

BDO-04-RVF-100-L7

<div style="text-align: center;"> TEST SPECIFICATIONS Black Diamond Gathering, LLC - Pressure Test PDC Lory </div>		Rev3																																																													
		Date:	Select Routing:																																																												
		14-Nov-2019																																																													
Project Name: PDC Lory		Project I.D. / AFE Number 5000528																																																													
Contractor / Testing Company: Northwinds		Facility Name or Number Lory Connect - BDO-04-RVF-100-L7																																																													
Technician																																																															
Installation Location (M.P. or S.S.): 0+00 to 11+61 State: CO County/Parish: Weld Lat: 40.26197 to Lat: 40.26329 Long: -104.67053 to Long: -104.66833		Class Location Designation	N/A																																																												
		Selected Design Pressure	1480																																																												
		Planned MAOP	1480																																																												
Project Description: Hydrostatic pressure test of 1,161' of 4" Carbon Steel. Testing at 1.25*MAOP = 1850 psig minimum test pressure. 2031 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 type="checkbox"/>																																																															
POST-INSTALLATION TEST <input type="checkbox"/> PRE-INSTALLATION TEST <input type="checkbox"/>																																																															
Minimum Component Characteristics Pipe Information O.D. 4.5 Wall Thickness 0.188 SMYS 52,000 Grade X52 Valve/Flange ANSI Class Rating 600# Valves/Fittings		Test Design Criteria Test Pressure Calculations <input type="checkbox"/> Input minimum and maximum pressure of test <input type="checkbox"/> Input minimum and maximum %SMYS of test <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Pressure (psig)</th> <th>% PIPE SMYS</th> </tr> </thead> <tbody> <tr> <td>Max. Test Pressure (Pipe)</td> <td>2220</td> <td>51.1%</td> </tr> <tr> <td>Max. Test Pressure (Valves and Fittings)</td> <td>2220</td> <td>51.1%</td> </tr> <tr> <td>Min.</td> <td>1850</td> <td>42.6%</td> </tr> </tbody> </table>			Pressure (psig)	% PIPE SMYS	Max. Test Pressure (Pipe)	2220	51.1%	Max. Test Pressure (Valves and Fittings)	2220	51.1%	Min.	1850	42.6%																																																
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		Test Section - Reference Data Test Medium Water Test Duration 8 hour Hours (min) Section Length 1,161 Ft. Section Fill Volume 959 Gal Max. Elevation Change 18 Ft. Station Equations: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <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> </tbody> </table>			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.																																																															
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Pipeline Pressure Test Documentation

Pressure Test Report

Form :

Revision

3

Revision Date

Project Name : PDC Lory

AFE No. : 5000528

Contractor / Testing Company : Northwinds

Technician :

Test Section No. : 0

From Station No. : 0+00

To Station No. : 11+61

Test Description : Hydrostatic pressure test of 1,161' of 4" Carbon Steel.

Test Type : Subpart E Test

Start of Test Period : Date : 12-6-19

Time : 11:45 AM

Min. Test Duration : 8 hour

End of Test Period : Date : 12-6-19

Time : 7:45 PM

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 En.

Serial #: 352036

Calibration Date : 6-14-19

Deadweight Tester Location : Station No. (ESN) : 0+00

Elevation (ft) : 4,841

Pressure Recorder : Mfg: Barton

Serial #: 265A3511

Calibration Date : 6-19-19

Pipe Temp. Recorder : Mfg: Barton

Serial #: 242E-41513

Calibration Date : 3-1-19

Pre-approved Target Test Pressure : 2,031.0 psig

Max Elevation Change : 18

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
10:31 AM	0 to 1049			Fog		Start Pressure up 0 to 1049
10:48	1049	27	47	Fog		Reached pressure at 1049 hold 15 min
11:03	1050	27	48	Fog		Start press up 1050 to 1573
11:08	1573	27	50	Fog		Reached pressure at 1573 hold 15 min
11:23	1576	26	44	Fog		Start press up 1576 to 2031
11:27	2031	26	42	Fog		Reached target pressure hold 15 min
11:45	2034	26	44	Fog		Start test
12:00 PM	2038	26	46	Sunny		
12:15	2044	26	59	Sunny		
12:30	2051	26	66	Sunny		
12:45	2055	26	68	Sunny		
1:00 PM	2059	26	72	Sunny		
1:15	2063	26	69	Sunny		
1:30	2064	26	65	Sunny		
1:45	2066	26	68	Sunny		
2:00 PM	2067	26	58	Sunny		
2:15	2068	26	50	Sunny		
2:30	2069	27	48	Sunny		
2:45	2070	27	50	Sunny		

Project Name :		PDC Lory				
AFE No. :		5000528		Test Section No. :		0

Time	Pressure (psig)	Pipe Temp.	Amb. Temp.	Weather	Visual Inspection	Comments
3:00pm	2074	27	53	Sunny		
3:15	2077	27	56	Sunny		
3:30	2080	27	55	Sunny		
3:45	2080	27	46	Sunny		
4:00pm	2080	27	40			
4:15	2080	28	36	Fog		
4:30	2080	28	34			
4:45	2080	28	36			
5:00pm	2080	28	36	Fog		
5:15	2081	28	36			
5:30	2082	28	38			
5:45	2083	28	39	Fog		
6:00pm	2083	28	38			
6:15	2084	28	40			
6:30	2085	29	40	Fog		
6:45	2086	29	38			
7:00pm	2086	29	37			
7:15	2086	29	37	Fog		
7:30	2086	30	37			
7:45	2086	30	37	Fog		End Test
8:00pm	2086	30	37			

Comments	

Recorded Maximum Test Pressure at Chart:	2086 psig
Recorded Minimum Test Pressure at Chart:	2034 psig

Pressure Test is : Accepted

Recorded by : <u>Osiel Lima</u> (Contractor Representative) Print/Sign	<u>12-06-19</u> (Date)
Witnessed by : <u>Gorge Holguin</u> (Inspector/Integrity Representative) Print/Sign	<u>12-6-19</u> (Date)
Approved by : <u>Ralph L. Corra</u> (Project Mgr./Construction Mgr.) Print/Sign	<u>12-6-19</u> (Date)

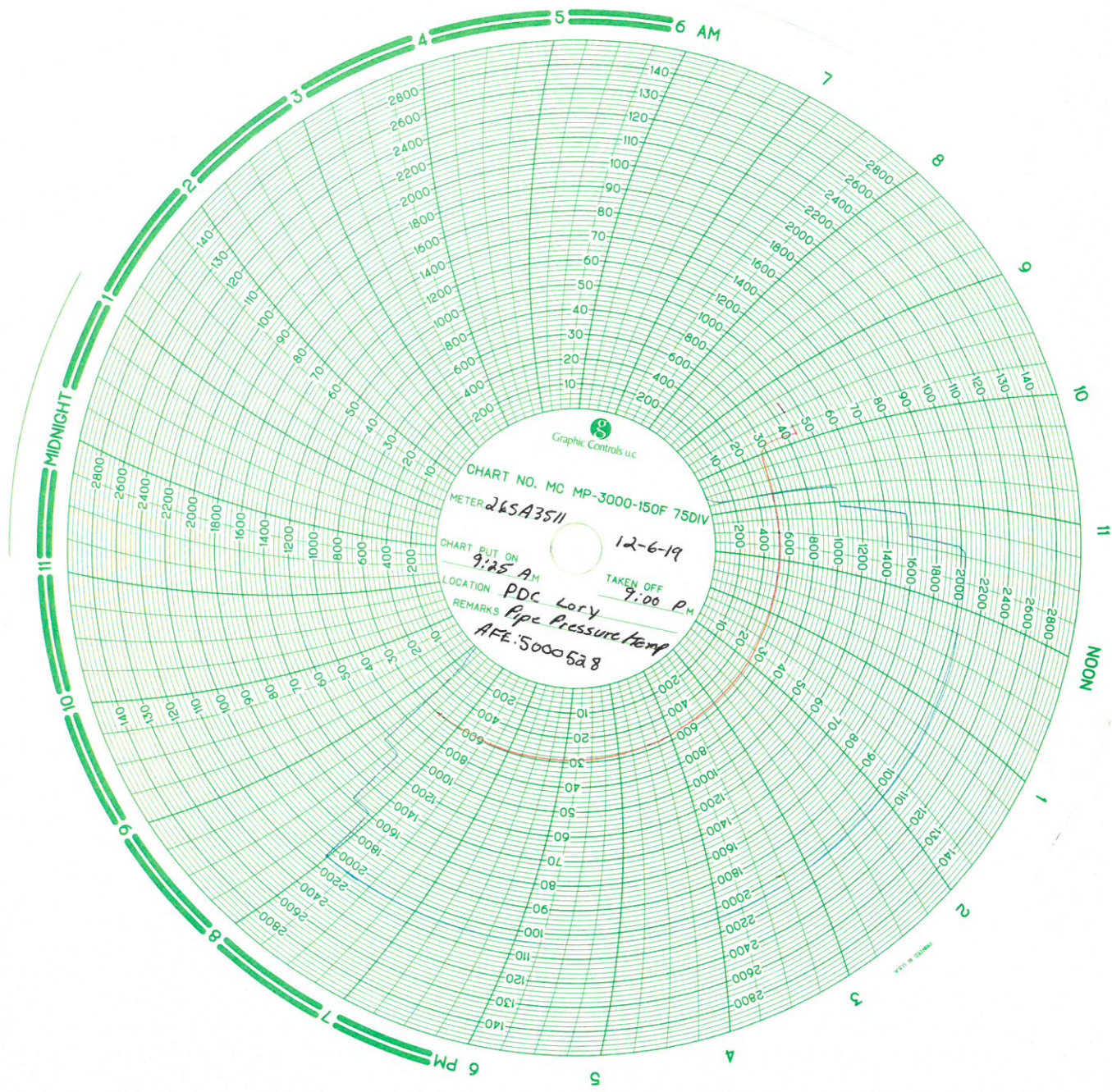
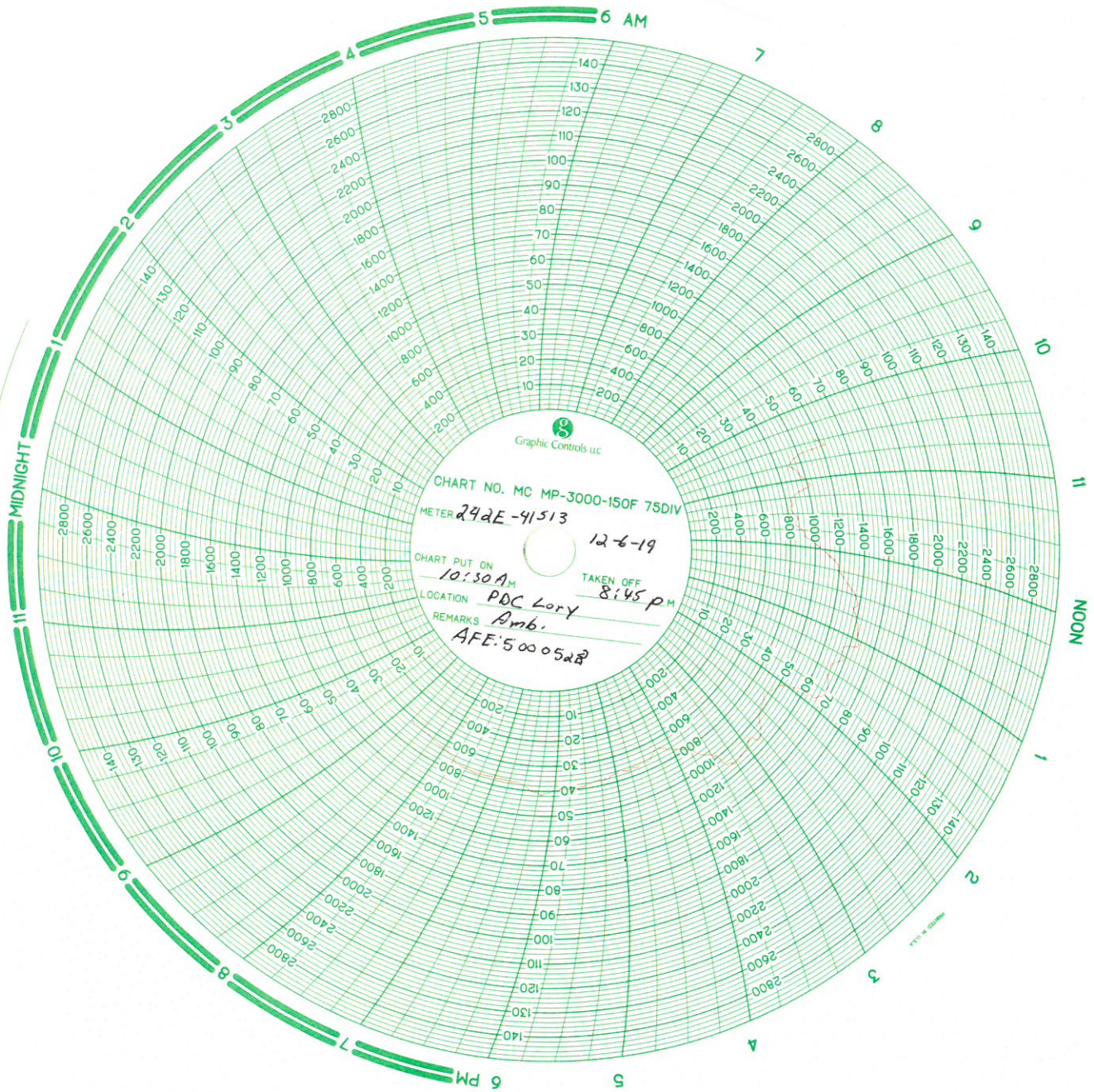


CHART NO. MC MP-3000-150F 75DIV
METER 265A3511

CHART PUT ON 9:25 AM
TAKEN OFF 9:00 PM
LOCATION PDC Lory

REMARKS Pipe Pressure Temp
AFE: 5000 528



Cross Country Pipeline Supply CO. Inc

Sales and Service

2251 Rifle Street - Aurora, Colorado 80011

Phone 303.361.6797 Fax 303.361.6836

NIST CALIBRATION DATA

Model Number	Serial Number	Customer	Range	Accuracy
ITT Barton	242E-41513	Cross Country	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	
		59 Deg	59 Deg	
		109 Deg	109 Deg	
		145 Deg	145 Deg	
PO Number		Sales Order Number	Date of Test	
Recalibrated		Rental Unit	11/6/2019 11:14:58 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	03/01/2019	17-043
Tech Instrumentation	TM99A	Thermometer	03/01/2019	59448

Don F.

Signature Don Frick 11-6-19

C1

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: 06/19/2019

DUE DATE: 06/19/2020

INDICATED TEMPERATURE RANGE: # 0 – 150°F

INDICATED PRESSURE RANGE: #0 – 3000 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.

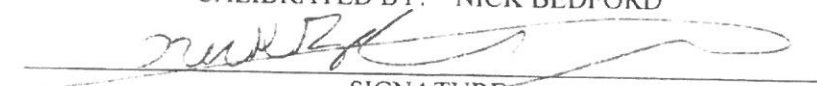
BASED ON INTERNATIONAL STANDARDS OF GRAVITY: (980.665 cm./sq.).

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

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


SIGNATURE



APEX
INSTRUMENTS

CR-1

Calibration Certificate

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

Certificate Number: 192453

Customer:

Pipeline Supply & Service
Henderson, CO

Manufacturer: Crystal Engineering
Model Number: XP2i 5000 psi
Serial Number: 352036
Description: Digital Test Gauge
Procedure: CI-001
Calibrated To: Manufacturer's Specifications
Technician: Austin Molyneux

Calibration Date: 6/14/2019
Due Date: 6/14/2020
As Found: In Tolerance
As Left: In Tolerance
Temperature: 69.7 F
Humidity: 38.2 %

Tolerance Specs:

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

Technician Notes:

As Left Userspan: 1.00075

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.

Unless otherwise contractually specified, a binary decision rule, utilizing simple acceptance, and simple rejection criteria will be used for the determination of compliance. When compliance statements are present, they are reported without factoring in the effects of uncertainty and the limits are defined by the manufacturer's stated accuracy.

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.



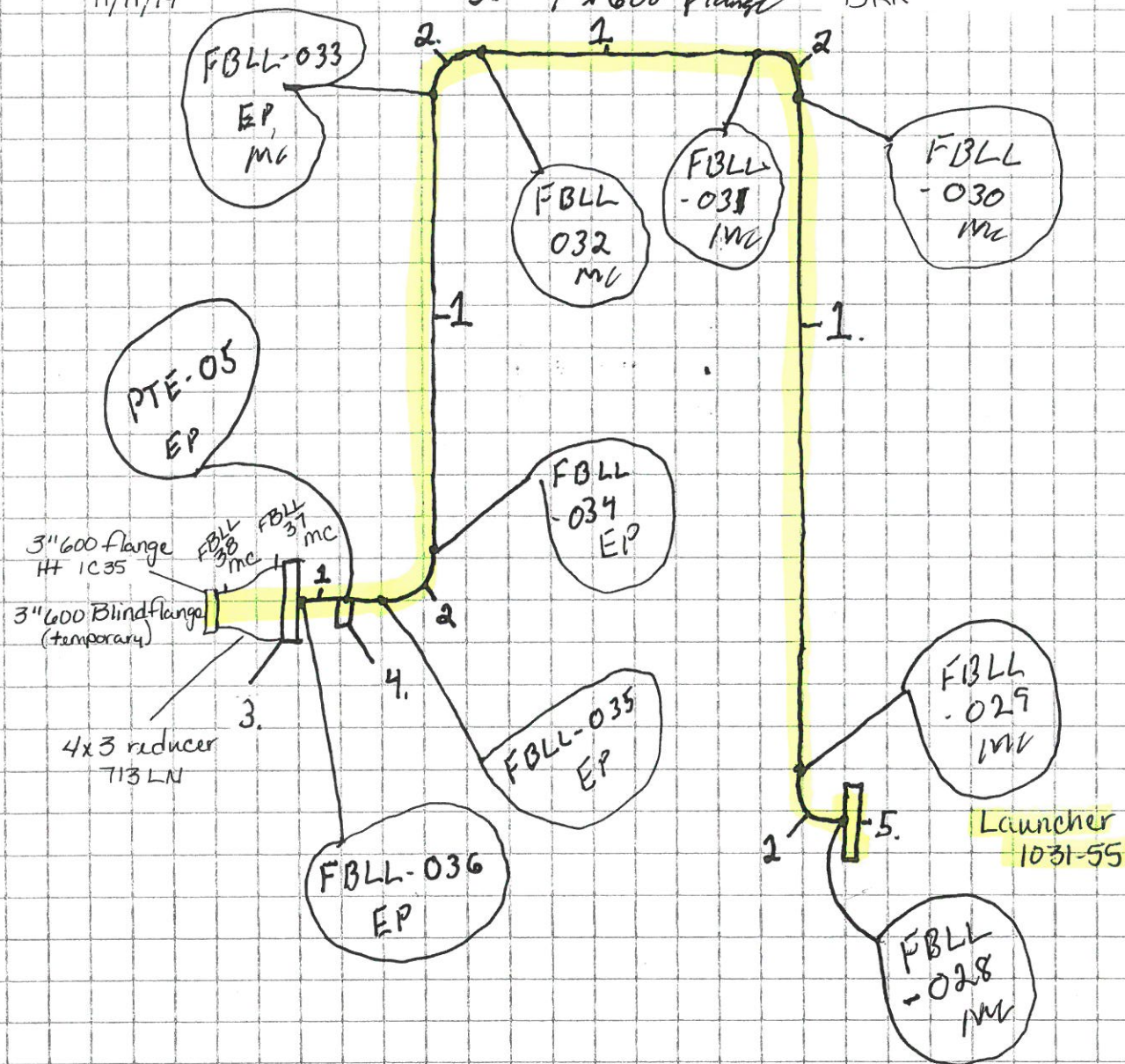
APX00674

Lory 5600528
Lact to Launcher

CIS Inspector: Rod Thibodeaux

11/11/19

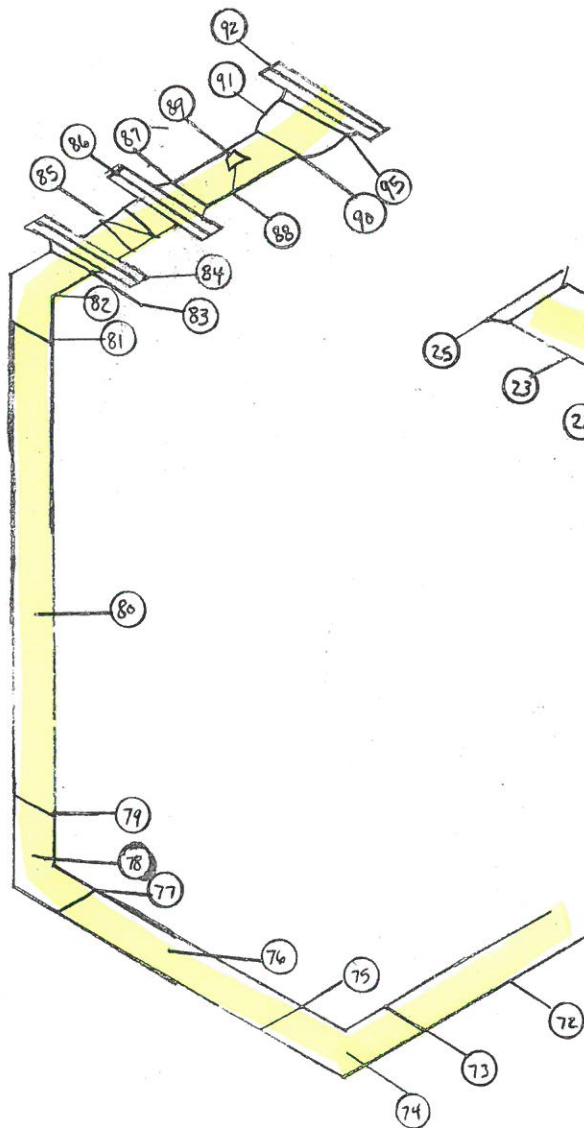
1. 4" x 5600 40 pipe HT# 946356
2. 4" x 5600 40 x 90° Elbow A1046F
3. 4" x 600 Flange 3D5526/04
4. TOC 36-3x1 39KKKK
5. 4" x 600 Flange DRR



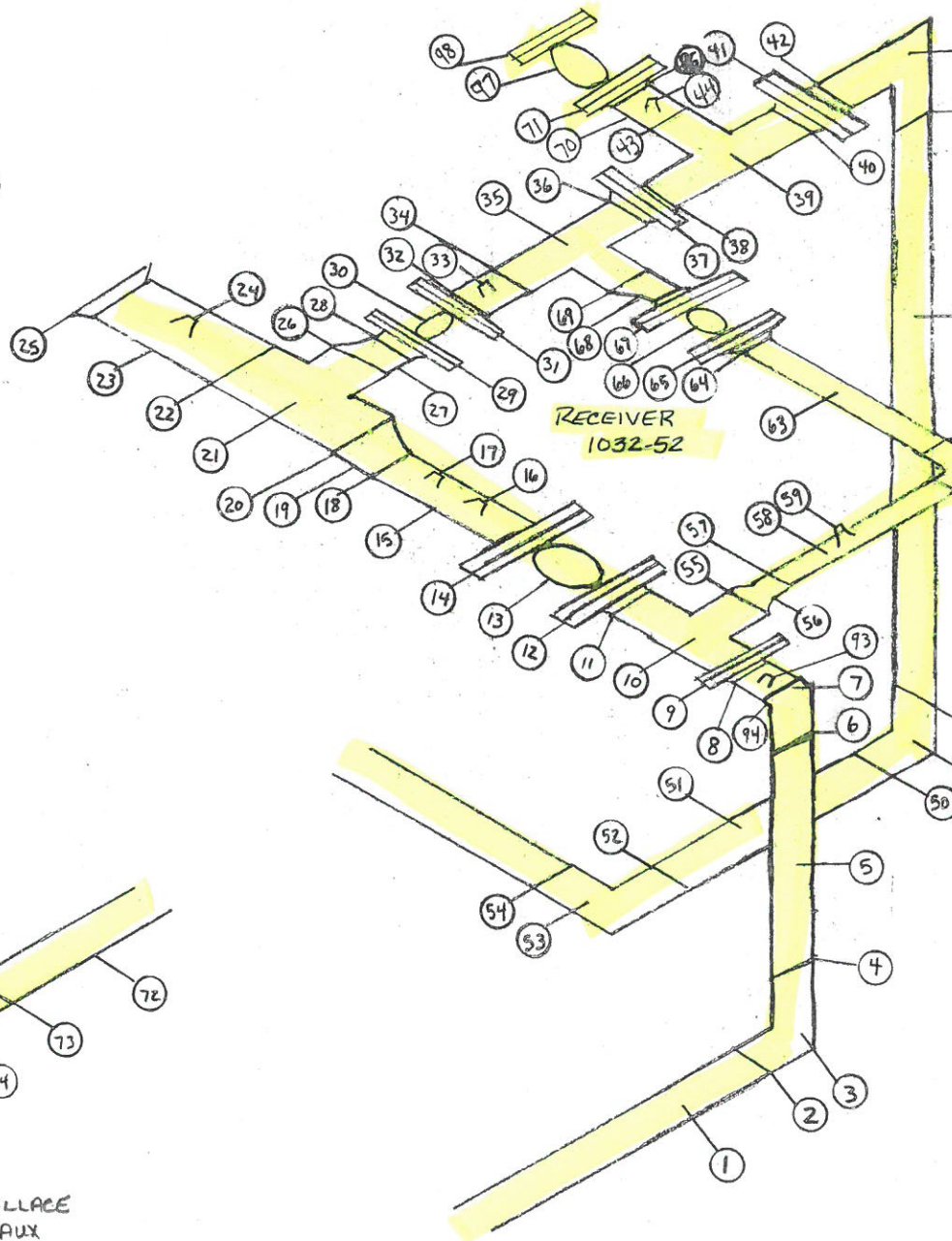
LORY 5000528

PAINTED PRE-FAB RECEIVER 1032-52
item #'s 10-36, 55-69

- WELD 6213
- 1" BALON VALVE 6217
- WELD 6219
- 4"x4" TEE 6220
- WELD 6222
- BD5526/04 6095
- FBLL-016, EP 6094
- A1164B 4" TEE 6093
- FBLL-017, EP 6091
- BD5526/04 6089
- FBLL-010, EP 6088
- FBLL-015, EP 6097
- PTLL-002, EP 6098
- A1046F, 6086
- FBLL-022, EP, 6085
- 946356, 5.2' 6084
- FBLL-008, EP 6083
- A1046F, 6081
- FEEL-007, EP 6080
- 946356, 1' 6079
- FBLL-006, EP 6078
- A1046F, 6076
- FBLL-021, EP 6075
- WELD 6182
- 4"-3" REDUCER 6183
- WELD 6184
- 3" 3' PUP 6190
- 1" BALON VALVE 6188
- WELD 6191
- 90° FITTING 6192
- WELD 6194



CIS INSPECTORS:
CHARLES WALLACE
ROD THIBODEAUX



- 6115 1 CA1321, L-27 45'
- 6116 2 FBLL-026, MC
- 6117 3 A1046F 90°
- 6119 4 FBLL-025, MC
- 6120 5 946356 7'
- 6121 6 FBLL-018, EP
- 6122 7 A1046F 90°
- 6127 8 FBLL-020, EP
- 6128 9 BD5526/04 4" FLANGE
- 6150 10 4" TEE
- 6151 11 PAINTED WELD
- 6153 12 FLANGE 4"
- 6154 13 4x4 WCB KF600
- 6155 14 SN:19331-32-1-001
- 6156 15 4" FLANGE
- 6162 16 4" 2' PUP
- 6161 17 PIG SIG
- 6166 18 1" BALON VALVE
- 6168 19 WELD
- 6169 20 4"-6" REDUCER
- 6170 21 WELD
- 6171 22 6" TEE
- 6173 23 WELD
- 6174 24 1" PUP 6"
- 6178 25 1" BALON VALVE
- 6181 26 PIG LAUNCHER
- 6205 27 WELD
- 6206 28 6"-4" REDUCER
- 6207 29 WELD
- 6208 30 4" FLANGE
- 6210 31 4x4 WCB KF600
- 6212 32 SN:19726-4-1-010
- 31 4" FLANGE





4F-T63CN-RF ANSI 600

97 4x4 BALON BALL VALVE

98 4" FLANGE K532

6100 FBLL-014

6195	63	2' PUP
6196	64	WELD
6197	65	3" FLANGE
6199	66	3x3 BALL VALVE
6200	67	3" FLANGE
6203	68	3"-4" REDUCER
6204	69	WELD
6224	70	4" PIPE 946356
6101	71	BD5526/04 4"
6074	72	C91321 20' L-25
6073	73	TILL-004, EP
6071	74	A1046F
6070	75	FBLL-005, EP
6069	76	946356 4.5'
6068	77	FBLL-004, EP
6066	78	A1046F
6064	79	FBLL-003, EP
6063	80	946356 5.5'
6062	81	FBLL-023, EP
6060	82	A1046F
6059	83	FBLL-002, EP
6058	84	BD5526/04 4"
6057	85	ANSI 600 CAMERON 4x4 CHECK VLV 1904048 WCC
6056	86	BD5526/04 4"
6055	87	FBLL-001, EP
6054	88	THREAOLET 39KKKK
6053	89	PTLL-001, EP
6052	90	FBLL-12, EP
6051	91	4"-6" REDUCER 612L1
6049	92	91564/04 6"
6125	93	PTLL-003, EP
6124	94	FBD-1, EP
6050		