



MEASUREMENT SYSTEMS

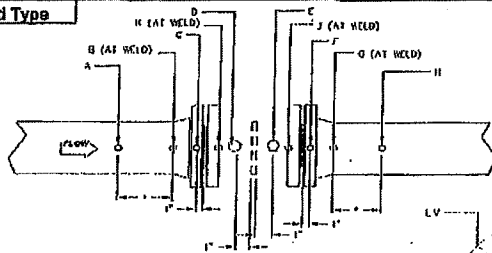
66025442

Meter Tube Calibration Record

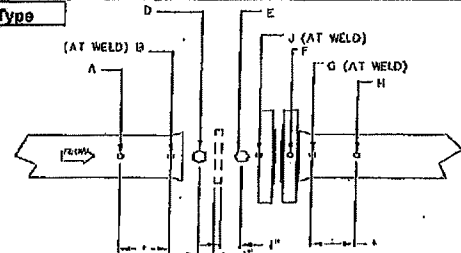
General Specifications

Customer:	RJV Gas Field Svcs	Date:	Dec. 14, 2012
Location:	Husky Energy	P.O. Number:	125991
Serial No.	11264364509	Work Order No.	112643645
Assembly Part No.	9A-MR_52_0091C	Part No.	40552-33221
Orifice Fitting:	2" 600# Sch 80 Dual Chamber Meter Run	Meter Tube Type No.	2
Str. Vane / Flow Cond.:		Yes	X No

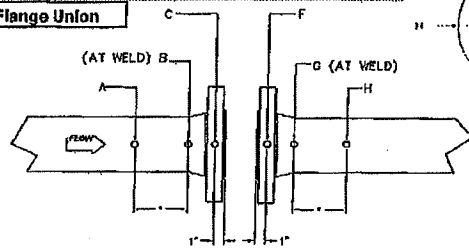
Type 1 Flanged Type



Type 2 Flangeweld Type



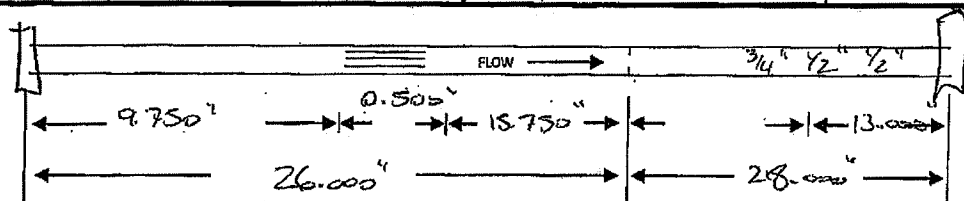
Type 3 Orifice Flange Union



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	1.944	1.936		1.939		1.939	1.944	1.943	1.933	1.948
LV	1.942	1.935		1.941		1.941	1.942	1.935	1.937	1.942
RV	1.944	1.938		1.937		1.941	1.944	1.945	1.933	1.943
H	1.945	1.936		1.939		1.940	1.945	1.941	1.934	1.945
Average	1.944	1.936		1.939		1.940	1.944	1.944	1.934	1.945
Upstream Mean Average to Stamp on I.D. Plate	1.939					Downstream Mean Average to Stamp on I.D. Plate	1.940			



AGA/API Figure	3 (2000)	Q70	Meter Tap Location	Upstream	N/A	Downstream	N/A
Remarks:	68*		Inspector:	Chris Robertson			



www.c-a-m.com
Tel.: 780.468.2941
Edmonton, AB
NQSF-01 Rev.4 10/21/11



Certificate of Authorization Permit

Quality Management System

Expiry Date: **December 9, 2013**

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

This is to certify that:

**CAMERON
MEASUREMENT SYSTEMS DIVISION
7944 - 10 STREET N.E.
CALGARY, ALBERTA**

having complied with the provisions of the SAFETY CODES ACT, is hereby authorized to:
Manufacture Category 'F' Fittings in accordance with CSA B51
at the above SHOP address.



Dated at Edmonton, this 7th day of December, 2010

Chief Inspector and Administrator

Certificate No.: **7735**

**Cameron Measurement Systems**

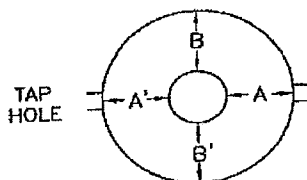
3707 - 97th Street

Edmonton, Alberta, Canada T6E 6J2

**QUALITY CONTROL
INSPECTION REPORT**

Customer: RJV Gas Field Svcs
Location: Husky Energy
Serial No.: 11264364509
Assembly No.: 9A-MR_52_0091C
Meter Tube Design Standard API 14.3

Date: January 11, 2013
Purchase Order No.: 125991
Orifice Fitting: 2" 600# sch 80 Dual Chamber Meter Run
Hydrostatic Test Pressure: 2225
Duration: 15 Minutes

ECCENTRICITY

Horizontal $(A - A')/2$
Vertical $(B - B')/2$

0.003	0.005
0.004	0.002

Measurement Instrument:

Mitutoyo Dial Indicator**PRESSURE TAP HOLE VARIATION**

Distance from Plate & Hole Diameter

Upstream	Hole	Downstream	Hole
1.005	0.372	1.005	0.378

Measurement Instrument:

PAV Electronic Depth Gauge**SURFACE ROUGHNESS****Roughness Measurement Location**

Upstream Tube, One Pipe Diameter from Weld
Upstream at Pressure Tap Hole
Downstream at Pressure Tap Hole
Downstream 1" from End of Flange

Microinches

99
103
126
89

Measurement Instrument:

Mitutoyo 212 Surftester**DIFFERENTIAL TEST**

Water Hydrostatic Method at 50 psi
Duration 5 Minutes Minimum

Visual: No Leaks

Measurement Instrument:

McDaniels Gauge 0 -100 psiWork Order #: 112643645Lorne Dagg/ Leigha Jarvis

NUFLO™ DUAL CHAMBER ORIFICE FITTING

PART NO. **40552-33221**
 SERIAL NO. **11264364509**
 SIZE **2.0** BORE **1.939**
 SWP **1480** FLG **600**
 TRIM **SWEET**

CRN (ASME CODE) 9FD1120 2C



TO REMOVE PLATE FROM CHAMBER
 1. CLOSE ORIFICE CHAMBER INDEX
 2. CLOSE BLEED VALVE
 3. OPEN CHAMBER LIFTING VALVE (NO TOP NUTS ONLY)
 4. IN WORK ORIFICE PLATE (DO NOT REMOVE THE LIFTING ASSEMBLY)

TO PLACE ORIFICE PLATE IN OPERATION
 1. REMOVE ORIFICE WITH ORIFICE PLATE AND SEAL OVER HANGER BEARING UPWARD.
 2. CLOSE IT
 3. CLOSE BLEED VALVE
 4. OPEN EQUALIZING VALVE
 5. OPEN ORIFICE CHAMBER INDEX
 6. CLOSE INTO OPERATION
 7. CLOSE EQUALIZING VALVE

NUFLO™ METER RUN

ASSY NO.

9A-MR 52 0091C

SERIAL NO. **11264364509**
 PIPE SIZE **2.0**
 ADJUST **3 (2000)**
 TAG NO. **112643645**

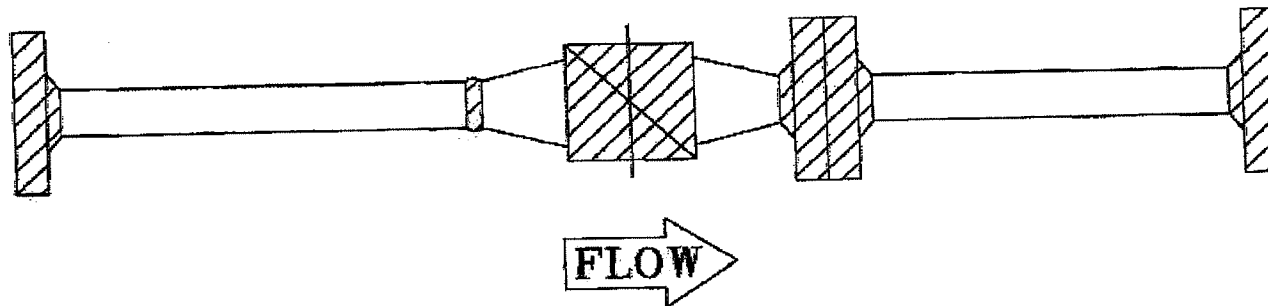
DIS DIS **1.939** DIS DIS **1.940**
 SCH **80** RATING **600**
 MATL **WCB** DATE **01/13**

CALIBRATION CUSTODY **CAMERON**



CRN (ASME CODE) 9FD1120 2C

WELD AND RADIOGRAPHY IDENTIFICATION MAP



Description: <u>2" 600# sch 80 Dual Chamber Meter Run</u>	
Serial No.: <u>11264364509</u>	
Customer: <u>RJV Gas Field Svcs</u>	
P/O No.: <u>125991</u>	TAG No.: <u>N/A</u>
W/O No.: <u>112643645</u>	End User: <u>Husky Energy</u>
Radiography Unit: <u>N/A</u>	
Welder: <u>Jeff Harrington</u>	File No.: <u>W-23651</u>
Date: <u>1/11/2013</u>	<u>Lorne Dagg</u>
Symbol: <u>T</u>	Quality Assurance Inspector

CAMERON
Measurement Systems

7944 - 10th Street NE
Calgary, Alberta
T2E 8W1