

TEST REPORT

Dual Fluid Test Program for Turbine Meter Calibrations

Prepared for:

Terasen Gas Inc.
Measurement Technologies
444 Okanagan Avenue East
Penticton, B.C.
V2A 3K3 - CANADA

Prepared by:

Metering Research Facility
at
Southwest Research Institute®
6220 Culebra Road
San Antonio, Texas 78238-5166

SwRI Project No. 10218
MRF Report No. 03-67

January 2004

Approved:

Eric Kelner, P.E.
Group Leader – Flow Measurement



SOUTHWEST RESEARCH INSTITUTE®
SAN ANTONIO HOUSTON
DETROIT WASHINGTON, DC

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Dual Fluid Test Program for Turbine Meter Calibrations

Terasen Gas, Inc.
SwRI Project No. 10218

MRF Report No. 03-67
Tested on Oct. 21 – Nov. 22, 2003

Client Information:

Company Name:	Terasen Gas, Inc. – Measurement Technologies
Address:	444 Okanagan Avenue East
City, Providence:	Penticton, B.C.
ZIP Code, Country:	V2A 3K3 - Canada
Project Manager:	Alan Conway
Telephone No. / E-mail Address:	250-490-5485 / alan.conway@terasen.com
Logistical Contact:	Robert Bertoia
Telephone No. / E-mail Address:	250-488-0097 / robert.bertoa@terasen.com
Technical Representative:	Larry Fraser
Telephone No. / E-mail Address:	613-235-4988 / larryfraser@tht.net

4-inch Turbine Meter Information:

Manufacturer:	Instromet	Invensys
Meter Type:	X Series Turbine Meter Single Rotor	T-18 Mark II Turbine Meter Single Rotor
Size / Flange Rating:	4-inch, ANSI 600#	4-inch, ANSI 300#
Meter Serial No.:	72130	12291705
K-factor:	HF pulse = 460.98 pulses/ft ³	K = 32.1828 pulses/ft ³

8-inch Turbine Meter Information:

Manufacturer:	Instromet	Invensys
Meter Type:	X Series Turbine Meter Single Rotor	T-60 Mark II Turbine Meter Single Rotor
Size / Flange Rating:	8-inch, ANSI 600#	8-inch, ANSI 300#
Meter Serial No.:	71219	12291706
K-factor:	HF pulse = 46.5 pulses/ft ³	K = 3.2421 pulses/ft ³

12-inch Turbine Meter Information:

Manufacturer:	Instromet	Invensys
Meter Type:	X Series Turbine Meter Single Rotor	T-230 Mark II Turbine Meter Single Rotor
Size / Flange Rating:	12-inch, ANSI 600#	12-inch, ANSI 300#
Meter Serial No.:	69529	12291707
K-factor:	HF pulse = 18.0 pulses/ft ³	K = 1.4612 pulses/ft ³

Test Conditions:

Gas:	Natural Gas – LPL	Carbon Dioxide – LPL	Natural Gas – HPL
Pressure (psia):	45, 115, 188 (nominal)	45, 90, 115, 125 (nominal)	232, 348, 464(nominal)
Temperature (°F):	70 (nominal)	70 (nominal)	70 (nominal)

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Dual Fluid Test Program for Turbine Meter Calibrations

Terasen Gas, Inc.
SwRI Project No. 10218

MRF Report No. 03-67
Tested on Oct. 21 – Nov. 22, 2003

Gas Composition:

Low Pressure Loop – Natural Gas Tests:

Component	October 22, 2003 8-inch Meter Test Mole Fraction (%)	October 23, 2003 4-inch Meter Test Mole Fraction (%)	October 24, 2003 12-inch Meter Test Mole Fraction (%)
Methane	93.7178	93.5645	93.5580
Ethane	3.2174	3.9651	3.9745
Carbon Dioxide	1.0085	1.0160	1.0172
Nitrogen	1.1572	0.7880	0.7820
Propane	0.5657	0.4771	0.4768
Isobutane	0.0668	0.0668	0.0422
n-Butane	0.1248	0.0738	0.0734
Isopentane	0.0361	0.0192	0.0192
n-Pentane	0.0360	0.0194	0.0194
n-Hexane	0.0309	0.0158	0.0162
n-Heptane	0.0248	0.0126	0.0138
n-Octane	0.0140	0.0060	0.0075
n-Nonane	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>
TOTAL	100.0000	100.0000	100.0000
Heat Content (BTU/ft ³ , dry)	1035.22	1038.98	1039.23
Density @ STP (lb/ft ³)	0.046	0.046	0.046
Std. Conditions: T = 60 deg F, P = 14.73 psi			

High Pressure Loop – Natural Gas Tests:

Component	October 28, 2003 12-inch Meter Test Mole Fraction (%)	October 30, 2003 8-inch Meter Test Mole Fraction (%)	November 3, 2003 4-inch Meter Test Mole Fraction (%)
Methane	93.3140	93.3163	93.2470
Ethane	4.4019	4.4096	4.5238
Carbon Dioxide	1.0120	1.0110	1.0298
Nitrogen	0.6809	0.6815	0.6590
Propane	0.4493	0.4444	0.4248
Isobutane	0.0337	0.0329	0.0288
n-Butane	0.0523	0.0508	0.0433
Isopentane	0.0143	0.0138	0.0113
n-Pentane	0.0136	0.0132	0.0108
n-Hexane	0.0121	0.0116	0.0094
n-Heptane	0.0101	0.0092	0.0079
n-Octane	0.0060	0.0058	0.0042
n-Nonane	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>
TOTAL	100.0000	100.0000	100.0000
Heat Content (BTU/ft ³ , dry)	1041.72	1041.62	1041.59
Density @ STP (lb/ft ³)	0.046	0.046	0.046
Std. Conditions: T = 60 deg F, P = 14.73 psi			

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Dual Fluid Test Program for Turbine Meter Calibrations

Terasen Gas, Inc.
SwRI Project No. 10218

MRF Report No. 03-67
Tested on Oct. 21 – Nov. 22, 2003

Gas Composition (Continued):

Low Pressure Loop – Carbon Dioxide Tests:

Component	November 20, 2003 8-inch Meter Test Mole Fraction (%)	November 20, 2003 4-inch Meter Test Mole Fraction (%)	November 21, 2003 12-inch Meter Test Mole Fraction (%)
Carbon Dioxide	99.9040	99.9080	99.9060
Nitrogen	0.0890	0.0850	0.0940
Methane	0.0070	0.0070	0.0000
Ethane	0.0000	0.0000	0.0000
Propane	0.0000	0.0000	0.0000
Isobutane	0.0000	0.0000	0.0000
n-Butane	0.0000	0.0000	0.0000
Isopentane	0.0000	0.0000	0.0000
n-Pentane	0.0000	0.0000	0.0000
n-Hexane	0.0000	0.0000	0.0000
n-Heptane	0.0000	0.0000	0.0000
n-Octane	0.0000	0.0000	0.0000
n-Nonane	<u>0.0000</u>	<u>0.0000</u>	<u>0.0000</u>
TOTAL	100.0000	100.0000	100.0000
Density @ STP (lb/ft ³)	0.117	0.117	0.117
Std. Conditions: T = 60 deg F, P = 14.73 psi			

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Dual Fluid Test Program for Turbine Meter Calibrations

Terasen Gas, Inc.
SwRI Project No. 10218

MRF Report No. 03-67
Tested on Oct. 21 – Nov. 22, 2003

Test Information:

1. Terasen Gas provided the six turbine meters and the flow conditioners. The meters were first installed in the Low Pressure Loop (LPL) at the Metering Research Facility. The two turbine meters in each size were tested in series. The Metering Research Facility provided the make-up piping.
2. The 4-inch diameter turbine meters were tested in the west leg of the LPL, while the 8-inch and 12-inch diameter turbine meters were tested in the middle leg of the LPL.
3. The installation for each turbine meter consisted of five pipe diameters upstream of the CPA Type A 50E plate flow conditioner, followed by eight pipe diameters between the flow conditioner and the meter. The installation included five pipe diameters downstream of the meter as well. Drawings of the meter installations for each meter size are shown on pages 7-8.
4. The meters were tested first in natural gas (composition shown on page 2). The 4-inch and 8-inch diameter meters were tested at 190, 115 and 45 psia. The 12-inch diameter meters were tested at 115 and 45 psia. The meters were then removed for the High Pressure Loop (HPL) testing.
5. The meters were installed in the HPL using the same pipe in the exact same configuration as the Low Pressure Loop installation. The meters were tested in natural gas (composition shown on page 2). All of the meters were tested in the West Header of the HPL. The 4-inch diameter meters were tested at 465, 345 and 230 psia. The 12-inch and 8-inch diameter meters were tested at a single pressure of 230 psia.
6. Following the tests in the HPL, the Low Pressure Loop compressor was modified for operating with carbon dioxide gas. The loop was filled with the carbon dioxide test gas. The sonic nozzles were calibrated using CO₂ over the test pressure range using the MRF Low Pressure Loop weigh tank system.
7. After the sonic nozzle calibrations in carbon dioxide, the meters were re-installed in the Low Pressure Loop for testing with carbon dioxide gas. The composition of the carbon dioxide test gas is shown on page 3 for each test date. The 4-inch diameter meters were tested at 125 and 90 psia in CO₂. The 8-inch diameter meters were tested at 115 and 90 psia. The 12-inch diameter meters were tested at 115 and 45 psia.
8. Photographs of the meter installations in the Low Pressure Loop and High Pressure Loop are shown on pages 9-14.
9. Static pressure was measured at the meter. Gas temperature was measured nominally 2.4 pipe diameters downstream of the meter (except in the case of the Invensys 12-inch turbine meter, where the RTD was placed at 4.5 pipe diameters downstream due to piping limitations).
10. MRF pressure and temperature instrumentation was used for the flow calibration.
11. For each meter test, the meter rotor was calibrated against the MRF sonic nozzles using the discharge coefficients corresponding to each test fluid, in either the HPL or LPL.

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Dual Fluid Test Program for Turbine Meter Calibrations

Terasen Gas, Inc.
SwRI Project No. 10218

MRF Report No. 03-67
Tested on Oct. 21 – Nov. 22, 2003

Test Information (Continued):

12. This record of the dual fluid test program contains tables of test data corresponding to each meter's testing and graphs of measured K factor versus volumetric flow rate and measured K factor versus Reynolds number for each meter. The tabulated data headings are as follows. Note, uncertainty, U, is total uncertainty and reflects both bias and precision uncertainties.

p = flow static pressure

T = gas temperature

rho = gas density at flowing conditions

t = sampling time window for HPL data acquisition system

Pulses = number of pulses counted in time, t

K = rotor K factor measured by HPL

St = Strouhal number at the meter

ReD = pipe Reynolds number at the meter

Qv = HPL volumetric flow rate

mdot = sonic nozzle mass flow rate

% Error = meter error based upon the reference K-factor listed on page 1 and the MRF reference flow rate according to the sonic nozzles.

UK, UQv and Umd = total measurement uncertainty in indicated parameters

13. A discussion of the turbine meters performance in the two fluids is presented on page 6.

14. Witnesses for calibration test:

Name: Larry Fraser

Company: L. Fraser & Associates Consulting

Name: Robert Bertoia (CO₂ testing only)

Company: Terasen Gas, Inc.

Name: Kevin Ehman (CO₂ testing only)

Company: Terasen Gas, Inc.

Name: Paul Tang (CO₂ testing only)

Company: Terasen Gas, Inc.

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Dual Fluid Test Program for Turbine Meter Calibrations

Summary of Meter Performance

The objective of the dual fluid test program conducted by Terasen Gas, Inc. was to assess turbine flow meter performance over a large Reynolds number range in order to determine the effects of fluid density and Reynolds number on the accuracy of turbine meter calibrations. In general, natural gas turbine meter performance varies with flow rate and line pressure. As discussed in the current edition of AGA Report No. 7, two types of drag can influence the behavior of a turbine rotor:

- 1) Non-fluid drag in the rotor bearings and other meter mechanisms, which reflects the inertia and effective weight of the moving rotor. This type of drag is a function of the density of the gas.
- 2) Fluid drag on the rotor blades and hub, which is a function of Reynolds number.

Changes in flow rate at constant pressure alter the Reynolds number and affect the fluid drag, while changes in line pressure will alter the gas density and affect both types of drag.

In the dual fluid test program, turbine meters were calibrated using both natural gas and carbon dioxide. Many turbine meter users have their meters calibrated in natural gas, to accurately reproduce the expected drag effects and obtain a meter calibration that can be used directly in the field. Manufacturers often calibrate their meters using air, which is easily obtained and handled, but if the turbine meter is to be used in a fluid such as natural gas, the air calibrations require corrections for changes in density and Reynolds number associated with the change in gas. Carbon dioxide can be used to produce gas densities and Reynolds numbers similar to natural gas at field conditions, but at lower actual line pressures. This presents an advantage over standard air calibrations because the density and Reynolds number of carbon dioxide at relatively low pressures are similar to the density and Reynolds number of natural gas at higher pressures.

The test program included two turbine meter designs, the Instromet X-Series Single Rotor meter and the Invensys Mark II Single Rotor meter, and included three meter sizes (4-inch, 8-inch and 12-inch diameter). The graphs of the test data compare K factors (or calibration factors) obtained for each meter in natural gas and in carbon dioxide. In general, turbine meter calibration factors at low Reynolds numbers tend to increase with increasing density, and the data in the two test fluids exhibit this trend. For the 4-inch and 8-inch diameter meters, a direct comparison can be made of CO₂ data at 75 psig (6 bar) and natural gas data at 210 psig (15 bar), which have approximately the same density. In the majority of the tests, calibration data from the two gases agree to within 0.15%. The calibration factors in CO₂ are slightly higher; this may be attributed to the slightly higher actual density of the carbon dioxide in the 75-psig tests, as compared to the actual natural gas density in the 210-psig tests. Similarly, for the 12-inch diameter Instromet meter, the calibration factors for CO₂ at 30 psig and natural gas at 100 psig (conditions with similar gas densities) also agree to within 0.15%. The 12-inch diameter Invensys meter showed more scatter at low Reynolds numbers, due to the fact that these flows are at the extreme low end of the meter's range. However, above a Reynolds number of 250,000, the calibration factors in the two gases are in good agreement, to within 0.15% or better.

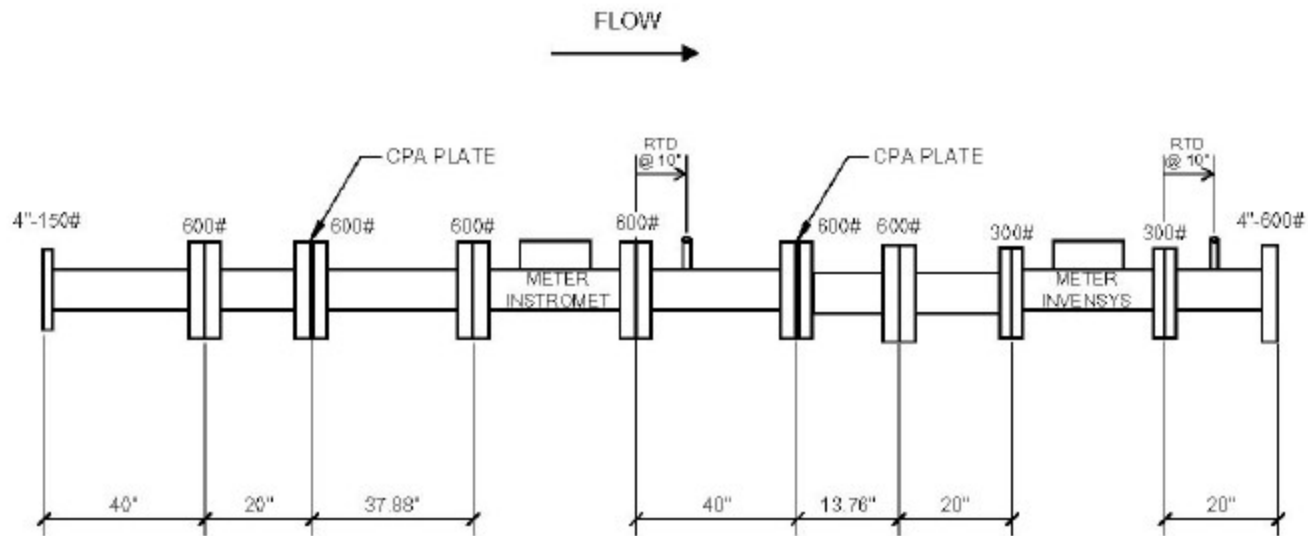
In summary, the calibrations of these turbine meters in carbon dioxide agreed with calibrations in natural gas at the same densities and Reynolds numbers, generally to within 0.15%. It can be concluded that turbine meters calibrated in carbon dioxide can be used in natural gas applications. Measurement errors associated strictly with the difference in calibration factor between a meter calibrated in carbon dioxide and the same meter calibrated in natural gas would be well within the maximum uncertainty allowed by American Gas Association Report No. 7, *Measurement of Natural Gas by Turbine Meters*, provided that densities and Reynolds numbers were matched between calibration and field conditions.

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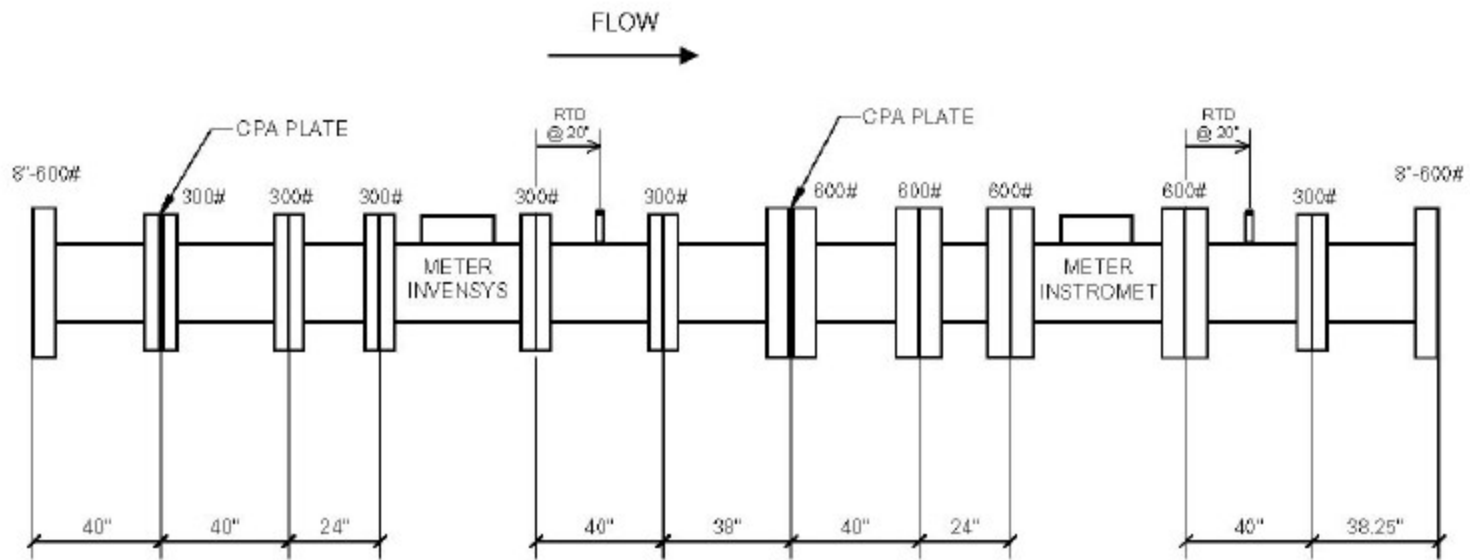
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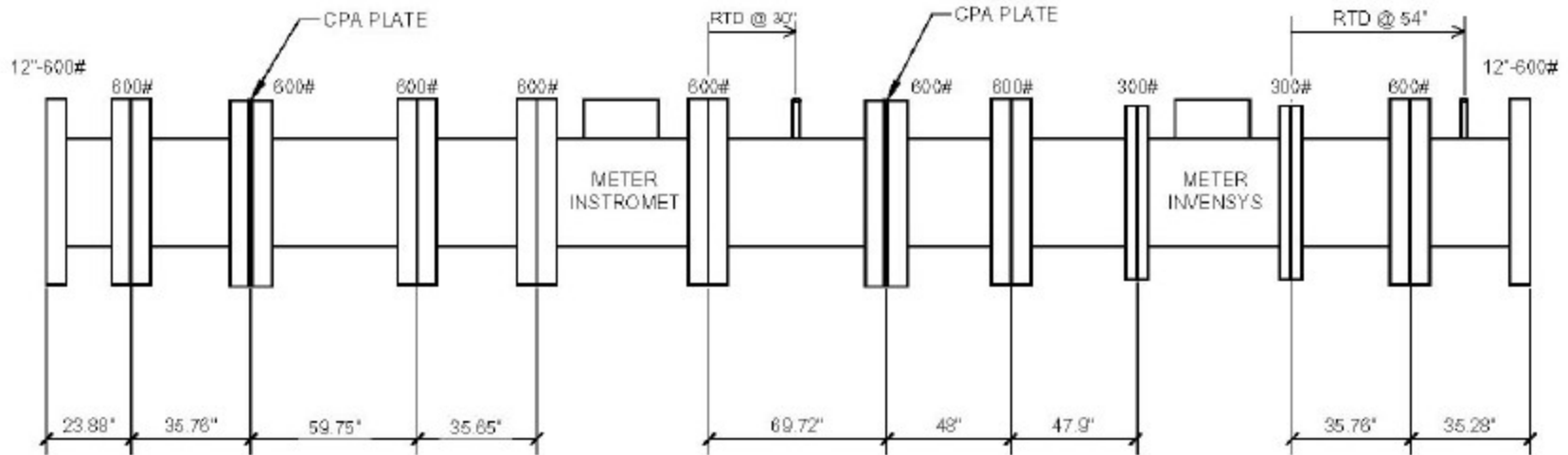
Contact: Marybeth Nored
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SOUTHWEST RESEARCH INSTITUTE			
CLIENT:	TERASEN GAS		
JOB:	TESTING OF TURBINE METERS NATURAL GAS (4')		
LOCATION:	LPL (WEST HEADER)		
FLOW COND:	CPA PLATES-UPSTREAM OF BOTH METERS		
PRESSURE:	30,100,173 PSIG	TEMPERATURE:	
SwRI CHECK:	Drawn By: ALX	DATE: OCT. 20-27 2003	SwRI PROJECT NO.: 18.10218.01.300



SOUTHWEST RESEARCH INSTITUTE			
CLIENT:		TERASEN GAS	
JOB:		TESTING OF TURBINE METERS NATURAL GAS (8")	
LOCATION:		LPL (MIDDLE LEG)	
FLOW COND:		CPA PLATES-UPSTREAM OF BOTH METERS	
PRESSURE:		30,100,173 PSIG	TEMPERATURE:
SwRI CHECK:	Drawn By: ALX	DATE: OCT. 20-27 2003	SwRI PROJECT NO.: 18.10218.01.300



SOUTHWEST RESEARCH INSTITUTE			
CLIENT:	TERASEN GAS		
JOB:	TESTING OF 12' TURBINE METERS		
LOCATION:	LPL (MIDDLE LEG)		
FLOW COND:	CPA PLATES-UPSTREAM OF BOTH METERS		
PRESSURE:	30,100,173 PSIG	TEMPERATURE:	70 DEG F
SwRI CHECK:	Drawn By: ALX	DATE: OCT. 20-24 2003	SwRI PROJECT NO.: 18.10218.01.300



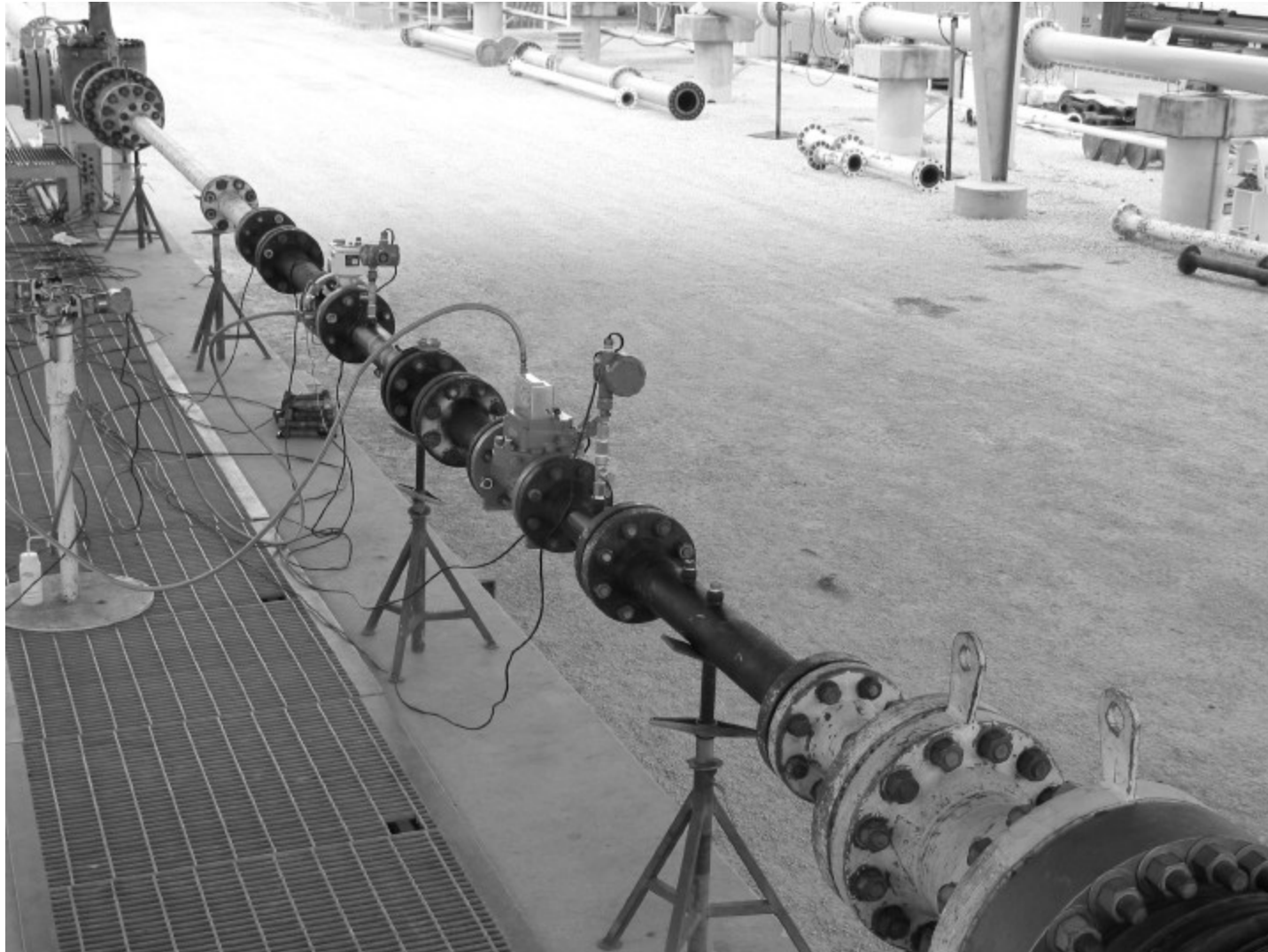
MRF Low Pressure Loop Installation of 4-inch Turbine Meters – Looking Downstream



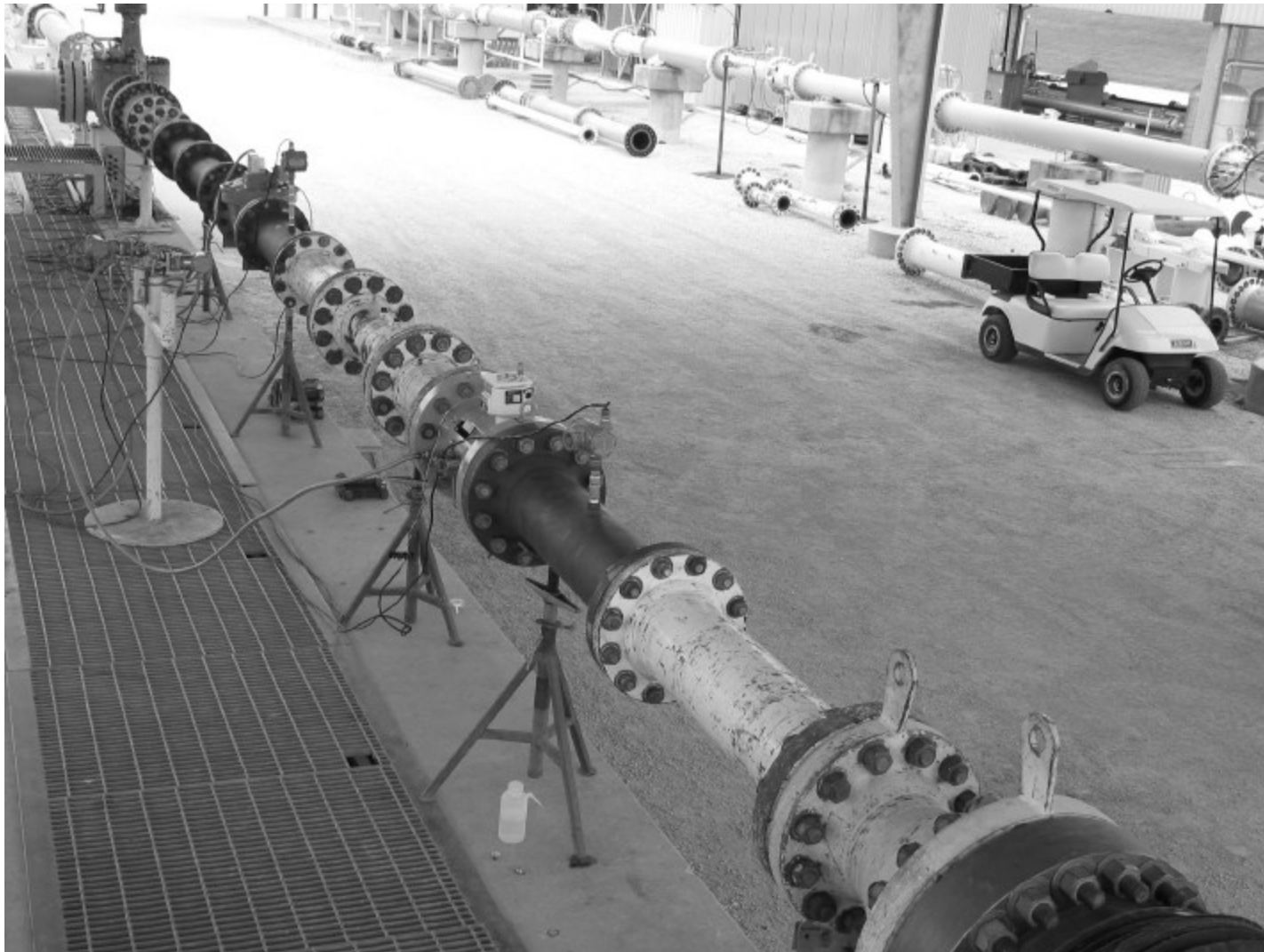
MRF Low Pressure Loop Installation of 8-inch Turbine Meters – Looking Downstream



MRF Low Pressure Loop Installation of 12-inch Turbine Meters – Looking Downstream



MRF High Pressure Loop Installation of 4-inch Turbine Meters – Looking Upstream

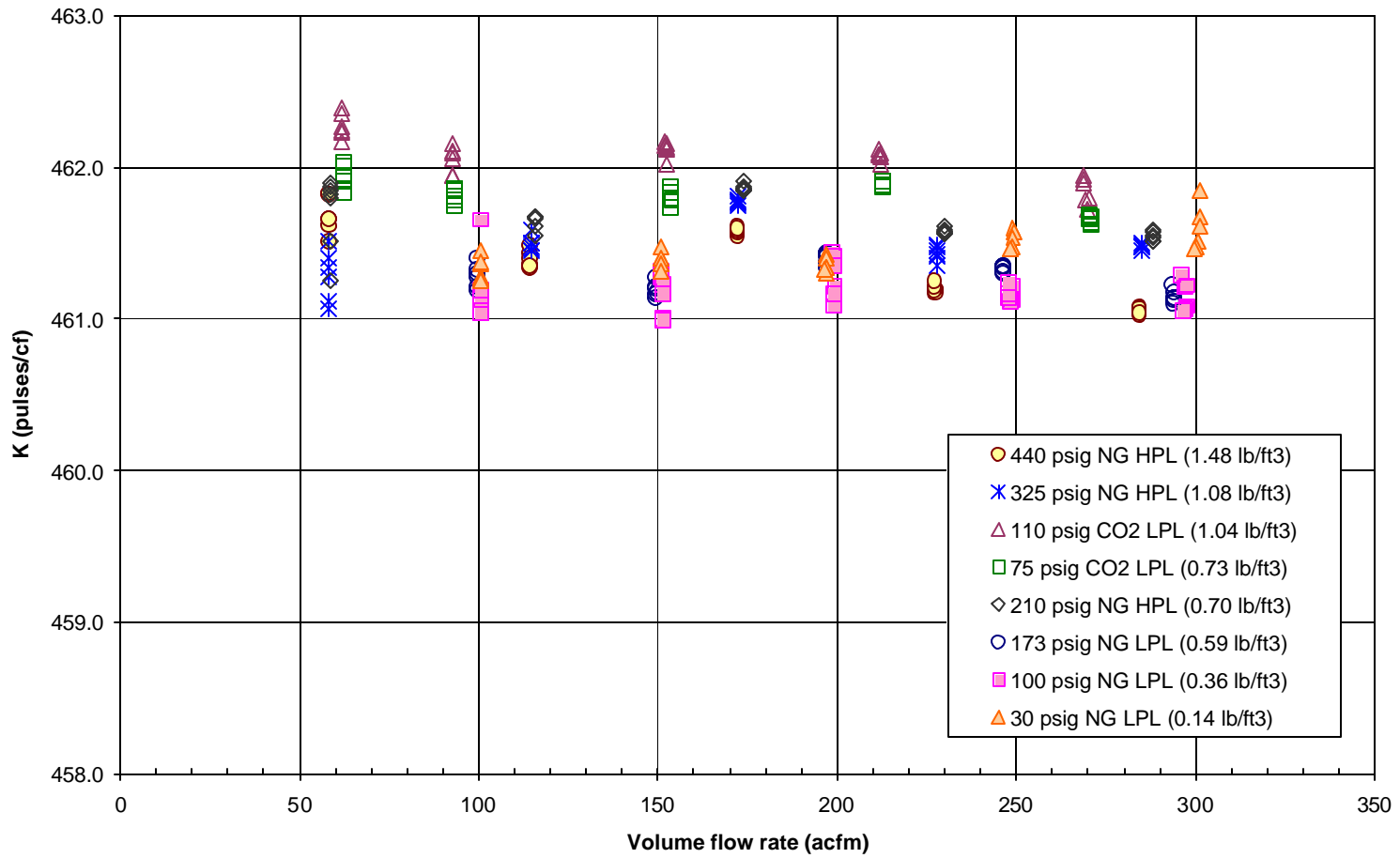


MRF High Pressure Loop Installation of 8-inch Turbine Meters – Looking Upstream

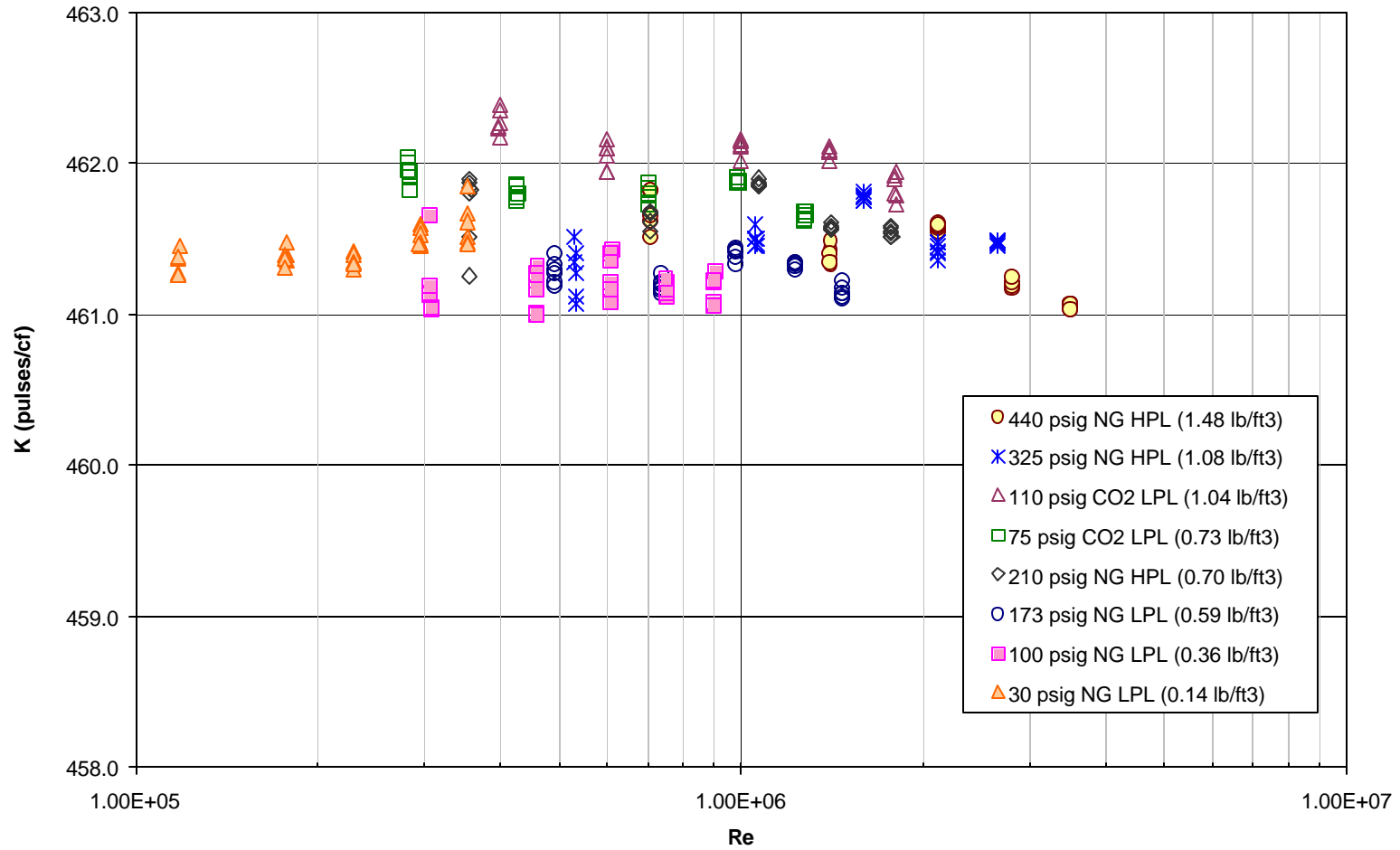


MRF High Pressure Loop Installation of 12-inch Turbine Meters – Looking Upstream

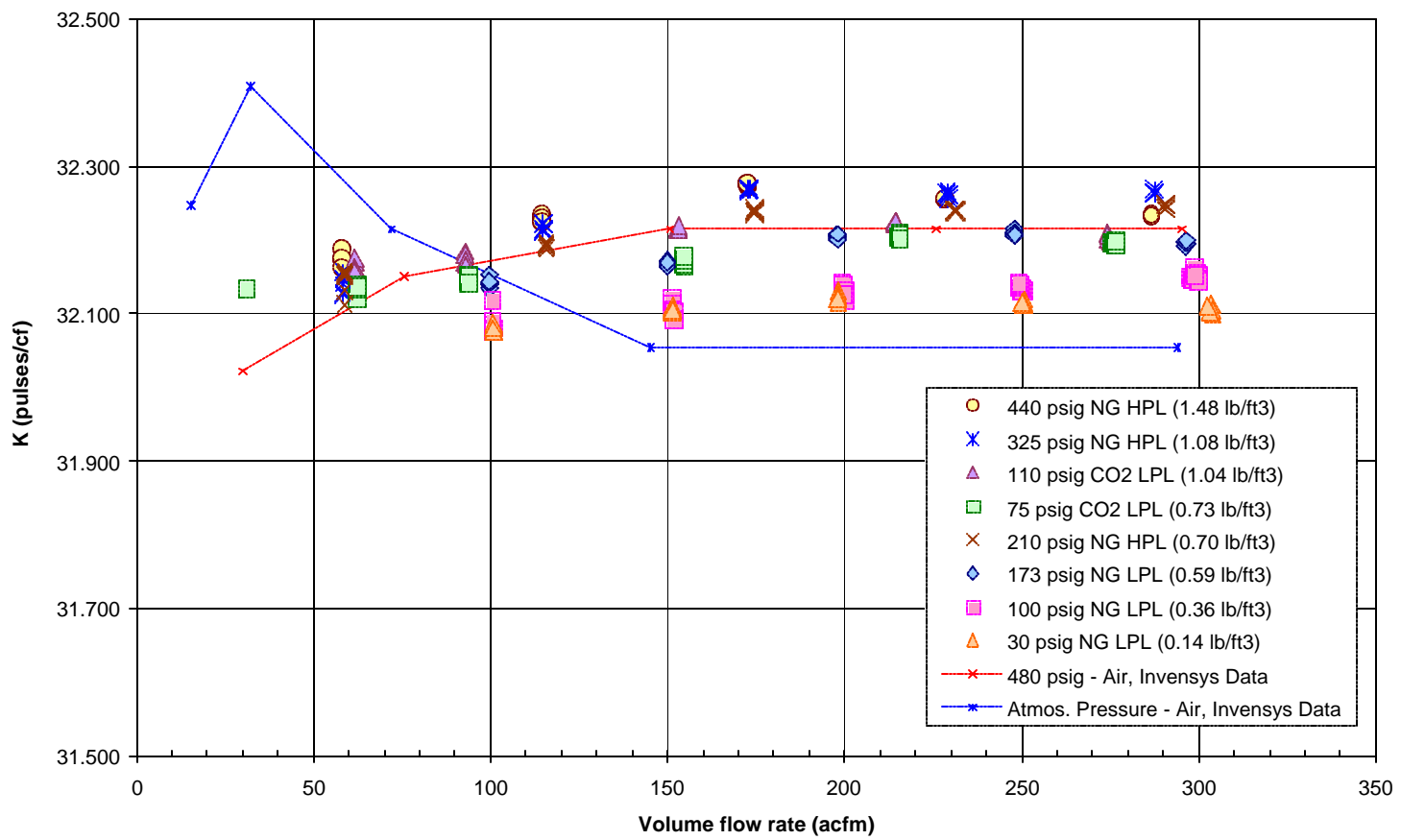
**4-inch Instromet Turbine Meter
Measured K-Factor vs. Volume Flow Rate**



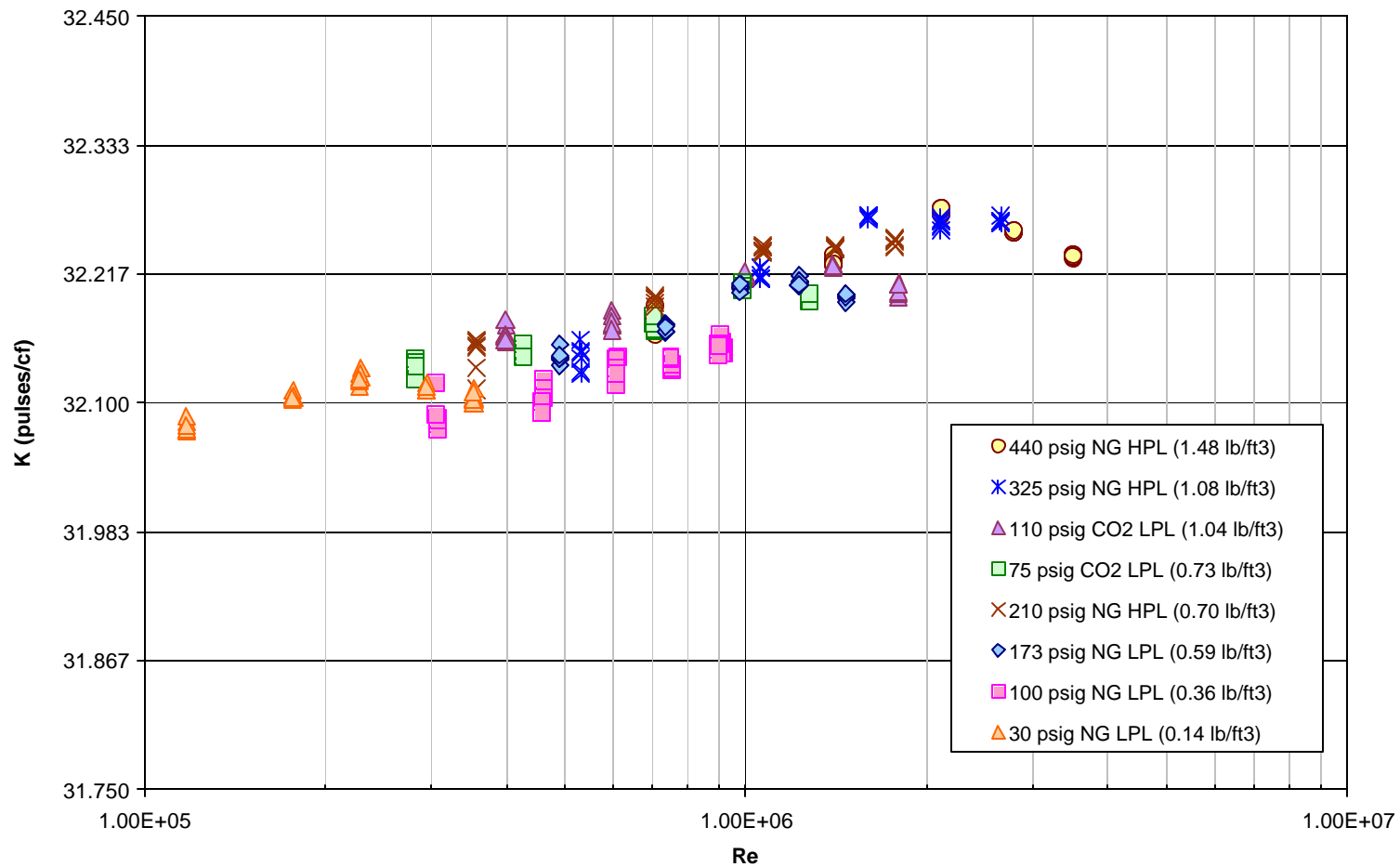
**4-inch Instromet Turbine Meter
Measured K-Factor vs. Reynolds Number**



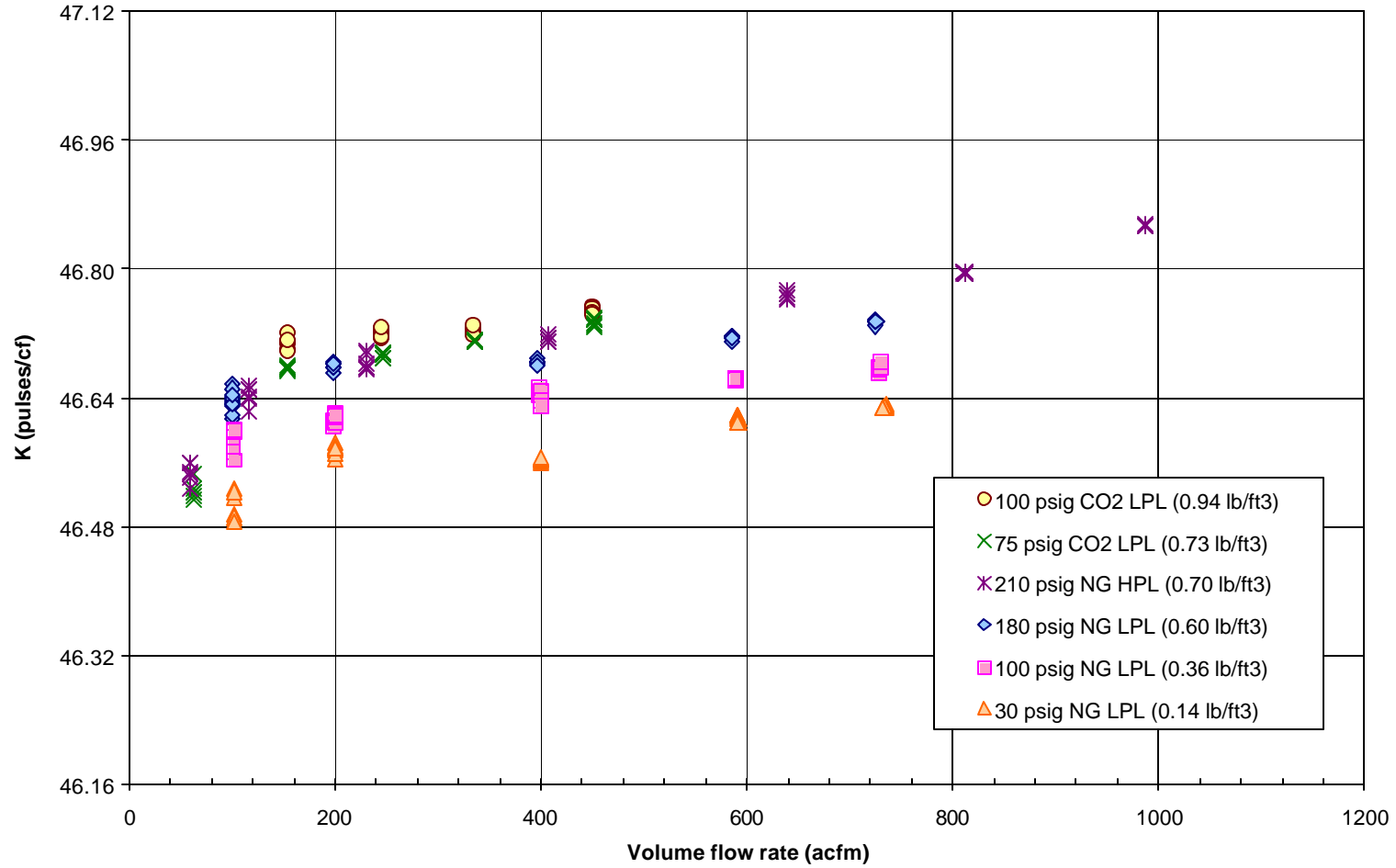
**4-inch Invensys Turbine Meter
Measured K-Factor vs. Volume Flow Rate
*Including Manufacturer Data***



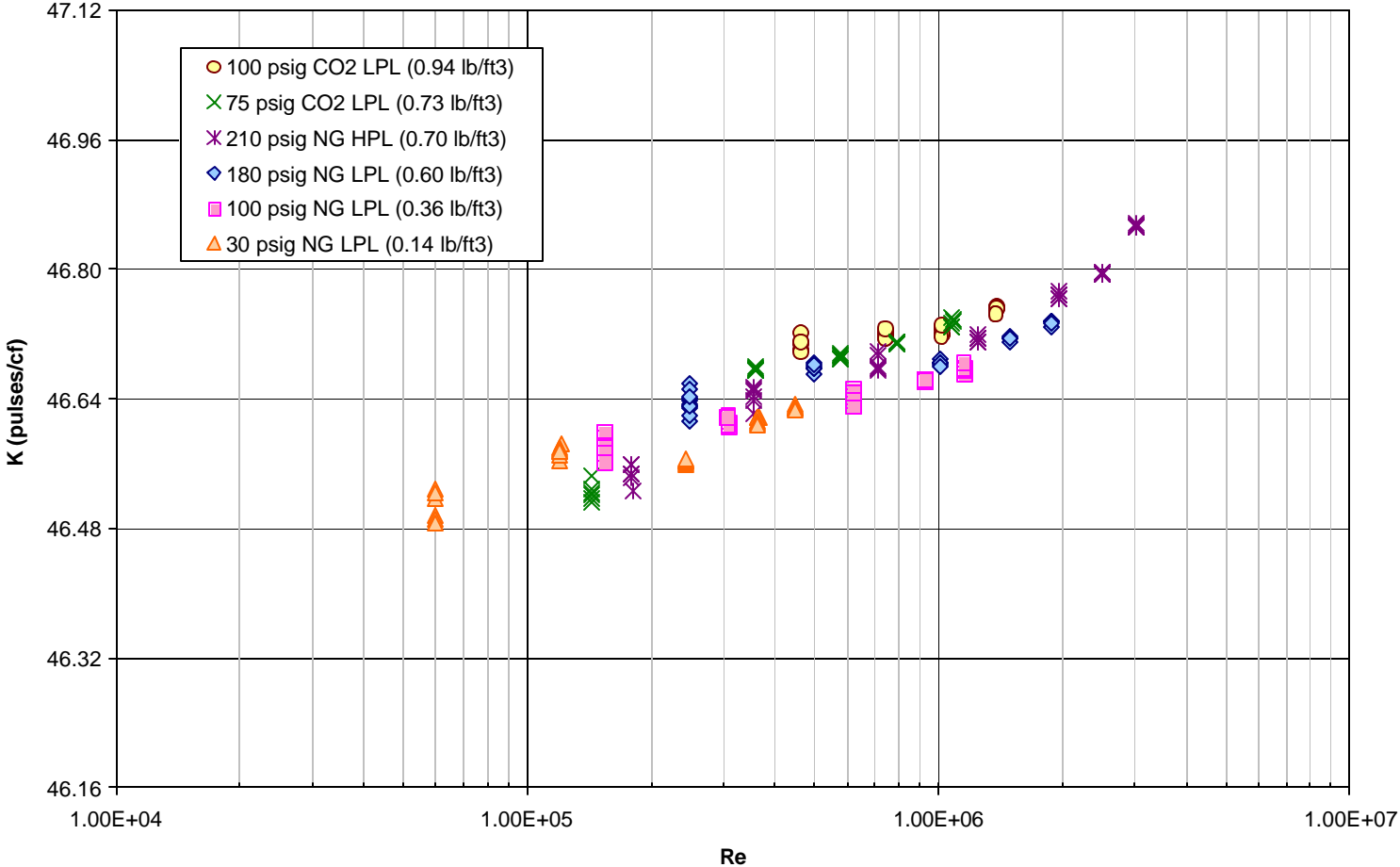
4-inch Invensys Turbine Meter Measured K-Factor vs. Reynolds Number



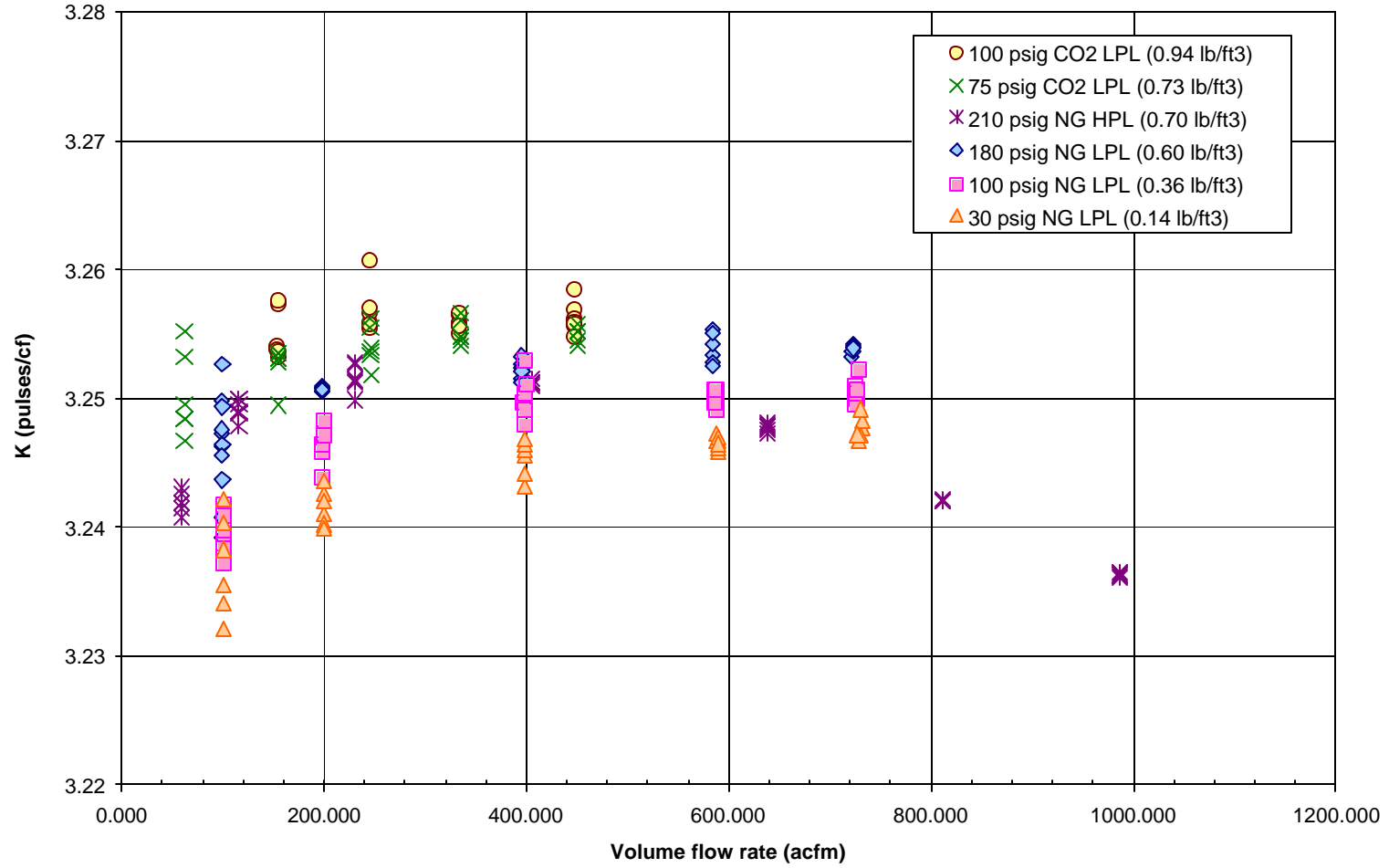
**8-inch Instromet Turbine Meter
Measured K-Factor vs. Volume Flow Rate**



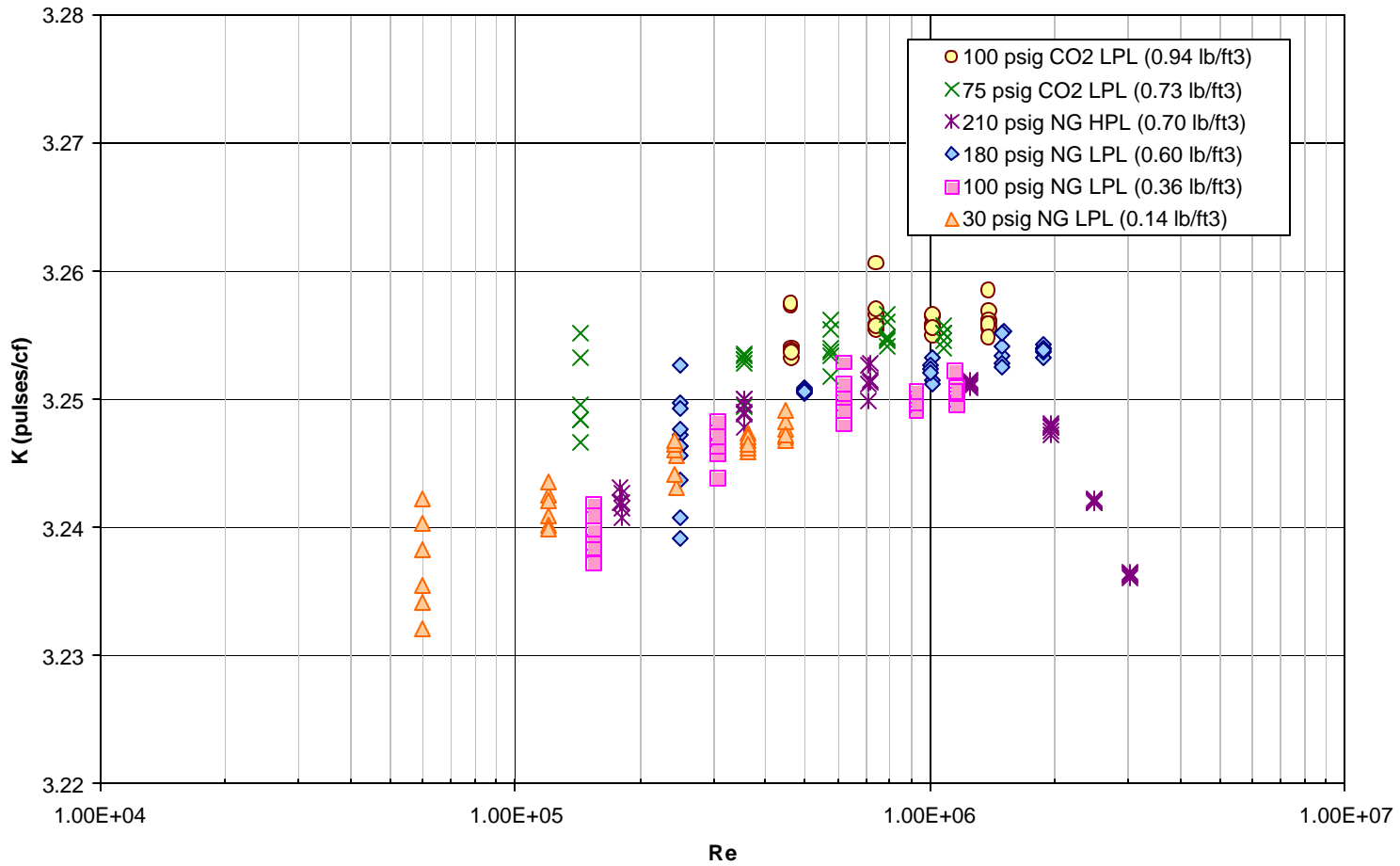
**8-inch Instromet Turbine Meter
Measured K-Factor vs. Reynolds Number**



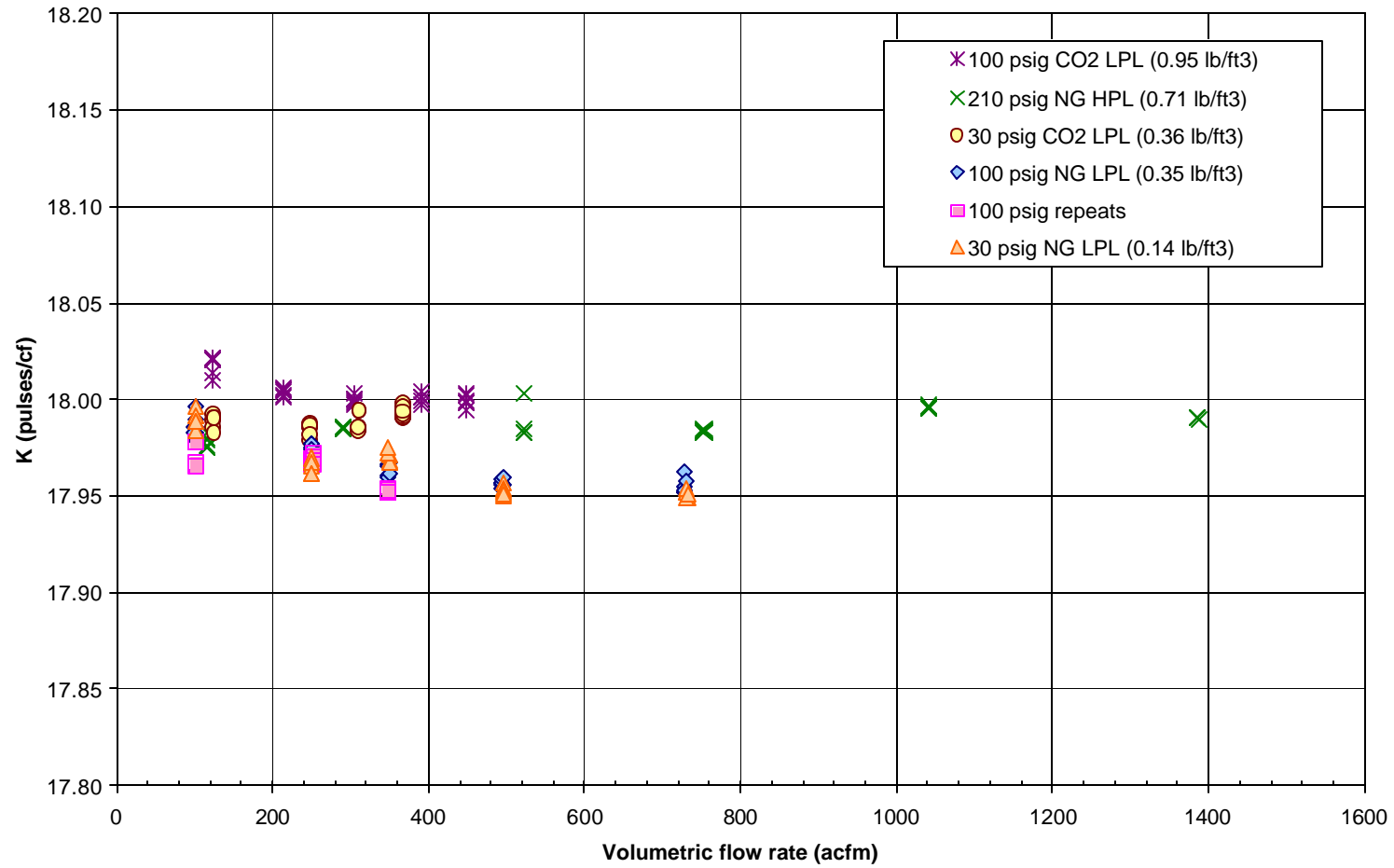
**8-inch Invensys Turbine Meter
Measured K-Factor vs. Volume Flow Rate**



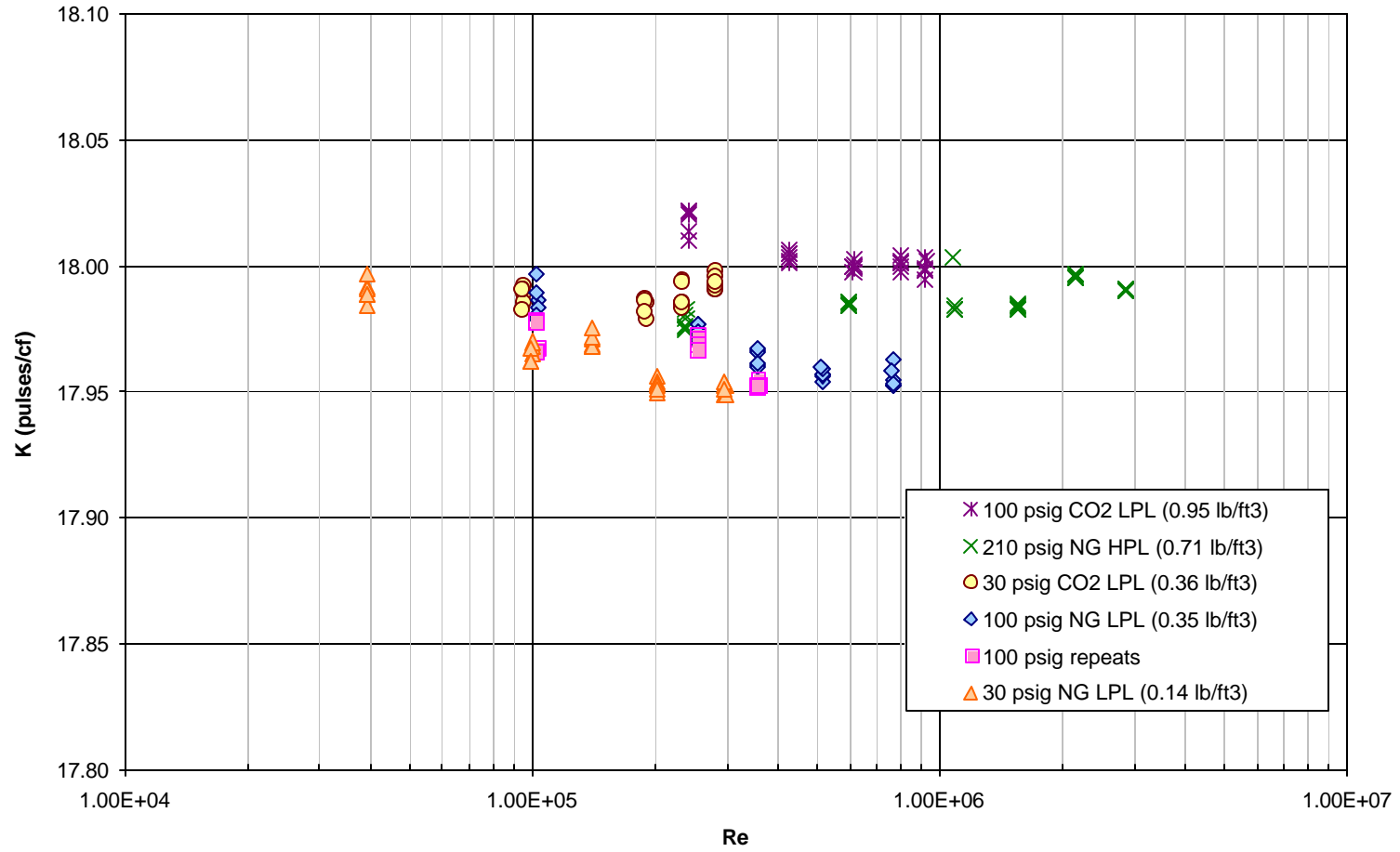
**8-inch Invensys Turbine Meter
Measured K-Factor vs. Reynolds Number**



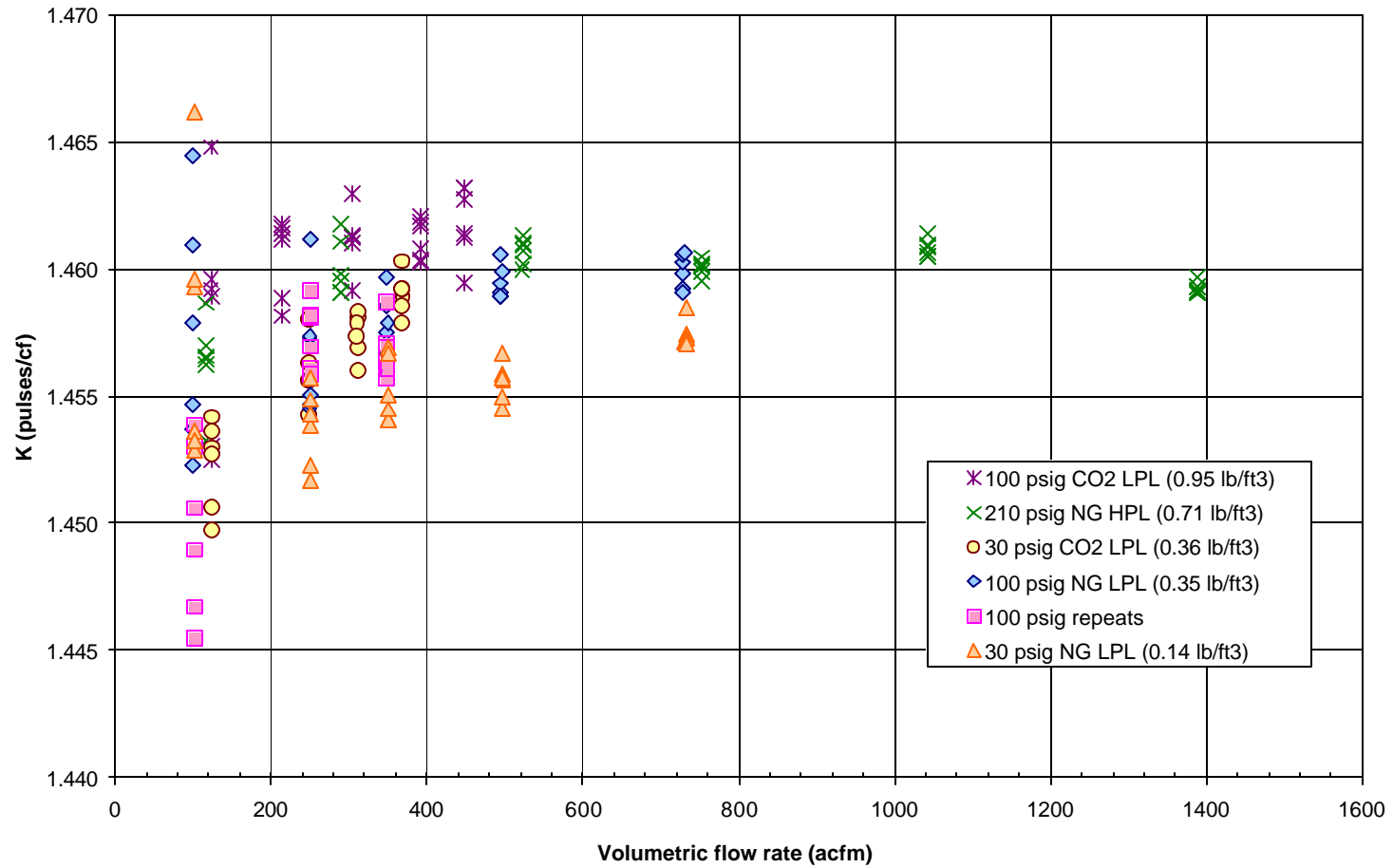
12-inch Instromet Turbine Meter Measured K-Factor vs. Volume Flow Rate



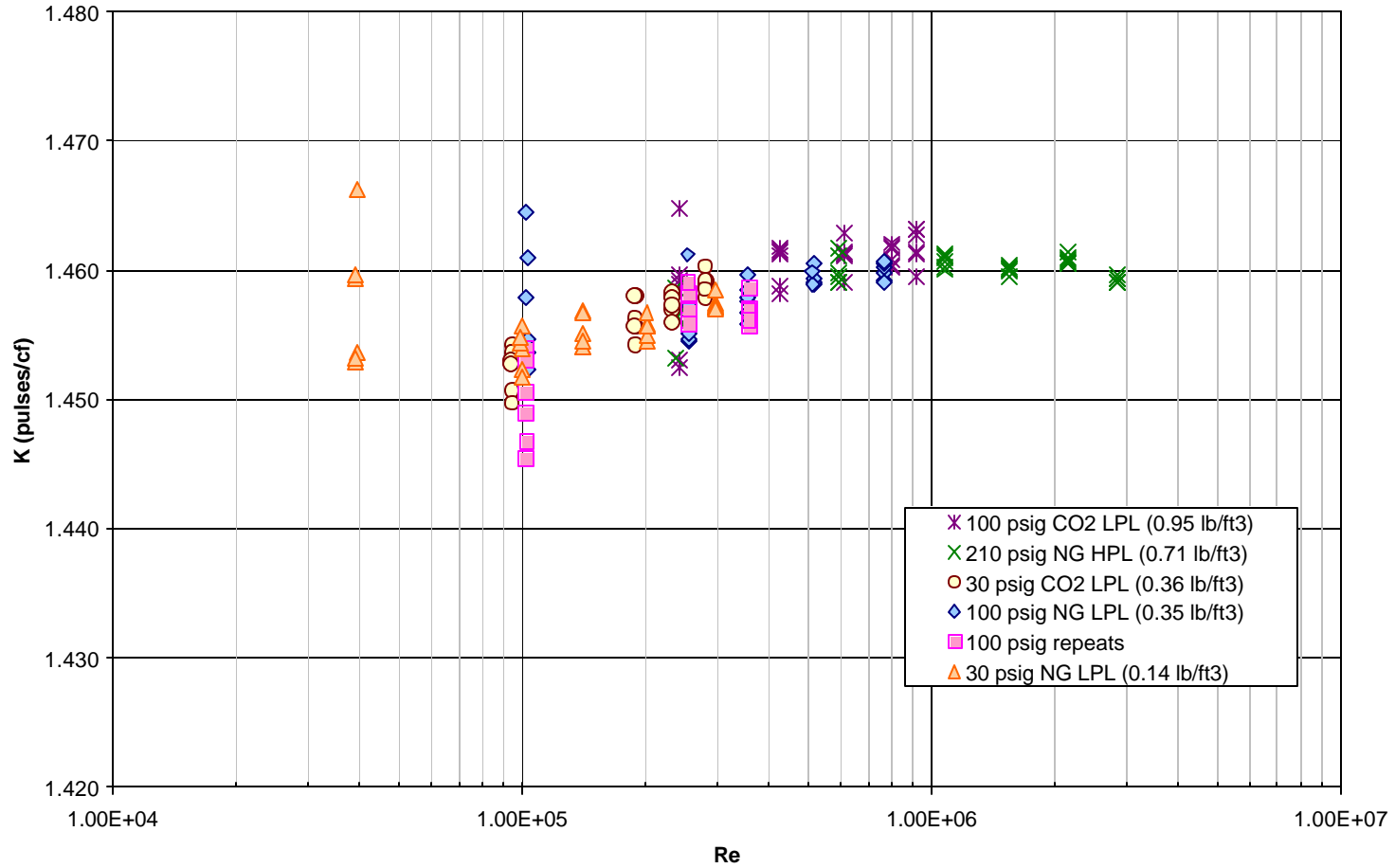
12-inch Instromet Turbine Meter Measured K-Factor vs. Reynolds Number



12-inch Invensys Turbine Meter Measured K-Factor vs. Volume Flow Rate



12-inch Invensys Turbine Meter Measured K-Factor vs. Reynolds Number



**4-inch Instromet Turbine Meter Serial No. 72130 – Low Pressure Loop Natural Gas Test
Test Pressure = 190 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
							Pulses	K (pulses/cf)	U _K (%)	St	U _{St} (%)						
F102203.103	31022	150231	190.1319	70.8846	0.5907	90	203237	461.1383	0.1880	13.6772	1465277	293.819	0.16	2.8927	0.119	0.034	
F102203.104	31022	150535	190.0549	70.8310	0.5905	90	203262	461.1224	0.1880	13.6768	1465194	293.866	0.16	2.8923	0.119	0.031	
F102203.105	31022	150751	189.9077	70.3196	0.5907	90	203083	461.1089	0.1870	13.6764	1465533	293.615	0.16	2.8906	0.119	0.028	
F102203.106	31022	151007	189.8104	70.1448	0.5906	90	203113	461.2268	0.1880	13.6799	1465562	293.584	0.16	2.8898	0.119	0.054	
F102203.107	31022	151251	189.7828	70.4281	0.5902	90	203233	461.1418	0.1880	13.6773	1464970	293.811	0.16	2.8899	0.119	0.035	
F102203.108	31022	151535	189.7410	70.5037	0.5899	90	203305	461.1767	0.1870	13.6784	1464650	293.893	0.16	2.8896	0.119	0.043	
F102203.109	31022	153438	189.8967	71.0010	0.5898	90	170427	461.3169	0.1950	13.6825	1226181	246.291	0.168	2.4210	0.13	0.073	
F102203.110	31022	153654	189.8799	71.0307	0.5897	90	170424	461.3001	0.1940	13.682	1225962	246.295	0.168	2.4207	0.13	0.069	
F102203.111	31022	153933	189.8490	71.0521	0.5896	90	170444	461.3486	0.1950	13.6835	1225680	246.298	0.168	2.4202	0.13	0.08	
F102203.112	31022	154150	189.8421	71.0984	0.5895	90	170448	461.3455	0.1950	13.6834	1225465	246.306	0.168	2.4200	0.13	0.079	
F102203.113	31022	154405	189.8374	71.2154	0.5893	90	170477	461.3354	0.1940	13.6831	1225149	246.353	0.168	2.4198	0.13	0.077	
F102203.114	31022	154621	189.8595	71.4616	0.5891	90	170550	461.3483	0.1940	13.6835	1224686	246.452	0.168	2.4198	0.13	0.08	
F102203.115	31022	155117	189.6772	70.8081	0.5893	90	136298	461.3387	0.2140	13.6832	980129	196.96	0.191	1.9346	0.157	0.078	
F102203.116	31022	155333	189.6915	70.9436	0.5892	90	136346	461.4323	0.2140	13.686	979866	196.99	0.191	1.9345	0.158	0.098	
F102203.117	31022	155613	189.6919	71.1786	0.5889	90	136398	461.4149	0.2140	13.6854	979445	197.072	0.191	1.9344	0.158	0.094	
F102203.118	31022	155829	189.7144	71.4359	0.5887	90	136469	461.4426	0.2140	13.6863	979096	197.163	0.191	1.9345	0.157	0.1	
F102203.119	31022	160045	189.7535	71.6527	0.5885	90	136495	461.4239	0.2140	13.6857	978750	197.208	0.191	1.9344	0.158	0.096	
F102203.120	31022	160301	189.7026	71.5910	0.5885	90	136474	461.3794	0.2140	13.6844	978649	197.197	0.191	1.9340	0.157	0.087	
F102203.121	31022	173646	188.1654	71.6959	0.5834	90	103435	461.1779	0.1900	13.6784	735710	149.523	0.164	1.4539	0.123	0.043	
F102203.122	31022	173902	188.0960	71.6044	0.5833	90	103417	461.1415	0.1900	13.6773	735612	149.509	0.164	1.4535	0.123	0.035	
F102203.123	31022	174118	188.0598	71.5398	0.5833	90	103398	461.1621	0.1900	13.6779	735486	149.475	0.164	1.4531	0.124	0.04	
F102203.124	31022	174334	188.0333	71.4098	0.5834	90	103386	461.2735	0.1900	13.6813	735467	149.421	0.164	1.4528	0.124	0.064	
F102203.125	31022	174550	187.9656	71.3920	0.5832	90	103382	461.2151	0.1900	13.6795	735313	149.434	0.164	1.4524	0.123	0.051	
F102203.126	31022	174806	187.9326	71.4366	0.5830	90	103389	461.2005	0.1900	13.6791	735137	149.449	0.164	1.4522	0.124	0.048	
F102203.127	31022	175102	188.3805	70.9649	0.5850	90	68782	461.192	0.2220	13.6788	491097	99.426	0.199	0.9694	0.168	0.046	
F102203.128	31022	175318	188.3517	70.7919	0.5851	90	68767	461.2731	0.2220	13.6812	491138	99.387	0.199	0.9692	0.168	0.064	
F102203.129	31022	175534	188.3931	70.9086	0.5851	90	68791	461.4059	0.2220	13.6852	491069	99.393	0.199	0.9693	0.168	0.092	
F102203.130	31022	175817	188.4257	71.2718	0.5848	90	68823	461.3009	0.2220	13.6821	490846	99.462	0.199	0.9694	0.168	0.07	
F102203.131	31022	180033	188.4400	71.5112	0.5845	90	68864	461.332	0.2220	13.683	490715	99.515	0.199	0.9695	0.168	0.076	
F102203.132	31022	180249	188.4456	71.7296	0.5843	90	68877	461.2184	0.2210	13.6796	490554	99.558	0.199	0.9695	0.168	0.052	

**4-inch Instromet Turbine Meter Serial No. 72130 – Low Pressure Loop Natural Gas Test
Test Pressure = 115 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					mdot		U _{mdot} (%)	Error (%)	
							Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _w (acfm)	U _{Q_w} (%)			(lbm/s)
F102303.006	31023	65835	115.0807	70.8414	0.3538	90	172159	461.2224	0.1940	13.6797	748814	248.845	0.169	1.4674	0.13	0.053
F102303.007	31023	70051	114.9445	70.2418	0.3538	90	171916	461.1352	0.1940	13.6772	748623	248.54	0.169	1.4656	0.13	0.034
F102303.008	31023	70308	114.7729	69.3658	0.3539	90	171624	461.1232	0.1940	13.6768	748610	248.125	0.169	1.4635	0.13	0.031
F102303.009	31023	70524	114.6043	68.6196	0.3539	90	171393	461.1428	0.1940	13.6774	748486	247.78	0.169	1.4614	0.13	0.035
F102303.010	31023	70741	114.4446	68.1827	0.3537	90	171285	461.1689	0.1940	13.6781	748105	247.61	0.169	1.4596	0.13	0.041
F102303.011	31023	71008	114.2970	67.8511	0.3535	90	171244	461.243	0.1940	13.6803	747731	247.511	0.169	1.4581	0.13	0.057
F102303.012	31023	71459	116.3482	68.2691	0.3596	90	137253	461.441	0.2140	13.6862	608951	198.296	0.192	1.1885	0.158	0.1
F102303.013	31023	71715	116.3511	69.2327	0.3589	90	137529	461.4161	0.2140	13.6855	608101	198.706	0.192	1.1887	0.158	0.095
F102303.014	31023	71932	116.3670	70.1467	0.3583	90	137767	461.3574	0.2140	13.6837	607308	199.075	0.192	1.1889	0.158	0.082
F102303.015	31023	72211	116.2994	70.2604	0.3580	90	137753	461.222	0.2140	13.6797	606819	199.113	0.192	1.1881	0.158	0.052
F102303.016	31023	72428	116.1997	69.9802	0.3579	90	137639	461.0914	0.2140	13.6758	606578	199.005	0.192	1.1871	0.158	0.024
F102303.017	31023	72644	116.0646	69.2853	0.3580	90	137465	461.1674	0.2140	13.6781	606524	198.72	0.192	1.1857	0.158	0.041
F102303.018	31023	75834	115.4605	68.1580	0.3569	90	104204	461.3269	0.1900	13.6828	459072	150.586	0.165	0.8957	0.124	0.075
F102303.019	31023	80113	115.4391	68.9277	0.3563	90	104369	461.2811	0.1900	13.6815	458474	150.839	0.165	0.8957	0.124	0.065
F102303.020	31023	80330	115.4570	69.7107	0.3558	90	104523	461.2332	0.1900	13.6801	457973	151.078	0.165	0.8958	0.124	0.055
F102303.021	31023	80546	115.4604	70.4688	0.3552	90	104670	461.1696	0.1900	13.6782	457441	151.311	0.165	0.8959	0.124	0.041
F102303.022	31023	80802	115.4103	70.5343	0.3550	90	104644	461.0118	0.1900	13.6735	457176	151.325	0.165	0.8955	0.124	0.007
F102303.023	31023	81019	115.3246	70.2766	0.3550	90	104586	461.0022	0.1900	13.6732	457016	151.244	0.165	0.8948	0.124	0.005
F102303.024	31023	81344	115.6133	68.8660	0.3569	90	69477	461.0448	0.2220	13.6745	305888	100.463	0.2	0.5975	0.169	0.014
F102303.025	31023	81643	115.4558	68.1718	0.3569	90	69383	461.0464	0.2220	13.6745	305822	100.327	0.2	0.5967	0.168	0.014
F102303.026	31023	81900	115.3511	67.9188	0.3567	90	69364	461.1348	0.2220	13.6771	305681	100.28	0.2	0.5962	0.169	0.034
F102303.027	31023	82116	115.2737	67.8447	0.3565	90	69361	461.1528	0.2220	13.6777	305533	100.272	0.2	0.5958	0.169	0.037
F102303.028	31023	82333	115.1992	67.8166	0.3563	90	69366	461.1953	0.2220	13.6789	305359	100.27	0.2	0.5955	0.169	0.047
F102303.029	31023	82549	115.1882	68.1553	0.3560	90	69488	461.6598	0.2220	13.6927	305184	100.345	0.2	0.5955	0.168	0.147
F102303.037	31023	100423	115.8938	69.6244	0.3572	90	204764	461.2939	0.1880	13.6819	900771	295.927	0.162	1.7618	0.119	0.068
F102303.038	31023	100703	115.9961	71.2881	0.3563	90	205367	461.214	0.1870	13.6795	898978	296.85	0.161	1.7630	0.119	0.051
F102303.039	31023	100919	116.0781	72.2071	0.3559	90	205688	461.2286	0.1870	13.6799	898026	297.305	0.161	1.7637	0.119	0.054
F102303.040	31023	101135	116.1290	72.6799	0.3558	90	205745	461.0919	0.1870	13.6759	897405	297.475	0.161	1.7638	0.119	0.024
F102303.041	31023	101351	116.0980	72.2457	0.3560	90	205485	461.0693	0.1870	13.6752	897472	297.114	0.161	1.7628	0.119	0.019
F102303.042	31023	101923	115.9035	70.7238	0.3564	90	204799	461.0648	0.1870	13.6751	897873	296.125	0.161	1.7592	0.119	0.018

**4-inch Instromet Turbine Meter Serial No. 72130 – Low Pressure Loop Natural Gas Test
Test Pressure = 45 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main				ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{m,dot} (%)	Error (%)
							Pulses	K (pulses/cf)	U _k (%)	St						
F102303.043	31023	102723	45.9439	76.5697	0.1384	90	208677	461.8471	0.1930	13.6983	353088	301.221	0.169	0.6946	0.123	0.188
F102303.044	31023	102939	45.9836	77.2076	0.1383	90	208733	461.6708	0.1930	13.693	352833	301.417	0.169	0.6948	0.123	0.15
F102303.045	31023	103155	45.9887	77.0434	0.1384	90	208528	461.6165	0.1930	13.6914	352768	301.156	0.169	0.6945	0.123	0.138
F102303.046	31023	103410	45.9765	76.6256	0.1384	90	208215	461.5154	0.1930	13.6884	352739	300.77	0.169	0.6940	0.123	0.116
F102303.047	31023	103626	45.9505	76.0288	0.1385	90	207869	461.4742	0.1930	13.6872	352727	300.297	0.169	0.6933	0.123	0.107
F102303.048	31023	103842	45.9175	75.4417	0.1386	90	207553	461.4694	0.1930	13.6871	352668	299.844	0.169	0.6925	0.123	0.106
F102303.049	31023	110233	45.6701	72.1814	0.1387	90	172480	461.5963	0.2010	13.6908	294818	249.107	0.177	0.5758	0.134	0.134
F102303.050	31023	110449	45.6480	72.2990	0.1386	90	172498	461.5748	0.2010	13.6902	294602	249.144	0.177	0.5755	0.134	0.129
F102303.051	31023	110705	45.6218	72.1712	0.1386	90	172428	461.5323	0.2010	13.6889	294473	249.066	0.177	0.5751	0.134	0.12
F102303.052	31023	110921	45.5845	71.6935	0.1386	90	172235	461.4721	0.2010	13.6871	294439	248.82	0.177	0.5746	0.134	0.107
F102303.053	31023	111200	45.5345	71.1275	0.1386	90	172031	461.4575	0.2010	13.6867	294378	248.533	0.177	0.5740	0.134	0.104
F102303.054	31023	111417	45.4931	70.7179	0.1386	90	171885	461.4644	0.2010	13.6869	294283	248.318	0.177	0.5734	0.134	0.105
F102303.073	31023	151835	44.8001	70.9887	0.1365	90	136337	461.4225	0.221	13.6857	229716	196.981	0.2	0.4481	0.163	0.096
F102303.074	31023	152051	44.7518	70.9303	0.1363	90	136315	461.4003	0.222	13.685	229490	196.958	0.2	0.4476	0.163	0.091
F102303.075	31023	152350	44.6885	70.8430	0.1362	90	136286	461.344	0.221	13.6833	229214	196.941	0.2	0.4470	0.163	0.079
F102303.076	31023	152606	44.6376	70.8594	0.1360	90	136274	461.299	0.221	13.682	228941	196.942	0.2	0.4465	0.163	0.069
F102303.077	31023	152822	44.5678	70.6826	0.1359	90	136243	461.3437	0.222	13.6833	228651	196.879	0.201	0.4458	0.163	0.079
F102303.078	31023	153037	44.5155	70.0658	0.1358	90	136077	461.3329	0.221	13.683	228609	196.643	0.201	0.4452	0.163	0.077
F102303.061	31023	123642	45.3561	72.2140	0.1377	90	104392	461.3583	0.196	13.6838	177308	150.847	0.172	0.3463	0.128	0.082
F102303.062	31023	123921	45.3340	72.3580	0.1376	90	104430	461.3986	0.196	13.685	177180	150.889	0.172	0.3461	0.128	0.091
F102303.063	31023	124137	45.3241	72.6288	0.1375	90	104491	461.4816	0.196	13.6874	177043	150.95	0.172	0.3460	0.128	0.109
F102303.064	31023	124353	45.3110	72.8677	0.1374	90	104510	461.3984	0.196	13.685	176906	151.005	0.172	0.3459	0.128	0.091
F102303.065	31023	124625	45.2881	72.8986	0.1374	90	104506	461.3672	0.196	13.684	176802	151.009	0.172	0.3457	0.128	0.084
F102303.066	31023	124846	45.2613	72.9345	0.1373	90	104500	461.3091	0.196	13.6823	176687	151.019	0.172	0.3455	0.128	0.071
F102303.067	31023	125154	45.3804	73.1417	0.1376	90	69654	461.4539	0.229	13.6866	117957	100.63	0.208	0.2307	0.173	0.103
F102303.068	31023	125410	45.3544	73.1489	0.1375	90	69624	461.2734	0.229	13.6812	117882	100.626	0.208	0.2306	0.173	0.064
F102303.069	31023	125626	45.3298	73.1289	0.1374	90	69614	461.2639	0.229	13.681	117813	100.613	0.208	0.2304	0.173	0.062
F102303.070	31023	125842	45.3013	73.0425	0.1374	90	69598	461.2584	0.228	13.6808	117749	100.591	0.208	0.2303	0.173	0.06
F102303.071	31023	130058	45.2892	73.1386	0.1373	90	69614	461.3655	0.229	13.684	117678	100.591	0.208	0.2302	0.173	0.084
F102303.072	31023	130314	45.2720	73.1652	0.1372	90	69614	461.3821	0.229	13.6845	117618	100.588	0.208	0.2301	0.173	0.087

**4-inch Instromet Turbine Meter Serial No. 72130 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 130 psia**

<u>File</u>	<u>Date</u>	<u>Time</u>	<u>P (psia)</u>	<u>T (F)</u>	<u>r (lb/ft³)</u>	<u>t (s)</u>	<u>Main Pulses</u>	<u>K (pulses/cf)</u>	<u>U_k(%)</u>	<u>St</u>	<u>ReD</u>	<u>Q_v(acfm)</u>	<u>UQ_v(%)</u>	<u>mdot (lbm/s)</u>	<u>U_{m-dot} (%)</u>	<u>Error (%)</u>
F112103.000	31121	90039	129.8516	70.9060	1.0545	90	187257	461.7984	0.1770	13.6968	1793771	270.33	0.174	4.7510	0.136	0.178
F112103.001	31121	90255	129.7090	69.7162	1.0561	90	186735	461.726	0.1770	13.6947	1795164	269.619	0.174	4.7456	0.136	0.162
F112103.002	31121	90511	129.5483	68.7548	1.0570	90	186368	461.786	0.1760	13.6965	1795701	269.054	0.174	4.7396	0.136	0.175
F112103.003	31121	90728	129.4418	68.3488	1.0570	90	186284	461.9417	0.1770	13.7011	1795546	268.842	0.174	4.7361	0.136	0.209
F112103.004	31121	90944	129.3671	68.3249	1.0564	90	186298	461.9243	0.1760	13.7006	1794830	268.872	0.174	4.7340	0.136	0.205
F112103.005	31121	91200	129.2989	68.1896	1.0561	90	186270	461.9017	0.1760	13.6999	1794593	268.845	0.173	4.7323	0.136	0.2
F112103.006	31121	94610	128.3422	70.0475	1.0436	90	146890	462.093	0.1540	13.7056	1393680	211.92	0.151	3.6859	0.105	0.241
F112103.007	31121	94826	128.3316	70.1592	1.0432	90	146911	462.0719	0.1540	13.7049	1393227	211.96	0.15	3.6854	0.105	0.237
F112103.008	31121	95042	128.3128	70.1401	1.0431	90	146867	462.0224	0.1540	13.7035	1392846	211.919	0.151	3.6843	0.105	0.226
F112103.009	31121	95259	128.2822	70.0446	1.0431	90	146831	462.0886	0.1530	13.7054	1392468	211.837	0.151	3.6827	0.105	0.24
F112103.010	31121	95515	128.2621	70.0295	1.0429	90	146822	462.115	0.1540	13.7062	1392155	211.812	0.151	3.6818	0.105	0.246
F112103.011	31121	95732	128.2305	70.0225	1.0427	90	146804	462.0789	0.1540	13.7051	1391772	211.802	0.151	3.6807	0.105	0.238
F112103.012	31121	101858	127.2730	68.6390	1.0377	90	105422	462.1456	0.1720	13.7071	996787	152.076	0.169	2.6301	0.13	0.253
F112103.013	31121	102114	127.2516	68.8245	1.0371	90	105485	462.1634	0.1720	13.7076	996458	152.161	0.169	2.6300	0.13	0.257
F112103.014	31121	102331	127.2495	69.0114	1.0366	90	105516	462.1148	0.1720	13.7062	996124	152.222	0.169	2.6299	0.13	0.246
F112103.015	31121	102547	127.2439	69.1915	1.0362	90	105562	462.131	0.1720	13.7067	995788	152.283	0.169	2.6298	0.13	0.25
F112103.016	31121	102803	127.2528	69.3760	1.0358	90	105599	462.153	0.1720	13.7073	995458	152.329	0.169	2.6297	0.13	0.254
F112103.017	31121	103020	127.2280	69.5460	1.0352	90	105621	462.0189	0.1720	13.7034	995102	152.405	0.169	2.6295	0.13	0.225
F112103.018	31121	104729	126.0090	69.8852	1.0240	90	64238	462.0984	0.1670	13.7057	598275	92.676	0.164	1.5817	0.124	0.243
F112103.019	31121	104946	126.0381	70.1574	1.0236	90	64277	462.1576	0.1680	13.7075	598083	92.72	0.165	1.5819	0.124	0.255
F112103.020	31121	105202	126.0625	70.3336	1.0234	90	64280	462.1081	0.1680	13.706	597893	92.734	0.165	1.5818	0.124	0.245
F112103.021	31121	105419	126.0087	70.4210	1.0228	90	64289	461.9413	0.1670	13.7011	597726	92.781	0.164	1.5816	0.124	0.209
F112103.022	31121	105635	125.9852	70.5130	1.0224	90	64309	461.946	0.1680	13.7012	597579	92.809	0.165	1.5814	0.124	0.21
F112103.023	31121	105851	126.0136	70.5306	1.0226	90	64297	462.0544	0.1670	13.7044	597427	92.77	0.164	1.5811	0.124	0.233
F112103.024	31121	110454	126.1386	69.9908	1.0249	90	42788	462.393	0.2030	13.7145	398515	61.691	0.2	1.0538	0.169	0.307
F112103.025	31121	110710	126.0834	69.9628	1.0245	90	42777	462.1751	0.2030	13.708	398461	61.704	0.2	1.0536	0.169	0.259
F112103.026	31121	110926	126.0586	69.9197	1.0244	90	42784	462.349	0.2030	13.7131	398361	61.691	0.201	1.0532	0.169	0.297
F112103.027	31121	111142	126.0363	69.9726	1.0240	90	42781	462.2677	0.2040	13.7107	398248	61.697	0.2	1.0530	0.169	0.279
F112103.028	31121	111359	126.0193	70.0152	1.0238	90	42781	462.2448	0.2030	13.7101	398147	61.7	0.2	1.0528	0.169	0.274
F112103.029	31121	111615	125.9893	70.0806	1.0234	90	42787	462.2323	0.2030	13.7097	398015	61.711	0.2	1.0526	0.169	0.272

**4-inch Instromet Turbine Meter Serial No. 72130 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 90 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
							Pulses	K (pulses/cf)	U _k (%)	St	ReD						
F112003.070	31120	135928	92.7819	69.5029	0.7446	90	186999	461.6677	0.1770	13.6929	1270457	270.034	0.175	3.3513	0.136	0.149	
F112003.071	31120	140208	92.7655	69.7941	0.7440	90	187127	461.6879	0.1770	13.6935	1269638	270.207	0.175	3.3507	0.136	0.154	
F112003.072	31120	140447	92.7591	70.1278	0.7435	90	187246	461.6669	0.1770	13.6929	1268808	270.391	0.175	3.3504	0.136	0.149	
F112003.073	31120	140703	92.7571	70.4112	0.7430	90	187329	461.6368	0.1770	13.692	1268066	270.529	0.175	3.3500	0.136	0.142	
F112003.074	31120	140919	92.7472	70.5770	0.7427	90	187380	461.6224	0.1770	13.6916	1267517	270.611	0.175	3.3495	0.136	0.139	
F112003.075	31120	141134	92.7429	70.9093	0.7421	90	187522	461.6838	0.1770	13.6934	1266657	270.78	0.175	3.3491	0.136	0.153	
F112003.076	31120	143359	92.0001	70.9675	0.7358	90	147189	461.8836	0.1540	13.6993	985355	212.447	0.152	2.6055	0.105	0.196	
F112003.077	31120	143615	91.9671	70.9907	0.7355	90	147191	461.8838	0.1540	13.6994	984917	212.45	0.152	2.6044	0.105	0.196	
F112003.078	31120	143831	91.9501	71.0590	0.7353	90	147209	461.8885	0.1540	13.6995	984586	212.474	0.152	2.6038	0.105	0.197	
F112003.079	31120	144047	91.9398	71.1591	0.7350	90	147231	461.9127	0.1540	13.7002	984196	212.495	0.152	2.6032	0.105	0.202	
F112003.080	31120	144303	91.9258	71.1815	0.7349	90	147231	461.9187	0.1540	13.7004	983944	212.492	0.152	2.6027	0.105	0.204	
F112003.081	31120	144519	91.9065	71.2322	0.7347	90	147229	461.8787	0.1540	13.6992	983615	212.507	0.152	2.6020	0.105	0.195	
F112003.082	31120	144953	91.4038	72.8531	0.7280	90	106352	461.7886	0.1720	13.6965	702349	153.536	0.17	1.8629	0.131	0.175	
F112003.083	31120	145221	91.3668	72.6940	0.7279	90	106293	461.7361	0.1730	13.695	702165	153.469	0.17	1.8619	0.131	0.164	
F112003.084	31120	145437	91.3352	72.4268	0.7281	90	106231	461.8019	0.1730	13.6969	702111	153.357	0.17	1.8610	0.131	0.178	
F112003.085	31120	145716	91.3069	72.1604	0.7283	90	106170	461.8802	0.1730	13.6992	702068	153.243	0.17	1.8600	0.131	0.195	
F112003.086	31120	145932	91.2610	71.9979	0.7281	90	106116	461.8062	0.1730	13.6971	701889	153.19	0.17	1.8591	0.131	0.179	
F112003.087	31120	150147	91.2141	71.8335	0.7280	90	106079	461.8412	0.1730	13.6981	701653	153.125	0.17	1.8579	0.131	0.187	
F112003.088	31120	152235	91.2603	72.8731	0.7268	90	64534	461.8101	0.1680	13.6972	425440	93.161	0.166	1.1285	0.124	0.18	
F112003.089	31120	152502	91.2555	72.9025	0.7267	90	64532	461.8667	0.1680	13.6988	425305	93.147	0.166	1.1282	0.125	0.192	
F112003.090	31120	152718	91.2458	72.9851	0.7265	90	64538	461.8561	0.1680	13.6985	425176	93.157	0.166	1.1280	0.124	0.19	
F112003.091	31120	152934	91.2289	73.0516	0.7263	90	64535	461.7864	0.1680	13.6965	425033	93.167	0.166	1.1277	0.125	0.175	
F112003.092	31120	153150	91.2224	73.0678	0.7262	90	64536	461.8634	0.1680	13.6987	424911	93.153	0.165	1.1274	0.124	0.192	
F112003.093	31120	153406	91.1959	73.0661	0.7260	90	64519	461.7563	0.1680	13.6956	424773	93.15	0.165	1.1271	0.124	0.168	
F112003.094	31120	153940	90.8250	72.9501	0.7231	90	42960	461.8331	0.2030	13.6978	281724	62.014	0.201	0.7474	0.169	0.185	
F112003.095	31120	154216	90.8115	72.8503	0.7231	90	42961	461.9467	0.2040	13.7012	281724	62	0.201	0.7472	0.169	0.21	
F112003.096	31120	154454	90.8137	72.9067	0.7231	90	42957	461.9146	0.2040	13.7003	281665	61.998	0.201	0.7471	0.169	0.203	
F112003.097	31120	154832	90.8077	73.0219	0.7228	90	42976	462.0443	0.2030	13.7041	281569	62.008	0.201	0.7470	0.169	0.231	
F112003.098	31120	155047	90.8004	73.0915	0.7227	90	42977	462.0088	0.2030	13.7031	281500	62.015	0.201	0.7469	0.169	0.223	
F112003.099	31120	155319	90.7882	73.1739	0.7224	90	42974	461.9586	0.2030	13.7016	281385	62.017	0.201	0.7467	0.169	0.212	

**4-inch Instronet Turbine Meter Serial No. 72130 – High Pressure Loop Natural Gas Test
Test Pressure = 465 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
							Pulses	K (pulses/cf)	U _k (%)	St	U _{St} (%)						
F110303.000	31103	80257	465.4584	70.4473	1.5066	90	196593.4	461.03424	0.2520	13.6742	3495395	284.279	0.228	7.1382	0.197	0.012	
F110303.001	31103	80523	465.4069	70.4439	1.5064	90	196603	461.05774	0.2520	13.6749	3495046	284.278	0.228	7.1374	0.197	0.017	
F110303.002	31103	80722	465.3789	70.4477	1.5063	90	196611.2	461.07681	0.2520	13.6754	3494789	284.278	0.228	7.1369	0.197	0.021	
F110303.003	31103	80920	465.3015	70.4540	1.5060	90	196611.2	461.06808	0.2520	13.6752	3494192	284.284	0.228	7.1356	0.197	0.019	
F110303.004	31103	81119	465.2896	70.4530	1.5060	90	196607.8	461.07281	0.2520	13.6753	3494020	284.276	0.228	7.1353	0.197	0.02	
F110303.005	31103	81317	465.2403	70.4457	1.5058	90	196590.6	461.0401	0.2520	13.6743	3493690	284.271	0.228	7.1345	0.197	0.013	
F110303.006	31103	82206	465.3372	70.4919	1.5060	90	157155.4	461.19083	0.2870	13.6788	2792048	227.173	0.266	5.7021	0.24	0.046	
F110303.007	31103	82529	465.2600	70.4837	1.5058	90	157143.8	461.17386	0.2870	13.6783	2791570	227.165	0.266	5.7010	0.24	0.042	
F110303.008	31103	82727	465.2188	70.4809	1.5056	90	157145.4	461.1969	0.2870	13.679	2791242	227.156	0.266	5.7002	0.24	0.047	
F110303.009	31103	82926	465.1256	70.4500	1.5054	90	157133.7	461.19028	0.2870	13.6788	2790844	227.142	0.266	5.6991	0.24	0.046	
F110303.010	31103	83136	465.1062	70.4316	1.5054	90	157133.1	461.21448	0.2870	13.6795	2790764	227.129	0.266	5.6988	0.24	0.051	
F110303.011	31103	83345	465.0566	70.3928	1.5054	90	157131	461.25146	0.2870	13.6806	2790617	227.108	0.266	5.6981	0.24	0.059	
F110303.012	31103	85240	464.3070	70.4131	1.5027	90	119179.9	461.55164	0.2360	13.6895	2111698	172.144	0.21	4.3115	0.175	0.124	
F110303.013	31103	85455	464.2205	70.4054	1.5025	90	119183.5	461.58176	0.2360	13.6904	2111295	172.138	0.21	4.3105	0.175	0.131	
F110303.014	31103	85818	464.1408	70.3638	1.5023	90	119182.2	461.60785	0.2360	13.6912	2111123	172.126	0.21	4.3099	0.175	0.136	
F110303.015	31103	90016	464.1191	70.3600	1.5023	90	119171.9	461.57547	0.2360	13.6902	2111022	172.123	0.21	4.3096	0.175	0.129	
F110303.016	31103	90235	464.0492	70.3540	1.5021	90	119175.5	461.5896	0.2360	13.6906	2110751	172.123	0.21	4.3090	0.175	0.132	
F110303.017	31103	90439	464.0392	70.3477	1.5021	90	119173.7	461.599	0.2360	13.6909	2110683	172.117	0.21	4.3088	0.175	0.134	
F110303.018	31103	91105	463.9383	70.4649	1.5013	90	79151.95	461.36279	0.2850	13.6839	1401659	114.374	0.264	2.8618	0.238	0.083	
F110303.019	31103	91304	463.9442	70.4979	1.5012	90	79148.41	461.33759	0.2850	13.6832	1401516	114.375	0.264	2.8617	0.237	0.078	
F110303.020	31103	91502	463.8931	70.4913	1.5010	90	79161.69	461.43286	0.2850	13.686	1401343	114.371	0.264	2.8613	0.237	0.098	
F110303.021	31103	91735	463.8162	70.4867	1.5008	90	79170.05	461.48572	0.2850	13.6875	1401123	114.37	0.264	2.8608	0.238	0.11	
F110303.022	31103	91934	463.7333	70.4683	1.5006	90	79152.6	461.40558	0.2850	13.6852	1400913	114.364	0.264	2.8602	0.238	0.092	
F110303.023	31103	92132	463.6281	70.4486	1.5003	90	79139.02	461.35034	0.2850	13.6835	1400628	114.359	0.264	2.8595	0.237	0.08	
F110303.024	31103	95053	462.5636	70.6651	1.4959	90	40196.89	461.81982	0.2780	13.6975	708493	58.027	0.256	1.4467	0.229	0.182	
F110303.025	31103	95251	462.4660	70.6327	1.4956	90	40178.7	461.66425	0.2780	13.6928	708349	58.02	0.256	1.4463	0.229	0.148	
F110303.026	31103	95533	462.2793	70.6124	1.4951	90	40171.38	461.6178	0.2780	13.6915	708061	58.015	0.256	1.4456	0.229	0.138	
F110303.027	31103	95738	462.2124	70.6089	1.4948	90	40188.94	461.82907	0.2780	13.6977	707954	58.014	0.256	1.4454	0.229	0.184	
F110303.028	31103	95952	462.1080	70.5893	1.4945	90	40170.1	461.66272	0.2780	13.6928	707770	58.008	0.256	1.4449	0.229	0.148	
F110303.029	31103	100331	461.8995	70.6299	1.4937	90	40154.59	461.51337	0.2780	13.6884	707299	58.004	0.256	1.4440	0.229	0.116	

**4-inch Instromet Turbine Meter Serial No. 72130 – High Pressure Loop Natural Gas Test
Test Pressure = 345 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F110303.070	31103	151950	349.7383	69.2412	1.1162	90	197353	461.47079	0.2550	13.6871	2646062	285.107	0.233	5.3039	0.199	0.106
F110303.071	31103	152224	349.7498	69.1947	1.1163	90	197353.5	461.49396	0.2550	13.6878	2646478	285.094	0.233	5.3043	0.199	0.111
F110303.072	31103	152547	349.7616	69.1905	1.1164	90	197362.8	461.49454	0.2550	13.6878	2646731	285.107	0.233	5.3048	0.199	0.112
F110303.073	31103	152745	349.7494	69.2138	1.1163	90	197360.7	461.45493	0.2550	13.6866	2646607	285.128	0.233	5.3047	0.199	0.103
F110303.074	31103	152943	349.7437	69.2172	1.1163	90	197373	461.47754	0.2550	13.6873	2646564	285.132	0.233	5.3047	0.199	0.108
F110303.075	31103	153153	349.7081	69.2571	1.1160	90	197395.9	461.47797	0.2550	13.6873	2646203	285.165	0.233	5.3042	0.199	0.108
F110303.045	31103	123502	348.9506	69.8617	1.1120	90	157846.8	461.35638	0.2910	13.6837	2107279	228.091	0.271	4.2274	0.243	0.082
F110303.046	31103	123934	348.7043	69.7941	1.1114	90	157796.4	461.40833	0.2900	13.6852	2105430	227.992	0.271	4.2231	0.243	0.093
F110303.047	31103	124132	348.6333	69.7480	1.1113	90	157771.5	461.42285	0.2910	13.6857	2104965	227.949	0.271	4.2218	0.243	0.096
F110303.048	31103	124330	348.5422	69.6505	1.1112	90	157758.7	461.48282	0.2900	13.6875	2104737	227.901	0.271	4.2207	0.243	0.109
F110303.049	31103	124540	348.4829	69.5281	1.1113	90	157719.7	461.47357	0.2910	13.6872	2104864	227.849	0.271	4.2201	0.243	0.107
F110303.050	31103	124738	348.4512	69.4554	1.1114	90	157689.3	461.44901	0.2910	13.6865	2104951	227.818	0.271	4.2198	0.243	0.102
F110303.051	31103	130823	347.9590	69.1158	1.1106	90	119502	461.80969	0.2390	13.6972	1593740	172.513	0.215	3.1932	0.178	0.18
F110303.052	31103	131026	347.9282	69.0658	1.1106	90	119479.7	461.77264	0.2390	13.6961	1593728	172.494	0.215	3.1929	0.178	0.172
F110303.053	31103	131223	347.8932	69.0322	1.1106	90	119469	461.7496	0.2390	13.6954	1593704	172.487	0.215	3.1927	0.178	0.167
F110303.054	31103	131422	347.8671	68.9930	1.1106	90	119469.7	461.7847	0.2390	13.6964	1593706	172.475	0.215	3.1925	0.178	0.175
F110303.055	31103	131621	347.8557	68.9535	1.1106	90	119458.9	461.77927	0.2390	13.6963	1593764	172.462	0.215	3.1924	0.178	0.173
F110303.056	31103	131835	347.8341	68.9243	1.1106	90	119451.4	461.75995	0.2390	13.6957	1593806	172.458	0.215	3.1923	0.178	0.169
F110303.057	31103	132502	347.7668	69.3022	1.1095	90	79366.2	461.47256	0.2890	13.6872	1057912	114.656	0.269	2.1201	0.24	0.107
F110303.058	31103	132841	347.6534	69.4006	1.1088	90	79368.58	461.45795	0.2890	13.6867	1057242	114.664	0.269	2.1191	0.241	0.104
F110303.059	31103	133105	347.5377	69.4179	1.1084	90	79371.23	461.50366	0.2890	13.6881	1056751	114.656	0.269	2.1181	0.241	0.114
F110303.060	31103	133309	347.4756	69.4001	1.1083	90	79363.52	461.49683	0.2890	13.6879	1056545	114.647	0.269	2.1176	0.241	0.112
F110303.061	31103	133507	347.4182	69.3807	1.1081	90	79374.03	461.59262	0.2890	13.6907	1056356	114.638	0.269	2.1172	0.241	0.133
F110303.062	31103	133705	347.3567	69.4049	1.1078	90	79349.65	461.45123	0.2890	13.6865	1056072	114.638	0.27	2.1167	0.241	0.102
F110303.063	31103	135458	346.8176	70.9650	1.1021	90	40330.03	461.06949	0.2820	13.6752	533243	58.314	0.262	1.0712	0.232	0.019
F110303.064	31103	135717	346.5852	71.0659	1.1011	90	40348.7	461.28101	0.2820	13.6815	532687	58.314	0.262	1.0702	0.232	0.065
F110303.065	31103	135922	346.4210	71.1395	1.1004	90	40335.03	461.12088	0.2820	13.6767	532292	58.314	0.262	1.0695	0.232	0.031
F110303.066	31103	140132	346.2618	71.2238	1.0997	90	40358.44	461.40601	0.2820	13.6852	531859	58.312	0.262	1.0687	0.232	0.092
F110303.067	31103	140330	346.1657	71.3361	1.0991	90	40355.8	461.34375	0.2820	13.6833	531526	58.316	0.262	1.0682	0.232	0.079
F110303.068	31103	140528	346.0930	71.4323	1.0986	90	40370.43	461.51852	0.2820	13.6885	531215	58.315	0.262	1.0677	0.232	0.117

**4-inch Instromet Turbine Meter Serial No. 72130 – High Pressure Loop Natural Gas Test
Test Pressure = 230 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
							Pulses	K (pulses/cf)	U _K (%)	St	ReD						
F110303.076	31103	155746	232.8660	70.0482	0.7294	90	199384.8	461.51276	0.2670	13.6883	1770542	288.016	0.248	3.5012	0.206	0.116	
F110303.077	31103	155950	232.8686	70.3234	0.7290	90	199438	461.51529	0.2670	13.6884	1769237	288.092	0.248	3.5001	0.206	0.116	
F110303.078	31103	160147	232.8231	70.4682	0.7286	90	199474.3	461.54852	0.2670	13.6894	1768143	288.123	0.248	3.4987	0.206	0.123	
F110303.079	31103	160346	232.8235	70.5713	0.7284	90	199495.6	461.58572	0.2670	13.6905	1767522	288.131	0.248	3.4981	0.206	0.131	
F110303.080	31103	160545	232.7898	70.6479	0.7282	90	199493.2	461.57263	0.2670	13.6901	1766821	288.136	0.248	3.4971	0.206	0.129	
F110303.081	31103	160742	232.7287	70.6720	0.7280	90	199460.9	461.53455	0.2670	13.689	1766057	288.113	0.248	3.4957	0.206	0.12	
F110303.082	31103	161312	232.3964	70.6980	0.7269	90	159337.5	461.57074	0.3030	13.6901	1408528	230.138	0.287	2.7880	0.251	0.128	
F110303.083	31103	161522	232.3484	70.6971	0.7267	90	159318.3	461.57932	0.3030	13.6903	1408043	230.106	0.287	2.7870	0.251	0.13	
F110303.084	31103	161720	232.2866	70.6409	0.7266	90	159290.7	461.61116	0.3040	13.6913	1407614	230.05	0.287	2.7859	0.252	0.137	
F110303.085	31103	161918	232.2325	70.5967	0.7265	90	159242.4	461.56226	0.3030	13.6898	1407236	230.005	0.287	2.7850	0.251	0.126	
F110303.086	31103	162117	232.1645	70.5204	0.7264	90	159202.7	461.56418	0.3030	13.6899	1406859	229.947	0.287	2.7839	0.251	0.127	
F110303.087	31103	162315	232.0922	70.4291	0.7263	90	159168.4	461.58804	0.3040	13.6906	1406513	229.885	0.287	2.7828	0.251	0.132	
F110303.088	31103	163905	232.1877	69.9727	0.7273	90	120585.1	461.87128	0.2510	13.699	1067143	174.053	0.23	2.1098	0.184	0.193	
F110303.089	31103	164103	232.1551	69.9196	0.7273	90	120562.8	461.84482	0.2510	13.6982	1067076	174.031	0.23	2.1095	0.184	0.188	
F110303.090	31103	164301	232.0792	69.8106	0.7272	90	120534.6	461.84763	0.2510	13.6983	1066896	173.989	0.23	2.1088	0.184	0.188	
F110303.091	31103	164500	232.0455	69.7321	0.7272	90	120514.1	461.86508	0.251	13.6988	1066840	173.953	0.23	2.1084	0.184	0.192	
F110303.092	31103	164710	232.0099	69.6209	0.7273	90	120486.6	461.86407	0.251	13.6988	1066870	173.913	0.23	2.1081	0.184	0.192	
F110303.093	31103	164908	231.9629	69.5281	0.7273	90	120471	461.90414	0.251	13.7	1066786	173.876	0.23	2.1076	0.184	0.2	
F110303.094	31103	165343	231.7399	69.7146	0.7263	90	80001.05	461.54565	0.301	13.6893	707804	115.555	0.285	1.3988	0.249	0.123	
F110303.095	31103	165541	231.6948	69.7654	0.7261	90	80026.34	461.677	0.302	13.6932	707550	115.559	0.285	1.3984	0.249	0.151	
F110303.096	31103	165740	231.6580	69.7851	0.7259	90	80026.07	461.67731	0.302	13.6932	707383	115.558	0.285	1.3981	0.25	0.151	
F110303.097	31103	165950	231.5929	69.7926	0.7257	90	80013.55	461.61594	0.302	13.6914	707155	115.556	0.285	1.3976	0.249	0.138	
F110303.098	31103	170148	231.5674	69.7956	0.7256	90	80018.3	461.66638	0.302	13.6929	707034	115.55	0.285	1.3974	0.249	0.149	
F110303.099	31103	170410	231.5342	69.7992	0.7255	90	80018.44	461.66977	0.302	13.693	706919	115.549	0.285	1.3972	0.249	0.15	
F110303.100	31103	172417	230.6926	70.9565	0.7210	90	40722.82	461.82666	0.295	13.6977	356805	58.785	0.278	0.7064	0.241	0.184	
F110303.101	31103	172651	230.3154	70.9479	0.7198	90	40673.09	461.25641	0.295	13.6807	356234	58.786	0.278	0.7052	0.241	0.06	
F110303.102	31103	172927	230.2423	70.9547	0.7195	90	40694.1	461.51791	0.295	13.6885	356094	58.783	0.278	0.7050	0.241	0.117	
F110303.103	31103	173148	230.1686	70.9788	0.7193	90	40720.27	461.80194	0.295	13.6969	355957	58.785	0.278	0.7047	0.241	0.178	
F110303.104	31103	173347	230.1191	70.9849	0.7191	90	40726.14	461.87701	0.295	13.6992	355866	58.784	0.278	0.7045	0.241	0.195	
F110303.105	31103	173546	230.0770	70.9838	0.7190	90	40721.98	461.84393	0.295	13.6982	355795	58.782	0.278	0.7044	0.241	0.187	
F110303.106	31103	173744	230.0506	70.9854	0.7189	90	40725.54	461.8924	0.295	13.6996	355746	58.781	0.278	0.7043	0.241	0.198	

**4-inch Invensys Turbine Meter Serial No. 12291705 – Low Pressure Loop Natural Gas Test
Test Pressure = 190 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F102203.103	31022	150231	188.4679	70.8062	0.5855	90	14316	32.1959	0.1870	0.95492	1465715	296.435	0.16	2.8927	0.119	0.041
F102203.104	31022	150535	188.3888	70.7926	0.5853	90	14319	32.1944	0.1880	0.95488	1465540	296.511	0.16	2.8923	0.119	0.036
F102203.105	31022	150751	188.2391	70.3260	0.5853	90	14307	32.1912	0.1880	0.95478	1465777	296.292	0.16	2.8906	0.119	0.026
F102203.106	31022	151007	188.1508	70.1852	0.5852	90	14309	32.1983	0.1880	0.95499	1465726	296.268	0.16	2.8898	0.119	0.048
F102203.107	31022	151251	188.1253	70.4398	0.5848	90	14318	32.1959	0.1880	0.95492	1465200	296.477	0.16	2.8899	0.119	0.041
F102203.108	31022	151535	188.0701	70.4706	0.5846	90	14323	32.1987	0.1880	0.95501	1464985	296.554	0.16	2.8896	0.119	0.049
F102203.109	31022	153438	188.7369	70.9816	0.5861	90	11976	32.2150	0.1950	0.95549	1226368	247.835	0.168	2.4210	0.13	0.1
F102203.110	31022	153654	188.7206	71.0214	0.5860	90	11974	32.2084	0.1950	0.95529	1226129	247.844	0.168	2.4207	0.13	0.08
F102203.111	31022	153933	188.6855	71.0449	0.5859	90	11975	32.2098	0.1950	0.95533	1225845	247.854	0.168	2.4202	0.13	0.084
F102203.112	31022	154150	188.6698	71.0961	0.5858	90	11976	32.2097	0.1950	0.95533	1225621	247.876	0.168	2.4200	0.13	0.083
F102203.113	31022	154405	188.6714	71.2346	0.5856	90	11977	32.2058	0.1950	0.95522	1225262	247.926	0.168	2.4198	0.13	0.072
F102203.114	31022	154621	188.6915	71.4660	0.5854	90	11982	32.2071	0.1940	0.95525	1224829	248.02	0.168	2.4198	0.13	0.075
F102203.115	31022	155117	188.9426	70.9123	0.5869	90	9554	32.2027	0.2140	0.95512	980045	197.789	0.191	1.9346	0.157	0.062
F102203.116	31022	155333	188.9539	71.0393	0.5867	90	9556	32.2046	0.2140	0.95518	979795	197.818	0.191	1.9345	0.158	0.068
F102203.117	31022	155613	188.9457	71.2689	0.5864	90	9561	32.2068	0.2140	0.95525	979383	197.908	0.191	1.9344	0.158	0.075
F102203.118	31022	155829	188.9775	71.5548	0.5862	90	9565	32.2052	0.2140	0.9552	978989	198.001	0.191	1.9345	0.157	0.07
F102203.119	31022	160045	188.9943	71.7789	0.5860	90	9567	32.2002	0.2150	0.95505	978635	198.073	0.191	1.9344	0.158	0.054
F102203.120	31022	160301	188.9717	71.7082	0.5860	90	9567	32.2076	0.2150	0.95527	978545	198.028	0.191	1.9340	0.157	0.077
F102203.121	31022	173646	187.7362	71.9718	0.5817	90	7235	32.1643	0.1910	0.95398	735425	149.959	0.164	1.4539	0.123	-0.057
F102203.122	31022	173902	187.6885	71.9043	0.5817	90	7234	32.1651	0.1910	0.95401	735297	149.935	0.164	1.4535	0.123	-0.055
F102203.123	31022	174118	187.6420	71.8247	0.5816	90	7234	32.1716	0.1910	0.9542	735190	149.904	0.164	1.4531	0.124	-0.035
F102203.124	31022	174334	187.5984	71.7041	0.5816	90	7232	32.1706	0.1910	0.95417	735161	149.868	0.164	1.4528	0.124	-0.038
F102203.125	31022	174550	187.5469	71.6385	0.5815	90	7230	32.1649	0.1910	0.954	735061	149.853	0.164	1.4524	0.123	-0.056
F102203.126	31022	174806	187.5075	71.6887	0.5814	90	7232	32.1691	0.1910	0.95413	734879	149.875	0.164	1.4522	0.124	-0.043
F102203.127	31022	175102	188.1750	71.3811	0.5839	90	4802	32.1343	0.2230	0.95309	490787	99.624	0.199	0.9694	0.168	-0.151
F102203.128	31022	175318	188.1588	71.2267	0.5840	90	4801	32.1412	0.2230	0.9533	490812	99.581	0.199	0.9692	0.168	-0.129
F102203.129	31022	175534	188.1881	71.3078	0.5840	90	4803	32.1529	0.2230	0.95365	490772	99.587	0.199	0.9693	0.168	-0.093
F102203.130	31022	175817	188.2246	71.6445	0.5837	90	4804	32.1398	0.2220	0.95326	490569	99.648	0.199	0.9694	0.168	-0.134
F102203.131	31022	180033	188.2642	71.8865	0.5835	90	4806	32.1405	0.2230	0.95328	490436	99.687	0.199	0.9695	0.168	-0.132
F102203.132	31022	180249	188.2778	72.0802	0.5833	90	4808	32.1429	0.2230	0.95335	490293	99.721	0.199	0.9695	0.168	-0.124

4-inch Invensys Turbine Meter Serial No. 12291705 – Low Pressure Loop Natural Gas Test
Test Pressure = 115 psia

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					ReD	Q _v (acfm)	U _{Q_v} (%)	mdot (lbm/s)	U _{m-dot} (%)	Error (%)
							Pulses	K (pulses/cf)	U _K (%)	St							
F102303.006	31023	65835	114.3639	70.5951	0.3517	90	12064	32.1313	0.1940	0.953	749157	250.307	0.169	1.4674	0.13	-0.16	
F102303.007	31023	70051	114.2277	70.0205	0.3517	90	12051	32.1341	0.1940	0.95309	748936	250.014	0.169	1.4656	0.13	-0.151	
F102303.008	31023	70308	114.0606	69.1879	0.3518	90	12031	32.1327	0.1940	0.95305	748872	249.61	0.169	1.4635	0.13	-0.156	
F102303.009	31023	70524	113.8898	68.4545	0.3518	90	12016	32.1356	0.1940	0.95313	748732	249.277	0.169	1.4614	0.13	-0.147	
F102303.010	31023	70741	113.7311	68.0011	0.3516	90	12009	32.1399	0.1940	0.95326	748372	249.098	0.169	1.4596	0.13	-0.133	
F102303.011	31023	71008	113.5886	67.6907	0.3514	90	12005	32.1419	0.1940	0.95332	747972	249	0.169	1.4581	0.13	-0.127	
F102303.012	31023	71459	115.8832	68.0312	0.3583	90	9595	32.1424	0.2140	0.95334	609211	199.01	0.192	1.1885	0.158	-0.125	
F102303.013	31023	71715	115.8871	68.9403	0.3577	90	9613	32.1402	0.2140	0.95327	608413	199.397	0.192	1.1887	0.158	-0.132	
F102303.014	31023	71932	115.9002	69.8185	0.3571	90	9628	32.1321	0.2140	0.95303	607654	199.759	0.192	1.1889	0.158	-0.157	
F102303.015	31023	72211	115.8318	69.9603	0.3568	90	9629	32.1272	0.2140	0.95288	607137	199.81	0.192	1.1881	0.158	-0.173	
F102303.016	31023	72428	115.7348	69.7517	0.3566	90	9622	32.1174	0.2140	0.95259	606826	199.726	0.192	1.1871	0.158	-0.203	
F102303.017	31023	72644	115.5988	69.0883	0.3567	90	9612	32.1275	0.2140	0.95289	606741	199.455	0.192	1.1857	0.158	-0.172	
F102303.018	31023	75834	115.1922	67.9506	0.3562	90	7270	32.1227	0.1900	0.95275	459236	150.88	0.165	0.8957	0.124	-0.187	
F102303.019	31023	80113	115.1737	68.6407	0.3557	90	7279	32.1144	0.1910	0.9525	458696	151.106	0.165	0.8957	0.124	-0.213	
F102303.020	31023	80330	115.1860	69.3736	0.3552	90	7288	32.1050	0.1900	0.95223	458232	151.337	0.165	0.8958	0.124	-0.242	
F102303.021	31023	80546	115.1918	70.0945	0.3547	90	7298	32.1025	0.1900	0.95215	457727	151.556	0.165	0.8959	0.124	-0.249	
F102303.022	31023	80802	115.1408	70.2077	0.3544	90	7297	32.0918	0.1900	0.95183	457427	151.586	0.165	0.8955	0.124	-0.283	
F102303.023	31023	81019	115.0570	70.0143	0.3543	90	7294	32.0921	0.1900	0.95184	457220	151.522	0.165	0.8948	0.124	-0.282	
F102303.024	31023	81344	115.4952	68.7161	0.3566	90	4838	32.0810	0.2230	0.95151	305965	100.537	0.2	0.5975	0.169	-0.316	
F102303.025	31023	81643	115.3365	68.0296	0.3566	90	4831	32.0772	0.2230	0.9514	305896	100.404	0.2	0.5967	0.168	-0.328	
F102303.026	31023	81900	115.2300	67.7508	0.3565	90	4830	32.0866	0.2230	0.95168	305767	100.353	0.2	0.5962	0.169	-0.299	
F102303.027	31023	82116	115.1544	67.6525	0.3563	90	4829	32.0846	0.2230	0.95162	305631	100.339	0.2	0.5958	0.169	-0.305	
F102303.028	31023	82333	115.0777	67.6359	0.3561	90	4830	32.0906	0.2230	0.9518	305451	100.341	0.2	0.5955	0.169	-0.287	
F102303.029	31023	82549	115.0716	67.9151	0.3558	90	4837	32.1182	0.2230	0.95262	305306	100.4	0.2	0.5955	0.168	-0.201	
F102303.030	31023	84752	115.9284	66.8397	0.3593	90	14353	32.1502	0.1870	0.95357	915397	297.624	0.161	1.7824	0.119	-0.101	
F102303.031	31023	85047	115.8485	67.1907	0.3588	90	14365	32.1486	0.1870	0.95352	914418	297.887	0.161	1.7815	0.119	-0.106	
F102303.032	31023	85309	115.8214	67.5912	0.3584	90	14376	32.1458	0.1870	0.95344	913655	298.141	0.161	1.7811	0.119	-0.115	
F102303.033	31023	85525	115.8309	68.2124	0.3580	90	14398	32.1557	0.1870	0.95373	912797	298.506	0.162	1.7813	0.119	-0.084	
F102303.034	31023	85741	115.9413	69.6807	0.3573	90	14436	32.1513	0.1870	0.9536	911358	299.335	0.161	1.7827	0.119	-0.098	
F102303.035	31023	85958	116.0264	70.7387	0.3568	90	14460	32.1459	0.1870	0.95344	910222	299.883	0.161	1.7835	0.119	-0.115	
F102303.036	31023	100200	114.8639	69.0267	0.3544	90	14386	32.1545	0.1870	0.95369	901725	298.268	0.161	1.7618	0.119	-0.088	
F102303.037	31023	100423	114.8666	69.4329	0.3541	90	14401	32.1628	0.1870	0.95394	901131	298.502	0.161	1.7618	0.119	-0.062	
F102303.038	31023	100703	114.9647	71.0000	0.3533	90	14440	32.1549	0.1870	0.9537	899475	299.384	0.161	1.7630	0.119	-0.087	
F102303.039	31023	100919	115.0465	71.9427	0.3529	90	14462	32.1533	0.1870	0.95366	898487	299.856	0.161	1.7637	0.119	-0.092	
F102303.040	31023	101135	115.0968	72.4125	0.3527	90	14468	32.1483	0.1870	0.95351	897870	300.026	0.161	1.7638	0.119	-0.107	
F102303.041	31023	101351	115.0665	72.0666	0.3529	90	14451	32.1440	0.1870	0.95338	897810	299.714	0.161	1.7628	0.119	-0.121	
F102303.042	31023	101923	114.8782	70.5402	0.3534	90	14406	32.1526	0.1870	0.95364	898219	298.701	0.161	1.7592	0.119	-0.094	

**4-inch Invensys Turbine Meter Serial No. 12291705 – Low Pressure Loop Natural Gas Test
Test Pressure = 45 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F102303.043	31023	102723	45.5180	75.9202	0.1372	90	14628	32.1127	0.1940	0.95245	353466	303.68	0.169	0.6946	0.123	-0.218
F102303.044	31023	102939	45.5579	76.6751	0.1372	90	14635	32.1004	0.1930	0.95209	353144	303.942	0.169	0.6948	0.123	-0.256
F102303.045	31023	103155	45.5624	76.6141	0.1372	90	14627	32.1039	0.1930	0.95219	353020	303.743	0.169	0.6945	0.123	-0.245
F102303.046	31023	103410	45.5516	76.2596	0.1372	90	14609	32.1026	0.1930	0.95215	352956	303.382	0.169	0.6940	0.123	-0.249
F102303.047	31023	103626	45.5277	75.7861	0.1373	90	14589	32.1030	0.1940	0.95216	352874	302.963	0.169	0.6933	0.123	-0.248
F102303.048	31023	103842	45.4951	75.2073	0.1373	90	14570	32.1092	0.1930	0.95235	352810	302.509	0.169	0.6925	0.123	-0.229
F102303.049	31023	110233	45.3775	72.1643	0.1378	90	12079	32.1189	0.2010	0.95264	294831	250.714	0.177	0.5758	0.134	-0.199
F102303.050	31023	110449	45.3554	72.2801	0.1377	90	12078	32.1113	0.2010	0.95241	294616	250.753	0.177	0.5755	0.134	-0.222
F102303.051	31023	110705	45.3293	72.1735	0.1377	90	12075	32.1121	0.2010	0.95244	294477	250.684	0.177	0.5751	0.134	-0.22
F102303.052	31023	110921	45.2927	71.7499	0.1377	90	12065	32.1143	0.2010	0.9525	294417	250.46	0.177	0.5746	0.134	-0.213
F102303.053	31023	111200	45.2435	71.2312	0.1376	90	12051	32.1114	0.2010	0.95241	294334	250.192	0.177	0.5740	0.134	-0.222
F102303.054	31023	111417	45.2022	70.8336	0.1376	90	12042	32.1143	0.2010	0.9525	294233	249.982	0.177	0.5734	0.134	-0.213
F102303.073	31023	151835	44.6172	72.2447	0.1356	90	9556	32.1310	0.222	0.953	229251	198.272	0.2	0.4481	0.163	-0.161
F102303.074	31023	152051	44.5680	72.1953	0.1355	90	9553	32.1231	0.222	0.95276	229021	198.258	0.2	0.4476	0.163	-0.185
F102303.075	31023	152350	44.5068	72.1269	0.1353	90	9553	32.1262	0.222	0.95286	228739	198.239	0.2	0.4470	0.163	-0.176
F102303.076	31023	152606	44.4543	72.1287	0.1351	90	9550	32.1154	0.221	0.95253	228472	198.243	0.2	0.4465	0.163	-0.209
F102303.077	31023	152822	44.3850	71.9910	0.1349	90	9549	32.1202	0.222	0.95268	228168	198.193	0.201	0.4458	0.163	-0.195
F102303.078	31023	153037	44.3311	71.4642	0.1349	90	9540	32.1213	0.222	0.95271	228091	197.999	0.201	0.4452	0.163	-0.191
F102303.061	31023	123642	45.2458	72.4020	0.1374	90	7285	32.1055	0.197	0.95224	177255	151.272	0.172	0.3463	0.128	-0.24
F102303.062	31023	123921	45.2253	72.4866	0.1373	90	7286	32.1059	0.197	0.95225	177144	151.291	0.172	0.3461	0.128	-0.239
F102303.063	31023	124137	45.2135	72.7312	0.1372	90	7290	32.1107	0.197	0.9524	177015	151.351	0.172	0.3460	0.128	-0.224
F102303.064	31023	124353	45.1983	72.9593	0.1371	90	7291	32.1026	0.197	0.95215	176881	151.41	0.172	0.3459	0.128	-0.249
F102303.065	31023	124625	45.1772	73.0116	0.1370	90	7292	32.1060	0.197	0.95226	176771	151.415	0.172	0.3457	0.128	-0.239
F102303.066	31023	124846	45.1524	73.0578	0.1369	90	7292	32.1046	0.197	0.95221	176653	151.422	0.172	0.3455	0.128	-0.243
F102303.067	31023	125154	45.3274	73.3061	0.1374	90	4850	32.0831	0.23	0.95158	117926	100.78	0.208	0.2307	0.173	-0.31
F102303.068	31023	125410	45.3037	73.3810	0.1373	90	4849	32.0752	0.229	0.95134	117838	100.784	0.208	0.2306	0.173	-0.334
F102303.069	31023	125626	45.2787	73.4057	0.1372	90	4849	32.0761	0.229	0.95137	117761	100.781	0.208	0.2304	0.173	-0.332
F102303.070	31023	125842	45.2537	73.3624	0.1371	90	4848	32.0763	0.23	0.95137	117689	100.76	0.208	0.2303	0.173	-0.331
F102303.071	31023	130058	45.2371	73.4441	0.1371	90	4850	32.0873	0.23	0.9517	117620	100.767	0.208	0.2302	0.173	-0.297
F102303.072	31023	130314	45.2199	73.4999	0.1370	90	4849	32.0800	0.23	0.95148	117554	100.769	0.208	0.2301	0.173	-0.319

**4-inch Invensys Turbine Meter Serial No. 12291705 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 125 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main						Error			
							Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	(%)
F112103.000	31121	90039	127.3047	70.2520	1.0342	90	13311	32.196	0.1760	0.95493	1795908	275.624	0.173	4.7510	0.136	0.041
F112103.001	31121	90255	127.1873	69.1949	1.0357	90	13279	32.200	0.1770	0.95503	1796925	274.93	0.174	4.7456	0.136	0.053
F112103.002	31121	90511	127.0244	68.2695	1.0364	90	13253	32.200	0.1760	0.95504	1797367	274.389	0.174	4.7396	0.136	0.054
F112103.003	31121	90728	126.9127	67.8459	1.0364	90	13246	32.208	0.1770	0.95527	1797268	274.179	0.174	4.7361	0.136	0.077
F112103.004	31121	90944	126.8412	67.8053	1.0359	90	13247	32.208	0.1770	0.95529	1796599	274.195	0.174	4.7340	0.136	0.079
F112103.005	31121	91200	126.7801	67.6811	1.0357	90	13245	32.207	0.1760	0.95526	1796330	274.161	0.174	4.7323	0.136	0.076
F112103.006	31121	94610	126.8060	69.5936	1.0315	90	10364	32.226	0.1540	0.9558	1394818	214.406	0.151	3.6859	0.105	0.133
F112103.007	31121	94826	126.8079	69.7243	1.0312	90	10365	32.224	0.1540	0.95577	1394320	214.433	0.15	3.6854	0.105	0.129
F112103.008	31121	95042	126.7917	69.7023	1.0311	90	10362	32.222	0.1540	0.9557	1393946	214.386	0.151	3.6843	0.105	0.122
F112103.009	31121	95259	126.7532	69.6082	1.0310	90	10360	32.226	0.1540	0.95582	1393564	214.318	0.151	3.6827	0.105	0.135
F112103.010	31121	95515	126.7283	69.6053	1.0308	90	10359	32.225	0.1540	0.95578	1393225	214.308	0.151	3.6818	0.105	0.13
F112103.011	31121	95732	126.7093	69.5906	1.0307	90	10357	32.224	0.1540	0.95575	1392858	214.273	0.151	3.6807	0.105	0.127
F112103.012	31121	101858	126.5013	68.3801	1.0317	90	7392	32.217	0.1730	0.95554	997247	152.964	0.169	2.6301	0.13	0.105
F112103.013	31121	102114	126.4883	68.5558	1.0311	90	7395	32.215	0.1730	0.95548	996933	153.036	0.169	2.6300	0.13	0.099
F112103.014	31121	102331	126.4868	68.7295	1.0307	90	7398	32.216	0.1730	0.95552	996620	153.092	0.169	2.6299	0.13	0.103
F112103.015	31121	102547	126.4805	68.8881	1.0303	90	7400	32.213	0.1730	0.95543	996318	153.147	0.169	2.6298	0.13	0.094
F112103.016	31121	102803	126.4793	69.0705	1.0299	90	7403	32.214	0.1730	0.95545	995991	153.205	0.169	2.6297	0.13	0.096
F112103.017	31121	103020	126.4732	69.2041	1.0295	90	7406	32.218	0.1730	0.95559	995693	153.246	0.169	2.6295	0.13	0.111
F112103.018	31121	104729	125.7230	69.5070	1.0224	90	4481	32.184	0.1690	0.95458	598650	92.82	0.165	1.5817	0.124	0.005
F112103.019	31121	104946	125.7409	69.7932	1.0219	90	4483	32.179	0.1690	0.95443	598444	92.876	0.165	1.5819	0.124	-0.011
F112103.020	31121	105202	125.7493	69.9691	1.0216	90	4483	32.170	0.1690	0.95415	598254	92.902	0.165	1.5818	0.124	-0.04
F112103.021	31121	105419	125.7367	70.0738	1.0213	90	4484	32.171	0.1690	0.95418	598069	92.921	0.165	1.5816	0.124	-0.037
F112103.022	31121	105635	125.7351	70.1850	1.0210	90	4485	32.173	0.1690	0.95424	597903	92.935	0.165	1.5814	0.124	-0.031
F112103.023	31121	105851	125.7140	70.2006	1.0208	90	4484	32.166	0.1690	0.95404	597755	92.934	0.164	1.5811	0.124	-0.052
F112103.024	31121	110454	125.9834	69.7764	1.0240	90	2978	32.156	0.2060	0.95373	398657	61.741	0.2	1.0538	0.169	-0.084
F112103.025	31121	110710	125.9666	69.7384	1.0240	90	2979	32.171	0.2060	0.95417	398608	61.733	0.2	1.0536	0.169	-0.038
F112103.026	31121	110926	125.9383	69.7102	1.0238	90	2979	32.175	0.2060	0.95432	398498	61.724	0.201	1.0532	0.169	-0.023
F112103.027	31121	111142	125.9141	69.7459	1.0235	90	2978	32.162	0.2060	0.95391	398397	61.729	0.2	1.0530	0.169	-0.065
F112103.028	31121	111359	125.9031	69.8046	1.0233	90	2978	32.161	0.2060	0.95388	398285	61.731	0.2	1.0528	0.169	-0.068
F112103.029	31121	111615	125.8818	69.8734	1.0229	90	2978	32.158	0.2060	0.95378	398150	61.738	0.2	1.0526	0.169	-0.078

**4-inch Invensys Turbine Meter Serial No. 12291705 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 90 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main Pulses	K (pulses/ft)	U _K (%)	St	ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{m-dot} (%)	Error (%)
F112003.069	31120	134953	91.1038	68.9125	0.7316	90	13288	32.197	0.1770	0.95495	1273161	275.14	0.175	3.3549	0.136	0.044
F112003.070	31120	135928	90.9764	69.6003	0.7295	90	13312	32.196	0.1770	0.95492	1270351	275.647	0.175	3.3513	0.136	0.04
F112003.071	31120	140208	90.9645	69.8836	0.7289	90	13320	32.197	0.1770	0.95494	1269547	275.805	0.175	3.3507	0.136	0.043
F112003.072	31120	140447	90.9610	70.1898	0.7284	90	13328	32.197	0.1770	0.95495	1268775	275.968	0.175	3.3504	0.136	0.044
F112003.073	31120	140703	90.9573	70.4785	0.7280	90	13334	32.194	0.1770	0.95487	1268020	276.116	0.175	3.3500	0.136	0.035
F112003.074	31120	140919	90.9493	70.6664	0.7276	90	13338	32.193	0.1770	0.95484	1267423	276.208	0.175	3.3495	0.136	0.032
F112003.075	31120	141134	90.9491	70.9573	0.7272	90	13347	32.199	0.1770	0.95502	1266649	276.343	0.175	3.3491	0.136	0.051
F112003.076	31120	143359	90.9139	71.2808	0.7264	90	10397	32.206	0.1550	0.95522	984886	215.219	0.152	2.6055	0.105	0.072
F112003.077	31120	143615	90.8815	71.3160	0.7260	90	10397	32.205	0.1540	0.95518	984428	215.227	0.152	2.6044	0.105	0.068
F112003.078	31120	143831	90.8682	71.3920	0.7258	90	10398	32.205	0.1550	0.95519	984084	215.246	0.152	2.6038	0.105	0.069
F112003.079	31120	144047	90.8536	71.4830	0.7256	90	10401	32.210	0.1550	0.95534	983709	215.274	0.152	2.6032	0.105	0.085
F112003.080	31120	144303	90.8403	71.5231	0.7254	90	10400	32.207	0.1550	0.95524	983429	215.277	0.152	2.6027	0.105	0.074
F112003.081	31120	144519	90.8233	71.5585	0.7252	90	10399	32.203	0.1550	0.95513	983125	215.281	0.152	2.6020	0.105	0.062
F112003.082	31120	144953	90.8468	73.1408	0.7230	90	7460	32.168	0.1730	0.9541	702029	154.604	0.17	1.8629	0.131	-0.046
F112003.083	31120	145221	90.8148	73.0492	0.7229	90	7457	32.167	0.1730	0.95405	701767	154.55	0.17	1.8619	0.131	-0.05
F112003.084	31120	145437	90.7807	72.8475	0.7229	90	7453	32.167	0.1730	0.95407	701636	154.464	0.17	1.8610	0.131	-0.048
F112003.085	31120	145716	90.7495	72.6172	0.7230	90	7450	32.175	0.1730	0.95429	701551	154.366	0.17	1.8600	0.131	-0.025
F112003.086	31120	145932	90.7120	72.4479	0.7229	90	7446	32.172	0.1730	0.95421	701380	154.296	0.17	1.8591	0.131	-0.034
F112003.087	31120	150147	90.6642	72.2539	0.7228	90	7444	32.179	0.1730	0.95441	701178	154.223	0.17	1.8579	0.131	-0.013
F112003.088	31120	152235	91.0635	73.5386	0.7242	90	4509	32.150	0.1690	0.95355	424974	93.5	0.165	1.1285	0.124	-0.103
F112003.089	31120	152502	91.0498	73.6041	0.7239	90	4509	32.149	0.1690	0.95353	424814	93.502	0.166	1.1282	0.125	-0.105
F112003.090	31120	152718	91.0444	73.6912	0.7238	90	4509	32.147	0.1690	0.95346	424682	93.509	0.165	1.1280	0.124	-0.113
F112003.091	31120	152934	91.0320	73.7596	0.7236	90	4509	32.145	0.1690	0.9534	424537	93.515	0.166	1.1277	0.125	-0.118
F112003.092	31120	153150	91.0200	73.7919	0.7234	90	4510	32.154	0.1690	0.95367	424405	93.509	0.165	1.1274	0.124	-0.091
F112003.093	31120	153406	90.9979	73.7868	0.7232	90	4508	32.142	0.1690	0.95333	424269	93.501	0.165	1.1271	0.124	-0.126
F112003.094	31120	153940	90.7359	73.9095	0.7209	90	2997	32.121	0.2060	0.95271	281278	62.202	0.201	0.7474	0.169	-0.191
F112003.095	31120	154216	90.7298	73.8999	0.7209	90	2998	32.136	0.2060	0.95314	281235	62.194	0.201	0.7472	0.169	-0.146
F112003.096	31120	154454	90.7266	73.9708	0.7207	90	2998	32.134	0.2060	0.95307	281170	62.199	0.201	0.7471	0.169	-0.153
F112003.097	31120	154832	90.7229	74.0721	0.7206	90	2999	32.141	0.2060	0.95329	281081	62.205	0.201	0.7470	0.169	-0.13
F112003.098	31120	155047	90.7178	74.1601	0.7204	90	2999	32.137	0.2060	0.95318	281003	62.212	0.201	0.7469	0.169	-0.141
F112003.099	31120	155319	90.7020	74.2457	0.7201	90	2999	32.134	0.2060	0.9531	280887	62.218	0.201	0.7467	0.169	-0.15

**4-inch Invensys Turbine Meter Serial No. 12291705 – High Pressure Loop Natural Gas Test
Test Pressure = 465 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main							U _{m-dot} (%)	Error (%)	
							Pulses	K (pulses/cf)	U _k (%)	Sf	ReD	Q _v (acfm)	U _{Q_v} (%)			mdot (lbm/s)
F110303.000	31103	80257	461.5390	70.1469	1.4941	90	13858.55	32.2309	0.2520	0.95596	3498993	286.652	0.228	7.1382	0.197	0.149
F110303.001	31103	80523	461.4902	70.1544	1.4939	90	13859.29	32.2320	0.2520	0.95599	3498589	286.657	0.228	7.1374	0.197	0.153
F110303.002	31103	80722	461.4570	70.1448	1.4938	90	13860.24	32.2348	0.2520	0.95608	3498400	286.651	0.228	7.1369	0.197	0.162
F110303.003	31103	80920	461.3813	70.1458	1.4936	90	13860.00	32.2342	0.2520	0.95606	3497828	286.653	0.228	7.1356	0.197	0.16
F110303.004	31103	81119	461.3623	70.1444	1.4935	90	13858.93	32.2320	0.2520	0.95599	3497662	286.649	0.228	7.1353	0.197	0.153
F110303.005	31103	81317	461.3225	70.1483	1.4934	90	13859.34	32.2334	0.2520	0.95603	3497272	286.646	0.228	7.1345	0.197	0.157
F110303.006	31103	82206	462.8413	70.2446	1.4983	90	11048.08	32.2553	0.2870	0.95668	2794098	228.347	0.266	5.7021	0.24	0.225
F110303.007	31103	82529	462.7662	70.2325	1.4981	90	11047.36	32.2548	0.2870	0.95667	2793635	228.335	0.266	5.7010	0.24	0.224
F110303.008	31103	82727	462.7231	70.2428	1.4979	90	11047.17	32.2543	0.2870	0.95665	2793256	228.335	0.266	5.7002	0.24	0.222
F110303.009	31103	82926	462.6359	70.2350	1.4976	90	11046.99	32.2544	0.2870	0.95666	2792763	228.331	0.266	5.6991	0.24	0.222
F110303.010	31103	83136	462.6112	70.2100	1.4976	90	11046.27	32.2542	0.2870	0.95665	2792712	228.317	0.266	5.6988	0.24	0.222
F110303.011	31103	83345	462.5602	70.1811	1.4975	90	11046.42	32.2568	0.2870	0.95673	2792527	228.302	0.266	5.6981	0.24	0.23
F110303.012	31103	85240	462.8793	70.2500	1.4984	90	8356.86	32.2702	0.2360	0.95712	2112649	172.644	0.21	4.3115	0.175	0.271
F110303.013	31103	85455	462.7873	70.2227	1.4982	90	8357.55	32.2750	0.2360	0.95727	2112306	172.632	0.21	4.3105	0.175	0.287
F110303.014	31103	85818	462.7211	70.1981	1.4980	90	8357.59	32.2771	0.2360	0.95733	2112080	172.622	0.21	4.3099	0.175	0.293
F110303.015	31103	90016	462.6870	70.1782	1.4980	90	8356.94	32.2754	0.2360	0.95728	2112030	172.617	0.21	4.3096	0.175	0.288
F110303.016	31103	90235	462.6279	70.1822	1.4978	90	8357.13	32.2762	0.2360	0.9573	2111726	172.617	0.21	4.3090	0.175	0.29
F110303.017	31103	90439	462.6102	70.1611	1.4978	90	8356.92	32.2771	0.2360	0.95733	2111704	172.608	0.21	4.3088	0.175	0.293
F110303.018	31103	91105	463.2984	70.3213	1.4996	90	5535.16	32.2270	0.2850	0.95584	1402082	114.504	0.264	2.8618	0.238	0.137
F110303.019	31103	91304	463.3056	70.3701	1.4994	90	5534.91	32.2241	0.2850	0.95576	1401907	114.509	0.264	2.8617	0.237	0.128
F110303.020	31103	91502	463.2570	70.3645	1.4993	90	5535.82	32.2307	0.2850	0.95595	1401731	114.504	0.264	2.8613	0.237	0.149
F110303.021	31103	91735	463.1774	70.3418	1.4991	90	5536.17	32.2343	0.2850	0.95606	1401547	114.499	0.264	2.8608	0.238	0.16
F110303.022	31103	91934	463.0964	70.3370	1.4989	90	5535.14	32.2289	0.2850	0.9559	1401310	114.497	0.264	2.8602	0.238	0.143
F110303.023	31103	92132	462.9933	70.3064	1.4986	90	5534.04	32.2251	0.2850	0.95579	1401046	114.487	0.264	2.8595	0.237	0.132
F110303.024	31103	95053	462.3962	70.6148	1.4955	90	2802.35	32.1875	0.2780	0.95467	708561	58.042	0.256	1.4467	0.229	0.015
F110303.025	31103	95251	462.2918	70.5965	1.4952	90	2801.08	32.1750	0.2780	0.9543	708404	58.038	0.256	1.4463	0.229	-0.024
F110303.026	31103	95533	462.1072	70.5700	1.4946	90	2800.61	32.1729	0.2780	0.95424	708122	58.033	0.256	1.4456	0.229	-0.031
F110303.027	31103	95738	462.0556	70.5597	1.4945	90	2801.74	32.1881	0.2780	0.95469	708020	58.028	0.256	1.4454	0.229	0.016
F110303.028	31103	95952	461.9537	70.5550	1.4941	90	2800.45	32.1759	0.2780	0.95433	707821	58.024	0.256	1.4449	0.229	-0.021
F110303.029	31103	100331	461.7323	70.6239	1.4931	90	2799.37	32.1624	0.2780	0.95393	707323	58.026	0.256	1.4440	0.229	-0.063

**4-inch Invensys Turbine Meter Serial No. 12291705 – High Pressure Loop Natural Gas Test
Test Pressure = 345 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main					ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
							Pulses	K (pulses/cf)	U _K (%)	St	ReD						
F110303.070	31103	151950	346.8181	69.0317	1.1069	90	13913.93	32.2647	0.2550	0.95696	2647946	287.495	0.233	5.3039	0.199	0.255	
F110303.071	31103	152224	346.8250	68.9806	1.1071	90	13912.77	32.2635	0.2550	0.95693	2648382	287.482	0.233	5.3043	0.199	0.251	
F110303.072	31103	152547	346.8356	68.9455	1.1072	90	13915.05	32.2694	0.2560	0.9571	2648757	287.476	0.233	5.3048	0.199	0.269	
F110303.073	31103	152745	346.8267	68.9940	1.1070	90	13913.94	32.2629	0.2550	0.95691	2648532	287.512	0.233	5.3047	0.199	0.249	
F110303.074	31103	152943	346.8189	68.9893	1.1070	90	13914.43	32.2640	0.2550	0.95694	2648523	287.512	0.233	5.3047	0.199	0.252	
F110303.075	31103	153153	346.7836	69.0307	1.1068	90	13916.24	32.2644	0.2560	0.95695	2648154	287.546	0.233	5.3042	0.199	0.253	
F110303.045	31103	123502	347.0845	69.7165	1.1061	90	11094.98	32.2569	0.2910	0.95673	2108271	229.305	0.271	4.2274	0.243	0.23	
F110303.046	31103	123934	346.8405	69.6617	1.1055	90	11091.67	32.2603	0.2900	0.95683	2106380	229.212	0.271	4.2231	0.243	0.241	
F110303.047	31103	124132	346.7680	69.6207	1.1053	90	11090.05	32.2612	0.2900	0.95686	2105900	229.172	0.271	4.2218	0.243	0.244	
F110303.048	31103	124330	346.6820	69.5196	1.1053	90	11089.46	32.2670	0.2900	0.95703	2105681	229.119	0.271	4.2207	0.243	0.262	
F110303.049	31103	124540	346.6195	69.4140	1.1053	90	11086.74	32.2648	0.2910	0.95697	2105757	229.078	0.271	4.2201	0.243	0.255	
F110303.050	31103	124738	346.5907	69.3323	1.1054	90	11084.75	32.2645	0.2900	0.95695	2105871	229.039	0.271	4.2198	0.243	0.254	
F110303.051	31103	130823	346.8942	69.0344	1.1072	90	8375.94	32.2703	0.2390	0.95713	1594165	173.037	0.215	3.1932	0.178	0.272	
F110303.052	31103	131026	346.8607	68.9765	1.1073	90	8374.38	32.2680	0.2390	0.95706	1594173	173.017	0.215	3.1929	0.178	0.265	
F110303.053	31103	131223	346.8279	68.9519	1.1072	90	8373.57	32.2657	0.2390	0.95699	1594128	173.013	0.215	3.1927	0.178	0.258	
F110303.054	31103	131422	346.8035	68.8957	1.1073	90	8373.44	32.2689	0.2390	0.95709	1594169	172.993	0.215	3.1925	0.178	0.267	
F110303.055	31103	131621	346.7888	68.8579	1.1073	90	8373.03	32.2694	0.2390	0.9571	1594224	172.982	0.215	3.1924	0.178	0.269	
F110303.056	31103	131835	346.7673	68.8194	1.1073	90	8372.39	32.2682	0.2390	0.95707	1594288	172.975	0.215	3.1923	0.178	0.265	
F110303.057	31103	132502	347.2938	69.2527	1.1080	90	5547.46	32.2130	0.2880	0.95543	1058058	114.808	0.269	2.1201	0.24	0.094	
F110303.058	31103	132841	347.1783	69.3479	1.1074	90	5547.72	32.2126	0.2880	0.95542	1057393	114.815	0.269	2.1191	0.241	0.092	
F110303.059	31103	133105	347.0632	69.3520	1.1070	90	5548.93	32.2227	0.2890	0.95572	1056924	114.804	0.269	2.1181	0.241	0.124	
F110303.060	31103	133309	347.0006	69.3497	1.1068	90	5547.33	32.2149	0.2890	0.95548	1056693	114.798	0.269	2.1176	0.241	0.1	
F110303.061	31103	133507	346.9447	69.3279	1.1066	90	5548.07	32.2220	0.2890	0.95569	1056507	114.789	0.269	2.1172	0.241	0.122	
F110303.062	31103	133705	346.8861	69.3543	1.1064	90	5546.32	32.2119	0.2880	0.9554	1056219	114.788	0.27	2.1167	0.241	0.09	
F110303.063	31103	135458	346.6882	71.0374	1.1015	90	2811.66	32.1262	0.2820	0.95285	533195	58.346	0.262	1.0712	0.232	-0.176	
F110303.064	31103	135717	346.4532	71.1646	1.1004	90	2813.06	32.1400	0.2820	0.95326	532618	58.35	0.262	1.0702	0.232	-0.133	
F110303.065	31103	135922	346.2910	71.2436	1.0997	90	2812.12	32.1287	0.2820	0.95293	532219	58.351	0.262	1.0695	0.232	-0.168	
F110303.066	31103	140132	346.1322	71.3558	1.0989	90	2813.82	32.1475	0.2820	0.95348	531764	58.352	0.262	1.0687	0.232	-0.11	
F110303.067	31103	140330	346.0400	71.4441	1.0984	90	2813.68	32.1457	0.2820	0.95343	531450	58.353	0.262	1.0682	0.232	-0.115	
F110303.068	31103	140528	345.9681	71.5543	1.0979	90	2814.70	32.1569	0.2820	0.95377	531128	58.353	0.262	1.0677	0.232	-0.08	

**4-inch Invensys Turbine Meter Serial No. 12291705 – High Pressure Loop Natural Gas Test
Test Pressure = 230 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
							Pulses	K (pulses/cf)	U _K (%)	St	St						
F110303.076	31103	155746	230.9055	69.8609	0.7233	90	14046.25	32.2426	0.2670	0.95631	1771458	290.429	0.248	3.5012	0.206	0.186	
F110303.077	31103	155950	230.9066	70.1441	0.7229	90	14049.68	32.2413	0.2680	0.95627	1770129	290.511	0.248	3.5001	0.206	0.182	
F110303.078	31103	160147	230.8630	70.2668	0.7226	90	14052.86	32.2468	0.2670	0.95643	1769094	290.528	0.248	3.4987	0.206	0.199	
F110303.079	31103	160346	230.8636	70.3715	0.7224	90	14054.23	32.2490	0.2680	0.9565	1768469	290.536	0.248	3.4981	0.206	0.206	
F110303.080	31103	160545	230.8308	70.4633	0.7222	90	14054.20	32.2475	0.2680	0.95645	1767725	290.549	0.248	3.4971	0.206	0.201	
F110303.081	31103	160742	230.7706	70.4891	0.7219	90	14053.15	32.2475	0.2680	0.95645	1766956	290.526	0.248	3.4957	0.206	0.201	
F110303.082	31103	161312	231.1487	70.5741	0.7230	90	11188.20	32.2388	0.3030	0.95619	1409000	231.361	0.287	2.7880	0.251	0.174	
F110303.083	31103	161522	231.1018	70.5771	0.7229	90	11187.14	32.2401	0.3040	0.95623	1408507	231.33	0.287	2.7870	0.251	0.178	
F110303.084	31103	161720	231.0380	70.5288	0.7227	90	11185.38	32.2419	0.3040	0.95629	1408061	231.28	0.287	2.7859	0.252	0.184	
F110303.085	31103	161918	230.9870	70.4927	0.7226	90	11182.06	32.2386	0.3030	0.95619	1407664	231.236	0.287	2.7850	0.251	0.173	
F110303.086	31103	162117	230.9185	70.4048	0.7225	90	11179.54	32.2401	0.3030	0.95623	1407313	231.172	0.287	2.7839	0.251	0.178	
F110303.087	31103	162315	230.8467	70.3391	0.7224	90	11177.01	32.2398	0.3030	0.95622	1406911	231.123	0.287	2.7828	0.251	0.177	
F110303.088	31103	163905	231.4719	69.9487	0.7250	90	8443.19	32.2381	0.2510	0.95617	1067270	174.6	0.23	2.1098	0.184	0.172	
F110303.089	31103	164103	231.4408	69.9130	0.7250	90	8441.73	32.2357	0.2510	0.9561	1067175	174.583	0.23	2.1095	0.184	0.164	
F110303.090	31103	164301	231.3676	69.7965	0.7249	90	8439.84	32.2371	0.2510	0.95614	1067007	174.537	0.23	2.1088	0.184	0.169	
F110303.091	31103	164500	231.3313	69.6862	0.7250	90	8438.60	32.2408	0.251	0.95625	1067004	174.491	0.23	2.1084	0.184	0.18	
F110303.092	31103	164710	231.2973	69.5855	0.7250	90	8436.81	32.2408	0.251	0.95625	1067016	174.454	0.23	2.1081	0.184	0.18	
F110303.093	31103	164908	231.2495	69.4888	0.7250	90	8435.49	32.2429	0.251	0.95631	1066939	174.416	0.23	2.1076	0.184	0.187	
F110303.094	31103	165343	231.4211	69.6799	0.7253	90	5586.73	32.1878	0.301	0.95468	707868	115.711	0.285	1.3988	0.249	0.015	
F110303.095	31103	165541	231.3775	69.7627	0.7250	90	5588.43	32.1946	0.302	0.95488	707579	115.722	0.285	1.3984	0.249	0.037	
F110303.096	31103	165740	231.3384	69.7607	0.7249	90	5588.61	32.1969	0.303	0.95495	707436	115.717	0.285	1.3981	0.25	0.044	
F110303.097	31103	165950	231.2755	69.7963	0.7247	90	5587.69	32.1908	0.302	0.95477	707177	115.72	0.285	1.3976	0.249	0.025	
F110303.098	31103	170148	231.2479	69.7919	0.7246	90	5587.95	32.1940	0.302	0.95487	707064	115.714	0.285	1.3974	0.249	0.035	
F110303.099	31103	170410	231.2158	69.7986	0.7245	90	5587.94	32.1941	0.302	0.95487	706945	115.714	0.285	1.3972	0.249	0.035	
F110303.100	31103	172417	230.6051	71.0090	0.7206	90	2836.85	32.1558	0.295	0.95373	356780	58.815	0.278	0.7064	0.241	-0.084	
F110303.101	31103	172651	230.2261	71.0036	0.7194	90	2833.11	32.1124	0.296	0.95245	356207	58.816	0.278	0.7052	0.241	-0.219	
F110303.102	31103	172927	230.1536	71.0038	0.7192	90	2834.63	32.1319	0.295	0.95302	356070	58.813	0.278	0.7050	0.241	-0.158	
F110303.103	31103	173148	230.0801	71.0440	0.7189	90	2836.46	32.1506	0.295	0.95358	355925	58.816	0.278	0.7047	0.241	-0.1	
F110303.104	31103	173347	230.0301	71.0553	0.7187	90	2836.81	32.1548	0.295	0.9537	355830	58.816	0.278	0.7045	0.241	-0.087	
F110303.105	31103	173546	229.9901	71.0579	0.7186	90	2836.50	32.1523	0.295	0.95363	355758	58.814	0.278	0.7044	0.241	-0.095	
F110303.106	31103	173744	229.9628	71.0451	0.7185	90	2836.82	32.1573	0.295	0.95378	355716	58.811	0.278	0.7043	0.241	-0.079	

**8-inch Instronet Turbine Meter Serial No. 71219 – Low Pressure Loop Natural Gas Test
Test Pressure = 190 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main					mdot		Error (%)		
							Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)		(lbm/s)	U _{m-dot} (%)
F102203.000	31022	53712	194.6213	69.4501	0.6075	90	50811	46.7350	0.1730	10.7984	1875659	724.81	0.143	7.3389	0.094	0.505
F102203.001	31022	53941	194.4933	69.6337	0.6069	90	50830	46.7292	0.1730	10.7971	1874131	725.171	0.143	7.3349	0.094	0.493
F102203.002	31022	54221	194.4318	69.7799	0.6065	90	50843	46.7349	0.1730	10.7984	1872786	725.268	0.143	7.3312	0.094	0.505
F102203.003	31022	54437	194.4130	69.9212	0.6063	90	50852	46.7370	0.1730	10.7989	1871893	725.363	0.143	7.3294	0.094	0.51
F102203.004	31022	54653	194.3458	69.9840	0.6060	90	50852	46.7349	0.1730	10.7984	1870899	725.397	0.143	7.3261	0.094	0.505
F102203.005	31022	54909	194.2778	70.0526	0.6057	90	50855	46.7342	0.1730	10.7982	1869900	725.451	0.143	7.3229	0.094	0.504
F102203.006	31022	55712	192.7843	70.3142	0.6005	90	41057	46.7146	0.1840	10.7937	1497134	585.927	0.156	5.8646	0.114	0.462
F102203.007	31022	55928	192.6054	70.1012	0.6002	90	41062	46.7172	0.1840	10.7943	1496999	585.966	0.156	5.8620	0.113	0.467
F102203.008	31022	60144	192.4335	69.9726	0.5998	90	41065	46.7160	0.1840	10.794	1496504	586.024	0.156	5.8587	0.114	0.464
F102203.009	31022	60400	192.2809	69.8669	0.5995	90	41064	46.7156	0.1840	10.7939	1495862	586.014	0.156	5.8552	0.113	0.464
F102203.010	31022	60616	192.1228	69.7861	0.5991	90	41065	46.7099	0.1840	10.7926	1495283	586.1	0.156	5.8520	0.113	0.451
F102203.011	31022	60833	192.0225	69.7502	0.5988	90	41068	46.7143	0.1840	10.7936	1494661	586.087	0.156	5.8492	0.113	0.461
F102203.012	31022	61323	191.5976	69.7754	0.5974	90	27732	46.6849	0.2090	10.7868	1007596	396.017	0.185	3.9431	0.151	0.398
F102203.013	31022	61538	191.4047	69.5984	0.5970	90	27728	46.6834	0.2090	10.7865	1007112	395.973	0.185	3.9400	0.151	0.394
F102203.014	31022	61818	191.2842	69.5851	0.5966	90	27731	46.6895	0.2090	10.7879	1006499	395.963	0.185	3.9375	0.151	0.408
F102203.015	31022	62034	191.1730	69.5864	0.5963	90	27733	46.6854	0.2090	10.787	1006059	396.026	0.185	3.9358	0.151	0.399
F102203.016	31022	62250	191.0674	69.5730	0.5960	90	27734	46.6844	0.2090	10.7867	1005608	396.05	0.185	3.9339	0.151	0.396
F102203.017	31022	62506	190.9836	69.6010	0.5957	90	27734	46.6798	0.2090	10.7857	1005161	396.089	0.185	3.9323	0.151	0.387
F102203.018	31022	64643	188.8522	69.3728	0.5891	90	13888	46.6849	0.2140	10.7868	498047	198.323	0.191	1.9473	0.158	0.398
F102203.019	31022	64859	188.6871	69.2744	0.5887	90	13884	46.6712	0.2140	10.7837	497790	198.324	0.191	1.9459	0.158	0.368
F102203.020	31022	65115	188.5375	69.1928	0.5883	90	13885	46.6768	0.2140	10.785	497516	198.314	0.191	1.9446	0.158	0.38
F102203.021	31022	65331	188.4154	69.1497	0.5880	90	13885	46.6814	0.2140	10.786	497222	198.295	0.191	1.9433	0.158	0.39
F102203.022	31022	65548	188.2776	69.1269	0.5876	90	13885	46.6786	0.2140	10.7854	496926	198.306	0.191	1.9420	0.157	0.384
F102203.023	31022	65804	188.1460	69.0936	0.5872	90	13886	46.6827	0.2140	10.7863	496628	198.303	0.191	1.9407	0.158	0.393
F102203.091	31022	130923	188.6036	70.6301	0.5861	90	6977	46.6583	0.222	10.7807	249002	99.689	0.199	0.9738	0.168	0.34
F102203.092	31022	131150	188.6645	71.1883	0.5856	90	6985	46.6515	0.222	10.7791	248898	99.818	0.199	0.9743	0.168	0.326
F102203.093	31022	131406	188.6969	71.5144	0.5853	90	6988	46.6375	0.222	10.7759	248827	99.891	0.199	0.9745	0.168	0.296
F102203.094	31022	131622	188.7384	71.7833	0.5851	90	6992	46.6407	0.222	10.7766	248759	99.941	0.199	0.9747	0.168	0.303
F102203.095	31022	131902	188.7655	72.0445	0.5849	90	6994	46.6339	0.222	10.7751	248666	99.984	0.199	0.9747	0.168	0.288
F102203.096	31022	132118	188.7687	72.1828	0.5847	90	6995	46.6314	0.223	10.7745	248593	100.004	0.199	0.9746	0.168	0.283
F102203.097	31022	132934	188.7240	72.3942	0.5843	90	6996	46.6292	0.222	10.774	248393	100.023	0.199	0.9741	0.168	0.278
F102203.098	31022	133150	188.6904	72.3940	0.5842	90	6997	46.6395	0.222	10.7764	248329	100.015	0.199	0.9739	0.168	0.3
F102203.099	31022	133406	188.6052	72.3075	0.5841	90	6992	46.6136	0.222	10.7704	248254	99.999	0.199	0.9734	0.168	0.244
F102203.100	31022	133622	188.5070	71.9639	0.5842	90	6987	46.6185	0.222	10.7715	248229	99.917	0.199	0.9728	0.168	0.255
F102203.101	31022	133838	188.4061	71.7339	0.5841	90	6986	46.6319	0.222	10.7746	248195	99.874	0.199	0.9723	0.168	0.284
F102203.102	31022	134054	188.3957	71.8831	0.5839	90	6990	46.6430	0.222	10.7772	248130	99.908	0.199	0.9723	0.168	0.308

**8-inch Instromet Turbine Meter Serial No. 71219 – Low Pressure Loop Natural Gas Test
Test Pressure = 115 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main					mdot		Error (%)		
							Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)		(lbm/s)	U _{mdot} (%)
F102203.030	31022	75845	119.2973	70.0558	0.3680	90	50983	46.6758	0.1720	10.7847	1148857	728.186	0.144	4.4660	0.094	0.378
F102203.031	31022	80101	119.1436	69.4416	0.3680	90	50949	46.6727	0.1720	10.784	1149222	727.749	0.144	4.4630	0.094	0.371
F102203.032	31022	80352	119.0003	69.0428	0.3678	90	50942	46.6771	0.1720	10.785	1149221	727.58	0.144	4.4601	0.094	0.381
F102203.033	31022	80608	118.9081	68.7779	0.3677	90	50933	46.6792	0.1720	10.7855	1149183	727.419	0.144	4.4580	0.094	0.385
F102203.034	31022	80840	118.9082	69.7267	0.3670	90	51044	46.6788	0.1720	10.7854	1147756	729.01	0.144	4.4592	0.094	0.385
F102203.035	31022	81102	118.9796	70.5459	0.3666	90	51115	46.6850	0.1720	10.7869	1146518	729.928	0.144	4.4603	0.094	0.398
F102203.036	31022	81612	118.3193	69.8612	0.3651	90	41226	46.6649	0.1830	10.7822	922219	588.965	0.157	3.5835	0.114	0.355
F102203.037	31022	81840	118.2604	69.6114	0.3651	90	41213	46.6642	0.1840	10.7821	922312	588.788	0.157	3.5824	0.114	0.353
F102203.038	31022	82056	118.1820	69.2067	0.3651	90	41183	46.6641	0.1840	10.782	922387	588.362	0.157	3.5804	0.114	0.353
F102203.039	31022	82313	118.0371	68.6761	0.3651	90	41151	46.6632	0.1840	10.7818	922318	587.915	0.157	3.5770	0.114	0.351
F102203.040	31022	82529	117.9193	68.2132	0.3650	90	41127	46.6623	0.1840	10.7816	922431	587.584	0.157	3.5747	0.114	0.349
F102203.041	31022	82746	117.8220	67.9330	0.3649	90	41116	46.6639	0.1840	10.782	922321	587.406	0.157	3.5727	0.114	0.353
F102203.042	31022	83437	116.8445	67.7630	0.3620	90	27778	46.6445	0.2090	10.7775	618575	397.018	0.186	2.3952	0.151	0.311
F102203.043	31022	83654	116.8825	68.5793	0.3615	90	27832	46.6530	0.2090	10.7795	618037	397.716	0.186	2.3963	0.151	0.329
F102203.044	31022	83910	116.9893	69.7386	0.3610	90	27886	46.6488	0.2090	10.7785	617271	398.524	0.186	2.3978	0.151	0.32
F102203.045	31022	84127	117.0702	70.5619	0.3607	90	27918	46.6382	0.2090	10.776	616717	399.072	0.186	2.3988	0.151	0.297
F102203.046	31022	84406	117.0829	70.6518	0.3606	90	27907	46.6309	0.2090	10.7744	616437	398.977	0.186	2.3981	0.151	0.281
F102203.047	31022	84622	117.0455	70.2425	0.3608	90	27875	46.6307	0.2090	10.7743	616442	398.521	0.186	2.3965	0.151	0.281
F102203.048	31022	92226	115.9451	67.6156	0.3593	90	13866	46.6054	0.2140	10.7685	306812	198.346	0.192	1.1876	0.158	0.227
F102203.049	31022	92442	115.8790	67.6026	0.3591	90	13871	46.6124	0.2140	10.7701	306714	198.388	0.192	1.1872	0.158	0.242
F102203.050	31022	92659	115.8580	67.8557	0.3588	90	13879	46.6097	0.2140	10.7695	306571	198.514	0.192	1.1872	0.158	0.236
F102203.051	31022	92915	115.8483	68.0931	0.3586	90	13891	46.6208	0.2140	10.772	306475	198.638	0.192	1.1872	0.158	0.26
F102203.052	31022	93143	115.9532	69.1621	0.3582	90	13921	46.6180	0.2130	10.7714	306248	199.079	0.192	1.1884	0.158	0.254
F102203.053	31022	93427	116.0553	70.2373	0.3577	90	13951	46.6187	0.2140	10.7715	305987	199.505	0.192	1.1895	0.158	0.255
F102203.054	31022	95506	115.5163	69.0862	0.3569	90	7009	46.5813	0.2220	10.7629	153770	100.312	0.2	0.5966	0.169	0.175
F102203.055	31022	95722	115.4842	69.1634	0.3567	90	7009	46.5739	0.2220	10.7612	153708	100.328	0.2	0.5965	0.169	0.159
F102203.056	31022	95938	115.5694	69.6803	0.3566	90	7018	46.5923	0.2220	10.7655	153673	100.417	0.2	0.5968	0.169	0.199
F102203.057	31022	100155	115.6296	70.3150	0.3563	90	7028	46.5994	0.2220	10.7671	153597	100.545	0.2	0.5971	0.169	0.214
F102203.058	31022	100411	115.7154	70.9089	0.3562	90	7035	46.6005	0.2220	10.7674	153532	100.643	0.2	0.5975	0.169	0.216
F102203.059	31022	100628	115.7507	71.4074	0.3559	90	7036	46.5632	0.2220	10.7587	153449	100.738	0.2	0.5976	0.169	0.136

**8-inch Instromet Turbine Meter Serial No. 71219 – Low Pressure Loop Natural Gas Test
Test Pressure = 45 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					mdot			Error (%)	
							Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	UQ _v (%)	(lbm/s)		U _{mdot} (%)
F102203.060	31022	102820	46.9856	74.2560	0.1423	90	51451	46.6309	0.1780	10.7744	448377	735.579	0.151	1.7449	0.098	0.281
F102203.061	31022	103036	46.9755	73.9262	0.1424	90	51409	46.6328	0.1780	10.7748	448429	734.948	0.151	1.7442	0.097	0.286
F102203.062	31022	103252	46.9571	73.6011	0.1424	90	51366	46.6282	0.1780	10.7737	448435	734.406	0.151	1.7433	0.098	0.276
F102203.063	31022	103508	46.9216	73.0548	0.1425	90	51309	46.6287	0.1780	10.7739	448486	733.582	0.151	1.7419	0.098	0.277
F102203.064	31022	103724	46.8783	72.2167	0.1426	90	51227	46.6285	0.1780	10.7738	448686	732.413	0.151	1.7403	0.098	0.276
F102203.065	31022	103940	46.8282	71.3420	0.1427	90	51144	46.6269	0.1780	10.7734	448900	731.253	0.151	1.7387	0.098	0.273
F102203.066	31022	104713	46.9720	70.2507	0.1434	90	41267	46.6177	0.1900	10.7713	364814	590.148	0.165	1.4105	0.118	0.253
F102203.067	31022	104929	46.9690	70.6979	0.1433	90	41307	46.6181	0.1890	10.7714	364570	590.714	0.165	1.4106	0.118	0.254
F102203.068	31022	105213	46.9650	71.2477	0.1431	90	41350	46.6163	0.1900	10.771	364221	591.353	0.165	1.4105	0.118	0.25
F102203.069	31022	105429	46.9572	71.5994	0.1430	90	41375	46.6135	0.1900	10.7704	363958	591.745	0.165	1.4103	0.118	0.244
F102203.070	31022	105645	46.9337	71.4839	0.1430	90	41363	46.6104	0.1900	10.7696	363845	591.614	0.165	1.4096	0.118	0.237
F102203.071	31022	105901	46.8980	71.0816	0.1430	90	41329	46.6092	0.1900	10.7693	363797	591.143	0.165	1.4085	0.118	0.235
F102203.072	31022	110243	46.3810	71.0681	0.1414	90	27902	46.5589	0.2160	10.7577	243167	399.522	0.194	0.9414	0.156	0.127
F102203.073	31022	110459	46.3436	70.7932	0.1413	90	27889	46.5628	0.2160	10.7586	243081	399.303	0.194	0.9406	0.157	0.135
F102203.074	31022	110715	46.3339	71.1614	0.1412	90	27906	46.5610	0.2160	10.7582	242870	399.562	0.194	0.9404	0.157	0.131
F102203.075	31022	110930	46.3216	71.4363	0.1411	90	27921	46.5642	0.2160	10.759	242690	399.749	0.195	0.9401	0.157	0.138
F102203.076	31022	111146	46.3096	71.6884	0.1410	90	27929	46.5640	0.2160	10.7589	242480	399.865	0.194	0.9397	0.157	0.138
F102203.077	31022	111402	46.3026	71.9454	0.1409	90	27942	46.5654	0.2150	10.7592	242328	400.04	0.194	0.9395	0.156	0.141
F102203.078	31022	114122	46.0263	72.5285	0.1399	90	14000	46.5847	0.2210	10.7637	120395	200.352	0.2	0.4672	0.163	0.182
F102203.079	31022	114358	46.0164	72.8713	0.1398	90	14006	46.5798	0.2210	10.7626	120287	200.459	0.2	0.4670	0.163	0.172
F102203.080	31022	114619	45.9934	72.9054	0.1397	90	14005	46.5780	0.2210	10.7621	120209	200.452	0.2	0.4667	0.163	0.168
F102203.081	31022	114843	45.9566	72.7000	0.1396	90	13997	46.5757	0.2210	10.7616	120138	200.348	0.2	0.4663	0.163	0.163
F102203.082	31022	115058	45.9177	72.4303	0.1396	90	13985	46.5643	0.2210	10.759	120078	200.225	0.2	0.4659	0.163	0.138
F102203.083	31022	115342	45.8717	72.0746	0.1396	90	13976	46.5702	0.2210	10.7603	120017	200.071	0.2	0.4654	0.163	0.151
F102203.084	31022	115558	45.8397	71.8656	0.1395	90	13971	46.5766	0.2210	10.7618	119963	199.972	0.2	0.4650	0.163	0.165
F102203.085	31022	121314	45.5706	73.6778	0.1382	90	7051	46.4954	0.2290	10.7431	59907	101.1	0.208	0.2329	0.173	-0.01
F102203.086	31022	121530	45.5353	73.4842	0.1382	90	7047	46.4918	0.2290	10.7422	59872	101.05	0.208	0.2327	0.173	-0.018
F102203.087	31022	121745	45.5035	73.3534	0.1381	90	7044	46.4869	0.2290	10.7411	59838	101.018	0.208	0.2325	0.173	-0.028
F102203.088	31022	122001	45.4894	73.3770	0.1380	90	7050	46.5277	0.2290	10.7505	59813	101.015	0.208	0.2324	0.173	0.06
F102203.089	31022	122217	45.4816	73.6214	0.1380	90	7051	46.5168	0.2290	10.748	59774	101.053	0.208	0.2323	0.173	0.036
F102203.090	31022	122433	45.4778	73.8930	0.1379	90	7055	46.5237	0.229	10.7496	59736	101.095	0.208	0.2323	0.173	0.051

**8-inch Instromet Turbine Meter Serial No. 71219 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 115 psia**

<u>File</u>	<u>Date</u>	<u>Time</u>	<u>P (psia)</u>	<u>T (F)</u>	<u>ρ (lb/ft³)</u>	<u>t (s)</u>	<u>Main Pulses</u>	<u>K (pulses/cf)</u>	<u>U_K (%)</u>	<u>St</u>	<u>ReD</u>	<u>Q_v (acfm)</u>	<u>UQ_v (%)</u>	<u>mdot (lbm/s)</u>	<u>U_{m-dot} (%)</u>	<u>Error (%)</u>
F112003.000	31120	64831	118.9221	69.1057	0.9653	90	31504	46.7536	0.1470	10.8027	1381310	449.22	0.144	7.227398	0.095	0.545
F112003.001	31120	65112	118.8367	68.9037	0.9650	90	31492	46.7513	0.1470	10.8022	1380886	449.072	0.144	7.222776	0.095	0.54
F112003.002	31120	65328	118.7842	68.9563	0.9645	90	31497	46.7515	0.1470	10.8022	1380183	449.14	0.144	7.219695	0.094	0.541
F112003.003	31120	65544	118.7541	69.1142	0.9639	90	31507	46.7519	0.1470	10.8023	1379412	449.28	0.144	7.217508	0.095	0.542
F112003.004	31120	65800	118.7141	69.2145	0.9633	90	31508	46.7456	0.1470	10.8009	1378629	449.354	0.144	7.214573	0.094	0.528
F112003.005	31120	70016	118.6610	69.1850	0.9629	90	31504	46.7443	0.1470	10.8006	1378005	449.31	0.144	7.210938	0.095	0.525
F112003.006	31120	70555	117.2796	68.1713	0.9533	90	23426	46.7190	0.1610	10.7947	1016728	334.283	0.158	5.311261	0.115	0.471
F112003.007	31120	70811	117.1549	67.6913	0.9533	90	23411	46.7264	0.1610	10.7964	1016660	334.015	0.158	5.306708	0.115	0.487
F112003.008	31120	71028	117.0034	67.5558	0.9522	90	23414	46.7201	0.1610	10.795	1016085	334.103	0.158	5.302493	0.115	0.473
F112003.009	31120	71244	116.9101	67.4701	0.9516	90	23421	46.7284	0.1610	10.7969	1015699	334.144	0.158	5.299706	0.115	0.491
F112003.010	31120	71500	116.8068	67.4746	0.9507	90	23428	46.7178	0.1610	10.7944	1015279	334.32	0.158	5.297525	0.115	0.468
F112003.011	31120	71716	116.7427	67.4698	0.9502	90	23438	46.7309	0.1610	10.7975	1014865	334.368	0.158	5.295305	0.115	0.497
F112003.012	31120	72425	116.5414	67.8348	0.9477	90	17187	46.7217	0.1890	10.7953	741967	245.239	0.186	3.873663	0.152	0.477
F112003.013	31120	72641	116.4464	67.6750	0.9472	90	17184	46.7251	0.1890	10.7961	741608	245.179	0.186	3.870757	0.152	0.484
F112003.014	31120	72857	116.3578	67.5789	0.9467	90	17182	46.7187	0.1890	10.7946	741309	245.184	0.186	3.868571	0.152	0.47
F112003.015	31120	73113	116.2651	67.4079	0.9463	90	17178	46.7148	0.1890	10.7937	741069	245.147	0.186	3.866221	0.152	0.462
F112003.016	31120	73330	116.1950	67.3103	0.9459	90	17175	46.7156	0.1890	10.7939	740739	245.1	0.186	3.863867	0.152	0.464
F112003.017	31120	73557	116.1214	67.2324	0.9454	90	17178	46.7276	0.1890	10.7967	740411	245.08	0.186	3.861646	0.152	0.489
F112003.018	31120	80243	115.6194	67.7128	0.9401	90	10784	46.7072	0.1730	10.792	462072	153.924	0.17	2.411789	0.13	0.445
F112003.019	31120	80459	115.5565	67.6222	0.9398	90	10781	46.7007	0.1730	10.7905	461906	153.902	0.17	2.410558	0.13	0.432
F112003.020	31120	80715	115.5578	67.6223	0.9398	90	10782	46.7211	0.1730	10.7952	461753	153.849	0.17	2.409756	0.13	0.475
F112003.021	31120	80932	115.4945	67.6561	0.9392	90	10783	46.7102	0.1730	10.7927	461580	153.899	0.17	2.40898	0.13	0.452
F112003.022	31120	81159	115.4533	67.7951	0.9385	90	10785	46.6976	0.1730	10.7898	461373	153.969	0.17	2.40844	0.13	0.425
F112003.023	31120	81416	115.4523	67.8275	0.9385	90	10785	46.7112	0.1730	10.7929	461177	153.925	0.17	2.407548	0.13	0.454

**8-inch Instronet Turbine Meter Serial No. 71219 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 90 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main							Error (%)		
							Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _v (acfm)	UQ _v (%)		mdot (lbm/s)	U _{m-dot} (%)
F112003.039	31120	100736	93.4115	69.2805	0.7502	90	31670	46.7377	0.1470	10.799	1080533	451.741	0.145	5.648401	0.095	0.511
F112003.040	31120	100952	93.4422	69.4715	0.7502	90	31671	46.7363	0.1470	10.7987	1080182	451.769	0.145	5.64837	0.095	0.508
F112003.041	31120	101208	93.4611	69.6405	0.7501	90	31669	46.7289	0.1480	10.797	1079822	451.812	0.145	5.648078	0.095	0.492
F112003.042	31120	101424	93.4949	69.7066	0.7502	90	31667	46.7398	0.1480	10.7995	1079633	451.678	0.145	5.647719	0.095	0.516
F112003.043	31120	101640	93.5037	69.8614	0.7501	90	31665	46.7301	0.1470	10.7973	1079262	451.743	0.145	5.647235	0.095	0.495
F112003.044	31120	101856	93.5079	69.8723	0.7501	90	31660	46.7325	0.1470	10.7978	1079041	451.648	0.145	5.646181	0.095	0.5
F112003.045	31120	102411	91.9207	69.5774	0.7373	90	23578	46.7110	0.1620	10.7929	790753	336.509	0.159	4.135374	0.116	0.454
F112003.046	31120	102627	91.9003	69.5104	0.7373	90	23573	46.7088	0.1620	10.7924	790642	336.453	0.159	4.134324	0.116	0.449
F112003.047	31120	102855	91.8581	69.5003	0.7369	90	23571	46.7106	0.1620	10.7928	790200	336.412	0.159	4.131935	0.116	0.453
F112003.048	31120	103111	91.8338	69.5366	0.7367	90	23571	46.7104	0.1620	10.7927	789878	336.413	0.159	4.130499	0.116	0.453
F112003.049	31120	103410	91.8028	69.4097	0.7366	90	23564	46.7114	0.1620	10.793	789731	336.306	0.159	4.128853	0.116	0.455
F112003.050	31120	103648	91.7746	69.3666	0.7365	90	23561	46.7090	0.1620	10.7924	789550	336.281	0.159	4.127602	0.116	0.449
F112003.051	31120	104019	91.3697	69.5348	0.7328	90	17256	46.6892	0.1900	10.7878	575508	246.396	0.187	3.009428	0.152	0.407
F112003.052	31120	104235	91.3300	69.2342	0.7330	90	17246	46.6927	0.1900	10.7886	575528	246.234	0.187	3.008019	0.152	0.414
F112003.053	31120	104451	91.3068	69.1751	0.7329	90	17244	46.6970	0.1900	10.7896	575387	246.183	0.187	3.00698	0.152	0.424
F112003.054	31120	104707	91.2761	69.2122	0.7326	90	17244	46.6891	0.1890	10.7878	575203	246.225	0.187	3.006204	0.152	0.407
F112003.055	31120	104934	91.2669	69.3083	0.7323	90	17248	46.6950	0.1900	10.7892	574995	246.251	0.187	3.005596	0.152	0.419
F112003.056	31120	105218	91.2483	69.4363	0.7320	90	17251	46.6930	0.1900	10.7887	574720	246.304	0.187	3.004794	0.152	0.415
F112003.057	31120	111205	90.7739	69.5411	0.7279	90	10810	46.6801	0.1730	10.7857	358161	154.384	0.17	1.872854	0.131	0.387
F112003.058	31120	111421	90.7574	69.5948	0.7276	90	10811	46.6782	0.1730	10.7853	358069	154.405	0.17	1.872542	0.131	0.383
F112003.059	31120	111637	90.7531	69.6959	0.7275	90	10811	46.6744	0.1730	10.7844	357944	154.417	0.17	1.8722	0.131	0.375
F112003.060	31120	111853	90.7108	69.6592	0.7272	90	10811	46.6754	0.1730	10.7846	357814	154.414	0.17	1.871402	0.131	0.377
F112003.061	31120	112109	90.6876	69.5929	0.7271	90	10809	46.6755	0.1730	10.7847	357742	154.385	0.17	1.870818	0.131	0.377
F112003.062	31120	112353	90.6579	69.6423	0.7267	90	10810	46.6770	0.1730	10.785	357576	154.394	0.17	1.8701	0.131	0.381
F112003.063	31120	113802	90.1662	69.0251	0.7236	90	4331	46.5216	0.2050	10.7491	143270	62.064	0.202	0.748509	0.169	0.046
F112003.064	31120	114018	90.1169	68.7851	0.7236	90	4329	46.5179	0.2050	10.7483	143265	62.041	0.202	0.748179	0.169	0.039
F112003.065	31120	114234	90.1201	68.8578	0.7235	90	4330	46.5231	0.2050	10.7495	143248	62.048	0.202	0.74818	0.169	0.05
F112003.066	31120	114450	90.1188	69.0206	0.7232	90	4332	46.5281	0.2050	10.7506	143208	62.07	0.202	0.748177	0.169	0.06
F112003.067	31120	114706	90.1438	69.2295	0.7231	90	4332	46.5136	0.2050	10.7473	143180	62.089	0.202	0.748293	0.17	0.029
F112003.068	31120	114922	90.1497	69.4643	0.7228	90	4337	46.5454	0.2050	10.7546	143130	62.119	0.202	0.748324	0.169	0.098

**8-inch Invensys Turbine Meter Serial No. 12291706 – Low Pressure Loop Natural Gas Test
Test Pressure = 190 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main Pulses	K (pulses/ct)	U _K (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F102203.000	31022	53712	195.3835	69.4817	0.6099	90	3523.00	3.2532	0.1750	0.75168	1875413	721.952	0.143	7.3389	0.094	0.343
F102203.001	31022	53941	195.2786	69.6863	0.6093	90	3525.00	3.2537	0.1750	0.75179	1873818	722.253	0.143	7.3349	0.094	0.358
F102203.002	31022	54221	195.2099	69.8443	0.6089	90	3526.00	3.2540	0.1750	0.75186	1872441	722.394	0.143	7.3312	0.094	0.367
F102203.003	31022	54437	195.1796	69.9917	0.6086	90	3527.00	3.2543	0.1750	0.75192	1871533	722.542	0.143	7.3294	0.094	0.375
F102203.004	31022	54653	195.1117	70.0620	0.6083	90	3527.00	3.2540	0.1750	0.75187	1870517	722.588	0.143	7.3261	0.094	0.368
F102203.005	31022	54909	195.0399	70.1121	0.6080	90	3527.00	3.2539	0.1750	0.75183	1869573	722.628	0.143	7.3229	0.094	0.363
F102203.006	31022	55712	193.2944	70.2529	0.6023	90	2853.00	3.2554	0.1870	0.75218	1497197	584.264	0.156	5.8646	0.114	0.41
F102203.007	31022	55928	193.1006	70.1026	0.6018	90	2852.00	3.2534	0.1870	0.75171	1496917	584.424	0.156	5.8620	0.113	0.347
F102203.008	31022	60144	192.9364	69.9924	0.6014	90	2853.00	3.2542	0.1870	0.7519	1496377	584.479	0.156	5.8587	0.114	0.373
F102203.009	31022	60400	192.7721	69.8950	0.6010	90	2852.00	3.2528	0.1870	0.75159	1495717	584.514	0.156	5.8552	0.113	0.331
F102203.010	31022	60616	192.6381	69.8106	0.6007	90	2854.00	3.2551	0.1880	0.75211	1495144	584.519	0.156	5.8520	0.113	0.401
F102203.011	31022	60833	192.5154	69.7720	0.6004	90	2852.00	3.2525	0.1870	0.75152	1494531	584.572	0.156	5.8492	0.113	0.321
F102203.012	31022	61323	191.8198	69.7321	0.5982	90	1929.00	3.2515	0.2150	0.75128	1007640	395.510	0.185	3.9431	0.151	0.29
F102203.013	31022	61538	191.6394	69.6238	0.5977	90	1930.00	3.2533	0.2150	0.7517	1007047	395.495	0.185	3.9400	0.151	0.346
F102203.014	31022	61818	191.5077	69.6540	0.5973	90	1929.00	3.2512	0.2150	0.75121	1006366	395.545	0.185	3.9375	0.151	0.281
F102203.015	31022	62034	191.4014	69.6184	0.5970	90	1930.00	3.2527	0.2150	0.75156	1005984	395.567	0.185	3.9358	0.151	0.327
F102203.016	31022	62250	191.2969	69.6253	0.5966	90	1930.00	3.2524	0.2150	0.75149	1005501	395.605	0.185	3.9339	0.151	0.318
F102203.017	31022	62506	191.2120	69.6401	0.5963	90	1930.00	3.2522	0.2160	0.75143	1005075	395.635	0.185	3.9323	0.151	0.31
F102203.018	31022	64643	188.8974	69.5024	0.5891	90	967.00	3.2505	0.2380	0.75105	497943	198.327	0.191	1.9473	0.158	0.26
F102203.019	31022	64859	188.7581	69.4280	0.5887	90	967.00	3.2508	0.2380	0.75112	497665	198.310	0.191	1.9459	0.158	0.268
F102203.020	31022	65115	188.6057	69.3431	0.5884	90	967.00	3.2509	0.2380	0.75115	497395	198.302	0.191	1.9446	0.158	0.272
F102203.021	31022	65331	188.4675	69.3284	0.5879	90	967.00	3.2508	0.2380	0.75111	497079	198.312	0.191	1.9433	0.158	0.267
F102203.022	31022	65548	188.3306	69.3099	0.5875	90	967.00	3.2506	0.2380	0.75106	496780	198.324	0.191	1.9420	0.157	0.261
F102203.023	31022	65804	188.1915	69.2540	0.5871	90	967.00	3.2506	0.2380	0.75108	496500	198.320	0.191	1.9407	0.158	0.263
F102203.091	31022	130923	188.6040	69.0582	0.5880	90	484.00	3.2473	0.303	0.75031	249620	99.365	0.199	0.9738	0.168	0.16
F102203.092	31022	131150	188.6695	69.6295	0.5875	90	485.00	3.2498	0.303	0.75089	249509	99.494	0.199	0.9743	0.168	0.237
F102203.093	31022	131406	188.7104	69.9455	0.5873	90	485.00	3.2476	0.303	0.75039	249441	99.560	0.199	0.9745	0.168	0.171
F102203.094	31022	131622	188.7543	70.1719	0.5871	90	485.00	3.2463	0.303	0.75008	249389	99.600	0.199	0.9747	0.168	0.13
F102203.096	31022	132118	188.7759	71.3079	0.5858	90	485.00	3.2392	0.303	0.74843	248935	99.820	0.199	0.9746	0.168	-0.09
F102203.097	31022	132934	188.7398	71.4248	0.5856	90	487.00	3.2527	0.302	0.75156	248770	99.815	0.199	0.9741	0.168	0.327
F102203.098	31022	133150	188.7049	71.4038	0.5855	90	486.00	3.2464	0.303	0.7501	248714	99.803	0.199	0.9739	0.168	0.132
F102203.099	31022	133406	188.6325	71.2609	0.5854	90	485.00	3.2408	0.303	0.74881	248661	99.769	0.199	0.9734	0.168	-0.039
F102203.100	31022	133622	188.5146	70.8396	0.5856	90	485.00	3.2437	0.303	0.74947	248667	99.681	0.199	0.9728	0.168	0.048
F102203.101	31022	133838	188.4253	70.5604	0.5856	90	485.00	3.2456	0.303	0.74992	248653	99.622	0.199	0.9723	0.168	0.108
F102203.102	31022	134054	188.4203	71.0040	0.5851	90	486.00	3.2493	0.303	0.75078	248472	99.713	0.199	0.9723	0.168	0.223

**8-inch Invensys Turbine Meter Serial No. 12291706 – Low Pressure Loop Natural Gas Test
Test Pressure = 115 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F102203.030	31022	75845	119.7677	69.9414	0.3695	90	3535.00	3.2501	0.1740	0.75095	1149019	725.112	0.144	4.4660	0.094	0.246
F102203.031	31022	80101	119.6220	69.3064	0.3696	90	3532.00	3.2496	0.1750	0.75085	1149422	724.593	0.144	4.4630	0.094	0.233
F102203.032	31022	80352	119.4756	68.9499	0.3694	90	3533.00	3.2510	0.1740	0.75116	1149343	724.502	0.144	4.4601	0.094	0.274
F102203.033	31022	80608	119.3712	68.6858	0.3692	90	3532.00	3.2504	0.1750	0.75103	1149305	724.416	0.144	4.4580	0.094	0.257
F102203.034	31022	80840	119.3918	69.8581	0.3684	90	3541.00	3.2507	0.1750	0.7511	1147464	726.199	0.144	4.4592	0.094	0.266
F102203.035	31022	81102	119.4408	70.7048	0.3680	90	3548.00	3.2522	0.1740	0.75145	1146179	727.294	0.144	4.4603	0.094	0.313
F102203.036	31022	81612	118.6266	69.7947	0.3661	90	2863.00	3.2497	0.1870	0.75086	922292	587.336	0.157	3.5835	0.114	0.235
F102203.037	31022	81840	118.5723	69.6168	0.3660	90	2862.00	3.2492	0.1870	0.75075	922278	587.22	0.157	3.5824	0.114	0.219
F102203.038	31022	82056	118.4858	69.1350	0.3661	90	2861.00	3.2507	0.1870	0.7511	922469	586.743	0.157	3.5804	0.114	0.266
F102203.039	31022	82313	118.3403	68.5605	0.3661	90	2858.00	3.2501	0.1870	0.75095	922464	586.247	0.157	3.5770	0.114	0.245
F102203.040	31022	82529	118.2311	68.1091	0.3661	90	2856.00	3.2498	0.1870	0.75088	922560	585.886	0.157	3.5747	0.114	0.237
F102203.041	31022	82746	118.1269	67.8085	0.3660	90	2856.00	3.2507	0.1870	0.7511	922480	585.717	0.157	3.5727	0.114	0.266
F102203.042	31022	83437	116.9764	67.7366	0.3624	90	1933.00	3.2498	0.2150	0.75088	618594	396.541	0.186	2.3952	0.151	0.236
F102203.043	31022	83654	117.0287	68.7956	0.3618	90	1939.00	3.2529	0.2160	0.75161	617814	397.384	0.186	2.3963	0.151	0.334
F102203.044	31022	83910	117.1252	70.0515	0.3612	90	1942.00	3.2505	0.2150	0.75104	616953	398.303	0.186	2.3978	0.151	0.258
F102203.045	31022	84127	117.2148	70.8818	0.3609	90	1945.00	3.2512	0.2150	0.75121	616393	398.826	0.186	2.3988	0.151	0.281
F102203.046	31022	84406	117.2282	70.7993	0.3610	90	1942.00	3.2481	0.2150	0.75049	616283	398.592	0.186	2.3981	0.151	0.185
F102203.047	31022	84622	117.1791	70.2374	0.3612	90	1940.00	3.2491	0.2150	0.75073	616440	398.055	0.186	2.3965	0.151	0.217
F102203.048	31022	92226	115.9832	67.1931	0.3597	90	964.00	3.2440	0.2380	0.74954	307020	198.112	0.192	1.1876	0.158	0.057
F102203.049	31022	92442	115.9173	67.3004	0.3594	90	965.00	3.2459	0.2380	0.74998	306862	198.201	0.192	1.1872	0.158	0.116
F102203.050	31022	92659	115.8936	67.6517	0.3591	90	966.00	3.2465	0.2380	0.75011	306671	198.371	0.192	1.1872	0.158	0.134
F102203.051	31022	92915	115.8863	67.9602	0.3588	90	967.00	3.2474	0.2370	0.75033	306539	198.519	0.192	1.1872	0.158	0.163
F102203.052	31022	93143	115.9891	69.3218	0.3582	90	970.00	3.2483	0.2370	0.75053	306169	199.08	0.192	1.1884	0.158	0.191
F102203.053	31022	93427	116.0956	70.5535	0.3576	90	972.00	3.2471	0.2370	0.75027	305831	199.561	0.192	1.1895	0.158	0.155
F102203.054	31022	95506	115.5259	68.7787	0.3571	90	487.00	3.2388	0.3020	0.74835	153846	100.242	0.2	0.5966	0.168	-0.101
F102203.055	31022	95722	115.4987	68.8756	0.3570	90	487.00	3.2383	0.3020	0.74824	153779	100.257	0.2	0.5965	0.168	-0.116
F102203.056	31022	95938	115.5737	69.6911	0.3566	90	488.00	3.2399	0.3020	0.74859	153670	100.415	0.2	0.5968	0.169	-0.069
F102203.057	31022	100155	115.6431	70.4585	0.3563	90	489.00	3.2418	0.3020	0.74904	153561	100.562	0.2	0.5971	0.169	-0.01
F102203.058	31022	100411	115.7139	71.2026	0.3560	90	489.00	3.2373	0.3020	0.74799	153460	100.703	0.2	0.5975	0.169	-0.15
F102203.059	31022	100628	115.7616	71.7272	0.3557	90	490.00	3.2410	0.3010	0.74885	153370	100.792	0.2	0.5976	0.169	-0.034

**8-inch Invensys Turbine Meter Serial No. 12291706 – Low Pressure Loop Natural Gas Test
Test Pressure = 45 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F102203.060	31022	102820	47.1781	74.1486	0.1429	90	3568.00	3.2477	0.1800	0.75041	448449	732.408	0.151	1.7449	0.098	0.174
F102203.061	31022	103036	47.1688	73.7529	0.1430	90	3565.00	3.2483	0.1800	0.75053	448548	731.675	0.151	1.7442	0.097	0.19
F102203.062	31022	103252	47.1498	73.3647	0.1431	90	3563.00	3.2492	0.1800	0.75075	448601	731.053	0.151	1.7433	0.098	0.219
F102203.063	31022	103508	47.1150	72.7219	0.1432	90	3556.00	3.2471	0.1800	0.75027	448722	730.085	0.151	1.7419	0.098	0.155
F102203.064	31022	103724	47.0698	71.7310	0.1433	90	3549.00	3.2467	0.1800	0.75018	449034	728.731	0.151	1.7403	0.098	0.143
F102203.065	31022	103940	47.0189	70.7184	0.1434	90	3543.00	3.2472	0.1800	0.75029	449349	727.393	0.151	1.7387	0.098	0.158
F102203.066	31022	104713	47.0978	69.7306	0.1439	90	2864.00	3.2473	0.1930	0.75032	365120	587.971	0.165	1.4105	0.118	0.161
F102203.067	31022	104929	47.0942	70.3141	0.1438	90	2867.00	3.2467	0.1930	0.75017	364795	588.697	0.165	1.4106	0.118	0.142
F102203.068	31022	105213	47.0906	70.9786	0.1436	90	2871.00	3.2470	0.1930	0.75025	364377	589.459	0.165	1.4105	0.118	0.152
F102203.069	31022	105429	47.0827	71.3528	0.1434	90	2872.00	3.2459	0.1930	0.74998	364101	589.876	0.165	1.4103	0.118	0.117
F102203.070	31022	105645	47.0598	71.1335	0.1434	90	2871.00	3.2462	0.1930	0.75005	364049	589.62	0.165	1.4096	0.118	0.125
F102203.071	31022	105901	47.0227	70.5367	0.1435	90	2868.00	3.2465	0.1930	0.75012	364116	588.946	0.165	1.4085	0.118	0.135
F102203.072	31022	110243	46.4393	70.5010	0.1417	90	1939.00	3.2432	0.2220	0.74935	243390	398.581	0.194	0.9414	0.156	0.033
F102203.073	31022	110459	46.4021	70.1295	0.1417	90	1939.00	3.2456	0.2220	0.74991	243343	398.286	0.195	0.9406	0.157	0.107
F102203.074	31022	110715	46.3921	70.6439	0.1415	90	1940.00	3.2442	0.2220	0.74959	243073	398.66	0.195	0.9404	0.157	0.065
F102203.075	31022	110930	46.3798	70.9248	0.1414	90	1942.00	3.2460	0.2220	0.75001	242890	398.851	0.195	0.9401	0.157	0.12
F102203.076	31022	111146	46.3676	71.2164	0.1413	90	1943.00	3.2465	0.2220	0.75011	242665	398.999	0.194	0.9397	0.157	0.134
F102203.077	31022	111402	46.3607	71.4630	0.1412	90	1944.00	3.2468	0.2220	0.75019	242517	399.164	0.194	0.9395	0.156	0.145
F102203.078	31022	114122	46.0409	71.9020	0.1401	90	973.00	3.2426	0.2440	0.74922	120517	200.047	0.2	0.4672	0.163	0.015
F102203.079	31022	114358	46.0303	72.2135	0.1400	90	973.00	3.2410	0.2440	0.74885	120415	200.145	0.2	0.4670	0.163	-0.034
F102203.081	31022	114843	45.9700	71.9066	0.1399	90	972.00	3.2403	0.2440	0.74868	120292	199.984	0.2	0.4663	0.163	-0.057
F102203.082	31022	115058	45.9312	71.4908	0.1399	90	971.00	3.2398	0.2440	0.74859	120261	199.804	0.2	0.4659	0.163	-0.07
F102203.083	31022	115342	45.8863	70.9465	0.1399	90	971.00	3.2436	0.2440	0.74945	120237	199.573	0.2	0.4654	0.163	0.046
F102203.084	31022	115558	45.8531	70.6973	0.1399	90	970.00	3.2420	0.2440	0.74909	120190	199.463	0.2	0.4650	0.163	-0.002
F102203.085	31022	121314	45.5746	72.5742	0.1385	90	490.00	3.2383	0.3070	0.74822	60014	100.877	0.208	0.2329	0.173	-0.118
F102203.086	31022	121530	45.5370	72.2180	0.1385	90	489.00	3.2341	0.3070	0.74726	59995	100.801	0.208	0.2327	0.173	-0.247
F102203.087	31022	121745	45.5055	72.0220	0.1385	90	490.00	3.2422	0.3060	0.74913	59967	100.755	0.208	0.2325	0.173	0.002
F102203.088	31022	122001	45.4918	72.0818	0.1384	90	489.00	3.2355	0.3070	0.74757	59939	100.759	0.208	0.2324	0.173	-0.205
F102203.089	31022	122217	45.4845	72.4182	0.1383	90	490.00	3.2403	0.3070	0.74869	59890	100.814	0.208	0.2323	0.173	-0.055
F102203.090	31022	122433	45.4803	72.7260	0.1382	90	489.00	3.2321	0.307	0.74679	59849	100.864	0.208	0.2323	0.173	-0.309

**8-inch Invensys Turbine Meter Serial No. 12291706 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 115 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main					mdot			Error (%)	
							Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _v (acfm)	UQ _v (%)	(lbm/s)		U _{m-dot} (%)
F112003.000	31120	64831	119.3973	69.5355	0.9689	90	2187.00	3.25693	0.1530	0.75253	1380679	447.661	0.144	7.2288	0.095	0.457
F112003.000	31120	64831	119.3973	69.5355	0.9685	90	2187.00	3.25614	0.1540	0.75235	1380311	447.769	0.144	7.2274	0.095	0.433
F112003.001	31120	65112	119.3166	69.3199	0.9682	90	2186.00	3.25597	0.1540	0.75231	1379917	447.588	0.144	7.2228	0.095	0.428
F112003.002	31120	65328	119.2665	69.3665	0.9677	90	2186.00	3.25559	0.1540	0.75223	1379228	447.640	0.144	7.2197	0.094	0.416
F112003.003	31120	65544	119.2318	69.5409	0.9670	90	2187.00	3.25583	0.1540	0.75228	1378422	447.812	0.144	7.2175	0.095	0.423
F112003.004	31120	65800	119.1943	69.6203	0.9665	90	2189.00	3.25849	0.1540	0.75289	1377686	447.856	0.144	7.2146	0.094	0.505
F112003.005	31120	70016	119.1438	69.5363	0.9663	90	2186.00	3.25482	0.1540	0.75205	1377184	447.747	0.144	7.2109	0.095	0.392
F112003.006	31120	70555	117.5492	68.2719	0.9554	90	1629.00	3.25585	0.1730	0.75229	1016547	333.553	0.158	5.3113	0.115	0.424
F112003.007	31120	70811	117.4072	67.9253	0.9549	90	1628.00	3.25501	0.1720	0.75209	1016258	333.435	0.158	5.3067	0.115	0.398
F112003.008	31120	71028	117.2683	67.9126	0.9538	90	1629.00	3.25564	0.1720	0.75224	1015479	333.575	0.158	5.3025	0.115	0.418
F112003.009	31120	71244	117.1640	67.8935	0.9529	90	1630.00	3.25645	0.1720	0.75242	1014983	333.696	0.158	5.2997	0.115	0.443
F112003.010	31120	71500	117.0775	67.9774	0.9520	90	1631.00	3.25667	0.1720	0.75247	1014431	333.879	0.158	5.2975	0.115	0.449
F112003.011	31120	71716	116.9999	67.9937	0.9513	90	1631.00	3.25565	0.1720	0.75224	1013983	333.983	0.158	5.2953	0.115	0.418
F112003.012	31120	72425	116.6785	68.5045	0.9475	90	1198.00	3.2559	0.2070	0.7523	741151	245.299	0.186	3.8737	0.152	0.426
F112003.013	31120	72641	116.5781	68.3371	0.9470	90	1198.00	3.2566	0.2070	0.75246	740801	245.245	0.186	3.8708	0.152	0.447
F112003.014	31120	72857	116.5019	68.2247	0.9466	90	1198.00	3.25702	0.2070	0.75255	740522	245.214	0.186	3.8686	0.152	0.46
F112003.015	31120	73113	116.4208	68.0395	0.9463	90	1199.00	3.26066	0.2060	0.7534	740299	245.144	0.186	3.8662	0.152	0.573
F112003.016	31120	73330	116.3307	67.9198	0.9458	90	1197.00	3.25542	0.2060	0.75219	739996	245.129	0.186	3.8639	0.152	0.411
F112003.017	31120	73557	116.2606	67.8522	0.9453	90	1197.00	3.25572	0.2060	0.75226	739655	245.107	0.186	3.8616	0.152	0.42
F112003.018	31120	80243	115.6800	68.4964	0.9390	90	752.00	3.25321	0.2180	0.75167	461480	154.104	0.17	2.4118	0.13	0.343
F112003.019	31120	80459	115.6268	68.3915	0.9388	90	752.00	3.25406	0.2180	0.75187	461324	154.064	0.17	2.4106	0.13	0.369
F112003.020	31120	80715	115.5870	68.4101	0.9384	90	752.00	3.25383	0.2180	0.75182	461158	154.075	0.17	2.4098	0.13	0.362
F112003.021	31120	80932	115.5566	68.4600	0.9380	90	752.00	3.25363	0.2180	0.75177	460973	154.085	0.17	2.4090	0.13	0.356
F112003.022	31120	81159	115.5414	68.5887	0.9377	90	753.00	3.25731	0.2170	0.75262	460773	154.115	0.17	2.4084	0.13	0.469
F112003.023	31120	81416	115.5102	68.5944	0.9374	90	753.00	3.25756	0.2180	0.75268	460599	154.103	0.17	2.4075	0.13	0.477

**8-inch Invensys Turbine Meter Serial No. 12291706 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 90 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main					mdot		Error (%)		
							Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)		(lbm/s)	U _{mdot} (%)
F112003.039	31120	100736	93.7816	69.5464	0.7529	90	2198.00	3.25523	0.1540	0.75214	1080038	450.147	0.145	5.6484	0.095	0.405
F112003.040	31120	100952	93.8167	69.7327	0.7529	90	2198.00	3.25523	0.1540	0.75214	1079696	450.148	0.145	5.6484	0.095	0.405
F112003.041	31120	101208	93.8450	69.8601	0.7529	90	2197.00	3.25405	0.1540	0.75187	1079410	450.106	0.145	5.6481	0.095	0.369
F112003.042	31120	101424	93.8651	69.9268	0.7530	90	2197.00	3.25452	0.1540	0.75198	1079221	450.041	0.145	5.6477	0.095	0.383
F112003.043	31120	101640	93.8779	70.0625	0.7529	90	2198.00	3.2558	0.1540	0.75227	1078884	450.069	0.145	5.6472	0.095	0.423
F112003.044	31120	101856	93.8824	70.0515	0.7529	90	2197.00	3.25516	0.1540	0.75213	1078702	449.952	0.145	5.6462	0.095	0.403
F112003.045	31120	102411	92.1232	69.6365	0.7389	90	1640.00	3.25605	0.1730	0.75233	790669	335.785	0.159	4.1354	0.116	0.43
F112003.046	31120	102627	92.1062	69.5860	0.7389	90	1640.00	3.25661	0.1730	0.75246	790535	335.728	0.159	4.1343	0.116	0.448
F112003.047	31120	102855	92.0590	69.5916	0.7385	90	1639.00	3.25474	0.1730	0.75203	790073	335.716	0.159	4.1319	0.116	0.39
F112003.048	31120	103111	92.0360	69.6179	0.7382	90	1639.00	3.25484	0.1730	0.75205	789764	335.705	0.159	4.1305	0.116	0.393
F112003.049	31120	103410	92.0067	69.4660	0.7382	90	1638.00	3.25413	0.1730	0.75189	789650	335.574	0.159	4.1289	0.116	0.371
F112003.050	31120	103648	91.9828	69.4196	0.7381	90	1638.00	3.25456	0.1730	0.75199	789473	335.529	0.159	4.1276	0.116	0.384
F112003.051	31120	104019	91.4837	69.5065	0.7338	90	1201.00	3.25392	0.2070	0.75184	575533	246.063	0.187	3.0094	0.152	0.364
F112003.052	31120	104235	91.4402	69.1780	0.7340	90	1200.00	3.25339	0.2070	0.75172	575579	245.897	0.187	3.0080	0.152	0.348
F112003.053	31120	104451	91.4138	69.1570	0.7338	90	1200.00	3.25369	0.2070	0.75178	575401	245.875	0.187	3.0070	0.152	0.357
F112003.054	31120	104707	91.3922	69.1991	0.7335	90	1201.00	3.25615	0.2070	0.75235	575213	245.894	0.187	3.0062	0.152	0.433
F112003.055	31120	104934	91.3747	69.2969	0.7332	90	1201.00	3.25549	0.2070	0.7522	575003	245.944	0.187	3.0056	0.152	0.413
F112003.056	31120	105218	91.3565	69.4683	0.7328	90	1200.00	3.25179	0.2070	0.75135	574686	246.018	0.187	3.0048	0.152	0.299
F112003.057	31120	111205	90.8178	69.5047	0.7283	90	753.00	3.25352	0.2180	0.75175	358182	154.295	0.17	1.8729	0.131	0.352
F112003.058	31120	111421	90.8064	69.5749	0.7281	90	753.00	3.25315	0.2180	0.75166	358080	154.312	0.17	1.8725	0.131	0.341
F112003.059	31120	111637	90.7951	69.6489	0.7279	90	753.00	3.25281	0.2180	0.75158	357971	154.328	0.17	1.8722	0.131	0.33
F112003.060	31120	111853	90.7603	69.6225	0.7276	90	753.00	3.25309	0.2180	0.75165	357835	154.315	0.17	1.8714	0.131	0.339
F112003.061	31120	112109	90.7345	69.5292	0.7276	90	752.00	3.24947	0.2180	0.75081	357779	154.282	0.17	1.8708	0.131	0.227
F112003.062	31120	112353	90.7028	69.5837	0.7272	90	753.00	3.25348	0.2180	0.75174	357610	154.296	0.17	1.8701	0.131	0.351
F112003.063	31120	113802	90.1721	68.4013	0.7246	90	302.00	3.24846	0.3890	0.75058	143420	61.978	0.202	0.7485	0.169	0.196
F112003.064	31120	114018	90.1303	68.2246	0.7245	90	302.00	3.24955	0.3890	0.75083	143399	61.957	0.202	0.7482	0.169	0.23
F112003.065	31120	114234	90.1345	68.4130	0.7243	90	302.00	3.2484	0.3890	0.75056	143354	61.979	0.202	0.7482	0.169	0.194
F112003.066	31120	114450	90.1359	68.6679	0.7239	90	302.00	3.24671	0.3890	0.75017	143293	62.012	0.202	0.7482	0.169	0.142
F112003.067	31120	114706	90.1515	69.0057	0.7235	90	303.00	3.25521	0.3880	0.75214	143234	62.054	0.202	0.7483	0.17	0.404
F112003.068	31120	114922	90.1601	69.3258	0.7231	90	303.00	3.25319	0.3880	0.75167	143163	62.093	0.202	0.7483	0.169	0.342

**8-inch Invensys Turbine Meter Serial No. 12291706 – High Pressure Loop Natural Gas Test
Test Pressure = 230 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main							Error (%)		
							Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)		mdot (lbm/s)	U _{mdot} (%)
F103003.000	31030	85845	230.7929	70.5891	0.7218	90	4790.74	3.2361	0.3120	0.74772	3026763	986.934	0.296	11.8729	0.262	-0.185
F103003.001	31030	90120	230.7770	70.5692	0.7218	90	4790.59	3.2362	0.3120	0.74775	3026557	986.863	0.296	11.8717	0.262	-0.181
F103003.002	31030	90330	230.7679	70.5600	0.7218	90	4790.81	3.2365	0.3120	0.74781	3026452	986.836	0.296	11.8711	0.262	-0.173
F103003.003	31030	90528	230.7606	70.5496	0.7218	90	4790.50	3.2364	0.3120	0.7478	3026319	986.786	0.296	11.8704	0.262	-0.175
F103003.004	31030	90727	230.7436	70.5430	0.7217	90	4790.18	3.2363	0.3120	0.74776	3026095	986.765	0.296	11.8694	0.262	-0.179
F103003.005	31030	90925	230.7388	70.5302	0.7217	90	4789.95	3.2363	0.3120	0.74776	3026029	986.718	0.296	11.8689	0.262	-0.179
F103003.006	31030	93644	231.2932	70.3642	0.7238	90	3946.31	3.2421	0.2350	0.7491	2496149	811.476	0.213	9.7887	0.162	-0.001
F103003.007	31030	93905	231.3002	70.3694	0.7238	90	3946.30	3.2420	0.2350	0.74909	2496219	811.490	0.213	9.7890	0.162	-0.003
F103003.008	31030	94119	231.2887	70.3685	0.7237	90	3946.27	3.2421	0.2350	0.7491	2496039	811.470	0.213	9.7883	0.162	-0.001
F103003.009	31030	94503	231.2444	70.3612	0.7236	90	3946.23	3.2420	0.2350	0.74909	2495637	811.470	0.213	9.7866	0.162	-0.002
F103003.010	31030	94707	231.2349	70.3584	0.7236	90	3946.10	3.2420	0.2350	0.74909	2495532	811.453	0.213	9.7861	0.162	-0.003
F103003.011	31030	94905	231.2321	70.3677	0.7236	90	3946.28	3.2422	0.2350	0.74912	2495405	811.449	0.213	9.7857	0.162	0.002
F103003.012	31030	101037	230.4272	70.2444	0.7212	90	3112.27	3.2481	0.2530	0.75049	1958448	638.789	0.232	7.6779	0.186	0.185
F103003.013	31030	101235	230.4351	70.2228	0.7212	90	3112.04	3.2479	0.2520	0.75046	1958623	638.774	0.232	7.6783	0.186	0.18
F103003.014	31030	101433	230.4286	70.2011	0.7212	90	3111.72	3.2478	0.2520	0.75042	1958625	638.742	0.232	7.6781	0.186	0.175
F103003.015	31030	101647	230.4104	70.2086	0.7212	90	3111.30	3.2472	0.2520	0.75029	1958471	638.760	0.232	7.6775	0.186	0.158
F103003.016	31030	101906	230.4063	70.1943	0.7212	90	3111.50	3.2475	0.2530	0.75036	1958477	638.740	0.232	7.6774	0.186	0.168
F103003.017	31030	102110	230.4331	70.1868	0.7213	90	3111.72	3.2479	0.2520	0.75044	1958707	638.722	0.232	7.6782	0.186	0.178
F103003.018	31030	103923	230.7385	70.1862	0.7223	90	1981.05	3.2512	0.2360	0.75122	1247367	406.215	0.214	4.8899	0.164	0.282
F103003.019	31030	104122	230.7490	70.1544	0.7223	90	1980.76	3.2510	0.2360	0.75116	1247487	406.188	0.214	4.8901	0.164	0.274
F103003.020	31030	104335	230.7299	70.1175	0.7223	90	1980.82	3.2513	0.2360	0.75123	1247479	406.163	0.214	4.8898	0.164	0.283
F103003.021	31030	104555	230.6859	70.0842	0.7223	90	1980.59	3.2511	0.2360	0.75118	1247320	406.140	0.214	4.8889	0.164	0.277
F103003.022	31030	104759	230.6888	70.0649	0.7223	90	1980.81	3.2516	0.2360	0.75129	1247386	406.124	0.214	4.8890	0.164	0.292
F103003.023	31030	105009	230.6953	70.0462	0.7223	90	1980.57	3.2513	0.2360	0.75123	1247465	406.110	0.214	4.8892	0.164	0.283
F103003.024	31030	110925	231.6587	70.1970	0.7252	90	1127.16	3.2512	0.3030	0.75121	712556	231.128	0.287	2.7937	0.251	0.28
F103003.025	31030	111124	231.6928	70.1931	0.7253	90	1127.60	3.2527	0.3030	0.75155	712629	231.114	0.286	2.7940	0.251	0.326
F103003.026	31030	111349	231.8523	70.1959	0.7259	90	1127.14	3.2515	0.3030	0.75127	713081	231.103	0.287	2.7958	0.251	0.289
F103003.027	31030	111553	231.9153	70.1875	0.7261	90	1127.53	3.2528	0.3030	0.75159	713246	231.086	0.286	2.7964	0.251	0.331
F103003.028	31030	111751	231.9079	70.1705	0.7261	90	1126.95	3.2514	0.3030	0.75126	713214	231.069	0.286	2.7962	0.251	0.287
F103003.029	31030	111950	230.8364	69.9907	0.7229	90	1126.47	3.2499	0.3090	0.75091	710397	231.079	0.292	2.7841	0.255	0.24
F103003.030	31030	113631	230.6621	70.4866	0.7216	90	565.35	3.2478	0.3020	0.75042	355835	116.047	0.285	1.3956	0.249	0.176
F103003.031	31030	113830	230.5300	70.4798	0.7211	90	565.49	3.2489	0.3020	0.75067	355607	116.037	0.285	1.3946	0.249	0.209
F103003.032	31030	114039	230.4493	70.5023	0.7208	90	565.48	3.2489	0.3020	0.75069	355443	116.034	0.285	1.3940	0.249	0.211
F103003.033	31030	114238	230.3974	70.4858	0.7207	90	565.54	3.2496	0.3020	0.75084	355352	116.024	0.285	1.3936	0.249	0.231
F103003.034	31030	114436	230.3575	70.4593	0.7206	90	565.55	3.2500	0.3020	0.75093	355283	116.010	0.285	1.3933	0.249	0.244
F103003.035	31030	114635	230.3191	70.4301	0.7205	90	565.49	3.2500	0.3020	0.75093	355222	115.997	0.285	1.3930	0.249	0.243
F103003.036	31030	131129	230.7200	70.8549	0.7212	90	285.64	3.2407	0.2950	0.74878	179974	58.761	0.278	0.7063	0.241	-0.043
F103003.037	31030	131333	230.6632	70.9653	0.7208	90	285.74	3.2415	0.2950	0.74897	179874	58.767	0.278	0.7060	0.241	-0.019
F103003.038	31030	131532	230.6072	71.0516	0.7205	90	285.86	3.2427	0.2950	0.74924	179782	58.770	0.278	0.7057	0.241	0.017
F103003.039	31030	131730	230.5560	71.1127	0.7202	90	285.80	3.2419	0.2950	0.74907	179704	58.771	0.278	0.7055	0.241	-0.005
F103003.040	31030	131940	230.5032	71.1685	0.7200	90	285.91	3.2431	0.2950	0.74933	179635	58.774	0.278	0.7053	0.241	0.03
F103003.041	31030	132138	230.4646	71.2051	0.7198	90	285.81	3.2419	0.2950	0.74906	179578	58.773	0.278	0.7051	0.241	-0.006

**12-inch Instronet Turbine Meter Serial No. 69529 – Low Pressure Loop Natural Gas Test
Test Pressure = 45 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main		K		St	ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{m-dot} (%)	Error (%)
							Pulses	t (s)	(pulses/cf)	U _k (%)							
F102403.048	31024	125726	46.51461	73.40048	0.14083	90	19727	17.949	0.1780	13.8798	296560	732.702	0.152	1.719768	0.098	-0.283	
F102403.049	31024	130005	46.43588	72.2811	0.140892	90	19688	17.949	0.1780	13.8795	296651	731.268	0.152	1.717168	0.098	-0.285	
F102403.050	31024	130244	46.37061	71.48976	0.140909	90	19667	17.952	0.1780	13.8824	296691	730.335	0.152	1.715185	0.098	-0.264	
F102403.051	31024	130500	46.33961	71.85712	0.140715	90	19685	17.952	0.1780	13.8823	296379	731.01	0.151	1.714401	0.098	-0.265	
F102403.052	31024	130716	46.3017	72.08566	0.140538	90	19698	17.954	0.1780	13.8838	296061	731.415	0.151	1.713195	0.098	-0.254	
F102403.053	31024	130932	46.263	72.31144	0.140359	90	19706	17.951	0.1780	13.8816	295743	731.829	0.152	1.71198	0.098	-0.27	
F102403.054	31024	131502	46.457	72.365	0.14094	90	13397	17.956	0.1980	13.8853	201817	497.394	0.174	1.168378	0.13	-0.243	
F102403.055	31024	131718	46.41718	72.20338	0.140864	90	13391	17.954	0.1980	13.8834	201700	497.241	0.174	1.167391	0.13	-0.257	
F102403.056	31024	131934	46.37688	71.97704	0.140803	90	13384	17.953	0.1980	13.8827	201590	497.005	0.174	1.166327	0.13	-0.262	
F102403.057	31024	132150	46.32662	71.5332	0.140771	90	13372	17.952	0.1980	13.8824	201515	496.571	0.174	1.165044	0.13	-0.264	
F102403.058	31024	132406	46.26969	70.99783	0.140742	90	13357	17.950	0.1980	13.8804	201453	496.086	0.174	1.163668	0.13	-0.279	
F102403.059	31024	132645	46.20678	70.50484	0.140686	90	13346	17.951	0.1980	13.8812	201357	495.649	0.174	1.162177	0.13	-0.273	
F102403.060	31024	134602	45.99299	72.51786	0.139496	90	9436	17.971	0.1840	13.8968	140545	350.044	0.158	0.81383	0.108	-0.161	
F102403.061	31024	134818	45.94076	72.08509	0.139453	90	9426	17.968	0.1850	13.8942	140477	349.737	0.158	0.812863	0.108	-0.179	
F102403.062	31024	135034	45.88891	71.61857	0.13942	90	9418	17.969	0.1840	13.895	140425	349.422	0.158	0.811942	0.108	-0.174	
F102403.063	31024	135250	45.83936	71.26488	0.139364	90	9411	17.968	0.1850	13.8942	140352	349.181	0.158	0.811052	0.108	-0.179	
F102403.064	31024	135506	45.7895	71.02881	0.139274	90	9409	17.972	0.1840	13.8974	140254	349.027	0.158	0.810175	0.108	-0.156	
F102403.065	31024	135722	45.74667	70.94266	0.139168	90	9409	17.975	0.1840	13.9	140142	348.962	0.158	0.809409	0.108	-0.138	
F102403.066	31024	140100	45.55804	72.21887	0.138252	90	6751	17.968	0.2020	13.8942	99726	250.487	0.177	0.577171	0.134	-0.18	
F102403.067	31024	140316	45.53524	72.63839	0.138071	90	6755	17.965	0.2010	13.8921	99602	250.672	0.177	0.576842	0.134	-0.194	
F102403.068	31024	140532	45.51224	72.98233	0.137911	90	6761	17.970	0.2010	13.8959	99492	250.827	0.177	0.576529	0.134	-0.167	
F102403.069	31024	140748	45.49219	73.26527	0.137775	90	6763	17.968	0.2010	13.8941	99391	250.934	0.177	0.576205	0.134	-0.18	
F102403.070	31024	141004	45.45383	73.23943	0.137665	90	6760	17.962	0.2010	13.8898	99303	250.9	0.177	0.575666	0.134	-0.211	
F102403.071	31024	141220	45.40796	72.96814	0.137597	90	6756	17.962	0.2010	13.8898	99239	250.751	0.177	0.575043	0.134	-0.211	
F102403.072	31024	142834	44.85424	74.38496	0.13554	90	2731	17.992	0.2320	13.9129	39361	101.193	0.209	0.228595	0.174	-0.045	
F102403.073	31024	143101	44.82766	74.65464	0.135389	90	2731	17.984	0.2320	13.9069	39317	101.237	0.209	0.22844	0.174	-0.088	
F102403.074	31024	143317	44.79335	74.75991	0.135257	90	2733	17.997	0.2320	13.9166	39274	101.241	0.209	0.228227	0.174	-0.019	
F102403.075	31024	143549	44.74335	74.62958	0.135139	90	2731	17.991	0.2320	13.9124	39231	101.198	0.209	0.227929	0.173	-0.049	
F102403.076	31024	143810	44.6851	74.49328	0.134997	90	2730	17.989	0.2310	13.9105	39190	101.174	0.209	0.227637	0.174	-0.062	
F102403.077	31024	144026	44.64246	74.3775	0.134898	90	2729	17.989	0.2320	13.9106	39154	101.136	0.209	0.227384	0.174	-0.062	

**12-inch Instromet Turbine Meter Serial No. 69529 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 115 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main									
							Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _v (acfm)	U _Q (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F112103.030	31121	131906	119.3621	69.28124	0.968722	90	12085	18.002	0.1470	13.9207	922947	447.544	0.144	7.225763	0.095	0.011
F112103.031	31121	132158	119.3837	69.59801	0.968231	90	12088	17.998	0.1470	13.9176	922439	447.756	0.144	7.225513	0.095	-0.012
F112103.032	31121	132414	119.3701	69.69571	0.967908	90	12090	17.998	0.1470	13.9176	922133	447.827	0.144	7.224257	0.095	-0.011
F112103.033	31121	132631	119.3839	69.82918	0.967741	90	12092	17.999	0.1470	13.9184	921879	447.878	0.144	7.223834	0.095	-0.006
F112103.034	31121	132847	119.3862	69.9458	0.967513	90	12091	17.995	0.1470	13.9151	921628	447.947	0.144	7.223238	0.095	-0.029
F112103.035	31121	133104	119.3999	69.99901	0.967516	90	12095	18.003	0.1470	13.9218	921409	447.878	0.144	7.222151	0.095	0.019
F112103.036	31121	133642	118.9062	70.51994	0.962223	90	10572	18.001	0.1550	13.9199	800433	391.535	0.151	6.279067	0.106	0.005
F112103.037	31121	133858	118.9671	70.76261	0.962228	90	10576	18.004	0.1550	13.9224	800277	391.612	0.151	6.28034	0.106	0.023
F112103.038	31121	134115	118.9884	70.98542	0.961939	90	10578	18.001	0.1550	13.9201	800031	391.751	0.151	6.280684	0.106	0.007
F112103.039	31121	134331	118.9914	70.98902	0.961957	90	10577	18.002	0.1550	13.9204	799949	391.706	0.152	6.280074	0.106	0.009
F112103.040	31121	134548	118.9937	71.04018	0.961869	90	10576	18.000	0.1550	13.9188	799827	391.715	0.151	6.279638	0.106	-0.003
F112103.041	31121	134804	118.9915	71.04495	0.961841	90	10574	17.997	0.1550	13.9171	799744	391.689	0.152	6.279037	0.106	-0.015
F112103.042	31121	140334	117.2879	70.49541	0.948559	90	8217	18.003	0.1690	13.9214	613304	304.285	0.166	4.810541	0.126	0.016
F112103.043	31121	140550	117.2548	70.38216	0.948514	90	8214	18.001	0.1690	13.9197	613240	304.211	0.166	4.809144	0.126	0.004
F112103.044	31121	140806	117.2171	70.27483	0.948417	90	8212	17.999	0.1690	13.9181	613206	304.172	0.166	4.808027	0.126	-0.008
F112103.045	31121	141023	117.2003	70.26406	0.948297	90	8211	17.997	0.1690	13.9172	613103	304.154	0.166	4.807135	0.126	-0.014
F112103.046	31121	141239	117.1683	70.24155	0.948072	90	8212	18.000	0.1690	13.9189	612983	304.155	0.166	4.806014	0.126	-0.002
F112103.047	31121	141455	117.1496	70.25054	0.947895	90	8212	18.000	0.1690	13.9191	612852	304.15	0.166	4.805047	0.126	-0.001
F112103.048	31121	143205	116.4254	70.60905	0.941023	90	5786	18.005	0.1550	13.923	428316	214.237	0.151	3.360034	0.105	0.028
F112103.049	31121	143449	116.416	70.68024	0.940797	90	5787	18.007	0.1550	13.9242	428201	214.256	0.151	3.35952	0.105	0.036
F112103.050	31121	143706	116.4081	70.75333	0.940581	90	5787	18.004	0.1540	13.922	428118	214.289	0.151	3.359271	0.105	0.021
F112103.051	31121	143922	116.4219	70.85055	0.940497	90	5786	18.002	0.1540	13.9206	427983	214.274	0.151	3.358741	0.105	0.01
F112103.052	31121	144138	116.426	70.96941	0.940288	90	5788	18.005	0.1550	13.9228	427886	214.315	0.151	3.35863	0.105	0.026
F112103.053	31121	144418	116.4224	71.05998	0.940073	90	5788	18.001	0.1540	13.9202	427802	214.354	0.151	3.358467	0.105	0.008
F112103.054	31121	145205	115.3828	71.9216	0.929546	90	3317	18.010	0.1960	13.9267	241981	122.785	0.192	1.90224	0.158	0.054
F112103.055	31121	145445	115.3979	72.02987	0.929455	90	3319	18.022	0.1970	13.9361	241897	122.776	0.192	1.901919	0.158	0.122
F112103.056	31121	145701	115.3964	72.12005	0.92926	90	3319	18.020	0.1960	13.9349	241833	122.788	0.192	1.901693	0.158	0.113
F112103.057	31121	145917	115.3987	72.30956	0.928897	90	3320	18.022	0.1960	13.9361	241716	122.814	0.192	1.901356	0.158	0.121
F112103.058	31121	150133	115.3933	72.56314	0.928341	90	3320	18.014	0.1970	13.9298	241581	122.869	0.192	1.901074	0.158	0.076
F112103.059	31121	150349	115.4185	72.76512	0.928146	90	3322	18.021	0.1960	13.9352	241502	122.895	0.192	1.901081	0.158	0.115

**12-inch Instromet Turbine Meter Serial No. 69529 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 45 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main									
							Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F112103.060	31121	154128	45.61627	75.9006	0.354921	90	8394	17.995	0.1770	13.915	233033	310.982	0.174	1.839566	0.13	-0.03
F112103.061	31121	154353	45.5854	75.92491	0.35466	90	8391	17.994	0.1770	13.9146	232777	310.881	0.174	1.837616	0.13	-0.033
F112103.062	31121	154610	45.56272	75.74538	0.354606	90	8382	17.986	0.1770	13.9081	232671	310.69	0.174	1.836211	0.13	-0.079
F112103.063	31121	154826	45.49976	75.22766	0.35447	90	8372	17.985	0.1770	13.9076	232524	310.332	0.174	1.833389	0.13	-0.083
F112103.064	31121	155042	45.43446	74.45993	0.35449	90	8357	17.983	0.1770	13.9064	232452	309.804	0.174	1.83037	0.13	-0.092
F112103.065	31121	155258	45.38752	73.76843	0.354602	90	8346	17.985	0.1770	13.9079	232475	309.362	0.174	1.828339	0.13	-0.081
F112103.066	31121	160652	46.17028	74.00824	0.360651	90	9933	17.998	0.1680	13.9177	281076	367.928	0.165	2.21156	0.118	-0.011
F112103.067	31121	160908	46.12172	73.88946	0.36035	90	9929	17.996	0.1680	13.916	280822	367.825	0.165	2.209093	0.118	-0.023
F112103.068	31121	161124	46.05828	73.37748	0.360211	90	9916	17.991	0.1680	13.9118	280681	367.453	0.165	2.206013	0.118	-0.053
F112103.069	31121	161340	45.99925	72.85244	0.360117	90	9906	17.991	0.1680	13.9122	280575	367.072	0.165	2.203147	0.118	-0.05
F112103.070	31121	161556	45.93988	72.23014	0.360089	90	9895	17.992	0.1680	13.9131	280529	366.64	0.165	2.200385	0.118	-0.043
F112103.071	31121	161812	45.8842	71.76579	0.359977	90	9887	17.994	0.1680	13.9144	280418	366.31	0.165	2.197724	0.118	-0.034
F112103.072	31121	162135	45.94625	72.5609	0.359903	90	6688	17.979	0.1970	13.9031	189538	247.991	0.195	1.487543	0.157	-0.116
F112103.073	31121	162351	45.9165	72.65892	0.359596	90	6692	17.986	0.1980	13.9081	189389	248.049	0.195	1.486626	0.157	-0.08
F112103.074	31121	162608	45.90373	73.22331	0.359092	90	6699	17.986	0.1970	13.9083	189132	248.305	0.195	1.486074	0.157	-0.078
F112103.075	31121	162823	45.88037	73.54504	0.358677	90	6703	17.987	0.1980	13.9092	188907	248.436	0.195	1.48514	0.157	-0.071
F112103.076	31121	163117	45.8507	73.8726	0.358209	90	6707	17.987	0.1970	13.9087	188672	248.594	0.195	1.484138	0.157	-0.075
F112103.077	31121	163333	45.82948	74.06206	0.357906	90	6707	17.982	0.1980	13.9054	188496	248.654	0.195	1.483243	0.157	-0.099
F112103.078	31121	164734	45.87289	72.40819	0.359428	90	3347	17.989	0.2040	13.9107	94702	124.038	0.2	0.743046	0.163	-0.061
F112103.079	31121	164951	45.8719	72.98849	0.359006	90	3350	17.985	0.2050	13.9079	94599	124.174	0.2	0.742988	0.163	-0.081
F112103.080	31121	165207	45.8656	73.41905	0.358649	90	3354	17.992	0.2040	13.9131	94511	124.276	0.2	0.74286	0.163	-0.044
F112103.081	31121	165423	45.84814	73.7573	0.35827	90	3356	17.991	0.2040	13.9122	94418	124.358	0.2	0.742564	0.163	-0.05
F112103.082	31121	165639	45.82681	74.06572	0.357882	90	3358	17.991	0.2040	13.912	94323	124.434	0.2	0.742213	0.163	-0.051
F112103.083	31121	165855	45.8036	74.2915	0.357538	90	3358	17.983	0.2040	13.9059	94237	124.489	0.2	0.741827	0.163	-0.096

**12-inch Instromet Turbine Meter Serial No. 69529 – High Pressure Loop Natural Gas Test
Test Pressure = 230 psia**

File	Date	Time	P (psia)	T (F)	r (lb/ft ³)	t (s)	Main		K		ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
							Pulses	(pulses/ft)	U _k (%)	St						
F102803.000	31028	84824	231.5896	71.2999	0.7235	90	37438.00	17.990	0.2640	13.9115	2847630	1387.357	0.245	16.728	0.203	-0.055
F102803.001	31028	85127	231.5754	71.0944	0.7237	90	37421.60	17.990	0.2650	13.9117	2848310	1386.727	0.245	16.727	0.203	-0.054
F102803.002	31028	85332	231.5980	71.0069	0.7239	90	37416.28	17.991	0.2640	13.9121	2849012	1386.488	0.245	16.729	0.203	-0.050
F102803.003	31028	85530	231.6039	70.9389	0.7241	90	37409.53	17.990	0.2640	13.9117	2849356	1386.286	0.245	16.729	0.203	-0.054
F102803.004	31028	85807	231.5997	70.8928	0.7241	90	37407.30	17.991	0.2640	13.9119	2849573	1386.183	0.245	16.729	0.203	-0.052
F102803.005	31028	90027	231.6204	70.8655	0.7242	90	37405.25	17.990	0.2640	13.9116	2850012	1386.132	0.245	16.731	0.203	-0.054
F102803.006	31028	91947	232.7134	70.7438	0.7279	90	28112.60	17.996	0.3010	13.9161	2152420	1041.437	0.284	12.635	0.248	-0.022
F102803.007	31028	92217	232.7002	70.7588	0.7279	90	28111.37	17.995	0.3010	13.9154	2152197	1041.446	0.284	12.634	0.248	-0.027
F102803.008	31028	92541	232.6672	70.7520	0.7278	90	28110.51	17.995	0.3010	13.9157	2151833	1041.392	0.284	12.632	0.248	-0.025
F102803.009	31028	92739	232.6573	70.7257	0.7278	90	28110.28	17.997	0.3010	13.9167	2151766	1041.304	0.284	12.631	0.248	-0.018
F102803.010	31028	92954	232.6400	70.7245	0.7277	90	28108.90	17.997	0.3010	13.9165	2151541	1041.269	0.284	12.629	0.248	-0.019
F102803.011	31028	93214	232.6331	70.7056	0.7277	90	28107.03	17.995	0.3010	13.9156	2151502	1041.269	0.284	12.629	0.248	-0.026
F102803.012	31028	100143	230.9802	70.4908	0.7227	90	20320.74	17.985	0.2410	13.9073	1546461	753.261	0.22	9.073	0.171	-0.085
F102803.013	31028	100341	230.9827	70.4860	0.7227	90	20319.36	17.984	0.2410	13.9065	1546497	753.257	0.22	9.073	0.171	-0.091
F102803.014	31028	100540	231.0045	70.4866	0.7228	90	20319.81	17.984	0.2420	13.9070	1546616	753.245	0.22	9.074	0.171	-0.088
F102803.015	31028	100738	230.9752	70.4987	0.7226	90	20320.55	17.984	0.2420	13.9070	1546400	753.270	0.22	9.072	0.171	-0.087
F102803.016	31028	101020	230.9721	70.4991	0.7226	90	20317.83	17.982	0.2420	13.9056	1546327	753.245	0.22	9.072	0.171	-0.097
F102803.017	31028	101235	230.9454	70.4987	0.7225	90	20318.30	17.983	0.2420	13.9058	1546165	753.252	0.22	9.071	0.171	-0.096
F102803.018	31028	102049	231.9872	70.5881	0.7258	90	14110.76	18.003	0.2790	13.9216	1077112	522.529	0.26	6.321	0.221	0.017
F102803.019	31028	102428	232.9420	70.5377	0.7290	90	14091.71	17.983	0.2780	13.9058	1081545	522.418	0.26	6.347	0.221	-0.096
F102803.020	31028	102632	232.9391	70.5214	0.7290	90	14090.98	17.983	0.2780	13.9060	1081530	522.384	0.26	6.347	0.221	-0.095
F102803.021	31028	102830	232.9705	70.4895	0.7291	90	14091.16	17.984	0.2780	13.9071	1081727	522.346	0.26	6.348	0.221	-0.086
F102803.022	31028	103028	232.9601	70.4569	0.7291	90	14088.86	17.983	0.2780	13.9060	1081727	522.305	0.26	6.347	0.221	-0.095
F102803.023	31028	103226	232.9686	70.4340	0.7292	90	14087.73	17.983	0.2780	13.9058	1081785	522.270	0.26	6.347	0.220	-0.096
F102803.024	31028	105403	230.8009	70.5426	0.7220	90	7826.97	17.986	0.2680	13.9080	595066	290.120	0.248	3.491	0.206	-0.080
F102803.025	31028	105636	230.7440	70.5192	0.7219	90	7826.08	17.985	0.2670	13.9075	594923	290.098	0.248	3.490	0.206	-0.084
F102803.026	31028	105835	230.7328	70.4955	0.7219	90	7825.29	17.984	0.2670	13.9071	594902	290.076	0.248	3.490	0.206	-0.086
F102803.027	31028	110045	230.7279	70.4682	0.7219	90	7824.48	17.984	0.2670	13.9071	594887	290.046	0.248	3.490	0.206	-0.086
F102803.028	31028	110322	230.6455	70.4289	0.7217	90	7823.37	17.984	0.2670	13.9071	594675	290.005	0.248	3.488	0.206	-0.086
F102803.029	31028	110541	230.6362	70.3972	0.7217	90	7822.99	17.985	0.2680	13.9078	594662	289.976	0.248	3.488	0.206	-0.081
F102803.030	31028	112224	230.9556	71.0209	0.7218	90	3131.45	17.979	0.3020	13.9031	237904	116.113	0.285	1.397	0.249	-0.115
F102803.031	31028	112422	230.9020	71.0483	0.7216	90	3131.93	17.983	0.3020	13.9059	237814	116.108	0.285	1.396	0.249	-0.095
F102803.032	31028	112659	230.7888	71.0585	0.7212	90	3130.36	17.975	0.3010	13.8997	237673	116.101	0.285	1.396	0.249	-0.140
F102803.033	31028	113038	230.6612	71.0643	0.7208	90	3130.78	17.980	0.3010	13.9039	237497	116.082	0.285	1.395	0.249	-0.110
F102803.034	31028	113257	230.5832	71.0545	0.7206	90	3129.55	17.976	0.3010	13.9005	237390	116.065	0.285	1.394	0.249	-0.134
F102803.035	31028	113502	230.4889	71.0471	0.7203	90	3129.23	17.975	0.3020	13.9002	237279	116.055	0.285	1.393	0.249	-0.136

**12-inch Invensys Turbine Meter Serial No. 12291707 – Low Pressure Loop Natural Gas Test
Test Pressure = 45 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	UQ _v (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F102403.048	31024	125726	46.48782	73.80357	0.140639	90	1604	1.45747	0.1890	1.12704	296368	733.694	0.152	1.719768	0.098	-0.256
F102403.049	31024	130005	46.41001	72.79739	0.140674	90	1601	1.4573	0.1890	1.12691	296403	732.405	0.152	1.717168	0.098	-0.267
F102403.050	31024	130244	46.3439	72.05843	0.140674	90	1599	1.45716	0.1890	1.1268	296417	731.559	0.152	1.715185	0.098	-0.276
F102403.051	31024	130500	46.31432	72.27177	0.140526	90	1600	1.4572	0.1890	1.12684	296180	731.996	0.151	1.714401	0.098	-0.273
F102403.052	31024	130716	46.2751	72.39695	0.140373	90	1602	1.45847	0.1890	1.12781	295912	732.276	0.151	1.713195	0.098	-0.187
F102403.053	31024	130932	46.23676	72.51508	0.140224	90	1601	1.45704	0.1890	1.12671	295646	732.534	0.152	1.71198	0.098	-0.284
F102403.054	31024	131502	46.44325	72.66319	0.140817	90	1087	1.45566	0.2180	1.12564	201719	497.828	0.174	1.168378	0.13	-0.379
F102403.055	31024	131718	46.40516	72.60962	0.140718	90	1086	1.45452	0.2180	1.12476	201567	497.759	0.174	1.167391	0.13	-0.457
F102403.056	31024	131934	46.36408	72.44698	0.140636	90	1086	1.455	0.2180	1.12514	201437	497.593	0.174	1.166327	0.13	-0.424
F102403.057	31024	132150	46.31271	72.13577	0.140565	90	1086	1.45587	0.2180	1.1258	201318	497.297	0.174	1.165044	0.13	-0.365
F102403.058	31024	132406	46.25716	71.70713	0.140511	90	1085	1.45569	0.2180	1.12567	201221	496.9	0.174	1.163668	0.13	-0.377
F102403.059	31024	132645	46.19363	71.29886	0.14043	90	1085	1.45672	0.2180	1.12646	201097	496.551	0.174	1.162177	0.13	-0.307
F102403.060	31024	134602	45.98581	73.13034	0.13931	90	766	1.45692	0.2260	1.12662	140406	350.511	0.158	0.81383	0.108	-0.293
F102403.061	31024	134818	45.93363	72.81816	0.139234	90	764	1.45405	0.2260	1.1244	140310	350.285	0.158	0.812863	0.108	-0.489
F102403.062	31024	135034	45.88187	72.45596	0.139174	90	764	1.45507	0.2260	1.12519	140234	350.04	0.158	0.811942	0.108	-0.419
F102403.063	31024	135250	45.83186	72.13924	0.139106	90	763	1.45405	0.2260	1.1244	140153	349.827	0.158	0.811052	0.108	-0.489
F102403.064	31024	135506	45.78223	71.98137	0.138997	90	763	1.45448	0.2260	1.12473	140037	349.723	0.158	0.810175	0.108	-0.46
F102403.065	31024	135722	45.73919	71.87605	0.138896	90	764	1.4567	0.2260	1.12645	139930	349.648	0.158	0.809409	0.108	-0.308
F102403.066	31024	140100	45.55308	72.8579	0.138067	90	547	1.45388	0.2720	1.12427	99623	250.822	0.177	0.577171	0.134	-0.501
F102403.067	31024	140316	45.53107	73.20347	0.137908	90	548	1.4557	0.2710	1.12567	99511	250.968	0.177	0.576842	0.134	-0.377
F102403.068	31024	140532	45.50856	73.50036	0.137762	90	547	1.45229	0.2710	1.12304	99409	251.097	0.177	0.576529	0.134	-0.61
F102403.069	31024	140748	45.48751	73.77715	0.137625	90	547	1.45166	0.2710	1.12255	99309	251.206	0.177	0.576205	0.134	-0.653
F102403.070	31024	141004	45.4492	73.81944	0.137497	90	548	1.45433	0.2710	1.12461	99209	251.205	0.177	0.575666	0.134	-0.47
F102403.071	31024	141220	45.40368	73.66764	0.137399	90	548	1.45486	0.2710	1.12503	99127	251.112	0.177	0.575043	0.134	-0.434
F102403.072	31024	142834	44.85652	75.26029	0.13532	90	221	1.4536	0.5070	1.12405	39306	101.358	0.209	0.228595	0.174	-0.52
F102403.073	31024	143101	44.83121	75.51594	0.135177	90	223	1.4662	0.5030	1.13379	39263	101.396	0.209	0.22844	0.174	0.342
F102403.074	31024	143317	44.79374	75.68081	0.135021	90	222	1.4593	0.5050	1.12846	39216	101.418	0.209	0.228227	0.174	-0.13
F102403.075	31024	143549	44.74142	75.68504	0.134861	90	221	1.4529	0.5070	1.12351	39165	101.406	0.209	0.227929	0.173	-0.568
F102403.076	31024	143810	44.68591	75.65331	0.134701	90	222	1.45961	0.5050	1.1287	39117	101.397	0.209	0.227637	0.174	-0.109
F102403.077	31024	144026	44.64101	75.64063	0.134568	90	221	1.45322	0.5070	1.12376	39074	101.384	0.209	0.227384	0.174	-0.546

**12-inch Invensys Turbine Meter Serial No. 12291707 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 115 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main							Error (%)		
							Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)		mdot (lbm/s)	U _{mdot} (%)
F112103.030	31121	131906	119.2925	69.1141	0.9685	90	980	1.45946	0.1790	1.12858	923201	447.653	0.144	7.225763	0.095	-0.119
F112103.031	31121	132158	119.3069	69.4105	0.9680	90	983	1.46321	0.1790	1.13148	922724	447.873	0.144	7.225513	0.095	0.138
F112103.032	31121	132414	119.3185	69.5461	0.9678	90	983	1.46318	0.1790	1.13146	922360	447.883	0.144	7.224257	0.095	0.135
F112103.033	31121	132631	119.3276	69.6950	0.9675	90	982	1.46142	0.1790	1.13009	922082	447.967	0.144	7.223834	0.095	0.015
F112103.034	31121	132847	119.3288	69.7833	0.9674	90	982	1.46127	0.1790	1.12998	921874	448.013	0.144	7.223238	0.095	0.005
F112103.035	31121	133104	119.3340	69.8733	0.9672	90	983	1.46275	0.1790	1.13113	921600	448.013	0.144	7.222151	0.095	0.106
F112103.036	31121	133642	118.8589	70.3560	0.9622	90	858	1.46083	0.1930	1.12964	800647	391.558	0.151	6.279067	0.106	-0.025
F112103.037	31121	133858	118.9017	70.5923	0.9620	90	858	1.46033	0.1930	1.12925	800501	391.692	0.151	6.28034	0.106	-0.059
F112103.038	31121	134115	118.9335	70.7966	0.9619	90	859	1.46171	0.1930	1.13032	800278	391.779	0.151	6.280684	0.106	0.035
F112103.039	31121	134331	118.9437	70.8320	0.9619	90	859	1.46187	0.1930	1.13044	800154	391.736	0.152	6.280074	0.106	0.046
F112103.040	31121	134548	118.9544	70.8768	0.9619	90	858	1.46026	0.1930	1.1292	800040	391.71	0.151	6.279638	0.106	-0.064
F112103.041	31121	134804	118.9514	70.8725	0.9619	90	859	1.46208	0.1930	1.13061	799969	391.679	0.152	6.279037	0.106	0.06
F112103.042	31121	140334	117.2530	70.5407	0.9482	90	668	1.46294	0.2250	1.13127	613260	304.41	0.166	4.810541	0.126	0.119
F112103.043	31121	140550	117.2207	70.4464	0.9481	90	667	1.46105	0.2260	1.12981	613177	304.347	0.166	4.809144	0.126	-0.01
F112103.044	31121	140806	117.1917	70.3696	0.9480	90	667	1.46126	0.2260	1.12997	613112	304.304	0.166	4.808027	0.126	0.004
F112103.045	31121	141023	117.1661	70.3408	0.9478	90	667	1.46129	0.2260	1.12999	613027	304.298	0.166	4.807135	0.126	0.006
F112103.046	31121	141239	117.1411	70.3248	0.9477	90	667	1.46135	0.2260	1.13004	612901	304.284	0.166	4.806014	0.126	0.01
F112103.047	31121	141455	117.1198	70.3418	0.9475	90	666	1.45912	0.2260	1.12832	612762	304.292	0.166	4.805047	0.126	-0.142
F112103.048	31121	143205	116.4108	70.7413	0.9406	90	469	1.45883	0.2630	1.12809	428224	214.327	0.151	3.360034	0.105	-0.162
F112103.049	31121	143449	116.4044	70.8359	0.9404	90	470	1.46178	0.2630	1.13037	428092	214.351	0.151	3.35952	0.105	0.04
F112103.050	31121	143706	116.4040	70.9271	0.9402	90	470	1.46159	0.2620	1.13023	427997	214.378	0.151	3.359271	0.105	0.027
F112103.051	31121	143922	116.3981	71.0242	0.9399	90	470	1.46143	0.2620	1.13011	427862	214.401	0.151	3.358741	0.105	0.016
F112103.052	31121	144138	116.4118	71.1503	0.9398	90	469	1.45815	0.2630	1.12757	427760	214.427	0.151	3.35863	0.105	-0.209
F112103.053	31121	144418	116.4249	71.2476	0.9397	90	470	1.46119	0.2620	1.12992	427672	214.437	0.151	3.358467	0.105	0
F112103.054	31121	145205	115.3839	72.2276	0.9289	90	269	1.45959	0.4190	1.12868	241860	122.865	0.192	1.90224	0.158	-0.11
F112103.055	31121	145445	115.3925	72.4102	0.9286	90	270	1.4648	0.4180	1.13271	241748	122.884	0.192	1.901919	0.158	0.246
F112103.056	31121	145701	115.3938	72.5281	0.9284	90	269	1.45919	0.4190	1.12837	241673	122.899	0.192	1.901693	0.158	-0.138
F112103.057	31121	145917	115.3973	72.7050	0.9281	90	269	1.45893	0.4190	1.12817	241561	122.921	0.192	1.901356	0.158	-0.155
F112103.058	31121	150133	115.4032	72.9483	0.9276	90	268	1.45304	0.4210	1.12361	241430	122.961	0.192	1.901074	0.158	-0.559
F112103.059	31121	150349	115.4185	73.1749	0.9273	90	268	1.45252	0.4200	1.12322	241342	123.004	0.192	1.901081	0.158	-0.594

**12-inch Invensys Turbine Meter Serial No. 12291707 – Low Pressure Loop Carbon Dioxide Test
Test Pressure = 45 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main						Error			
							Pulses	K (pulses/cf)	U _K (%)	St	ReD	Q _v (acfm)	U _{Q_v} (%)	mdot (lbm/s)	U _{mdot} (%)	(%)
F112103.060	31121	154128	45.6085	76.4432	0.3545	90	681	1.45808	0.2300	1.12751	232813	311.368	0.174	1.839566	0.13	-0.213
F112103.061	31121	154353	45.5756	76.5142	0.3542	90	681	1.45835	0.2300	1.12773	232538	311.31	0.174	1.837616	0.13	-0.195
F112103.062	31121	154610	45.5538	76.4048	0.3541	90	680	1.45693	0.2300	1.12663	232405	311.156	0.174	1.836211	0.13	-0.292
F112103.063	31121	154826	45.4929	76.0717	0.3538	90	679	1.456	0.2300	1.12591	232182	310.897	0.174	1.833389	0.13	-0.356
F112103.064	31121	155042	45.4257	75.5008	0.3537	90	679	1.45786	0.2300	1.12734	232031	310.502	0.174	1.83037	0.13	-0.229
F112103.065	31121	155258	45.3819	74.9971	0.3537	90	678	1.45735	0.2300	1.12695	231977	310.153	0.174	1.828339	0.13	-0.264
F112103.066	31121	160652	46.1566	74.9937	0.3598	90	807	1.45895	0.2090	1.12819	280594	368.758	0.165	2.21156	0.118	-0.154
F112103.067	31121	160908	46.1073	74.9216	0.3595	90	807	1.4592	0.2080	1.12838	280317	368.694	0.165	2.209093	0.118	-0.137
F112103.068	31121	161124	46.0455	74.5525	0.3593	90	807	1.46031	0.2090	1.12924	280107	368.414	0.165	2.206013	0.118	-0.061
F112103.069	31121	161340	45.9861	74.1338	0.3591	90	805	1.45788	0.2090	1.12736	279948	368.113	0.165	2.203147	0.118	-0.227
F112103.070	31121	161556	45.9262	73.6295	0.3590	90	805	1.45924	0.2090	1.12841	279843	367.772	0.165	2.200385	0.118	-0.134
F112103.071	31121	161812	45.8701	73.2188	0.3588	90	804	1.45856	0.2090	1.12789	279706	367.485	0.165	2.197724	0.118	-0.18
F112103.072	31121	162135	45.9407	73.9240	0.3589	90	543	1.45561	0.2700	1.1256	189087	248.693	0.195	1.487543	0.157	-0.383
F112103.073	31121	162351	45.9133	74.0122	0.3586	90	544	1.45805	0.2700	1.12749	188942	248.734	0.195	1.486626	0.157	-0.215
F112103.074	31121	162608	45.8985	74.4199	0.3582	90	543	1.45426	0.2700	1.12456	188738	248.924	0.195	1.486074	0.157	-0.475
F112103.075	31121	162823	45.8739	74.6735	0.3578	90	544	1.45633	0.2690	1.12616	188536	249.028	0.195	1.48514	0.157	-0.333
F112103.076	31121	163117	45.8480	74.9656	0.3574	90	544	1.45564	0.2690	1.12562	188313	249.146	0.195	1.484138	0.157	-0.381
F112103.077	31121	163333	45.8249	75.1173	0.3571	90	545	1.45801	0.2690	1.12746	188150	249.198	0.195	1.483243	0.157	-0.218
F112103.078	31121	164734	45.8729	74.4538	0.3580	90	271	1.45065	0.4210	1.12176	94364	124.542	0.2	0.743046	0.163	-0.722
F112103.079	31121	164951	45.8711	74.7973	0.3577	90	271	1.44972	0.4210	1.12105	94301	124.622	0.2	0.742988	0.163	-0.786
F112103.080	31121	165207	45.8644	75.1138	0.3574	90	272	1.45419	0.4200	1.1245	94233	124.697	0.2	0.74286	0.163	-0.48
F112103.081	31121	165423	45.8474	75.3173	0.3572	90	272	1.45363	0.4200	1.12408	94162	124.745	0.2	0.742564	0.163	-0.518
F112103.082	31121	165639	45.8260	75.5402	0.3568	90	272	1.45299	0.4190	1.12358	94081	124.8	0.2	0.742213	0.163	-0.562
F112103.083	31121	165855	45.8027	75.6405	0.3566	90	272	1.45271	0.4200	1.12336	94015	124.824	0.2	0.741827	0.163	-0.581

**12-inch Invensys Turbine Meter Serial No. 12291707 – High Pressure Loop Natural Gas Test
Test Pressure = 230 psia**

File	Date	Time	P (psia)	T (F)	ρ (lb/ft ³)	t (s)	Main Pulses	K (pulses/cf)	U _k (%)	St	ReD	Q _v (acfm)	U _Q (%)	mdot (lbm/s)	U _{mdot} (%)	Error (%)
F102803.000	31028	84824	231.2019	71.0157	0.7226	90	3040.354	1.45933	0.2640	1.12848	2849012	1388.925	0.245	16.728189	0.203	-0.128
F102803.001	31028	85127	231.1963	70.8351	0.7229	90	3039.734	1.45968	0.2650	1.12875	2849580	1388.315	0.245	16.726841	0.203	-0.104
F102803.002	31028	85332	231.2152	70.7578	0.7231	90	3038.618	1.45934	0.2650	1.12849	2850239	1388.128	0.245	16.728737	0.203	-0.128
F102803.003	31028	85530	231.2184	70.7021	0.7232	90	3037.686	1.45905	0.2640	1.12826	2850530	1387.978	0.245	16.729012	0.203	-0.147
F102803.004	31028	85807	231.2140	70.6560	0.7232	90	3037.451	1.45904	0.2650	1.12826	2850747	1387.876	0.245	16.72908	0.203	-0.148
F102803.005	31028	90027	231.2436	70.6393	0.7233	90	3037.47	1.45913	0.2640	1.12832	2851135	1387.802	0.245	16.730986	0.203	-0.142
F102803.006	31028	91947	232.5065	70.5652	0.7275	90	2282.769	1.4605	0.3010	1.12939	2153068	1042	0.284	12.634974	0.248	-0.048
F102803.007	31028	92217	232.4904	70.5734	0.7275	90	2284.145	1.46137	0.3010	1.13006	2152868	1042.007	0.284	12.633939	0.248	0.012
F102803.008	31028	92541	232.4565	70.5828	0.7274	90	2283.426	1.46093	0.3010	1.12972	2152450	1041.994	0.284	12.631622	0.248	-0.018
F102803.009	31028	92739	232.4459	70.5784	0.7273	90	2282.875	1.46063	0.3010	1.12949	2152311	1041.958	0.284	12.630702	0.248	-0.039
F102803.010	31028	92954	232.4284	70.5697	0.7273	90	2283.117	1.46086	0.3010	1.12966	2152110	1041.906	0.284	12.629331	0.248	-0.023
F102803.011	31028	93214	232.4229	70.5606	0.7272	90	2282.567	1.46049	0.3000	1.12937	2152039	1041.922	0.284	12.628812	0.248	-0.049
F102803.012	31028	100143	230.8882	70.3706	0.7226	90	1650.423	1.46046	0.2420	1.12936	1546766	753.379	0.22	9.072632	0.171	-0.05
F102803.013	31028	100341	230.8867	70.3643	0.7226	90	1650.125	1.46019	0.2420	1.12914	1546806	753.386	0.22	9.072778	0.171	-0.069
F102803.014	31028	100540	230.9058	70.3575	0.7226	90	1649.98	1.46009	0.2420	1.12906	1546944	753.371	0.22	9.073509	0.171	-0.076
F102803.015	31028	100738	230.8780	70.3627	0.7225	90	1650.015	1.4601	0.2420	1.12908	1546744	753.38	0.22	9.072383	0.171	-0.075
F102803.016	31028	101020	230.8734	70.3745	0.7225	90	1649.779	1.45989	0.2420	1.12892	1546644	753.379	0.22	9.071953	0.171	-0.089
F102803.017	31028	101235	230.8506	70.3805	0.7224	90	1649.348	1.4595	0.2410	1.12861	1546465	753.383	0.22	9.070969	0.171	-0.116
F102803.018	31028	102049	231.9559	70.4658	0.7259	90	1145.028	1.46105	0.2790	1.12981	1077321	522.467	0.26	6.320786	0.221	-0.01
F102803.019	31028	102428	232.9063	70.4243	0.7290	90	1144.181	1.46023	0.2780	1.12918	1081740	522.375	0.26	6.346996	0.221	-0.066
F102803.020	31028	102632	232.9022	70.4125	0.7290	90	1144.526	1.46074	0.2790	1.12957	1081718	522.349	0.26	6.346751	0.221	-0.031
F102803.021	31028	102830	232.9363	70.3840	0.7292	90	1144.593	1.46094	0.2790	1.12973	1081908	522.309	0.26	6.347611	0.221	-0.018
F102803.022	31028	103028	232.9251	70.3527	0.7292	90	1144.799	1.46131	0.2780	1.13001	1081906	522.271	0.26	6.347281	0.221	0.008
F102803.023	31028	103226	232.9322	70.3259	0.7293	90	1143.703	1.46001	0.2780	1.12901	1081971	522.235	0.26	6.347406	0.22	-0.081
F102803.024	31028	105403	230.8023	70.4461	0.7222	90	634.84	1.4591	0.2670	1.12831	595156	290.059	0.248	3.491287	0.206	-0.143
F102803.025	31028	105636	230.7501	70.4335	0.7220	90	635.088	1.45979	0.2680	1.12883	595002	290.037	0.248	3.490297	0.206	-0.097
F102803.026	31028	105835	230.7400	70.4121	0.7220	90	635.898	1.46176	0.2680	1.13036	594979	290.015	0.248	3.490039	0.206	0.038
F102803.027	31028	110045	230.7337	70.3897	0.7221	90	635.54	1.46106	0.2670	1.12982	594960	289.99	0.248	3.489803	0.206	-0.01
F102803.028	31028	110322	230.6519	70.3698	0.7218	90	634.815	1.45955	0.2680	1.12865	594729	289.96	0.248	3.488309	0.206	-0.113
F102803.029	31028	110541	230.6432	70.3454	0.7218	90	634.546	1.45905	0.2670	1.12827	594710	289.935	0.248	3.488064	0.206	-0.147
F102803.030	31028	112224	230.9792	70.9458	0.7220	90	253.624	1.45657	0.3020	1.12635	237932	116.083	0.285	1.39686	0.249	-0.317
F102803.031	31028	112422	230.9221	70.9784	0.7218	90	253.694	1.457	0.3020	1.12668	237839	116.08	0.285	1.396381	0.249	-0.287
F102803.032	31028	112659	230.8122	71.0074	0.7214	90	253.975	1.45867	0.3020	1.12797	237691	116.076	0.285	1.395558	0.249	-0.173
F102803.033	31028	113038	230.6834	71.0194	0.7209	90	253.556	1.45647	0.3020	1.12627	237513	116.06	0.285	1.394516	0.249	-0.324
F102803.034	31028	113257	230.6029	71.0242	0.7207	90	253.489	1.45624	0.3010	1.12609	237400	116.047	0.285	1.393852	0.249	-0.339
F102803.035	31028	113502	230.5072	71.0186	0.7204	90	252.946	1.45323	0.3020	1.12376	237289	116.039	0.285	1.39317	0.249	-0.546