY

Approved by: Shyan Smith
Quality Assurance Technician



Melt#	Quantity	Date	Heat Treat	BATCH #	Specification
3-3199	10	9/12/06		CM5 - -	ASTM A216 GRADE WCB

C H E M I C A L S

C :.1900	MN:.7900	SI:.4800	P .0200
S :.0120	NI:.0700	CR:.1600	MO:.0400
CU:.1400	V 0100		

P H Y S I C A L S

YIELD KSI 50.4	TENSILE KSI 77.5
ELONGATION % 33	RED OF AR. % 58

CE: .3777



MATERIAL TEST REPORT

9670-187th Street, Surrey, BC Canada V4N 3N6
Phone 604-888-8444 Fax 604-888-3634

ISO 9001:2000

Hardness Test Report



OUR REPUTATION IS STAINLESS

Customer	NuFlo Measurement Systems	PO Number	XP61363
Part Number & Description	40713-001 3" Dual Ch. Body	Order Number	28590 / 2
Material Specification	ASTM A216 Grade WCB	Date	10/04/06
Inspection Method	ASTM E10	Qty	72 pcs

Equipment Used: Portable King Brinell Tester

Type of Ball:

Regular ☐

Carbide ☒

Load: 3000 kg

Holding Time: 10 sec

Hardness Required: 237 Max

Brinell ☒

Rockwell ☐



Heat No. / Batch No.	% of Batch Tested	Hardness Obtained
3-3191 / CM1	10%	152, 152
1-2460 / CM2	10%	152, 156
4-7912 / CM3	10%	156, 156
3-3196 / CM4	10%	152, 156
3-3199 / CM5	10%	156, 156

Remarks:

Tested By:

Kulvinder Sandhu
CGSB 48.9712, Level 2, Reg# 10783

MST1201
3/12/07

Highland Foundry Ltd.
CHEMICAL AND PHYSICAL ANALYSIS

Page 1
10:22:34

Product#. 40703-005
Customer Part#. 40703-005
Customer. . . . CAMERON MEASUREMENT SYSTEMS
ACCOUNTS PAYABLE
7944 10TH STREET N.E
CALGARY AB T2E 8W1
CANADA

Order/Item# . 29054 / 2
Customer P.O.# XP62138

3" DUAL CHAMBER LID

Approved by Shyan Smith
Quality Assurance Technician

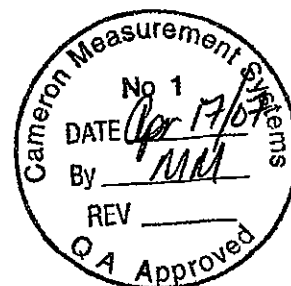
Melt#	Quantity	Date	Heat Treat	BATCH #	Specification
2-7164	27	1/31/07	FR1	-	ASTM A216 GRADE WCB

C H E M I C A L S			
C .1900	MN .8900	SI 5900	P .0150
S .0140	NI:.1100	CR:.2900	MO .0700
CU: 1000	V : 0200		

P H Y S I C A L S	
YIELD KSI 52.3	TENSILE KSI 79.1
ELONGATION % 30	RED OF AR % 56

CE: 0.4283

$$(CE = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15})$$



MATERIAL TEST REPORT

9670-187th Street, Surrey, BC Canada V4N 3N6
Phone 604-888-8444 Fax 604-888-3634

ISO 9001:2000

Hardness Test Report



OUR REPUTATION IS STAINLESS®

Customer	Cameron Measurement Systems	PO Number	XP62138
Part Number & Description	40703-005 3" Dual Ch. Lid	Order Number	29054 / 2
Material Specification	ASTM A216 Grade WCB	Date	03/09/07
Inspection Method	ASTM E10	Qty	87 pcs

Equipment Used: Portable King Brinell Tester

Type of Ball: Regular ☐ Carbide ☒

Load: 3000 kg

Holding Time: 10 sec

Hardness Required: 237 Max Brinell ☒ Rockwell ☐



Heat No. / Batch No.	% of Batch Tested	Hardness Obtained
2-7161 / FQ8	10%	149
5-7714 / FQ9	10%	156, 156
2-7164 / FR1	10%	156, 152, 156
5-7453 / DI3	10%	167
2-6541 / X52	10%	163

Remarks:

Tested By:

Kulvinder Sandhu
Kulvinder Sandhu
CGSB 48.9712, Level 2, Reg# 10783



MATERIAL TEST CERTIFICATE

Date 08/16/2006
Customer PO XP61607
Customer NUFLO TECHNOLOGIES CANADA

Work Order No 63874
WO Line No 5

Qty	Product Desc	Material	Spec
53	ITEM #5 - 3" S80 WELDNECK, 40553-027-03000 REV C	SA105	SA105N

Mill	ASCOMETAL	Heat No	F4814	Size O/D	6 75	ID #	1
------	-----------	---------	-------	----------	------	------	---

Chemical Properties

Al	0 2200	B		C	0 1580	Ca		Co		Cr	0 1500	Cu	0 1400
Mn	1 1720	Mo	0 0230	N		Nb/Cb	0 0000	Ni	0 6700	P	0 0110	Pb	
S	0 0160	Si	0 1920	Sn		Ta		Ti		V	0 0030	Zn	

Notes

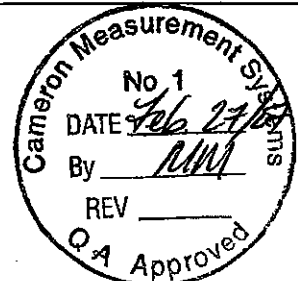
Mechanical Properties

Yield	46052 PSI	Impact Temp	-50F
Tensile	72674 PSI	Charpy V Notch	89 0/ 88 6/91 3 FT/LBS
Elong %	32 0	BHN Hardness	170 HB
Red %	58 0		

Notes

Heat Treatment

	Treatment	Temperature	Time
1	NORMALIZED	1652F	3 50 HOURS
2			
3			
4			
5			



General Notes DUAL RATED ASTM SA105N / SA305LF2

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

Q A Manager - JEFF MCKELVEY
Signature



SAN ENG STEEL FORGING CO., LTD.
311, Jen Hsin Road, Jen Wu Hsiang
Kaohsiung Hsien, Taiwan, R.O.C.
TEL: 07-3724249; FAX: 07-3712923
URL: www.saneng.com.tw
e-mail: saneng@ktsi.seed.net.tw

MILL TEST CERTIFICATE

EN10204-3.1, BDIN50049/3.1(B)
Customer: SEYBOLD INTERNATIONAL CORP.
Order No.: 700307(1)-CEE

Certificate No.: SE-3077A
Date: 10/06/2010

PRODUCT

FORGED CARBON STEEL FLANGES

MATERIAL SPECIFICATIONS

ASTM A105-09/ASME SA105-09

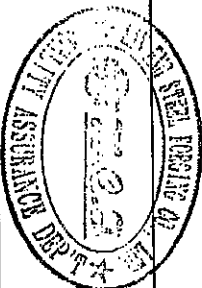
DIMENSIONAL SPECIFICATIONS

ASME B16.5-09
CSA Z245.12

Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)																CE(%)
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N					
21	1073658	150 SORF 2" A105N	250 PCE	0.207	0.250	1.050	0.009	0.040	0.009	0.009	0.300	0.400	0.120	0.080	0.020	-	-	0.396		
22	1075442	150 THRF 2" A105N	225 PCE	0.209	0.260	1.080	0.015	0.010	0.009	0.053	0.045	0.005	0.058	0.005	0.004	-	-	0.404		
23	1075442	150 THRF 2" A105N	175 PCE	0.209	0.260	1.060	0.013	0.012	0.010	0.044	0.047	0.005	0.036	0.005	0.005	-	-	0.399		
24	1075531	150 THRF 6" A105N	50 PCE	0.207	0.280	1.060	0.010	0.015	0.012	0.021	0.048	0.005	0.002	0.005	0.005	-	-	0.393		
25	1073762	300 THRF 2" A105N	250 PCE	0.207	0.250	1.060	0.009	0.009	0.009	0.041	0.044	0.005	0.031	0.005	0.004	-	-	0.396		
26	1075493	600 WNRF STD 3" A105N	100 PCE	0.233	0.240	1.100	0.010	0.017	0.018	0.037	0.050	0.005	0.025	0.005	0.006	-	-	0.429		
27	1075311	600 WNRF STD 4" A105N	58 PCE	0.204	0.310	1.070	0.011	0.008	0.012	0.018	0.048	0.005	0.007	0.005	0.006	-	-	0.391		
28	1075338	600 WNRF STD 6" A105N	63 PCE	0.204	0.270	1.010	0.013	0.017	0.014	0.018	0.049	0.005	0.006	0.005	0.006	-	-	0.381		
29	1075338	600 WNRF STD 6" A105N	72 PCE	0.209	0.280	1.030	0.018	0.019	0.017	0.024	0.050	0.005	0.022	0.005	0.006	-	-	0.391		
30	1075223	600 WNRF XS 3" A105N	200 PCE	0.213	0.250	1.100	0.012	0.013	0.013	0.020	0.047	0.005	0.010	0.005	0.005	-	-	0.405		
HEAT TREATMENT(°2)																				
N																				
REMARKS																				
880°C X3HRS																				
CONFORMS WITH NACE MR0103-07 AND NACE																				
MR0175/ISO15166.2																				
CONFORMS WITH Z245.12 CAT I GR 248 SOUR																				
SERVICE-05																				
TEST SPECIMEN ORIENTATION: TRANSVERSE																				
Item No.	Heat No.	T.S.(°1) (MPa) Min Max	Y.S.(°1) (MPa) 250.0	EL.(°1) (%) 22.0	Hardness (HRC) 187	R.A.(°1) (%) 30.0	Impact Test Temp: Minimum: Joule			Material Supplier		REMARKS								
21	21383	517.8	379.5	35.6	153	69.5	1			NTMK		880°C X3HRS CONFORMS WITH NACE MR0103-07 AND NACE MR0175/ISO15166.2 CONFORMS WITH Z245.12 CAT I GR 248 SOUR SERVICE-05 TEST SPECIMEN ORIENTATION: TRANSVERSE								
22	10985	527.6	367.7	34.2	154	68.6	2			NTMK										
23	21388	521.7	379.5	33.6	154	69.5	3			NTMK										
24	10915	505.0	354.0	33.2	147	69.5				NTMK										
25	21383	517.8	379.5	35.6	153	69.5				NTMK										
26	31244	537.4	379.5	34.0	160	68.6				NTMK										
27	31241	513.9	367.7	35.6	150	69.5				NTMK										
28	935866	508.0	335.4	36.0	148	68.6				NTMK										
29	915542	509.9	352.1	35.8	149	69.5				NTMK										
30	21302	519.8	363.8	36.4	153	69.5				NTMK										
T.S.=Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.																				
N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S,T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Fluance Cooled, W.C=Water Cooled, O.C=Oil Cooled.																				
*3. C.E. Value = C + (Mn/8) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15																				
We hereby certify that the material has been tested in accordance with the above specification and conforms with the requirements called for by the above order																				
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=Fluence Cooled, W.C=Water Cooled, O.C=Oil Cooled.
*3: C.E. Value = C + (Mn/8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15

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



Manager of Quality Assurance Dept

3" Sch 80 A105

三英鋼鐵股份有限公司
SAN ENG STEEL FORGING CO., LTD.

MILL TEST CERTIFICATE
=====

NO. 22 LANE 50, WAN SING STREET
SAN MIN DISTRICT, KAOSHIUNG,
TAIWAN, R.O.C.
Tel: 07-372 4249 07-371 2934
Fax: 07-371 2923 07-371 2846
URL: http://www.saneng.com.tw
e-mail: saneng@ksts.seed.net.tw

20 HOLLY STREET, SUITE 205
TORONTO, M6S 3B1, CANADA
TEL: 416-4810191 FAX: 416-4811790

CERT NO.: SE-5997BN

DATE: 02/15/2007

ORDER NO.: 5997/45000684

L/C NO.:

PAGE: 4 OF 4

P R O D U C T			S P E C I F I C A T I O N F O R M A T E R I A L			S P E C I F I C A T I O N F O R F I T T I N G S									
FORGED CARBON STEEL FLANGERS			ASTM A-105-03/ASME SA-105 (Z245.12 CAT I GR.248 SOUW SERVICE-01)			ASME B16.5-98a									
ITEM NO.	D E S C R I P T I O N	Q U A N T I T Y	C H E M I C A L C O M P O S I T I O N (%)												
			C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N	C.E.
31.	33874-105 600 HUB BLRF	15 PCS	0.210	0.170	1.060	0.007	0.013	0.060	0.050	0.030	0.005	0.003	0.005	0.009	0.405
32.	4907-105 600 WRF XS	73 PCS	0.200	0.180	1.050	0.014	0.012	0.060	0.110	0.040	0.011	0.003	0.005	0.009	0.407
33.	23887-105 1500 BLRF	1 PCS	0.180	0.240	0.920	0.015	0.005	0.190	0.220	0.170	0.020	0.000	0.002	0.010	0.406
34.	24157-105 800 BLRF	1 PCS	0.180	0.270	0.890	0.011	0.012	0.160	0.140	0.140	0.010	0.000	0.003	0.007	0.380
ITEM	HEAT	TENSILE STRENGTH (MPa)	YIELD STRENGTH (MPa)	ELONGATION (%)	HARDNESS (HB)	REDUCTION OF AREA (%)	HEAT TREATMENT	MATERIAL SUPPLIER	RE M A R K S						
										MIN	MAX	MIN			
31.	38912	497.20	389.30	32.6	159	66.8	NORMALIZED	OMK	NORMALIZATION: 880°C/3HRS CONFORMS TO MEET WITH NACE MR01-75/03 AND MR01-03/03						
32.	21511	519.80	317.70	34.6	153	65.9	NORMALIZED	OMK							
33.	63944	527.60	327.50	35.8	148	66.8	NORMALIZED	RED OCTOBER							
34.	50832	504.10	331.50	38.0	148	69.0	NORMALIZED	RED OCTOBER							

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR BY THE ABOVE ORDER AND IS THAT WHICH HAS BEEN TESTED TO THE SATISFACTION OF THE CERTIFICATE.

NORMALIZATION: 880°C/3HRS
CONFORMS TO MEET WITH NACE MR01-75/03
AND MR01-03/03

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

INSPECTION CERTIFICATE

Thai Benkan Co., Ltd.

38 Soi Wadumai, Bangkok, Prapatsang,
Samutprakan, 10130 Thailand.



E-No. Purchase Order No. Job No.

TO EN10204 3.1

D M Y Certificate No.

MC-033 45001346

26/08/2010 T. 2010040363

No.	MFG. No. (Heat Identification No.)	Specification for Material Made from Seamless Pipe										Specification for Inspection		Visual Examination	Dimensional Inspect
		ASTM A234-07/ASME SA234-07 Gr. WPB CSA Z245.11-06 Gr. 241 CAT 1 SS NACE MR0175/ISO 15156-2,034MRD163-07										ASME B16.9-2007		Good	Good
		Product & Size										Quantity	Heat Treatment (Note 1)	Hardness Actual Data	Item No.
1	10G00005	90 EL WPB 3 S40										1,168/1,300	A	HB : 115 - 145	3518
2	10G00013	90 EL WPB 3 S80										550	A	HB : 120 - 150	3584
3	10G00008	90 EL WPB 8 S40										111/260	A	HB : 115 - 145	3534
4	10G00070	90 EL WPB 8 S40										21/260	A	HB : 115 - 145	3534
5	10G00001	90 EL WPB 1 1/2 S40										150	A	HB : 125 - 140	3509

Specification	Chemical Composition %														Tension Test #2			HARDNESS MAX	197 HB : GOOD
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E				
	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 100	MPa.		%				
Min.																			
Max.		10	29										240	415	30				
Material Heat No.	30		106	50	58	40	40	40	15	80	20	45		585					
	1	962982	16	19	76	19	2	13	9	20	6	0	35	330	513	31			
	2	863009	15	21	75	18	2	15	10	20	6	0	35	312	493	33			
	3	J7L5020	18	20	81	10	8	2	3	5	1	0	33	301	475	40			
	4	J8K5601	20	20	80	14	7	2	2	6	1	0	35	292	482	41			
5	3-74110	19	24	87	16	2	<1	1	2	<1	<1	34	344	504	49				

(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 C

The fillings was manufactured, sampled, tested and inspected in accordance with the specification and was found to meet the requirements.
C.E. = C+Mn/6+(C+Mn+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR 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.

Quality Assurance Manager
Thai Benkan Co., Ltd.



Manufacturers of Piping and Pressure Vessel Components

4407 Haygood St - Houston, TX 77022

Phone: 713-695-3633 Fax: 713-695-3528

A Bonney Forge Company

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

MTR #: 198,409

PO #: CI-10-505

Sales Order #: c001012701

Date: 11/12/2010

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

Certified Material Test Report

Heat Code: 58120

Item Description
 17 36 - 3/4 X 1/2 3M THP
 A/SA105N

Chemical Composition

Ladle	C	CR	CU	MN	MO	NI	NT	P
	0.210	0.06	0.130	1.02	0.010	0.01	0.04	0.020
	S	SI	V					
	0.017	0.19	0.00					

Carbon Equivalency: Ladle 0.41

	Tensile PSI	Yield PSI	Elong %	RA %	Hardness	
Product	74,375	50,875	31.05	61.80	132 BHN	132 BHN

Normalized

1. IN ACCORDANCE WITH NACE SPEC MR0175-2002

Marie Dehmer
 Quality Assurance Representative

P.O.# 4502588567 Item# 3

Heat Number: 58010

Trans Am Piping Products Ltd. . Rev'd By: SB 3/4X11/2-36 CL 3000 FS THREADED PIPE

Shipment/Seq#: S 10 - 1390 17 A105N



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

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Sold To: TRANS AM PIPING PRODUCTS
LTD
9335 ENDEAVOR DRIVE S.E.
CALGARY AB T2S 0A1

Mtr #: 192,876

PO #: CI-10-355

Sales Order #: C001008457

Date: 08/03/2010

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: 58010

Material: A/SA105N 09

Item	Quantity	Description
17		36 - 1 1/2 X 3/4 3M THP A/SA105N
36		36 - 1 1/2 X 3/4 3M SWP A/SA105N

Chemical Composition

Ladle	C	CR	CU	MN	MO	NB	NI	P
	0.210	0.03	0.040	1.02	0.000	0.013	0.02	0.007
	S	SI	V					
	0.024	0.22	0.003					
Carbon Equivalency:	Ladle			0.39				

	Tensile PSI	Yield PSI	Elong %	RA %	Hardness	
Product	75,500	51,000	29.00	66.00	149 BHN	149 BHN

Normalized

1. IN ACCORDANCE WITH NACE SPEC MR0175-2002

Murie Dehmer

Quality Assurance Representative

SCOT

3020 FORON RD.
1121 HARRISON AV PMB 293
CENTRALIA WA 98531

Material Test Report

Manufactured by:
Arcelor Mittal Shelby
132 W. Main Street

Customer Order No: 4502555576

Scot Order No:

738554.01 Country of Origin: UNITED STATES OF AMERICA

Shelby, OH 44875 US

CAMERON MEASUREMENT SYSTEMS

5003-93RD STREET

EDMONTON AB T6E-5S9

Material Supplier:

Part Number:

Scot Rec. No:

965.00

9A-C1609-024-4200

10082400

Heat Number: A100720

Grade: 1026

Dimensions: 3.500" OD 2.900" ID X 25R30

Scot Spec: MS-S-00022

ASTM Spec A519

Other Spec: A106-B

Description: CDS NORMALIZE STEEL TUBING YIELD @ .2% OFFSET METHOD

Chemical Analysis

	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	V
0.26	0.76	0.005	0.017	0.3	0.14	0.06	0.07	0.02	0.007	0.021	0.002	
0.001	0.001	0.001	0.001	0.001	0.0071							

Mechanical Test Results

Yield Strength:(PSI)	Tensile Strength:(PSI)	Elongation:(%) in 2" G.L	ROA:(%)	Hardness
51300	76600	35		81 (HRB)

Charpy Impact Energy		Size	Energy ()			Shear Area (%)		
Temp	1	2	3	Avg	1	2	3	Avg

Eddy Current

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.

Sherry Lee
Quality Assurance
08/16/10

