

<div style="display: flex; align-items: center;"> <div> <p style="text-align: center;">TEST SPECIFICATIONS</p> <p style="text-align: center;">Black Diamond Gathering, LLC - Pressure Test</p> <p style="text-align: center;">PDC Harvey/Crawford</p> </div> </div>						Rev3																																																													
						Date: 16-Oct-2020		Select Routing:																																																											
						Test Number: 1 of 1																																																													
Project Name: PDC Harvey/Crawford - OIL - 4" Lateral			Project I.D. / AFE Number: 5000594/5000592		Facility Name or Number: PDC Harvey/Crawford - BDO-04-RVF-100-L8/BDO-04-RVF-100-L8-1																																																														
Contractor / Testing Company: Northwinds of Wyoming Construction			Technician:																																																																
Installation Location (M.P. or S.S.): 0+00 to 46+02			State: CO	County/Parish: Weld	Class Location Designation: N/A	Selected Design Pressure: 1480	Planned MAOP: 1480																																																												
Lat: 40.26198 to Lat: 40.26235			Long: -104.67052 to Long: -104.68564																																																																
Project Description: Hydrostatic pressure test of 4602' of 4" Carbon Steel. Testing at 1.25*MAOP = 1850 psig minimum test pressure. 2,045 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> <td></td> </tr> <tr> <td><input type="checkbox"/> Input minimum and maximum %SMYS of test</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Pressure (psig)</td> <td style="text-align: center;">% PIPE SMYS</td> </tr> <tr> <td>Max. Test Pressure (Pipe)</td> <td style="text-align: center;">2220</td> <td style="text-align: center;">51.1%</td> </tr> <tr> <td>Max. Test Pressure (Valves and Fittings)</td> <td style="text-align: center;">2220</td> <td style="text-align: center;">51.1%</td> </tr> <tr> <td>Min.</td> <td style="text-align: center;">1850</td> <td style="text-align: center;">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%	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>4,602</td><td>Ft.</td></tr> <tr><td>Section Fill Volume</td><td>3,801</td><td>Gal</td></tr> <tr><td>Max. Elevation Change</td><td>47</td><td>Ft.</td></tr> </table> Station Equations: <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Back</td> <td style="text-align: center;">0+00</td> <td style="text-align: center;">0+00</td> <td style="text-align: center;">0+00</td> </tr> <tr> <td>Ahead</td> <td style="text-align: center;">0+00</td> <td style="text-align: center;">0+00</td> <td style="text-align: center;">0+00</td> </tr> </table>		Test Medium	Water		Test Duration	8 hour	Hours (min)	Section Length	4,602	Ft.	Section Fill Volume	3,801	Gal	Max. Elevation Change	47	Ft.		1	2	3	Back	0+00	0+00	0+00	Ahead	0+00	0+00	0+00							
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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:			TEST PERFORMED / ACCEPTED BY:			POST-TEST REVIEWED BY:																																																													
Originator/Project Manager (Signature): Craig Melton		Date: 10/16/2020	Test Performed by (Signature): <i>Michael Cooper</i>		Date: 11/17/2020	Construction Manager (Signature): <i>Ralph H. Coyle</i>		Date: 11-17-2020																																																											
Designed Reviewed if applicable (Signature):		Date:	Company Name (for Contractor or for Employee): Northwinds of Wyoming		Date: 11/17/2020																																																														
Compliance (Signature):		Date:	Witnessed & Accepted by Company Representative: <i>[Signature]</i>		Date: 11/17/2020	Actual MAOP:																																																													



Pipeline Pressure Test Documentation

Pressure Test Report

Form :

Revision
3

Revision Date

Project Name : PDC Harvey/Crawford

AFE No. : 5000594/5000592

Contractor / Testing Company : Northwinds of Wyoming Construction

Technician :

Test Section No. : 0

From Station No. : 0+00

To Station No. : 46+02

Test Description: Hydrostatic Pressure Test of 4602' of 4" Carbon Steel

Test Type : Subpart E Test

Min. Test Duration : 8 hour

Start of Test Period : Date :

Time :

End of Test Period : Date :

Time :

Class Location : Not Applicable (Liquids)

Low Strength Pipe : O.D. : 4.500 W.T. : 0.188 SMYS : 52,000 Grade : X52 Station Piping : Yes

Test Medium : Water

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 #: 916670

Calibration Date : 6/15/2020

Deadweight Tester Location : Station No. (ESN) :

0+00

Elevation (ft) :

4,838

Pressure Recorder : Mfg: Barton

Serial #: 202A-121213

Calibration Date : 6/19/2020

Pipe Temp. Recorder : Mfg: Barton

Serial #: 202A-121213

Calibration Date : 6/19/2020

Pre-approved Target Test Pressure : 2,045.0 psig

Max Elevation Change : 47

Target Test Pressure Range

Maximum Test Pressure : 2,220.0 psig

Minimum Test Pressure : 1,850.0 psig

Time	Pressure (psig)	Pipe Temp.	Amb. Temp.	Weather	Visual Inspection	Comments
5:00	0	88	64			let it run 15 min.
5:15		87	56			pressure up to 20%.
5:27	685	87	56		check for leaks	hold 15 min
5:32	685	86	53			pressure up to 60%.
5:37	1370	82	50		check for leaks	hold 15 min
5:52	1370	80	48			press up to Target pressure
5:59	2055	80	48		check for leaks	hold 15 min. Test pressure
6:15	2055	82	52			STAR TEST
6:30	2055	85	51			
6:45	2055	88	51			
7:00	2056	90	51			
7:15	2056	91	43		check for Leaks	
7:30	2057	93	44			
7:45	2061	95	45	Sunny		
8:00	2065	96	46			
8:15	2069	99	41		check for Leaks	
8:30	2071	102	41			
8:45	2074	103	41	Sunny		
9:00	2077	105	41		check for Leaks	
9:15	2081	105	42			
9:30	2084	105	43	Sunny		
9:45	2087	106	44			
10:00	2089	106	45			
10:15	2091	105	45		check for Leaks	
10:30	2093	105	46	Sunny		
10:45	2096	105	48			
11:00	2098	108	49			
11:15	2100	108	50	Sunny	check for Leaks	
11:30	2103	108	50			
11:45	2106	110	49			
12:00	2109	111	50			

Project Name : PDC Harvey/Crawford

AFE No. : 5000594/5000592

Test Section No. :	0
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[illegible]

Comments

Recorded Maximum Test Pressure at Chart:

Recorded Minimum Test Pressure at Chart:

2119	psig
0	psig

Pressure Test is : **Accepted**

Recorded by :

Barbara Quellar Rafael Quellar
(Contractor Representative) Print/Sign

11/17/2020
(Date)

Witnessed by:

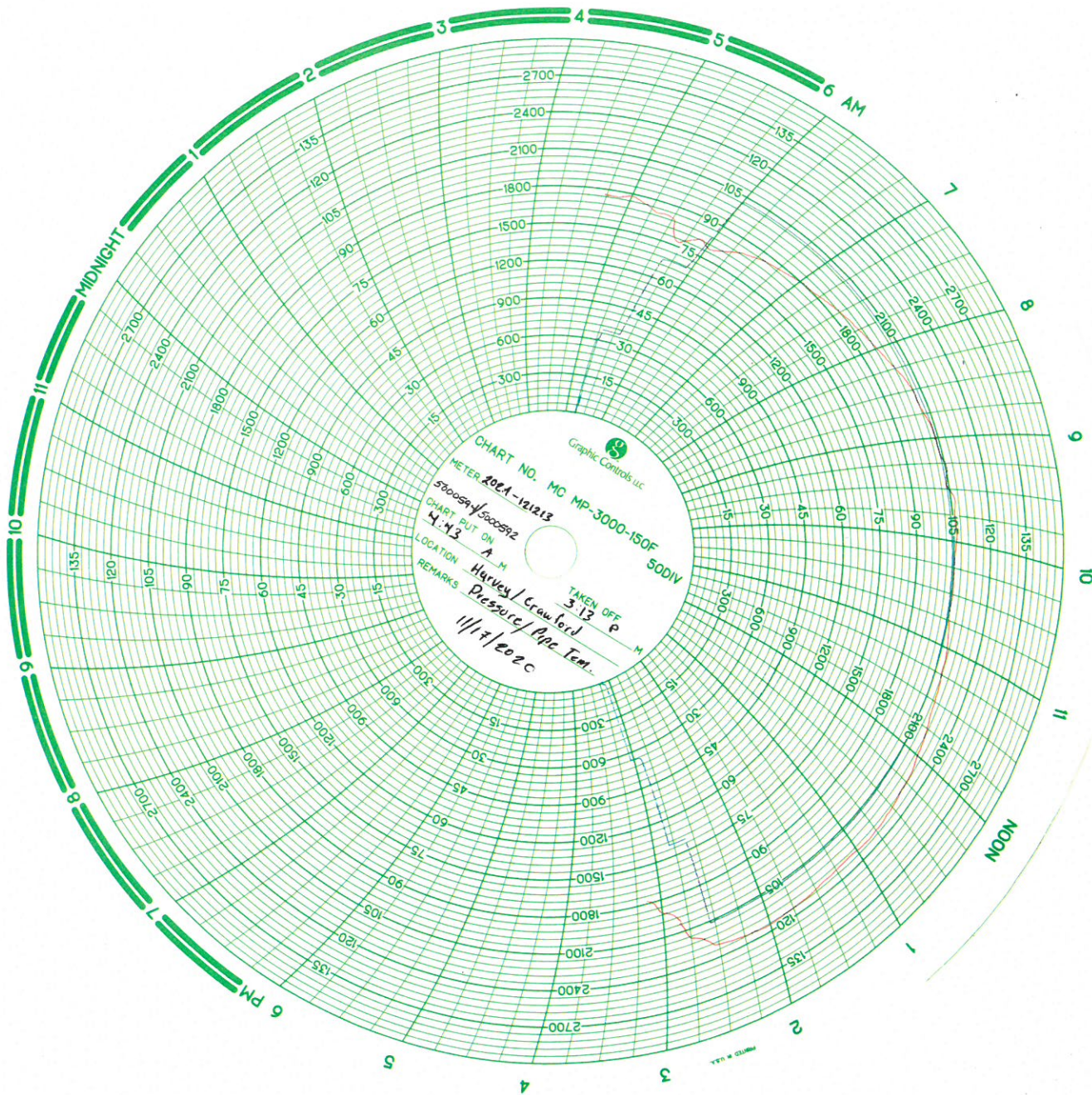
Gorge Holguin (Inspector/Integrity Representative) Print/Sign

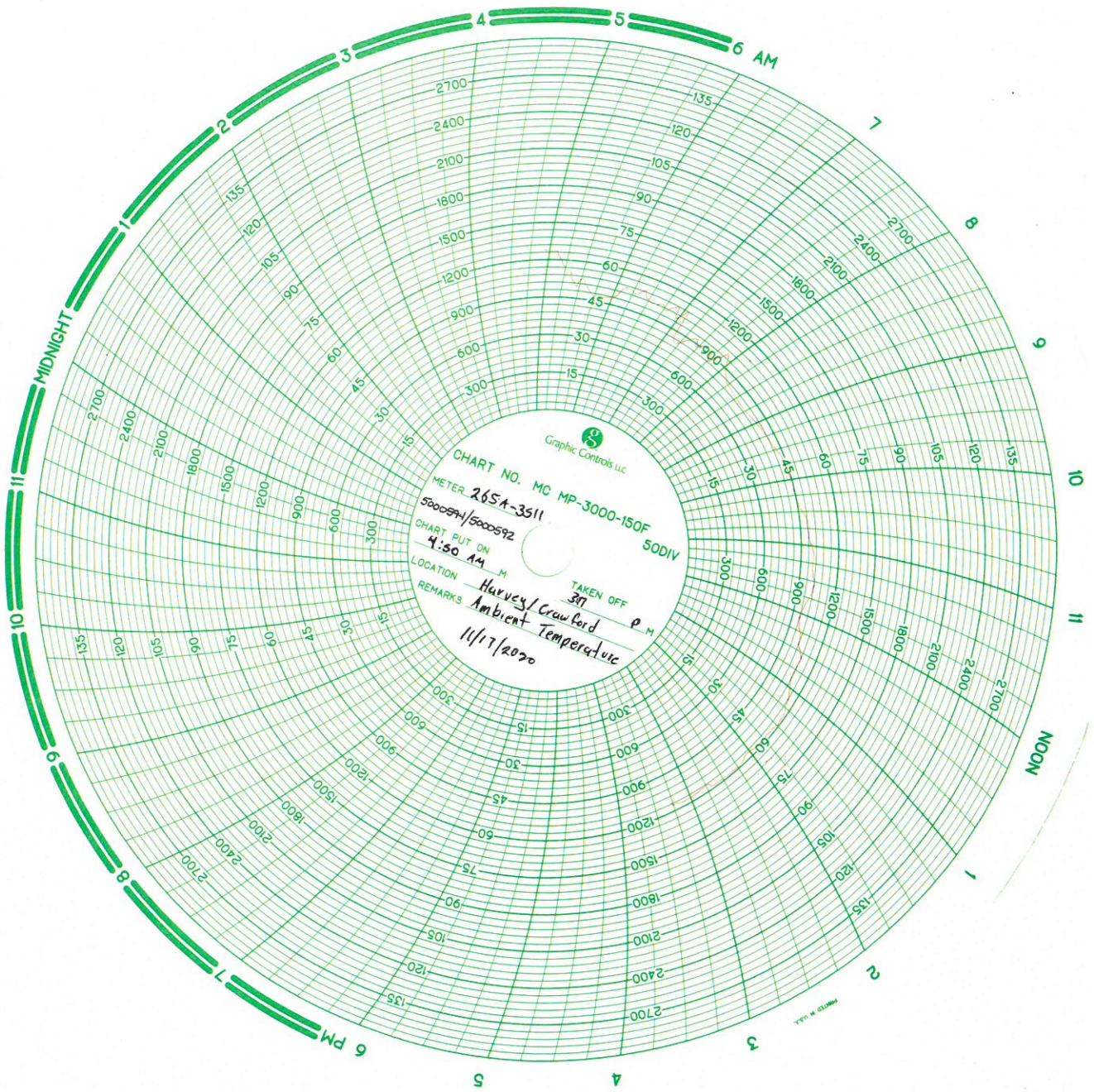
11/17/2020
(Date)

Approved by :

(Inspector/Integrity Representative) Print/Sign
 (Project Mgr./Construction Mgr.) Print/Sign

11-17-2020
(Date)





Cross Country Infrastructure Services, Inc

Sales and Service

2251 Rifle Street - Aurora, Colorado 80011

Phone 303.361.6797 Fax 303.361.6335

C-1

NIST CALIBRATION DATA

Model Number	Serial Number	Customer	Range	Accuracy
Precision	255A-3511	North Windw 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
	70 DEG	70 DEG
	112 DEG	112 DEG
	150 DEG	150 DEG

PO Number	Sales Order Number	Date of Test
Recalibrated	Certified	7/30/2020 4:10:21 PM

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

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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

7-30-20

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	33 DEG
	70 DEG	70 DEG
	100 DEG	100 DEG
	150 DEG	150 DEG

PO Number	Sales Order Number	Date of Test
Recalibrated	Certified	6/19/2020 11:30:22 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	03/06/2020	17-043
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Don F.

Signature

Don Erick 6-19-20



9829 E. Easter Ave. • Centennial, CO 80112
303.794.8833 • Fax 303.730.1220
Toll Free 1.800.327.7257
www.jmcinstruments.com

CR-7

CERTIFIED CALIBRATION

CUSTOMER Cross Country ORDER NO. _____

ITEM Digital Gauge RANGE 0-5000PSIG ITEM NO. 5117-3

TRUE VALUE	INDICATED VALUE	
	INCREASING READINGS	DECREASING READINGS
PSIG		
0.00	0	0
500.00	499.7	499.8
1000.00	999.7	999.8
1500.00	1499.5	1499.6
2000.00	1999.3	1999.5
2500.00	2499.4	2499.6
3000.00	2999.9	2999.8
3500.00	3499.7	3499.7
4000.00	3999.2	3999.4
4500.00	4498.9	4499.0
5000.00	4998.7	4998.7

Tested On: Deadweight Tester S/N# 1GA4474

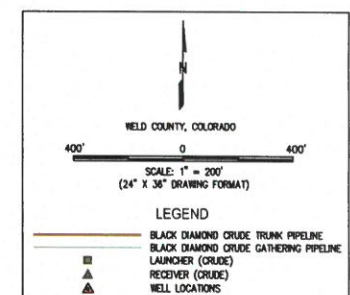
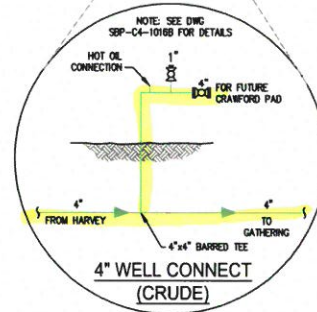
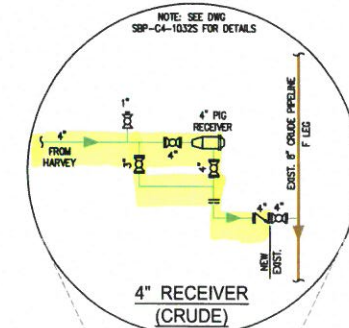
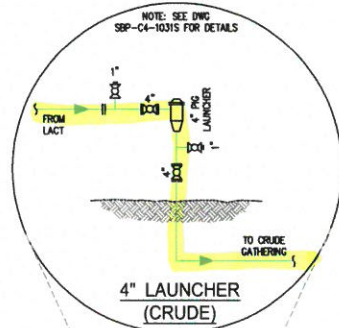
Traceable to National Institute of Standards and Technology certificate
17-043

Tested By: BDMZ Date 15 June 2020

Remarks:

Crystal	XP2i	SN 916670
Accuracy is +/-	.25	% of Full Scale or Better
Test Conditions	71 °F; 615	mmHg Atm. Pressure

hydrotest included receiver (1032-64), launcher (52947-01), piping between launcher + lact unit @ Harvey, piping to lact @ Crawford, check valve between existing future and receiver, and all piping between receiver and launcher

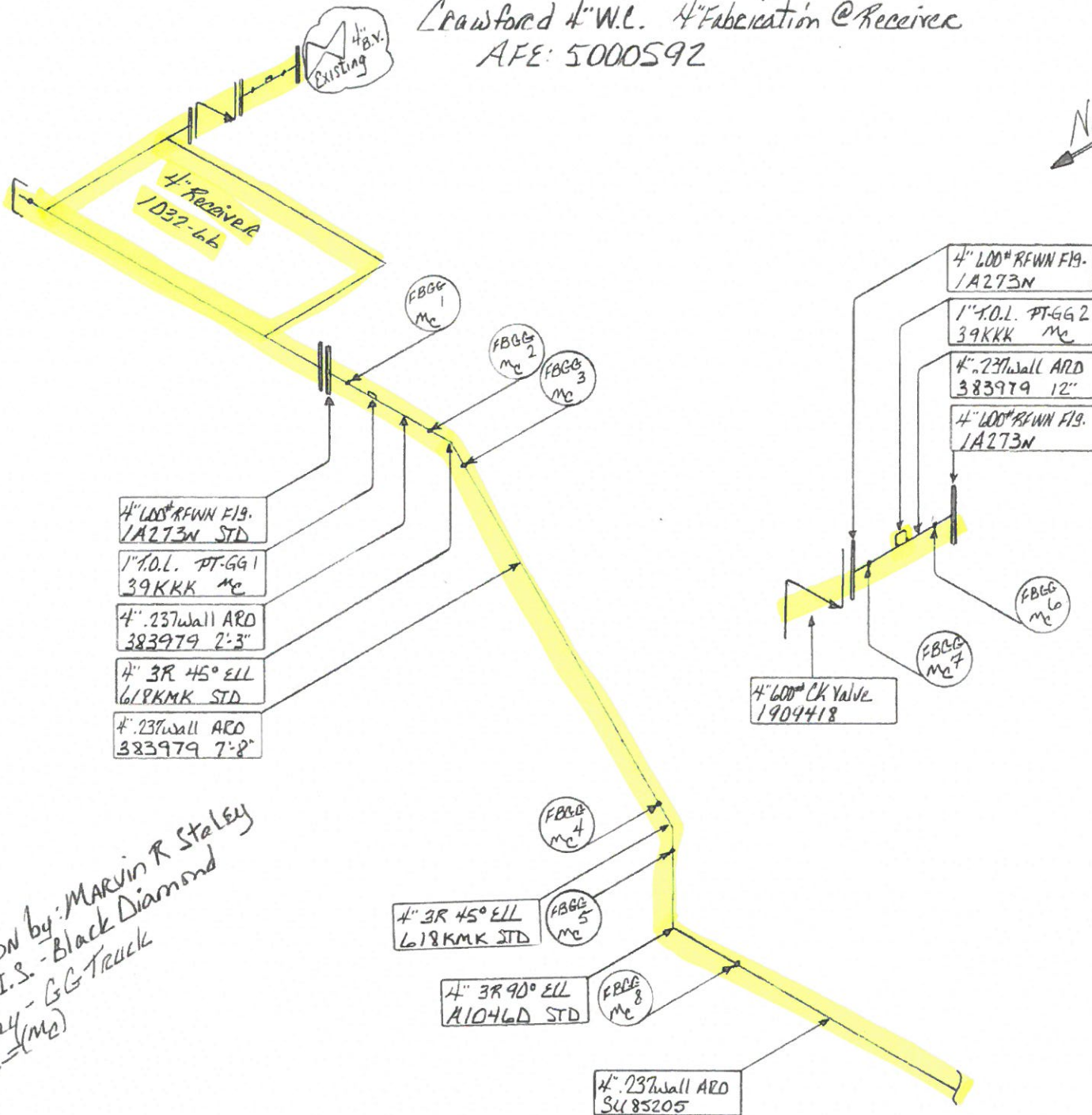


NOTES:

- 1) PLAN SCHEMATIC IS FOR GRAPHICAL REPRESENTATION ONLY.
- 2) ALL GAS, WATER AND UTILITY LINES SHOULD BE LOCATED PRIOR TO ANY DRAINING, DODGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
- 3) GULF ENGINEERING ASSUMES NO RESPONSIBILITY FOR THE SPECIFIC LOCATION OF ANY BURIED GAS, WATER, OR UTILITY LINES THAT MAY BE PRESENT ON OR NEAR THIS SITE, NOR IS ANY LIABILITY ASSIGNED FOR ANY LEGAL ACTION WHICH RESULTS FROM A DISCOVERY OF A GAS, WATER, OR UTILITY LINE IN ADDITION TO OR IN A DIFFERENT LOCATION THAN SHOWN ON THIS PLAN.
- 4) COORDINATE SYSTEM SHOWN ON MAP IS COLORADO STATE PLANE, NORTH ZONE.
- 5) PROPOSED PIPELINE ROUTES FROM REPORTED SHAPE FILES PROVIDED BY BLACK HAWK DRAINAGE.

[illegible]

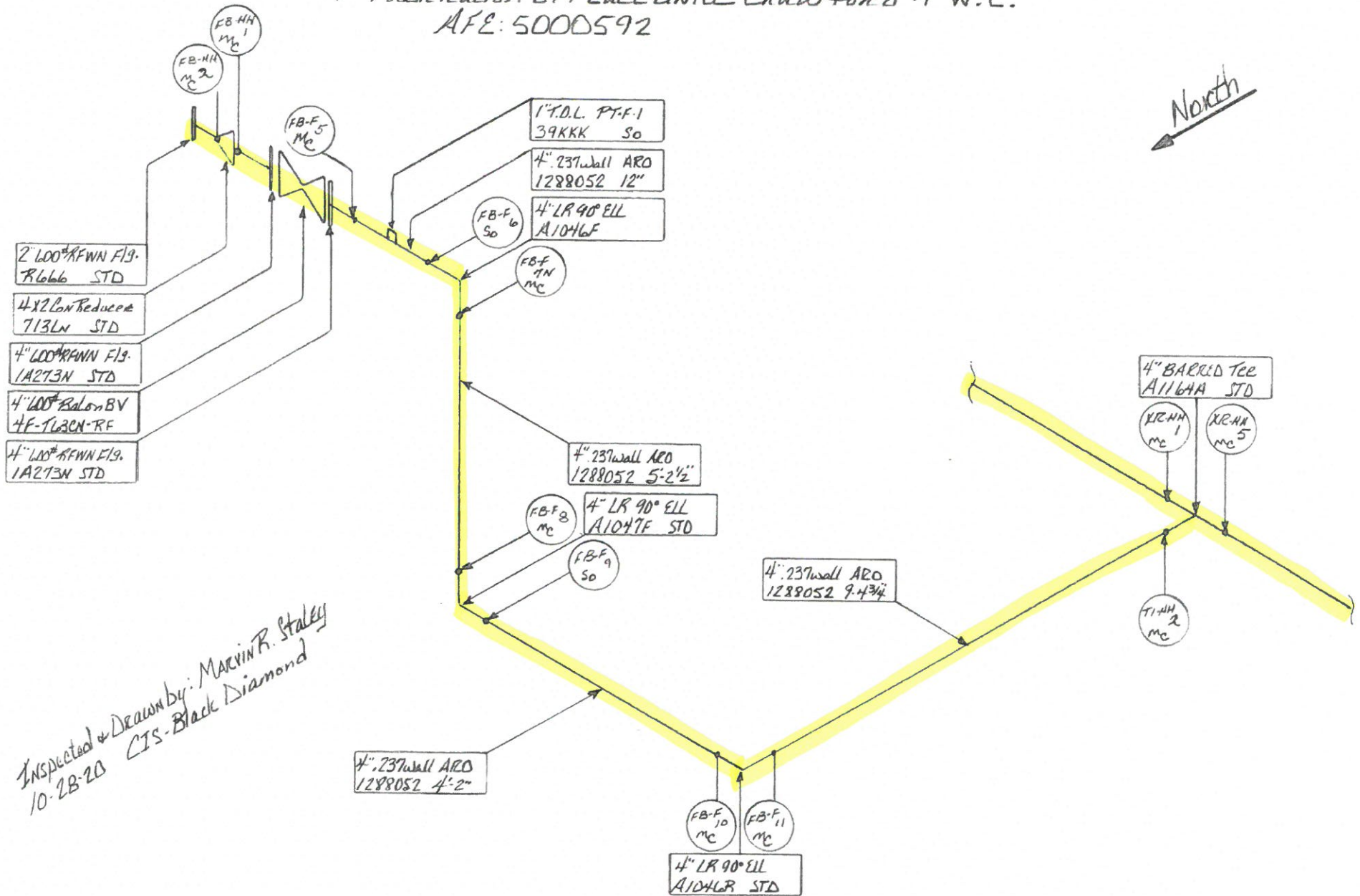
Crawford 4" W.L. 4" Fabrication @ Receiver
 AFE: 5000592



Inspected & Drawn by: MARVIN R Staley
 10-30-20 C.I.S. - Black Diamond
 Phased Ray - GG Truck
 Welder - (mc)

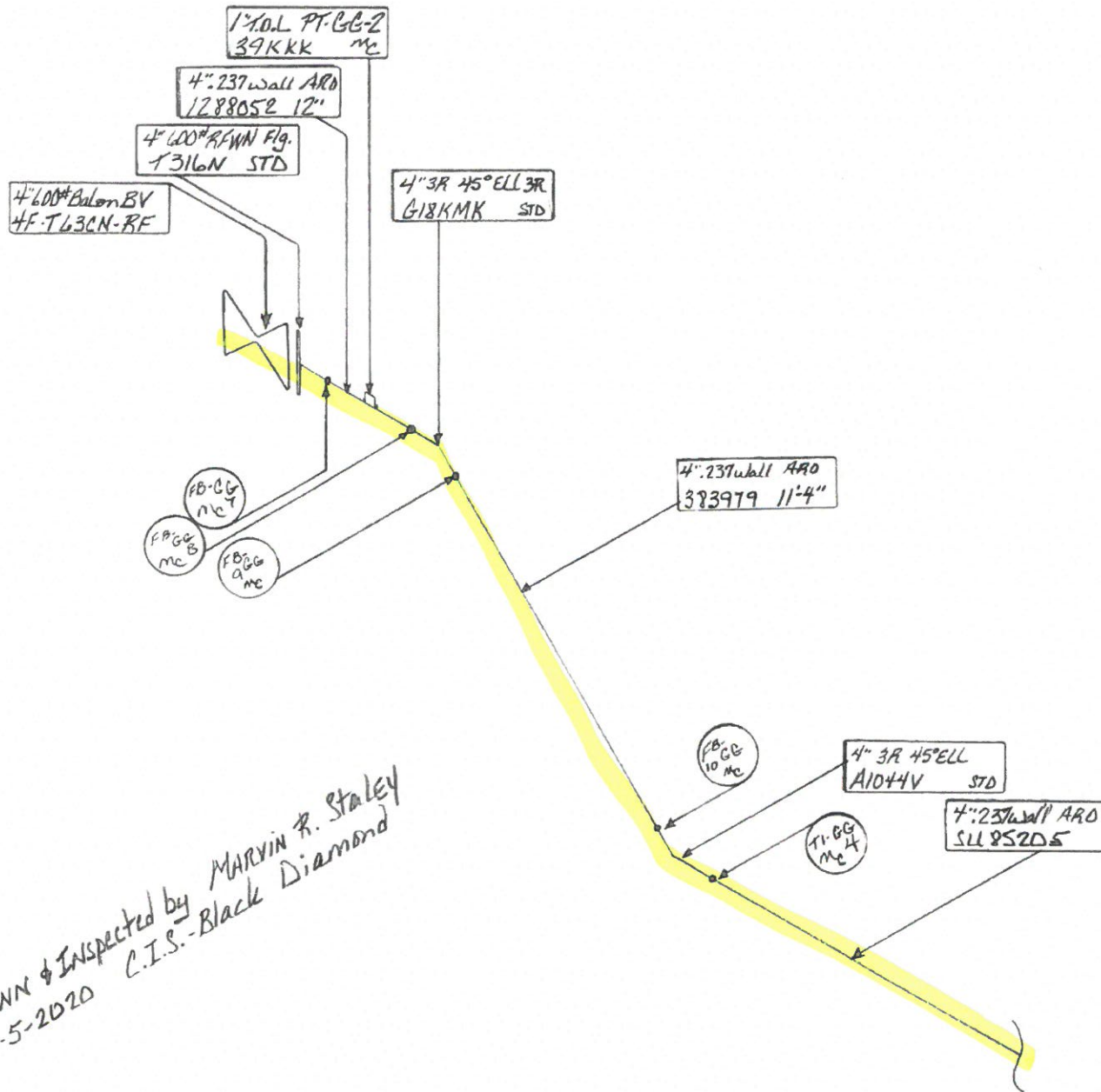


4" Fabrication of Lact Unit @ Crawford 4" W.C.
AFE: 5000592



Inspected & Drawn by: MARVIN R. STALEY
10-28-20 CIS-Black Diamond

4" Dogleg off Launcher @ Harvey 4" WC
 AFE: 5000594



Drawn & Inspected by MARVIN R. Staley
 11-5-2020 C.I.S.-Black Diamond



