

<div style="text-align: center;"> TEST SPECIFICATIONS Black Diamond Gathering, LLC - Pressure Test Rangeview M (PDC Challenger/Jagged) </div>		Rev3																																																													
		Date:	Select Routing:																																																												
		15-Apr-2021																																																													
Project Name: Rangeview M (PDC Challenger/Jagged) - OIL - 4" Lateral Contractor / Testing Company: Northwinds of Wyoming Construction		Project I.D. / AFE Number: 5000527 Technician:																																																													
Installation Location (M.P. or S.S.): 0+00 to 62+05 Lat: 40.32463 to 40.32826 Long: -104.59194 to -104.57534		State: CO County/Parish: Weld	Class Location Designation: N/A Selected Design Pressure: 1480 Planned MAOP: 1480																																																												
Facility Name or Number Rangeview M (PDC Challenger/Jagged) - BDO-04-RVM-100/BDO-04-RVM-100-L1																																																															
Project Description: Hydrostatic pressure test of 6205' of 4" Carbon Steel. Testing at 1.25*MAOP = 1850 psig minimum test pressure. 2,016 psig Target Test Pressure at Chart Location Max Test Pressure for ANSI 600 Valves and Fittings is 2660 psig where they are located.																																																															
LEAK ONLY TEST <input type="checkbox"/> STRENGTH TEST <input type="checkbox"/> FABRICATION <input type="checkbox"/> NEW CONSTRUCTION <input checked="" type="checkbox"/> REPLACEMENT <input type="checkbox"/> RETEST <input type="checkbox"/> REFERENCE DRAWINGS ATTACHED <input checked="" type="checkbox"/> POST-INSTALLATION TEST <input checked="" type="checkbox"/> PRE-INSTALLATION TEST <input type="checkbox"/>																																																															
Minimum Component Characteristics Pipe Information <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>O.D.</td><td>4.5</td></tr> <tr><td>Wall Thickness</td><td>0.188</td></tr> <tr><td>SMYS</td><td>52,000</td></tr> <tr><td>Grade</td><td>X52</td></tr> </table> Valve/Flange ANSI Class Rating 600# Valves/Fittings		O.D.	4.5	Wall Thickness	0.188	SMYS	52,000	Grade	X52	Test Design Criteria Test Pressure Calculations <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> Input minimum and maximum pressure of test</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Input minimum and maximum %SMYS of test</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Pressure (psig) % PIPE SMYS</td> </tr> <tr> <td>Max. Test Pressure (Pipe)</td> <td style="text-align: center;">2220 51.1%</td> </tr> <tr> <td>Max. Test Pressure (Valves and Fittings)</td> <td style="text-align: center;">2220 51.1%</td> </tr> <tr> <td>Min.</td> <td style="text-align: center;">1850 42.6%</td> </tr> </table>		<input type="checkbox"/> Input minimum and maximum pressure of test		<input type="checkbox"/> Input minimum and maximum %SMYS of test			Pressure (psig) % PIPE SMYS	Max. Test Pressure (Pipe)	2220 51.1%	Max. Test Pressure (Valves and Fittings)	2220 51.1%	Min.	1850 42.6%																																								
O.D.	4.5																																																														
Wall Thickness	0.188																																																														
SMYS	52,000																																																														
Grade	X52																																																														
<input type="checkbox"/> Input minimum and maximum pressure of test																																																															
<input type="checkbox"/> Input minimum and maximum %SMYS of test																																																															
	Pressure (psig) % PIPE SMYS																																																														
Max. Test Pressure (Pipe)	2220 51.1%																																																														
Max. Test Pressure (Valves and Fittings)	2220 51.1%																																																														
Min.	1850 42.6%																																																														
		Test Section - Reference Data <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Test Medium</td><td>Water</td><td></td></tr> <tr><td>Test Duration</td><td>8 hour</td><td>Hours (min)</td></tr> <tr><td>Section Length</td><td>6,205</td><td>Ft.</td></tr> <tr><td>Section Fill Volume</td><td>5,126</td><td>Gal</td></tr> <tr><td>Max. Elevation Change</td><td>85</td><td>Ft.</td></tr> </table> 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>		Test Medium	Water		Test Duration	8 hour	Hours (min)	Section Length	6,205	Ft.	Section Fill Volume	5,126	Gal	Max. Elevation Change	85	Ft.		1	2	3	Back	0+00	0+00	0+00	Ahead	0+00	0+00	0+00																																	
Test Medium	Water																																																														
Test Duration	8 hour	Hours (min)																																																													
Section Length	6,205	Ft.																																																													
Section Fill Volume	5,126	Gal																																																													
Max. Elevation Change	85	Ft.																																																													
	1	2	3																																																												
Back	0+00	0+00	0+00																																																												
Ahead	0+00	0+00	0+00																																																												
Test Pressures <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Location</th> <th>Station</th> <th>Elevation (feet)</th> <th>Max. psig.</th> <th>% SMYS @ Max.</th> <th>Min. psig.</th> <th>% SMYS @ Min.</th> <th>Variance psig.</th> <th>Target psig.</th> <th>% SMYS @Target</th> </tr> </thead> <tbody> <tr> <td>BEGIN -</td> <td>0+00</td> <td>4855</td> <td>2,183</td> <td>50.2%</td> <td>1,850</td> <td>42.6%</td> <td>333</td> <td>2,016</td> <td>46.4%</td> </tr> <tr> <td>HIGH ELEVATION</td> <td>0+00</td> <td>4855</td> <td>2,183</td> <td>50.2%</td> <td>1,850</td> <td>42.6%</td> <td>333</td> <td>2,016</td> <td>46.4%</td> </tr> <tr> <td>LOW ELEVATION</td> <td>54+49</td> <td>4770</td> <td>2,220</td> <td>51.1%</td> <td>1,887</td> <td>43.4%</td> <td>333</td> <td>2,053</td> <td>47.3%</td> </tr> <tr> <td>END</td> <td>62+05</td> <td>4775</td> <td>2,218</td> <td>51.0%</td> <td>1,885</td> <td>43.4%</td> <td>333</td> <td>2,051</td> <td>47.2%</td> </tr> <tr> <td>Chart Location (Test Point)</td> <td>0+00</td> <td>4855</td> <td>2,183</td> <td>50.2%</td> <td>1,850</td> <td>42.6%</td> <td>333</td> <td>2,016</td> <td>46.4%</td> </tr> </tbody> </table>				Location	Station	Elevation (feet)	Max. psig.	% SMYS @ Max.	Min. psig.	% SMYS @ Min.	Variance psig.	Target psig.	% SMYS @Target	BEGIN -	0+00	4855	2,183	50.2%	1,850	42.6%	333	2,016	46.4%	HIGH ELEVATION	0+00	4855	2,183	50.2%	1,850	42.6%	333	2,016	46.4%	LOW ELEVATION	54+49	4770	2,220	51.1%	1,887	43.4%	333	2,053	47.3%	END	62+05	4775	2,218	51.0%	1,885	43.4%	333	2,051	47.2%	Chart Location (Test Point)	0+00	4855	2,183	50.2%	1,850	42.6%	333	2,016	46.4%
Location	Station	Elevation (feet)	Max. psig.	% SMYS @ Max.	Min. psig.	% SMYS @ Min.	Variance psig.	Target psig.	% SMYS @Target																																																						
BEGIN -	0+00	4855	2,183	50.2%	1,850	42.6%	333	2,016	46.4%																																																						
HIGH ELEVATION	0+00	4855	2,183	50.2%	1,850	42.6%	333	2,016	46.4%																																																						
LOW ELEVATION	54+49	4770	2,220	51.1%	1,887	43.4%	333	2,053	47.3%																																																						
END	62+05	4775	2,218	51.0%	1,885	43.4%	333	2,051	47.2%																																																						
Chart Location (Test Point)	0+00	4855	2,183	50.2%	1,850	42.6%	333	2,016	46.4%																																																						
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.																																																															
PRE-TEST APPROVAL / REVIEWED BY: Originator/Project Manager (Signature): Craig Melton Date: 04/15/2021 Designed Reviewed if applicable (Signature): Date: Compliance (Signature): Date:																																																															
TEST PERFORMED / ACCEPTED BY: Test Performed by (Signature): [Signature] Date: 4/27/21 Company Name (for Contractor or for Employee): Northwind of Wyoming Date: 4/27/21 Witnessed & Accepted by Company Representative (Signature): [Signature] Date: 4/27/2021																																																															
POST-TEST REVIEWED BY: Construction Manager (signature): [Signature] Date: 4-27-21 Actual MAOP:																																																															

		Pressure Head Water or gas 0.4330000 psig/ft DO NOT MOVE		PIPE DESIGN CALCS Class 1 #DIV/0! Class 2 #DIV/0! Class 3 #DIV/0! Class 4 #DIV/0! Class 3 #DIV/0! Class 4 #DIV/0! DO NOT MOVE	
		Test Medium Water Test Medium Water Salt Water Nitrogen Natural Gas Air 1 DO NOT MOVE		Valve/Fitting Ratings 150# Valves/Fittings 400# Valves/Fittings 600# Valves/Fittings 900# Valves/Fittings 1500# Valves/Fittings 2500# Valves/Fittings 3	
Pressure Entry Max Pipe Test <div></div> 51.1% <div></div> Min Pipe Test <div></div> 42.6% %SMYS ENTRY Max Pipe Test <div>2220.0</div> <div>100.0%</div> Min Pipe Test <div>1850.0</div> <div>90.0%</div>		DO NOT MOVE			



Pipeline Pressure Test Documentation

Pressure Test Report

Form :

Revision

3

Revision Date

Project Name: Range View MC PDC Challenger / Tagged

APE No.: 5000529

Contractor / Testing Company: North Winds

Technician: Osiel Lima

Test Section No.: 0

From Station No.: 0400

Test Description: Hydro Test 4" O/L lateral

To Station No.: 62405

Test Type: Subpart E Test

Start of Test Period :

Date: 4-27-21

Time: 5:30 AM

Min. Test Duration: 8-Hrs

End of Test Period :

Date: 4-27-21

Time: 13:30 PM

Class Location: Not Applicable (Liquids)

Low Strength Pipe: O.D.: 4.5

W.T.: 0.188

SMYS: 52000

Grade: X52

Station Piping: Yes

Test Medium: H2O

Source of Medium:

N/A

Corrosion Inhibitor: No

Inhibitor Type:

N/A

Rate:

N/A

Leak Detection: No

Material Type:

N/A

Rate:

N/A

Deadweight Tester: Mfg: Crystal

Serial #: 916750

Calibration Date: 01-04-2021

Deadweight Tester Location: Station No. (ESN):

Elevation (ft):

Pressure Recorder: Mfg: Barton

Serial #: 242E-2671

Calibration Date: 4-21-21

Pipe Temp. Recorder: Mfg: Barton

Serial #: 242E-2671

Calibration Date: 4-21-21

Pre-approved Target Test Pressure: 2016 psig

Max Elevation Change: 85ft

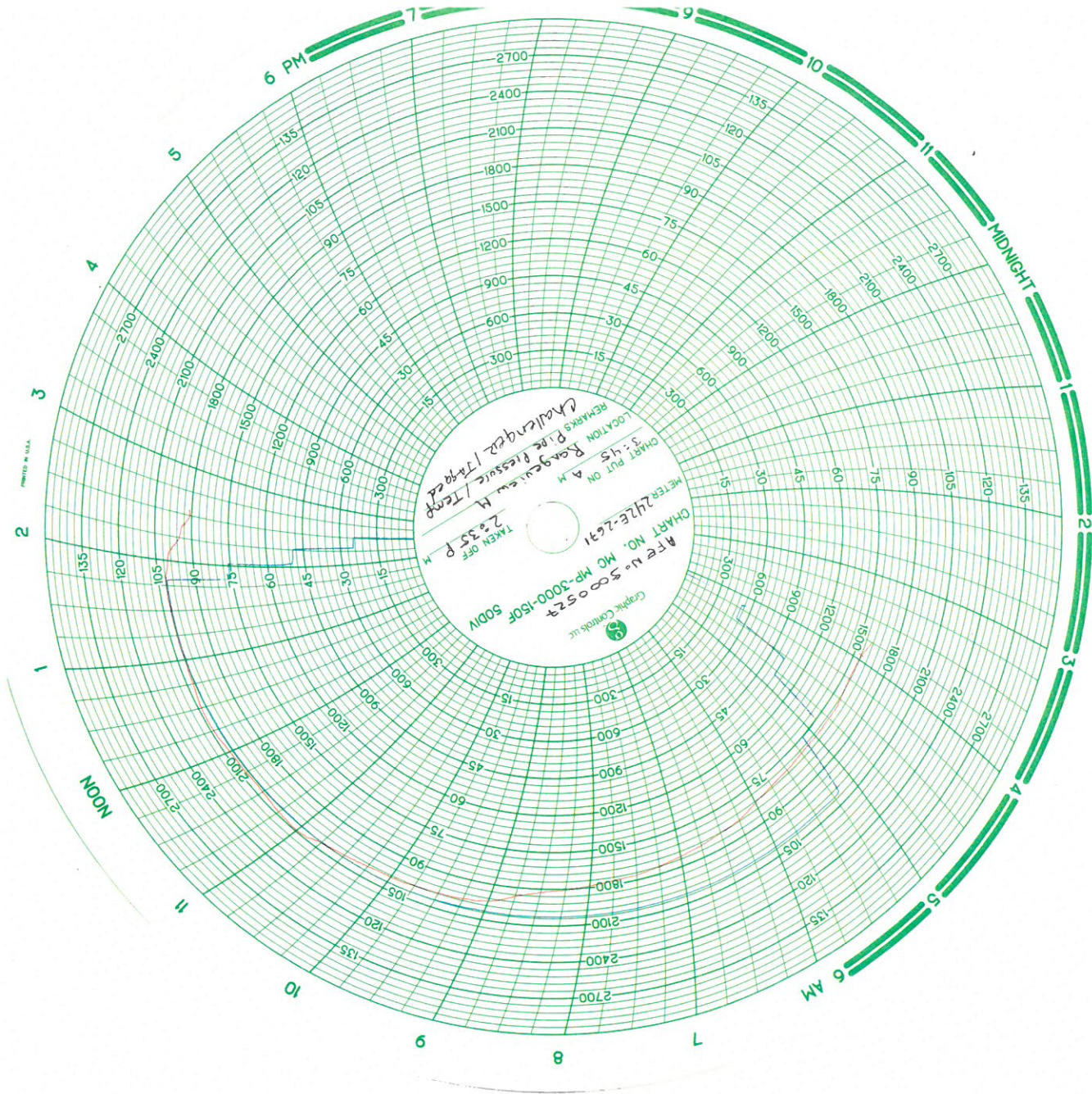
Target Test Pressure Range

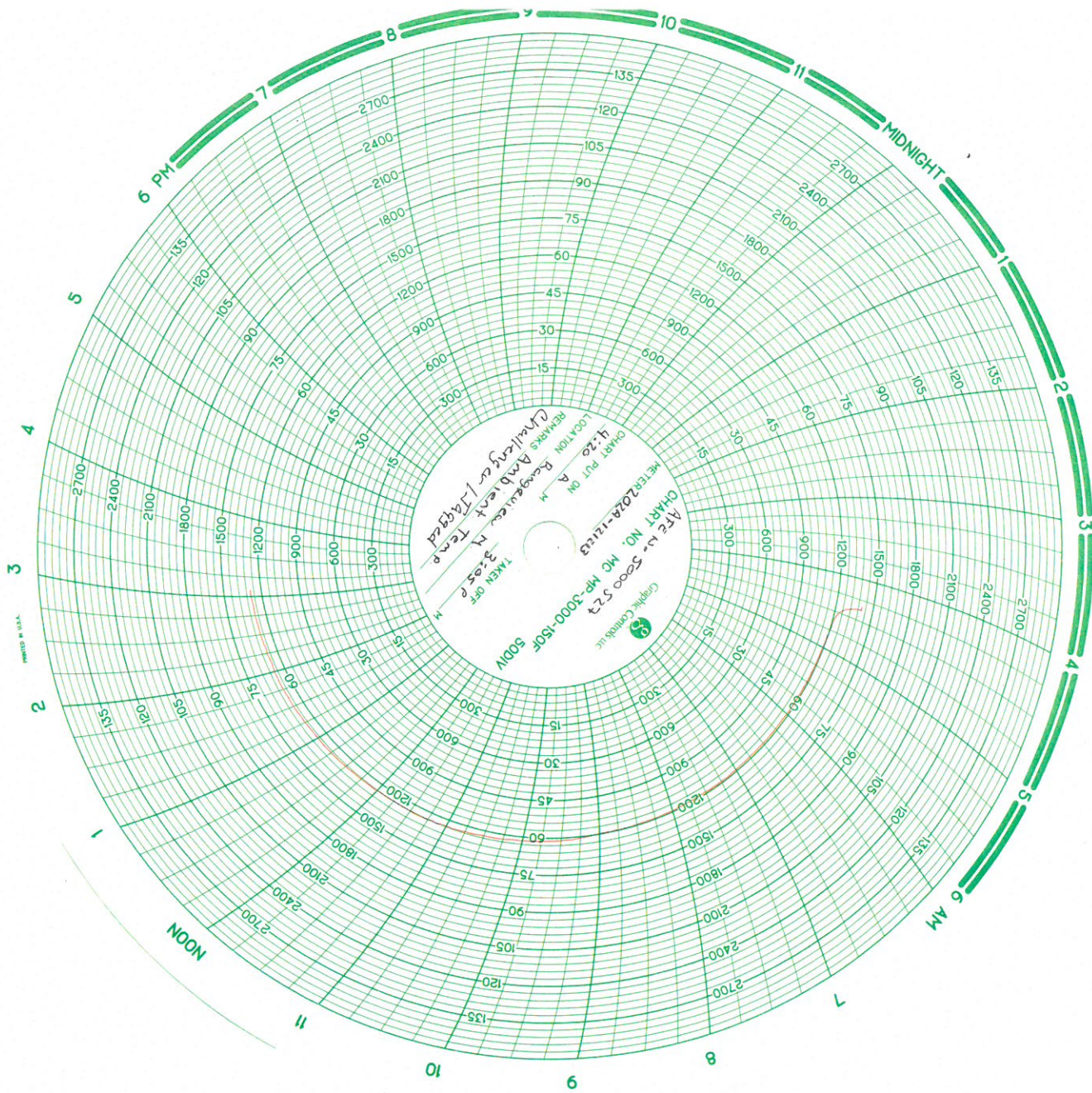
Maximum Test Pressure: 2220 psig

Minimum Test Pressure: 1850 psig

Time	Pressure (psig)	Pipe Temp.	Amb. Temp.	Weather	Visual Inspection	Comments
3:55	0	81	71	cloudy		let it run 10 min
4:05	0	78	71			Pressure up to 500 PSI
4:10	520	78	64		Check For leaks	Hold 15 min
4:25	520	78	60			Pressure up to 1000 PSI
4:33	1017	78	60		check For leaks	Hold 15 min.
4:48	1017	78	60			Pressure up to 1500
4:53	1503	78	60		Heater on.	Hold 15 min.
5:08	1503	79	60			Pressure up To Target
5:12	2018	79	60		check For leaks	Target Pressure
5:30	2018	79	60			Start Test 8 hrs
5:45	2018	80	59			
6:00	2019	80	59			
6:15	2019	81	59			
6:30	2020	81	59			
6:45	2020	81	59			
7:00	2021	82	59			
7:15	2021	85	59			
7:30	2021	86	59			
7:45	2022	87	59			
8:00	2023	88	59			
8:15	2024	90	59			
8:30	2026	92	60			

[illegible]







9829 E. Easter Ave. • Centennial, CO 80112

303.794.8833 • Fax 303.730.1220

Toll Free 1.800.327.7257

www.jmcinstruments.com

CR-5

CERTIFIED CALIBRATION

CUSTOMER Cross Country ORDER NO. _____

ITEM Digital Gauge RANGE 0-5000PSIG ITEM NO. 5194-2

TRUE VALUE	INDICATED VALUE	
	INCREASING READINGS	DECREASING READINGS
PSIG		
0.00	0	0
500.00	499.7	499.8
1000.00	999.5	999.6
1500.00	1498.9	1499.3
2000.00	1998.6	1999.1
2500.00	2498.3	2498.8
3000.00	2997.8	2998.4
3500.00	3497.5	3497.9
4000.00	3996.8	3997.3
4500.00	4496.6	4497.0
5000.00	4996.2	4996.2

Tested On: Deadweight Tester S/N# 1GA4474

Traceable to National Institute of Standards and Technology certificate
17-043

Tested By: Brian McLein Date January 4 2021

Remarks:

Crystal	XP2i	SN#	916750
Accuracy is +/-	.25	% of Full Scale or Better	
Test Conditions	68 °F; 610	mmHg Atm. Pressure	

Cross Country Infrastructure Services. Inc

Sales and Service

2251 Rifle Street - Aurora, Colorado 80011

Phone 303.361.6797 Fax 303.361.6836

C-2

NIST CALIBRATION DATA

Model Number	Serial Number	Customer	Range	Accuracy
Barton	202A-121213	NorthWinds of Wyo.	3000# - 150F	1/2%
Work Performed:		Calibration: Output/Reading	Results: Pressure	
Calibrate to Mfg. Spec.		0 PSI	0 PSI	
		600 PSI	600 PSI	
		1200 PSI	1200 PSI	
		1800 PSI	1800 PSI	
		2400 PSI	2400 PSI	
		3000 PSI	3000 PSI	
		33 Deg	32 DEG	
		55 DEG	55 DEG	
		109 DEG	109 DEG	
		149 DEG	149 DEG	
PO Number		Sales Order Number	Date of Test	
Calibrated		Certified	12/1/2020 4:47:56 PM	

Remarks: ALL CALIBRATIONS ARE GOOD FOR ONE YEAR FROM DATE OF TEST

Standard Used:

Manufacturer	Model	Instrument	Calibration Date	Certification #
Perma-Cal	101FTM15B21	Pressure Gauge	03/06/2020	17-043
Tech Instrumentation	TM99A	Thermometer	03/06/2020	59448

Don F.

Signature

Don Fick 12-1-2020

Cross Country Infrastructure Services. Inc

Sales and Service

2251 Rifle Street - Aurora, Colorado 80011

Phone 303.361.6797 Fax 303.361.6836

C-3

NIST CALIBRATION DATA

Model Number	Serial Number	Customer	Range	Accuracy
Barton	242E-2671	NorthWinds of Wyo.	3000# - 150F	1/2%
Work Performed:		Calibration: Output/Reading	Results: Pressure	
Calibrate to Mfg. Spec.		0 PSI	0 PSI	
		600 PSI	600 PSI	
		1200 PSI	1200 PSI	
		1800 PSI	1800 PSI	
		2400 PSI	2400 PSI	
		3000 PSI	3000 PSI	
		33 Deg	33 DEG	
		68 DEG	68 DEG	
		100 DEG	100 DEG	
		150 DEG	150 DEG	
PO Number		Sales Order Number	Date of Test	
Calibrated		Certified	4/21/2021 11:02:37 AM	

Remarks: ALL CALIBRATIONS ARE GOOD FOR ONE YEAR FROM DATE OF TEST

Standard Used:

Manufacturer	Model	Instrument	Calibration Date	Certification #
Perma-Cal	101FTM15B21	Pressure Gauge	03/05/2021	17-043
Tech Instrumentation	TM99A	Thermometer	03/05/2021	59448

Don F.

Signature

Don Erick 4-21-21