

TEST SPECIFICATIONS						Date:		Select Routing:																																			
Saddle Butte Rockies Midstream, LLC - Hydrostatic Pressure Test						6-Nov-2017																																					
Johnsons Corner Lateral						Test Number: 1		of 1																																			
Project Name: Johnsons Corner Lateral				Project I.D. / AFE Number 17C007A		Facility Name or Number Johnsons Corner Well Pad																																					
Installation Location (M.P. or S.S.): 0+00 to 68+02		State: CO	County/Parish: Weld	Class Location Designation	N/A	Selected Design Pressure 1480	Planned MAOP 1400																																				
Project Description:																																											
Hydrostatic pressure test of the 8" lateral pipeline.																																											
Testing at 1.25*MAOP = 1850 psig minimum test pressure. 2103 psig Target Test Pressure at Chart Location																																											
Max Test Pressure for ANSI 600 Valves and Fittings is 2660 psig where they are located.																																											
Test shall be compliant with all test specifications in Exhibit D "Pipeline Construction Specifications" and all other Construction Documents.																																											
LEAK ONLY TEST <input type="checkbox"/> STRENGTH TEST <input checked="" type="checkbox"/> FABRICATION <input type="checkbox"/> NEW CONSTRUCTION <input checked="" type="checkbox"/> REPLACEMENT <input type="checkbox"/> RETEST <input type="checkbox"/> REFERENCE DRAWINGS ATTACHED <input type="checkbox"/>																																											
POST-INSTALLATION TEST <input checked="" type="checkbox"/> PRE-INSTALLATION TEST <input type="checkbox"/>																																											
Test Design Criteria					Test Section - Reference Data																																						
Minimum Component Characteristics			Test Pressure Calculations																																								
Pipe Information			<input type="checkbox"/> Input minimum and maximum pressure of test <input type="checkbox"/> Input minimum and maximum %SMYS of test			Test Medium: Water Test Duration: 8 Hours (min) Section Length: 6,802 Ft. Section Fill Volume: 20,644 Gal Max. Elevation Change: 17 Ft.																																					
<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>O.D.</td><td>8.625</td></tr> <tr><td>Wall Thickness</td><td>0.219</td></tr> <tr><td>SMYS</td><td>52,000</td></tr> </table>			O.D.	8.625	Wall Thickness	0.219	SMYS	52,000	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><th colspan="2"></th><th>Pressure (psig)</th><th>% PIPE SMYS</th></tr> <tr><td colspan="2">Max. Test Pressure (Pipe)</td><td>2350</td><td>89.0%</td></tr> <tr><td colspan="2">Max. Test Pressure (Valves and Fittings)</td><td>2660</td><td>100.7%</td></tr> <tr><td colspan="2">Min.</td><td>1850</td><td>70.1%</td></tr> </table>					Pressure (psig)	% PIPE SMYS	Max. Test Pressure (Pipe)		2350	89.0%	Max. Test Pressure (Valves and Fittings)		2660	100.7%	Min.		1850	70.1%	Station Equations: <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td></td><td>1</td><td>2</td><td>3</td></tr> <tr><td>Back</td><td>0+00</td><td>0+00</td><td>0+00</td></tr> <tr><td>Ahead</td><td>0+00</td><td>0+00</td><td>0+00</td></tr> </table>					1	2	3	Back	0+00	0+00	0+00	Ahead	0+00	0+00	0+00
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Valve/Flange ANSI Class Rating 600# Valves/Fittings																																											
Test Pressures																																											
Location	Station	Elevation (feet)	Max. psig.	% SMYS @ Max.	Min. psig.	% SMYS @ Min.	Variance psig.	Target psig.	% SMYS @Target																																		
BEGIN -	0+00	5003	2,350	89.0%	1,857	70.3%	493	2,103	79.6%																																		
HIGH ELEVATION	16+00	5020	2,343	88.7%	1,850	70.1%	493	2,096	79.4%																																		
LOW ELEVATION	0+00	5003	2,350	89.0%	1,857	70.3%	493	2,103	79.6%																																		
END	68+02	5004	2,350	89.0%	1,857	70.3%	493	2,103	79.6%																																		
Chart Location (Test Point)	68+02	5004	2,350	89.0%	1,857	70.3%	493	2,103	79.6%																																		
REMARKS:																																											
ASME B16.5 2.6 System Hydrostatic Testing 2003: Flanged joints and flanged fittings may be subjected to system hydrostatic tests at a pressure of 1.5 times the 38°C (100°F) rating rounded off to the next higher 1 bar (25 psi) increment. Testing at any higher pressure is the responsibility of the user, taking into account the requirements of the applicable code or regulation.																																											
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PRE-TEST SPECIFIED / REVIEWED BY:			TEST PERFORMED / ACCEPTED BY:			POST-TEST REVIEWED BY:																																					
Originator (Signature)	Date:	Test Performed by (Signature): <i>Devinne</i>			Date:	Compliance (signature)		Date:																																			
Designed Reviewed if applicable (Signature)	Date:	Company Name (for Contractor or for Employee): <i>North winds of wyoming</i>			Date:	Engineering or Operations (Signature)		Date:																																			
Compliance (Signature)	Date:	Witnessed & Accepted by Company Representative: <i>Charles Walsh</i>			Date:	Actual MAOP																																					



April 2006

MOP Establishment and Pressure Testing of Pipelines
TG1601.190

PAGE 1 OF 9

LIQUID PIPELINE
PRESSURE TEST
REPORT

Pressure Test Number 1 Nov. 16, 2017

MOP of tested facility is 1400 PSIG
11-16-17

Company: Saddle Butte

Operations Area: _____

Project: Johnson's Corner

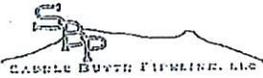
AFE: 17C007A

Pipeline: _____

Section: All

Station or Milepost From: 0+00

To: 68+02



INSTRUCTIONS

PAGE 2 OF 9

In this worksheet, cells containing formulas are protected against input.
Cells with **BLUE** text labels allow or require input.

<i>General Information</i>	<ul style="list-style-type: none"> • Complete this Report and attached necessary exhibits for all SBP installed pipelines or pipeline segments or those re-qualified for service. • Fill in all applicable information. If information is not applicable, write NA in the corresponding space on the Report.
<i>Pipe Data</i>	<ul style="list-style-type: none"> • Record the details for each pipe section tested, including lengths, line fill, pipe fittings, etc. • Add together pipe section lengths and line fill for a total pipe section length and line fill.
<i>Test Water Data</i>	<ul style="list-style-type: none"> • Enter water source information (i.e., from municipal supply, well, river, lake, pond) in the Test Log or notes section of the Report. • Source water temperature compared to ground temperature can assist with understanding the time for the water to stabilize.
<i>Pressure Calculations</i>	<ul style="list-style-type: none"> • Elevation of high and low points and the elevation of the test pressure measure sites is required for calculation of the target test pressures.
<i>Test Log</i>	<ul style="list-style-type: none"> • Fill out the Test Log at the time of the test. This is the actual log of the test. • From the start of filling the test section, record pressure readings from the calibrated test gauge or deadweight tester used in the test. • Record the test pressure and temperatures at intervals of 30 minutes to an hour and as necessary to represent the test pressure during the test period. • The below ground pipe temperature sensor should be placed away from exposed pipe and far enough from the water injection point so that water injected will not affect the readings. • In the Remarks column, enter start of test, end of test, and any remarks concerning unusual events, such as liquid added or withdrawn, weather conditions, etc.
<i>Notes</i>	<ul style="list-style-type: none"> • Enter all pertinent comments about the test, including such things as weather conditions, radical weather changes, equipment malfunctions, or any other noteworthy event that may affect testing.
<i>Profile</i>	<ul style="list-style-type: none"> • An elevation profile is required for any test section where the elevation varies more than 100 feet. The following items should be noted on the profile: <ul style="list-style-type: none"> - Location and elevation where test pressure measurements are taken - High and low points - Stationing or mileposts - Horizontal and vertical scale of the drawing • Elevation data is available in electronic format from the KPL mapping system. • If electronic elevation data is not available, take profile elevations from survey information or from U.S. Geological Service 7 1/2 minute topographical maps.
<i>Failure Log</i>	<ul style="list-style-type: none"> • Record each failure event that causes the line to be taken "off test". • Enter the date, time, and pressure at the time of failure. • List the apparent cause of the failure if the actual cause cannot be determined. Pipe seam failure or leaking flange, for example, could be entered as the cause of test failure. • Describe the repair method (i.e., changed-out pipe or tightened flange).
<i>Supplementary Documentation</i>	<ul style="list-style-type: none"> • Check each supplementary documentation attached as part of this test record (i.e., test charts and/or equipment certifications). • Write the corresponding Exhibit Number on the attached supplementary documentation.
<i>Certification</i>	<ul style="list-style-type: none"> • Signatures of the Company and Contractor representatives in charge of the test are MANDATORY.



PRESSURE CALCULATIONS

Location of Test Point Johnsons Corner Pad	Elevation of Test Point 5004 Ft. (Elevation) 68702 Ft. (Station)	High Point 5020 Ft. (Elevation) 16400 Ft. (Station) Location Name	Low Point 5003 Ft. (Elevation) 0700 Ft. (Station) Location Name
Target MOP: 1400 Target Test Pressure Range 1st Min: 2116 Maximum: 2350 2nd Min:	Test Duration: 8 hr High Point 2133 Low Point 2116	Start Point 5003 Ft. (Elevation) 0700 Ft. (Station) Location Name	End Point 5004 Ft. (Elevation) 68702 Ft. (Station) Location Name

TEST LOG

DATE	TIME	PRESSURE	AMBIENT TEMP	BELOW GROUND TEMP	ABOVE GROUND TEMP	REMARKS
11-16-17	6:15 AM	0	27	42	42	
	6:30	0	27	42	42	Build to 500
	6:30	501	27	42	43	
	6:45	501	27	42	43	Build to 1000
	7:10	1000	27	42	44	
	7:25	1000	27	42	44	Build to 1500
	7:50	1501	28	42	45	
	8:05	1501	29	42	45	Build to 2000
	8:30	2000	32	42	45	
	8:45	2000	33	42	45	Build to 2103 +
	8:50	2116	33	42	45	partly sunny
*	9:00	2116	34	42	46	* Begin Test *
	9:15	2116	34	42	46	check for leaks including
	9:30	2116	35	42	48	Turn heat on in booth
	9:45	2116	37	42	51	with test equip
	10:00	2116	39	42	54	
	10:15	2116	41	42	60	
	10:30	2117	43	42	65	
	10:45	2117	45	42	70	
	11:00	2119	47	42	75	
	11:15	2119	49	42	76	cloudy no wind
	11:30	2119	51	42	77	
	11:45	2119	53	42	79	
pm	12:00	2120	53	42	80	
	12:15	2120	54	42	81	
	12:30	2121	54	42	81	
	12:45	2121	54	42	82	cloudy
	1:00	2122	55	42	82	check for leaks and
	1:15	2123	56	42	84	check all 1" valves
	1:30	2123	57	42	85	
	1:45	2124	59	42	86	
	2:00	2125	61	42	86	
	2:15	2125	61	42	87	
	2:30	2126	62	42	87	
	2:45	2126	62	42	87	
	3:00	2127	63	42	87	
	3:15	2128	63	42	87	cloudy windy
	3:30	2128	63	42	87	
	3:45	2129	63	42	87	



TEST LOG (CONTINUED)

DATE	TIME	PRESSURE	AMBIENT TEMP	BELOW GROUND TEMP	ABOVE GROUND TEMP	REMARKS
11-16-17	4:00 PM	2130	62	42	87	Check for leaks and 1"
	4:15	2131	62	42	87	Valves
	4:30	2132	61	42	87	
	4:45	2132	61	42	87	DARK
*	5:00	2133	60	42	87	* END TEST * Turn off heater
	5:15	2133	60	42	87	Bleed to 2000
	5:18	1999	60	42	87	
	5:27	1999	59	42	86	Bleed to 1500
	5:38	1498	59	42	86	
	5:53	1498	58	42	86	Bleed to 1000
	5:56	1000	58	42	84	
	6:11	1000	57	42	81	Bleed to 500
	6:15	496	67	42	80	
	6:30	496	57	42	78	Bleed to 0
	6:35	0	57	42	78	
	6:50	0	56	42	76	



EQUIPMENT CALCULATED MOP SUMMARY WORKSHEET

1. Test Information:

Target MOP 1400
Enter the desired MOP, if less than pipe internal design pressure.

Date 11-16-17 Time 6:15 Am
Test Point Location Johnson's Corner Pad
Test Medium Water Test Duration 8 hr
Specific Gravity of Test Medium _____
Min. Test Press. at test site 125% of min. MOP + elev. _____ 110%
Maximum allowable % of SMYS = 100%

2. Pipe Specifications:

Pipe (#1) O.D. 8.625 MOP 1400
Grade XS2 SMYS 52000 Seam Joint Factor _____
Wall thickness .219 Design Factor (F) _____
Length (ft.): 6802 Volume _____
Max allowable test pressure, psig _____

3. Pipe Specifications:

Pipe (#2) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

4. Pipe Specifications:

Pipe (#3) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

5. Pipe Specifications:

Pipe (#4) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

6. Pipe Specifications:

Pipe (#5) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

7. Pipe Specifications:

Pipe (#6) O.D. _____ MOP _____
Grade _____ SMYS _____ Seam Joint Factor _____
Wall thickness _____ Design Factor (F) _____
Length (ft.): _____ Volume _____
Max allowable test pressure, psig _____

8. Pipe Fittings Specifications:

Pipe Fitting O.D. _____ MOP _____
Manufacture Type _____ Grade _____ SMYS _____ Seam Joint Factor _____
Fitting Description _____ Wall thickness _____ Design Factor (F) _____
Max allowable test pressure, psig _____

9. Pipe Fittings Specifications:

Pipe Fitting O.D. _____ MOP _____
Manufacture Type _____ Grade _____ SMYS _____ Seam Joint Factor _____
Fitting Description _____ Wall thickness _____ Design Factor (F) _____
Max allowable test pressure, psig _____

10. Pipe Fittings Specifications:

Pipe Fitting O.D. _____ MOP _____
Manufacture Type _____ Grade _____ SMYS _____ Seam Joint Factor _____
Fitting Description _____ Wall thickness _____ Design Factor (F) _____
Max allowable test pressure, psig _____



FAILURE LOG

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____

FAILURE:

Date: _____ Time: _____ am / pm Failure Pressure: _____

Apparent Cause: _____

REPAIR:

Describe Repair Method: _____



SUPPLEMENTARY DOCUMENTATION

The following marked exhibits are attached as a part of this Test Report:

- EXHIBIT NO. 1 Sketch of Tested Piping (Including how section is isolated), with material list
- EXHIBIT NO. 2 Profile of pipeline section and/or segment
- EXHIBIT NO. 3 Pressure Chart, with pressure test number, date, test section name, Inspector name and signature
- EXHIBIT NO. 4 Temperature Chart, with pressure test number, date, test section name, Inspector name and signature
- EXHIBIT NO. 5 Pressure Recorder Certification Papers
- EXHIBIT NO. 6 Temperature Recorder Certification Papers
- EXHIBIT NO. 7 Deadweight or Calibrated Test Gauge Certification Papers
- EXHIBIT NO. 8 Field test data log, if hand written
- EXHIBIT NO. 9 Pressure Test Procedure, if applicable, with MOP Area Representative and Engineer signature approval

CERTIFICATION

I certify this pipeline or pipeline section has been tested and successfully met the terms of SBP MOP Establishment and Pressure Testing of Pipelines Technical Guideline and, where applicable, the contract document between SBP and its prime contractor.

MOP Area Representative

By: _____ Date: _____
(Please print) (Signature)

Engineer

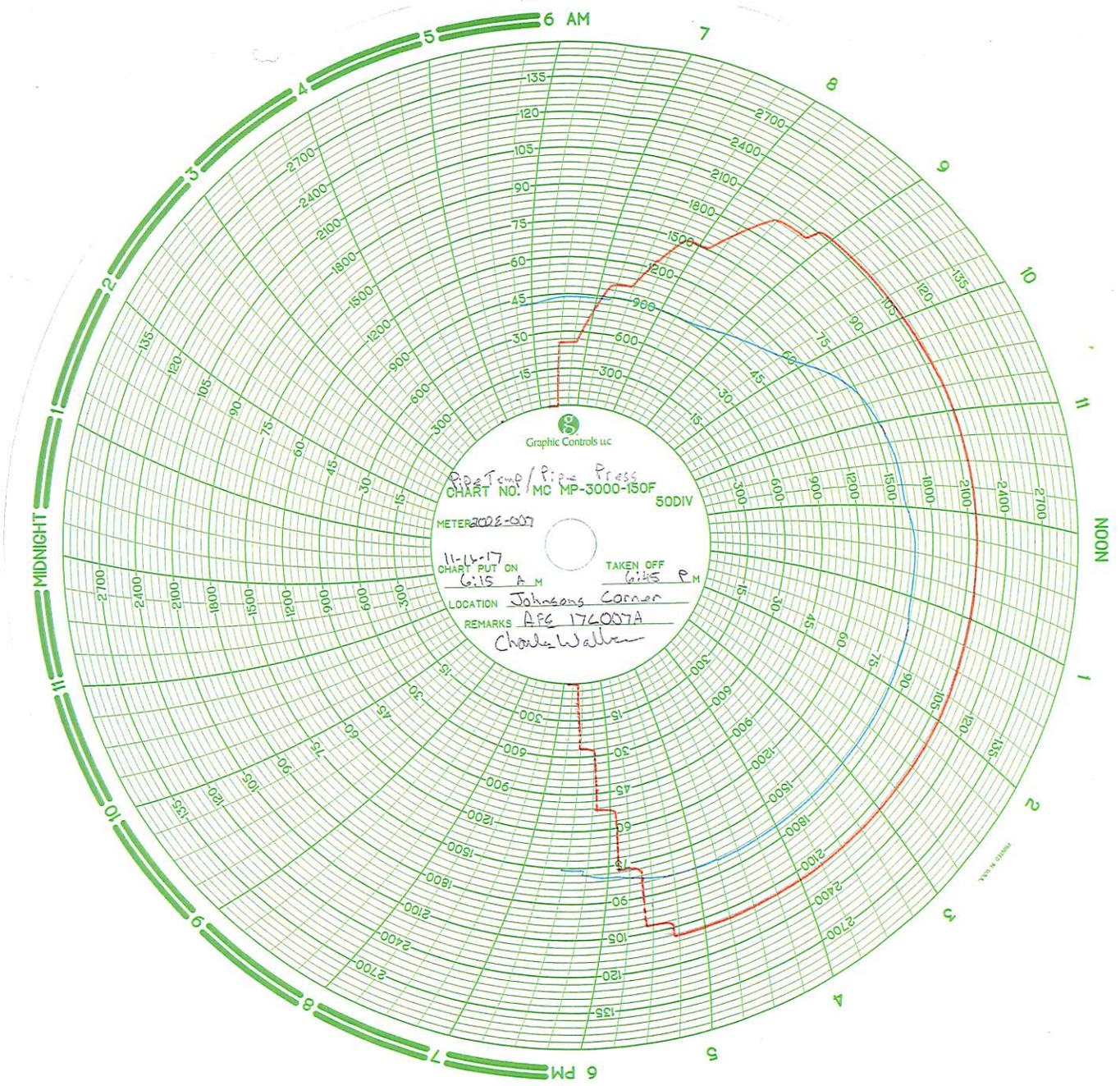
By: _____ Date: _____
(Please print) (Signature)

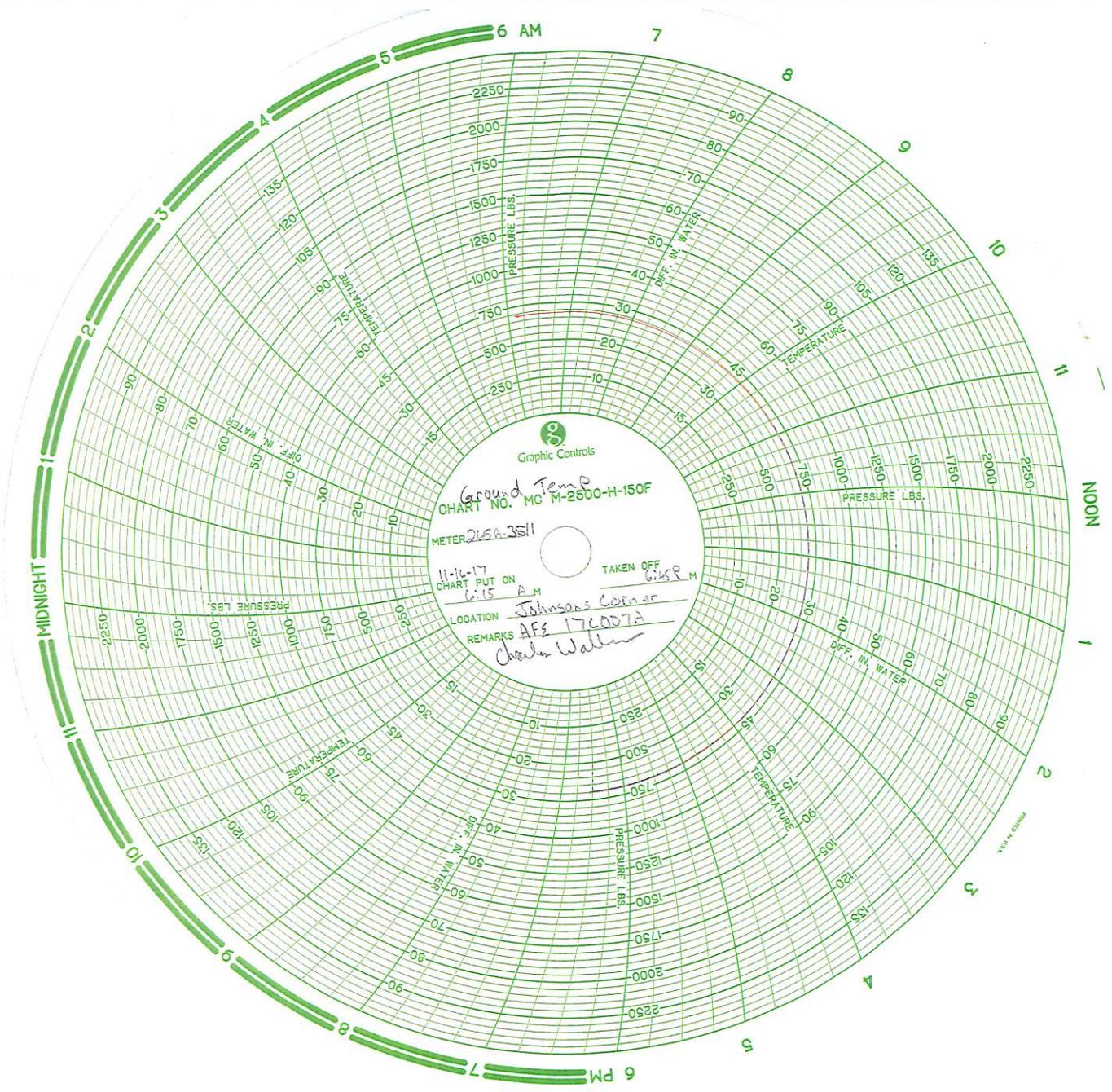
Inspector

By: Charles Wallace Charles Waller Date: 11-16-17
(Please print) (Signature)

Name of Testing Contractor

Northwind of Wyoming
By: Deane Ly Deane Ly Date: 11-16-17
(Please print) (Signature)





Ground Temp
CHART NO. MC M-2500-H-150F
METER 2156-3511
11-16-17
CHART PUT ON 6:15 A.M. TAKEN OFF 6:45 P.M.
LOCATION Johnsons Corner
REMARKS AFS 17C007A
Charles Walker

MIDNIGHT

NOON

6 PM

6 AM

ce-2



Calibration Certificate

7200 E. Dry Creek Rd, STE C-102, Centennial, CO 80112
Ph. 303-804-0667 Cal.Lab@Apex-Instruments.com

Certificate Number: 172993

Customer:

Pipeline Supply & Service
Henderson, CO

Manufacturer: Crystal Engineering
Model Number: XP2i 5000 psi
Serial Number: 364359
Description: Digital Test Gauge
Procedure: CRY_P_XP2i
Calibrated To: Manufacturer's Specifications
Technician: Austin Molyneux

Calibration Date: 10/31/2017
Due Date: 10/31/2018
As Found: In Tolerance
As Left: In Tolerance
Temperature: 72 F
Humidity: 30 %

Tolerance Specs:

0 - 20%: +/- (0.02% of FS)
20% - 100%: +/- (0.1% of Rdg)

Technician Notes:

As Left Userspan: 1.00049

Approved Signatory:

Apex Instruments certifies that the instrument listed above meets the specifications of the manufacturer at the completion of its calibration. Standards used are traceable to the National Institute of Standards and Technology (NIST), or have been derived from accepted values, natural physical constants, or through the use of the ratio method of self-calibration techniques.

Methods used are in accordance with the procedure listed above. This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

This certificate does not guarantee the continued performance of the instrument listed above. Any modifications or services performed hereafter may void this certificate.

This certificate is not to be reproduced other than in full, except with prior written approval from Apex Instruments Inc.

Standards Used

Description	Model Number	Serial Number	Calibration Date	Due Date	ID
Electronic Deadweight Tester	RPM4-E-DWT A100M/A10M	1709	11/2/2016	11/2/2017	APX00024



APX03447

PSS-COMPANIES



9700 E. 104TH AVE, UNIT F- HENDERSON, CO 80640 - Phone (303)857-7986 - Fax (303)389-4945

CALIBRATION CERTIFICATE

CERTIFICATE NUMBER: CO

Details +/-: 1.0% ACCURACY

DATE CALIBRATED: 09/16/2017

DUE DATE: 09/15/2018

INDICATED TEMPERATURE RANGE: # 0 – 150°F

INDICATED PRESSURE RANGE: #0 – 2500 PSI

SERIAL NO: 265A3511

MANUFACTURER: BARTON/ 12" RECORDER

TYPE OF INSTRUMENT CALIBRATED: TEMPERATURE / PRESSURE RECORDER

INSTRUMENT FINDINGS/STATUS: UNIT IS IN TOLERANCE/ INSTRUMENT MEETS OR EXCEEDS SPECIFICATIONS.

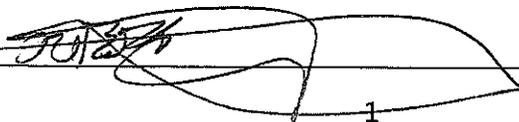
BASED ON INTERNATIONAL STANDARDS OF GRAVITY: (980.665 cm./sq.).

TYPE OF STANDARD USED TO CALIBRATE: REFINERY DEADWEIGHT TEST UNIT SPT. (35225-3) SERIAL No. 5268: KESSLER TEST THERMOMETERS; SERIAL NO, CALIBRATION DATE: JANUARY 30, 2017

ALL STANDARD DIRECTLY TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGIES TEST NO: (N.I.S.T.) 2.6/172490 & 6.6/139577.

CALCULATED USING MASS VALUES, AREA, AO, AND STATED GRAVITY.
ROOM TEMPERATURE/HUMIDITY (AT TIME OF TEST): 66°F / 25%.

CALIBRATED BY: NICK BEDFORD



C3

PSS-COMPANIES



9700 E. 104TH AVE, UNIT F- HENDERSON, CO 80640 - Phone (303)857-7986 - Fax (303)389-4945

CALIBRATION CERTIFICATE

CERTIFICATE NUMBER: CO

Details +/-: 1.0% ACCURACY

DATE CALIBRATED: 07/27/2017

DUE DATE: 07/27/2018

INDICATED TEMPERATURE RANGE: # 0 – 150°F

INDICATED PRESSURE RANGE: #0 – 3000 PSI

SERIAL NO: 202E-007

MANUFACTURER: BARTON/ 12" RECORDER

TYPE OF INSTRUMENT CALIBRATED: TEMPERATURE / PRESSURE RECORDER

INSTRUMENT FINDINGS/STATUS: UNIT IS IN TOLERANCE/ INSTRUMENT MEETS OR EXCEEDS SPECIFICATIONS.

BASED ON INTERNATIONAL STANDARDS OF GRAVITY: (980.665 cm./sq.).

TYPE OF STANDARD USED TO CALIBRATE: REFINERY DEADWEIGHT TEST UNIT SPT. (35225-3) SERIAL No. 5268; KESSLER TEST THERMOMETERS; SERIAL NO. CALIBRATION DATE: JANUARY 30, 2017

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CALIBRATED BY: NICK BEDFORD

