K360 DEF MFL GMFL SMFL XYZ LGT

2013

Pipeline Inspection Report

T.D. Williamson
Pipeline Performance™

Company Name

Hiland Crude, LLC

Project Name

Johnson's Corner to East Camp Creek

Pipe Size

8"

Inspection Date(s)

Sep 14, 2013

Report Date(s)

Nov 22, 2013

TDW Regional Office

TDW Services, Inc.

Executive Summary - GMFL Inspection

RUN INFORMATION

Hiland Crude, LLC — *Johnson's Corner to East Camp Creek*

Heber Briceno — *8" Crude*

	Launcher	Receiver
Location:	Johnson's Corner	East Camp Creek
Date/Time:	9/13/2013 3:39:00 PM	9/14/2013 3:37:41 AM
Stationing:	0+00	1684+96
GPS - LAT:	47.806168915	47.918303571
GPS - LONG:	-102.902924701	-103.346911261

Duration of run - Hours: 11.98 **Average Velocity:** 3.97 ft/sec **Tool Tracking By:** TDW Pipeline Services

Pipeline Length: 171,285.00 ft **Maximum Velocity:** 4.67 ft/sec

On-site Representative: Eric Johnson **Data Analyst:** Ben Stehling

Contact: Heber Briceno

INSPECTION FINDINGS

Current Established Maximum **Criteria Used:** ASME B31G: Modified

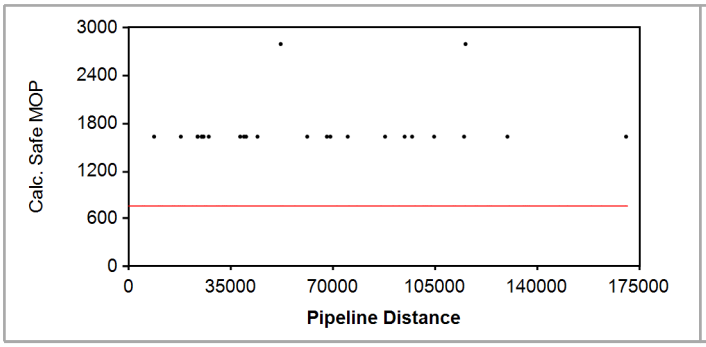
Operating Pressure of Pipeline: 750 psi **Defect Interaction Rule:** 1 inch between pits

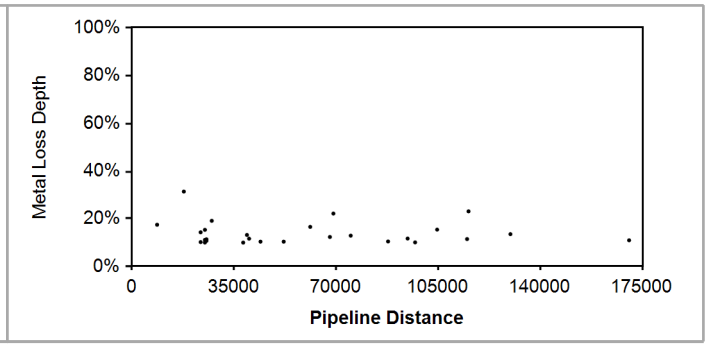
Welds Detected: 3,912 **Valves Detected:** 4 **Fittings Detected:** 3 **Markers Detected:** 28 **Gains Detected:** 3

Casings Detected: 0 **Tees Detected:** 6 **Flanges Detected:** 12 **Repairs Detected:** 0 **Deformations Detected:** 3

P'<P*: 0 **M/L pits:** 27 **M/L grouping:** 27

Internal groups: 3 **External groups:** 24





** The number of anomalies where P' (calculated safe max. pressure for an anomaly) is less than P (current established maximum pressure of pipeline) - see ASME B31G*

INSPECTION DETAILS

A total of 27 metal loss groups (3 Internal/24 External) were detected on the inspection survey, of which the deepest is reported at 31%. Using an established maximum operating pressure of 750 psi, 0 of the metal loss features appear to be pressure reducing.

Inspection data was obtained for the full length (171,285 feet / 32.44 miles) of the survey. The quality of the inspection data is satisfactory for a comprehensive assessment of this pipeline segment.

The inspection tool for this project included TDW XYZ Mapping module consisting of a high resolution Inertial Measurement Unit (IMU). The precision navigation data recorded by the IMU along with survey data supplied for specified control points and AGM locations provides a calculation of X, Y and Z coordinates for all objects and features listed in this report. The reported Latitude and Longitude are in NAD83 datum format. Z coordinates are Orthometric heights reported in feet. The final accuracy of reported coordinates is dependent upon the accuracy of the survey points and distance between these points, as well as uniform tool speed; however, the survey point for AGM 210 was incorrect and not used. This gives the distance interval of roughly 2.3 miles in between AGM 200 and Valve 220. Caution should be taken in this area as it is out of our interval tolerance.

Executive Summary - Deformation

RUN INFORMATION

Hiland Crude, LLC — *Johnson's Corner to East Camp Creek*

Heber Briceno — *8" Crude*

	Launcher	Receiver
Location:	Johnson's Corner	East Camp Creek
Date/Time:	9/12/2013 4:15:43 AM	9/12/2013 4:49:34 PM
Stationing:	0+00	1684+96
GPS - LAT:	47.905259448	47.918310366
GPS - LONG:	-103.175644088	-103.346925112

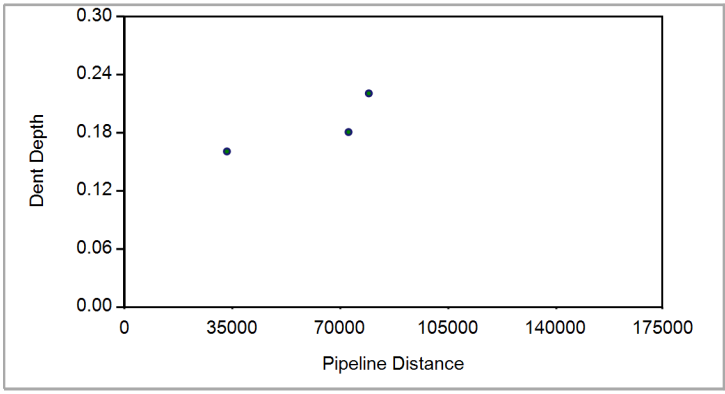
Duration of run - Hours: 12.56
Pipeline Length: 170,467.00 ft
On-site Representative: Eric Johnson

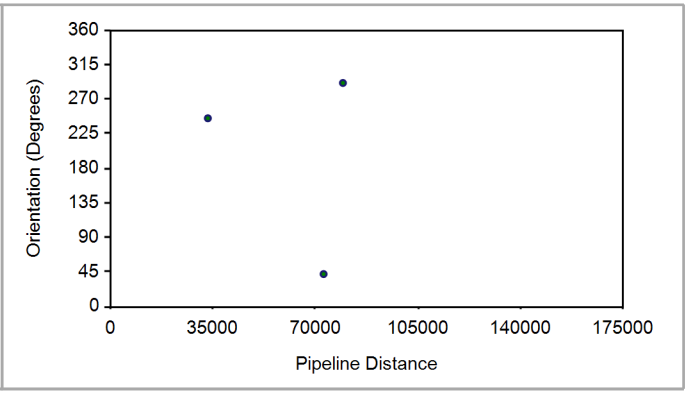
Average Velocity: 3.77 ft/sec
Maximum Velocity: 4.76 ft/sec
Data Analyst: Ben Stehling

Tool Tracking By: TDW Pipeline Services

INSPECTION FINDINGS

Deformations Detected: 3 **Ovalities Detected:** 0 **Expansions Detected:** 0 **Heavy Weld Detected:** 0 **Valves Detected:** 4





INSPECTION DETAILS

Inspection data was obtained for the full length (170,467 feet / 32.29 miles) of the survey. The quality of the inspection data is satisfactory for a comprehensive assessment of this pipeline segment.

A total of 3 deformations (3 dents) were detected on the inspection survey, of which the deepest is reported at 0.22 inch.

Metal Loss - Immediate Prioritized Repairs

ID#	Distance (ft)	Depth	Length	Width	Orientation	PSI (P')	% of Est. psi (P'/P)	Latitude	Longitude	Altitude

Nothing found in this pipeline inspection meets the criteria for Immediate Repair conditions relating to METAL LOSS.

Sorted by depth then distance

Metal Loss - 180 Day Prioritized Repairs

ID#	Distance (ft)	Depth	Length	Width	Orientation	PSI (P')	% of Est. psi (P'/P)	Latitude	Longitude	Altitude
Nothing in the inspection meets the criteria for 180 Day Repair conditions relating to METAL LOSS.										

Sorted by depth then distance

Dent - Immediate Prioritized Repairs

ID#	Distance (ft)	Depth (in)	Depth (%)	Orientation	Metal Loss	On a Weld	Ovality	Description

Nothing found in the pipeline inspection meets the criteria for Immediate Repair conditions relating to DENTS.

Sorted by depth then distance

Dent - 60 Day Prioritized Repairs

ID#	Distance (ft)	Depth (in)	Depth (%)	Orientation	Metal Loss	On a Weld	Ovality	Description

Nothing in the inspection meets of the criteria for 60 Day Repair conditions relating to DENTS.

Sorted by depth then distance

Dent - 180 Day Prioritized Repairs

ID#	Distance (ft)	Depth (in)	Depth (%)	Orientation	Metal Loss	On a Weld	Ovality	Description

Nothing in the inspection meets of the criteria for 180 Day Repair conditions relating to DENTS.

Sorted by depth then distance

Metal Loss Summary

DEFINITIONS

This Metal Loss Summary Report provides information regarding indicated anomalies found in this inspection. Anomalies detected during the inspection are sized and assigned a length, width, and depth. The specified formula for determining remaining-strength of the anomaly is then applied to the predicted sizes. The predicted size accuracy is described in the contract specifications.

The Metal Loss Summary Report is a listing of metal loss indications in the pipeline, sorted first by the calculated safe maximum operating pressure (P') ascending, then by depth descending. As an aid in locating these anomalies, the upstream and downstream references are included, as well as distances from the defect to the reference.

ID#	Each location is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Dist.	Given in either feet or meters, based on contractual agreements, this is the absolute distance from launch.
Depth	Predicted depth of the defect as a percentage of nominal wall.
Length	Predicted length of the defect, reported in either inches or millimeters.
Width	Predicted width of the defect, reported in either inches or millimeters.
ID/OD	Determination whether the defect exists on the inside (INT) or outside (EXT) surface of the pipe.
Orientation: Deg / O'Clock	Orientation is reported in degrees and o'clock (0 degrees/12:00 at top of pipe) as viewed looking downstream.
P'	Based on the specified formula for determining remaining-strength, it is the predicted safe maximum allowable pressure for the defect (P').
% Est. Press. (P'/P)	Percent of maximum established pressure, this is calculated by dividing the calculated safe pressure of the defect (P') by the current established maximum operating pressure of the pipeline (P). For TDW reporting, P is either established MOP provided by the customer or the calculated pressure rating for the pipe (P). Percentages less than 100% are considered pressure reducing.
Aboveground References	The name of the closest upstream and downstream references, usually either an AGM or a Valve.
Distance from Defect	The distance to the upstream and downstream reference listed in the previous column. Used for locating defects in the field.

See Appendix C for Dig Sheet Preparation

Metal Loss Summary

ID#	Dist (ft)	Depth	Length	Width	ID/OD	Orientation Deg	Orientation O'clock	P'	% Est. Press. (P'/P)		Above-Ground References	Distance from Defect
40000001	17,876.6	31.4%	0.62	0.46	EXT	345	11:30	1632.2	100.0	U/S:	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	977.11
										D/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	6200.21
40000017	69,194.0	22.2%	0.55	0.33	EXT	92	3:00	1632.2	100.0	U/S:	AGM 130, Sta. 679+55, On fence line -- Survey Point	171.60
										D/S:	AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point	6374.63
40000009	27,454.6	19.2%	0.50	0.69	EXT	155	5:00	1632.2	100.0	U/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	3377.84
										D/S:	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	1088.44
40000000	8,694.1	17.5%	0.95	0.60	EXT	91	3:00	1632.2	100.0	U/S:	AGM 010, Sta. 38+53, 33' off other line -- Survey Point	4791.30
										D/S:	AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point	2264.03
40000015	61,252.6	16.6%	0.55	0.33	EXT	78	2:30	1632.2	100.0	U/S:	AGM 110, Sta. 560+08, 132' off gravel rd -- Han #3663	4296.95
										D/S:	AGM 120, Sta. 614+60, At aerial marker 121 -- Han #114	1222.09
40000022	104,798.1	15.5%	0.76	0.78	EXT	49	1:30	1632.2	100.0	U/S:	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	6018.14
										D/S:	AGM 190, Sta. 1031+50, 117' off gravel rd -- Han #3663	1170.30
40000005	25,113.9	15.4%	0.71	0.57	EXT	285	9:30	1632.2	100.0	U/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	1037.15
										D/S:	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	3429.12
40000002	23,636.6	14.4%	0.73	0.53	EXT	210	7:00	1632.2	100.0	U/S:	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	6737.12
										D/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	440.20
40000025	129,950.5	13.6%	1.29	0.55	EXT	349	11:30	1632.2	100.0	U/S:	Valve	6014.65
										D/S:	AGM 230, Sta. 1281+56, 39' east of aerial marker 114 -- Han #141	660.45
40000011	39,535.7	13.2%	0.40	0.57	INT	172	5:30	1632.2	100.0	U/S:	AGM 070, Sta. 354+82, 133' off center of rd -- Survey Point	2883.47
										D/S:	AGM 080, Sta. 405+99, On fence line by AGM -- Survey Point	2260.41

Sorted by pressure (P'), then depth

Criteria: ASME B31G: Modified

Metal Loss Summary

ID#	Dist (ft)	Depth	Length	Width	ID/OD	Orientation Deg	Orientation O'clock	P'	% Est. Press. (P'/P)	Above-Ground References		Distance from Defect
40000018	75,144.9	12.9%	0.41	0.33	INT	29	12:45	1632.2	100.0	U/S:	AGM 130, Sta. 679+55, On fence line -- Survey Point	6122.48
										D/S:	AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point	423.75
40000016	67,998.5	12.4%	0.99	0.98	EXT	54	1:45	1632.2	100.0	U/S:	AGM 120, Sta. 614+60, At aerial marker 121 -- Han #114	5523.78
										D/S:	AGM 130, Sta. 679+55, On fence line -- Survey Point	1023.92
40000020	94,672.9	11.7%	0.91	0.68	EXT	285	9:30	1632.2	100.0	U/S:	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	1650.26
										D/S:	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	4107.11
40000012	40,270.5	11.7%	0.48	0.41	INT	106	3:30	1632.2	100.0	U/S:	AGM 070, Sta. 354+82, 133' off center of rd -- Survey Point	3618.29
										D/S:	AGM 080, Sta. 405+99, On fence line by AGM -- Survey Point	1525.58
40000023	115,081.0	11.5%	0.54	0.61	EXT	61	2:00	1632.2	100.0	U/S:	AGM 200, Sta. 1090+77, At aerial marker 117 -- Han #141	3407.96
										D/S:	Valve, Sta. 1213+36, AGM 220	8834.56
40000007	25,630.8	11.4%	0.58	0.48	EXT	154	5:00	1632.2	100.0	U/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	1554.04
										D/S:	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	2912.23
40000006	25,118.9	11.1%	0.63	0.52	EXT	314	10:15	1632.2	100.0	U/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	1042.08
										D/S:	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	3424.19
40000026	170,676.2	11.0%	0.58	0.73	EXT	321	10:30	1632.2	100.0	U/S:	AGM 280, Sta. 1604+70, On fence line -- Survey Point	7521.23
										D/S:	Pipe Exiting Ground -- Survey Point	587.05
40000008	25,630.9	10.8%	0.53	0.44	EXT	329	10:45	1632.2	100.0	U/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	1554.09
										D/S:	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	2912.18
40000019	87,962.3	10.5%	0.72	0.79	EXT	292	9:30	1632.2	100.0	U/S:	AGM 160, Sta. 841+16, 118' off aerial marker 119 -- Survey Point	1413.39
										D/S:	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	5060.31

Sorted by pressure (P'), then depth

Criteria: ASME B31G: Modified

Metal Loss Summary

ID#	Dist (ft)	Depth	Length	Width	ID/OD	Orientation Deg	Orientation O'clock	P'	% Est. Press. (P'/P)	Above-Ground References		Distance from Defect
40000013	44,184.9	10.4%	1.14	0.56	EXT	333	11:00	1632.2	100.0	U/S:	AGM 080, Sta. 405+99, On fence line by AGM -- Survey Point	2388.82
										D/S:	AGM 090, Sta. 459+32. On fence line -- Han #116	3008.97
40000003	23,641.5	10.3%	0.65	0.66	EXT	244	8:00	1632.2	100.0	U/S:	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	6742.06
										D/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	435.26
40000021	97,244.3	10.1%	0.84	0.59	EXT	28	12:45	1632.2	100.0	U/S:	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	4221.69
										D/S:	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	1535.69
40000004	25,109.0	10.1%	0.65	0.49	EXT	315	10:30	1632.2	100.0	U/S:	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	1032.21
										D/S:	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	3434.07
40000010	38,238.5	10.0%	0.33	0.57	EXT	77	2:30	1632.2	100.0	U/S:	AGM 070, Sta. 354+82, 133' off center of rd -- Survey Point	1586.25
										D/S:	AGM 080, Sta. 405+99, On fence line by AGM -- Survey Point	3557.63
40000024	115,575.1	23.1%	1.40	2.21	EXT	63	2:00	2795.5	100.0	U/S:	AGM 200, Sta. 1090+77, At aerial marker 117 -- Han #141	3901.95
										D/S:	Valve, Sta. 1213+36, AGM 220	8340.57
40000014	52,146.7	10.4%	1.65	1.56	EXT	121	4:00	2795.5	100.0	U/S:	AGM 090, Sta. 459+32. On fence line -- Han #116	4952.73
										D/S:	AGM 100, Sta. 517-63, At aerial marker 122 -- Survey Point	621.35

This report shows a maximum of 100 metal loss groups.

Type	Number
Metal Loss	27

Sorted by pressure (P'), then depth

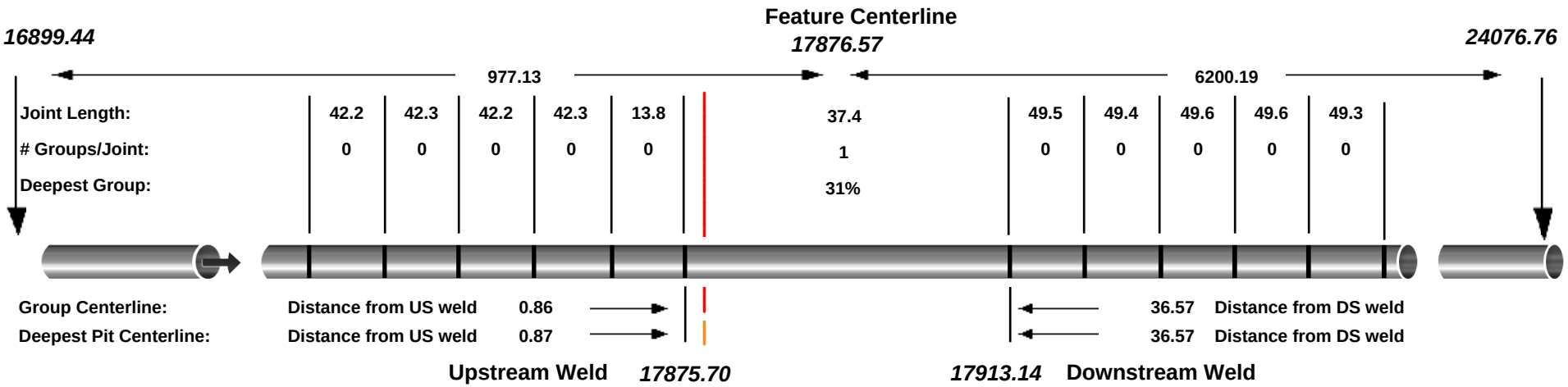
Criteria: ASME B31G: Modified

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 030, Sta. 167+38, Under overhead wire line -- Han #102

DOWNSTREAM REFERENCE
AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point



Feature Information

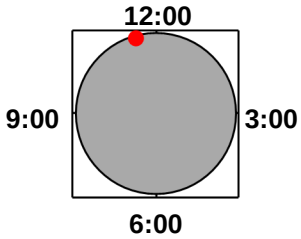
ID:	**40000001**	Distance from Launcher:	***17876.57***	***Feature Description***	
Time:	**7742.20**	Orientation on Pipe Wall:	**11:30**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.78912218**	Longitude:	**-102.94304485**	Altitude:	**2347.971**

Upstream Locations		Downstream Locations	
3302.01	Bend right - 45 deg., 3D	2255.15	Bend left - 90 deg., 3D
7004.70	Bend right - 90 deg., 3D	3408.17	Bend right - 90 deg., 3D
10463.78	Bend left - 45 deg., 3D	6226.48	Bend right - 60 deg., 3D
11147.10	Bend right - 60 deg., 3D	8726.52	Bend right - 60 deg., 3D
14266.49	Bend left - 90 deg., 3D	14146.58	Bend right - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **31%**
Length: **0.624**
Width: **0.459**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

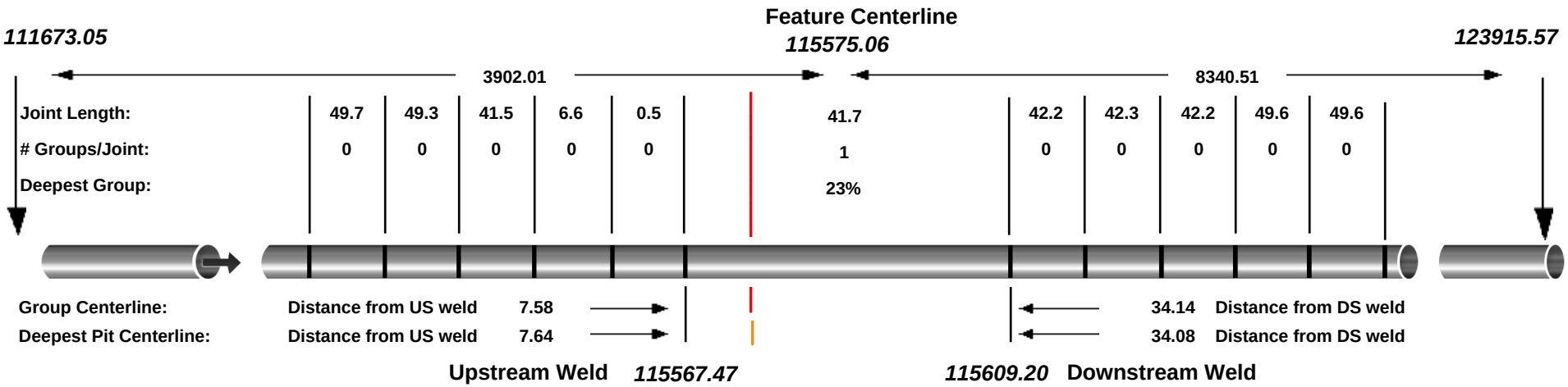
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 200, Sta. 1090+77, At aerial marker 117 -- Han #141

DOWNSTREAM REFERENCE
Valve, Sta. 1213+36, AGM 220



Feature Information

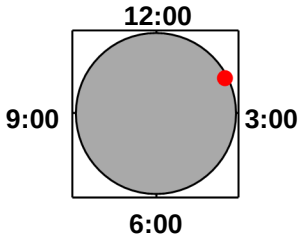
ID:	**40000024**	Distance from Launcher:	***115575.06***	***Feature Description***	
Time:	**32031.94**	Orientation on Pipe Wall:	**2:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.322**
Latitude:	**47.90925483**	Longitude:	**-103.14422175**	Altitude:	**2138.137**

Upstream Locations		Downstream Locations	
8.00	Bend right - 20 deg., 1.5D	7149.09	Bend left - 45 deg., 3D
3902.46	Bend right - 90 deg., 6D	8280.68	Bend right - 60 deg., 10D
9582.61	Bend left - 90 deg., 6D	8317.83	Bend up - 45 deg., 3D
11977.44	Bend right - 30 deg., 1.5D	8328.81	Bend down - 45 deg., 3D
14628.31	Bend right - 45 deg., 3D	8330.81	Flange

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **23%**
Length: **1.401**
Width: **2.215**
ERF: **0.268**
Safe Operating Pressure: **2796 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

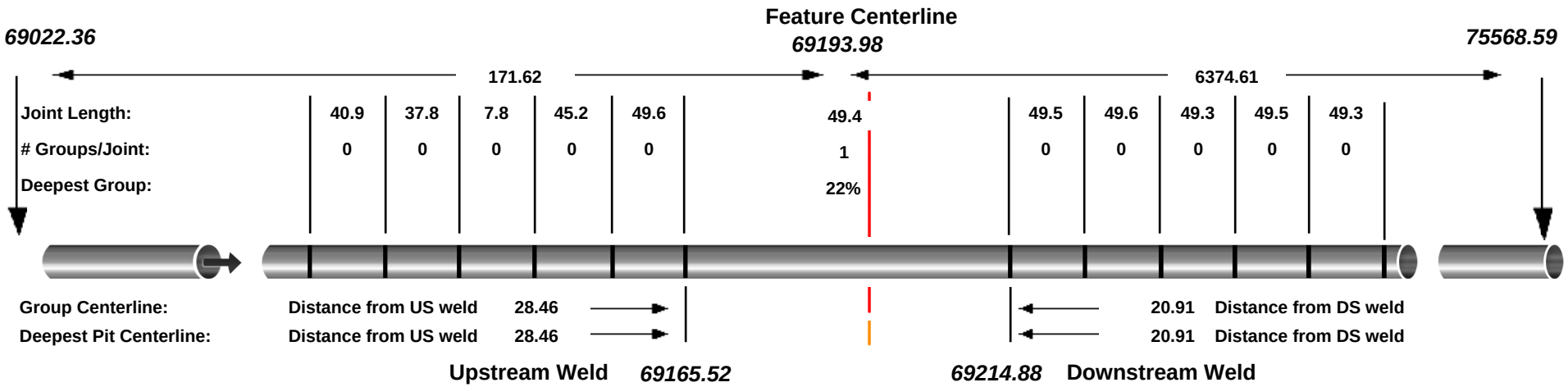
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 130, Sta. 679+55, On fence line -- Survey Point

DOWNSTREAM REFERENCE
AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point



Feature Information

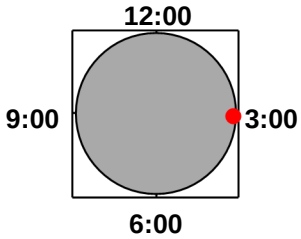
ID:	**40000017**	Distance from Launcher:	***69193.98***	***Feature Description***	
Time:	**20482.20**	Orientation on Pipe Wall:	**3:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.86968950**	Longitude:	**-103.03668930**	Altitude:	**2418.560**

Upstream Locations		Downstream Locations	
253.09	Bend right - 90 deg., 6D	2571.64	Bend left - 90 deg., 6D
3774.58	Bend left - 70 deg., 5D	5223.29	Bend right - 80 deg., 5D
9529.00	Bend right - 90 deg., 6D	6145.70	Bend left - 90 deg., 6D
13682.37	Bend left - 75 deg., 5D	6389.85	Bend left - 16 deg., 3D
14513.08	Fitting on top of pipe	8051.69	Bend right - 90 deg., 5D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **22%**
Length: **0.552**
Width: **0.333**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

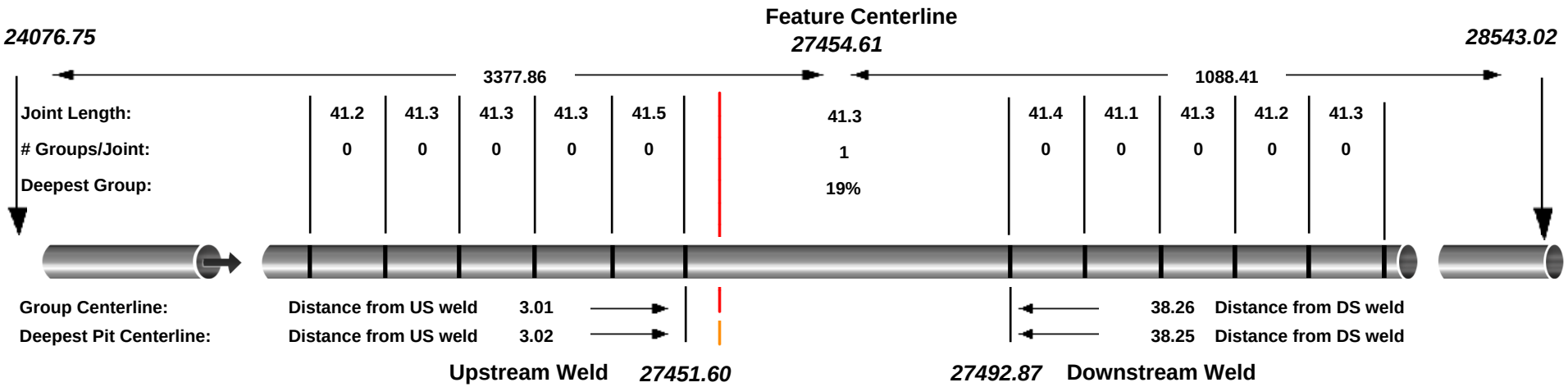
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point

DOWNSTREAM REFERENCE
AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point



Feature Information

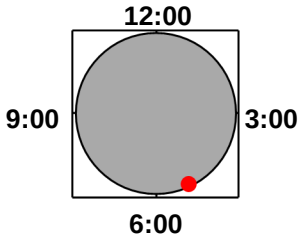
ID:	**40000009**	Distance from Launcher:	***27454.61***	***Feature Description***	
Time:	**10123.96**	Orientation on Pipe Wall:	**5:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.79340612**	Longitude:	**-102.96414247**	Altitude:	**2406.579**

Upstream Locations		Downstream Locations	
851.52	Bend right - 60 deg., 3D	4568.54	Bend right - 45 deg., 3D
3351.56	Bend right - 60 deg., 3D	14257.56	Bend right - 90 deg., 8D
6169.87	Bend right - 90 deg., 3D	18716.68	Bend left - 45 deg., 3D
7322.89	Bend left - 90 deg., 3D	20483.32	Bend left - 45 deg., 3D
12880.05	Bend right - 45 deg., 3D	22737.29	Bend right - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **19%**
Length: **0.500**
Width: **0.692**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

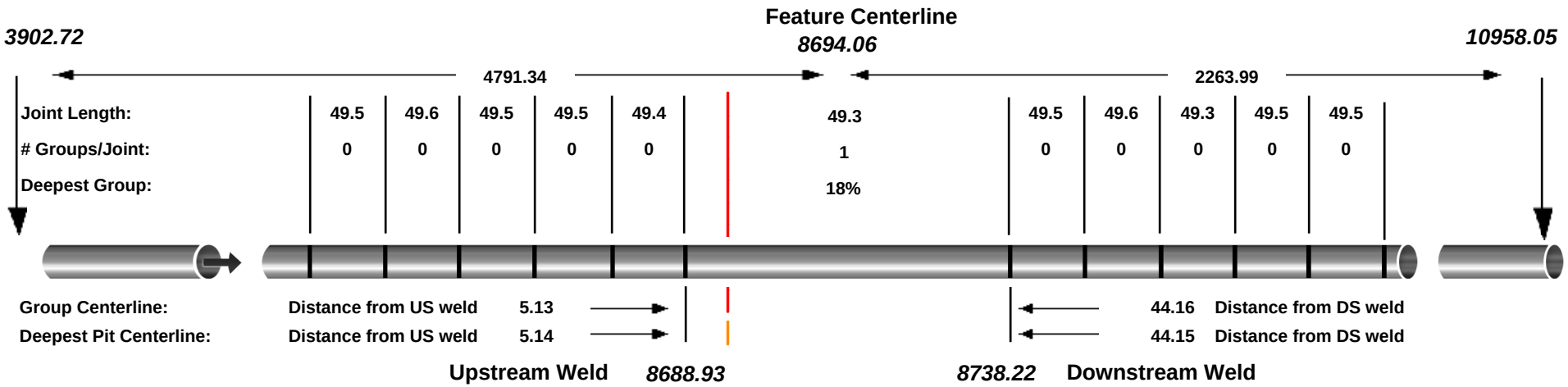
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 010, Sta. 38+53, 33' off other line -- Survey Point

DOWNSTREAM REFERENCE
AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point



Feature Information

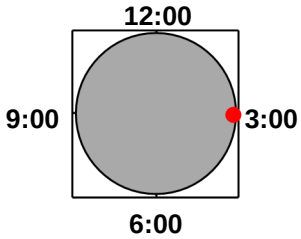
ID:	**40000000**	Distance from Launcher:	***8694.06***	***Feature Description***	
Time:	**5480.56**	Orientation on Pipe Wall:	**3:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.79507624**	Longitude:	**-102.91514482**	Altitude:	**2446.306**

Upstream Locations		Downstream Locations	
1281.27	Bend left - 45 deg., 3D	2177.81	Bend right - 90 deg., 3D
1964.59	Bend right - 60 deg., 3D	5880.50	Bend right - 45 deg., 3D
5083.98	Bend left - 90 deg., 3D	11437.66	Bend left - 90 deg., 3D
8025.04	Bend left - 90 deg., 3D	12590.68	Bend right - 90 deg., 3D
8673.21	Bend up - 45 deg., 3D	15408.99	Bend right - 60 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **18%**
Length: **0.948**
Width: **0.601**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

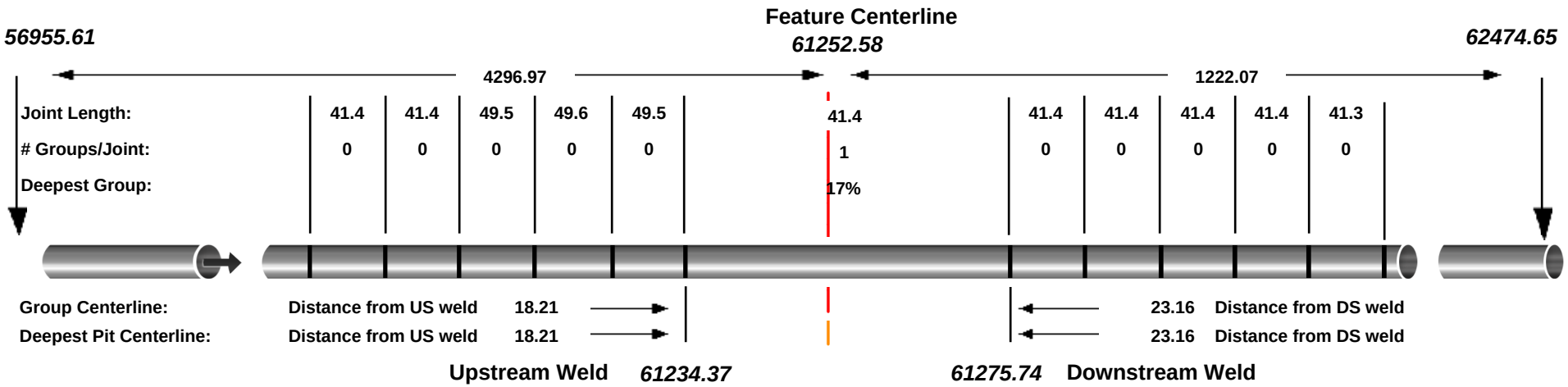
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 110, Sta. 560+08, 132' off gravel rd -- Han #3663

DOWNSTREAM REFERENCE
AGM 120, Sta. 614+60, At aerial marker 121 -- Han #114



Feature Information

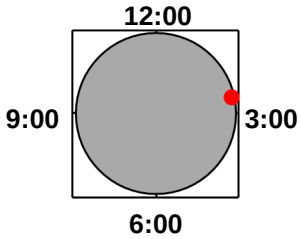
ID:	**40000015**	Distance from Launcher:	***61252.58***	***Feature Description***	
Time:	**18516.55**	Orientation on Pipe Wall:	**2:30**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.85864084**	Longitude:	**-103.01653127**	Altitude:	**2400.456**

Upstream Locations		Downstream Locations	
1587.60	Bend right - 90 deg., 6D	4166.82	Bend left - 70 deg., 5D
5740.97	Bend left - 75 deg., 5D	7688.31	Bend right - 90 deg., 6D
6571.68	Fitting on top of pipe	10513.04	Bend left - 90 deg., 6D
8471.96	Bend right - 32 deg., 3D	13164.69	Bend right - 80 deg., 5D
11060.68	Bend right - 45 deg., 3D	14087.10	Bend left - 90 deg., 6D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **17%**
Length: **0.554**
Width: **0.334**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

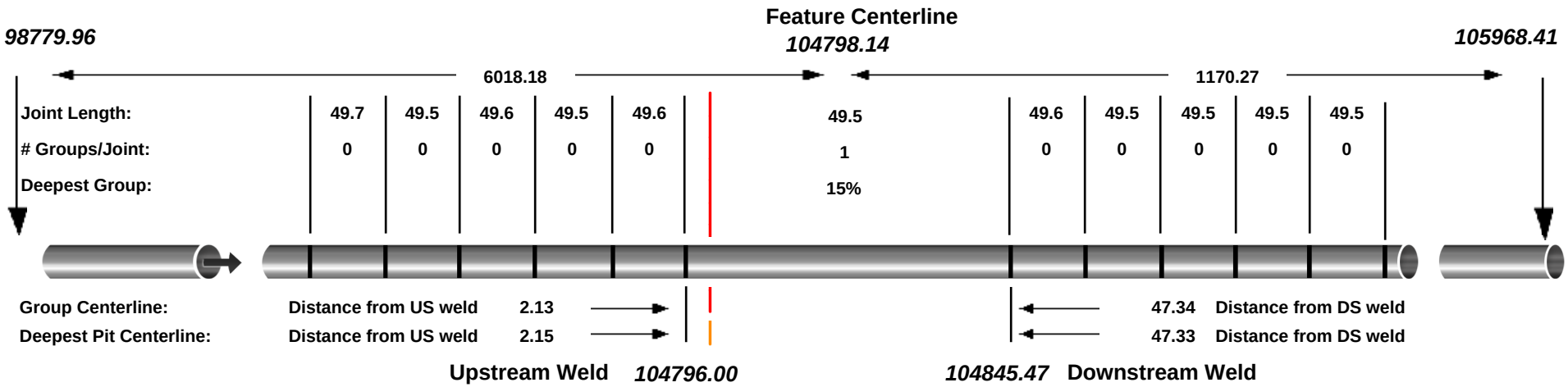
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point

DOWNSTREAM REFERENCE
AGM 190, Sta. 1031+50, 117' off gravel rd -- Han #3663



Feature Information

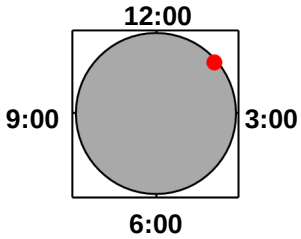
ID:	**40000022**	Distance from Launcher:	***104798.14***	***Feature Description***	
Time:	**29348.36**	Orientation on Pipe Wall:	**1:30**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.91278159**	Longitude:	**-103.11254358**	Altitude:	**2329.794**

Upstream Locations		Downstream Locations	
1200.52	Bend right - 30 deg., 1.5D	1194.31	Bend left - 90 deg., 6D
3851.39	Bend right - 45 deg., 3D	6874.46	Bend right - 90 deg., 6D
4820.18	Bend left - 40 deg., 3D	10768.92	Bend right - 20 deg., 1.5D
6170.13	Bend left - 45 deg., 3D	17926.01	Bend left - 45 deg., 3D
6836.81	Bend right - 45 deg., 3D	19057.60	Bend right - 60 deg., 10D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **15%**
Length: **0.758**
Width: **0.779**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

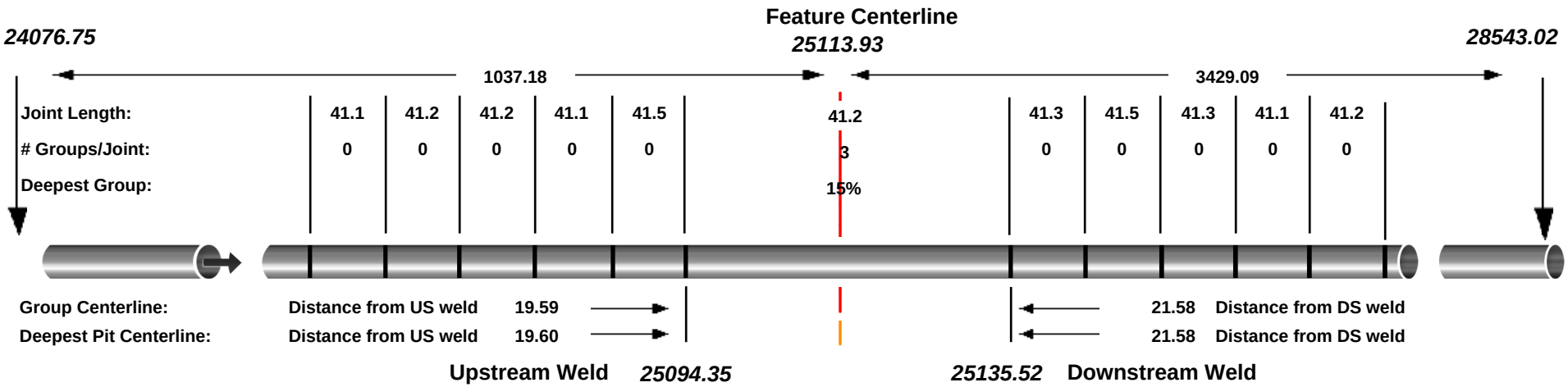
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point

DOWNSTREAM REFERENCE
AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point



Feature Information

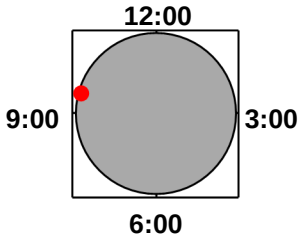
ID:	**40000005**	Distance from Launcher:	***25113.93***	***Feature Description***	
Time:	**9538.03**	Orientation on Pipe Wall:	**9:30**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.78836310**	Longitude:	**-102.96416819**	Altitude:	**2344.057**

Upstream Locations		Downstream Locations	
1010.88	Bend right - 60 deg., 3D	1489.16	Bend right - 60 deg., 3D
3829.19	Bend right - 90 deg., 3D	6909.22	Bend right - 45 deg., 3D
4982.21	Bend left - 90 deg., 3D	16598.24	Bend right - 90 deg., 8D
10539.37	Bend right - 45 deg., 3D	21057.36	Bend left - 45 deg., 3D
14242.06	Bend right - 90 deg., 3D	22824.00	Bend left - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **15%**
Length: **0.706**
Width: **0.572**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

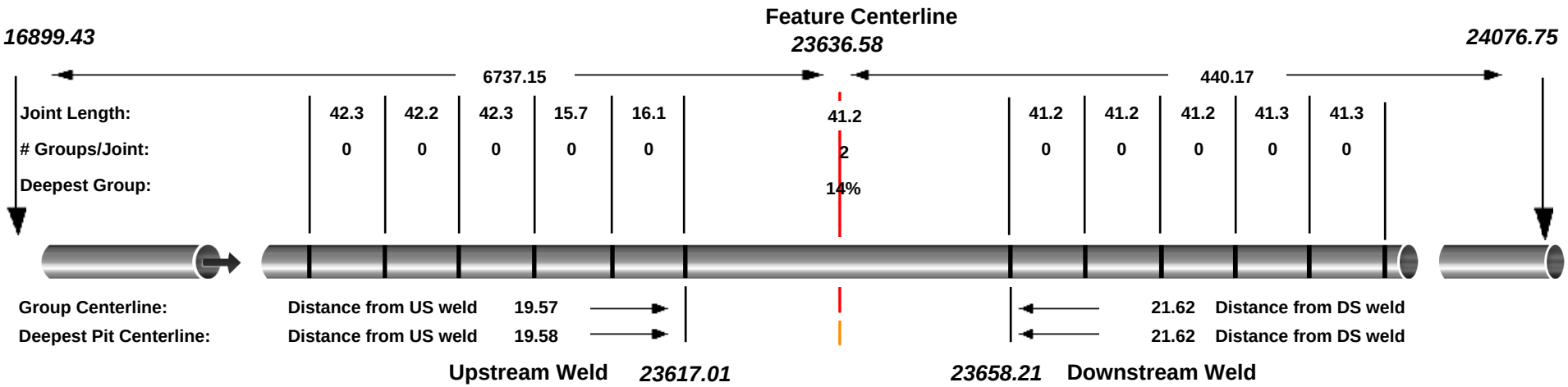
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 030, Sta. 167+38, Under overhead wire line -- Han #102

DOWNSTREAM REFERENCE
AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point



Feature Information

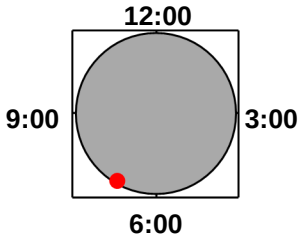
ID:	**40000002**	Distance from Launcher:	***23636.58***	***Feature Description***	
Time:	**9165.95**	Orientation on Pipe Wall:	**7:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.78552428**	Longitude:	**-102.96121263**	Altitude:	**2272.428**

Upstream Locations		Downstream Locations	
2351.84	Bend right - 90 deg., 3D	466.47	Bend right - 60 deg., 3D
3504.86	Bend left - 90 deg., 3D	2966.51	Bend right - 60 deg., 3D
9062.02	Bend right - 45 deg., 3D	8386.57	Bend right - 45 deg., 3D
12764.71	Bend right - 90 deg., 3D	18075.59	Bend right - 90 deg., 8D
16223.79	Bend left - 45 deg., 3D	22534.71	Bend left - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **14%**
Length: **0.733**
Width: **0.530**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

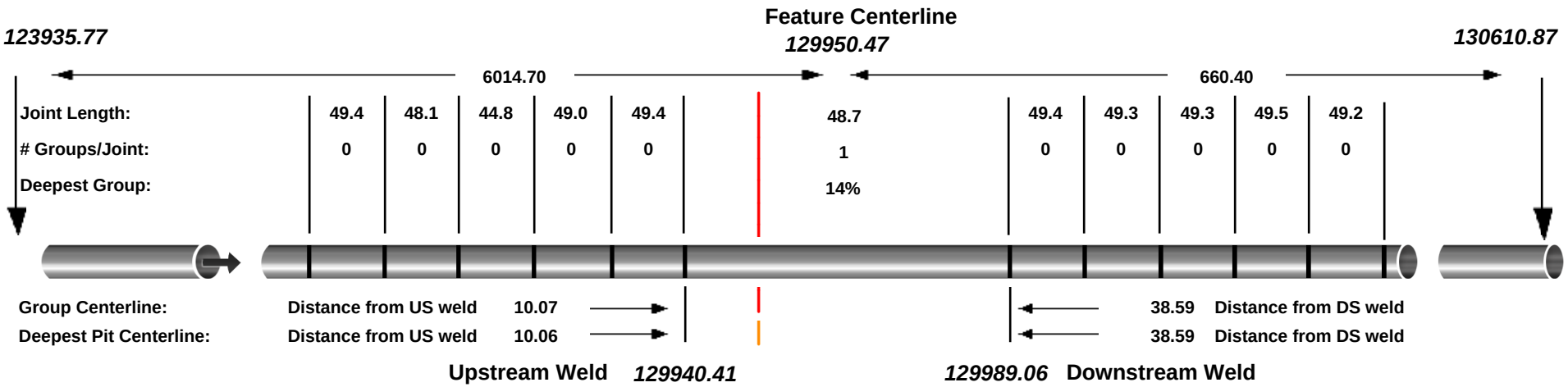
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
Valve

DOWNSTREAM REFERENCE
AGM 230, Sta. 1281+56, 39' east of aerial marker 114 -- Han #141



Feature Information

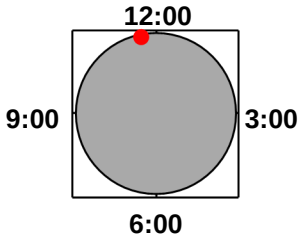
ID:	**40000025**	Distance from Launcher:	***129950.47***	***Feature Description***	
Time:	**35523.80**	Orientation on Pipe Wall:	**11:30**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**47.90950977**	Longitude:	**-103.19473003**	Altitude:	**2020.403**

Upstream Locations		Downstream Locations	
5958.96	Bend right - 45 deg., 3D	11426.53	Bend left - 90 deg., 6D
5998.60	Bend up - 45 deg., 3D	12078.06	Bend right - 90 deg., 6D
6009.68	Bend down - 45 deg., 3D	23675.59	Bend left - 50 deg., 1.5D
6010.25	Flange	31453.38	Bend right - 50 deg., 1.5D
6011.71	Tee at 270 deg.	33252.69	Bend left - 82 deg., 5D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **14%**
Length: **1.287**
Width: **0.547**
ERF: **0.460**
Safe Operating Pressure: **1632 psi**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

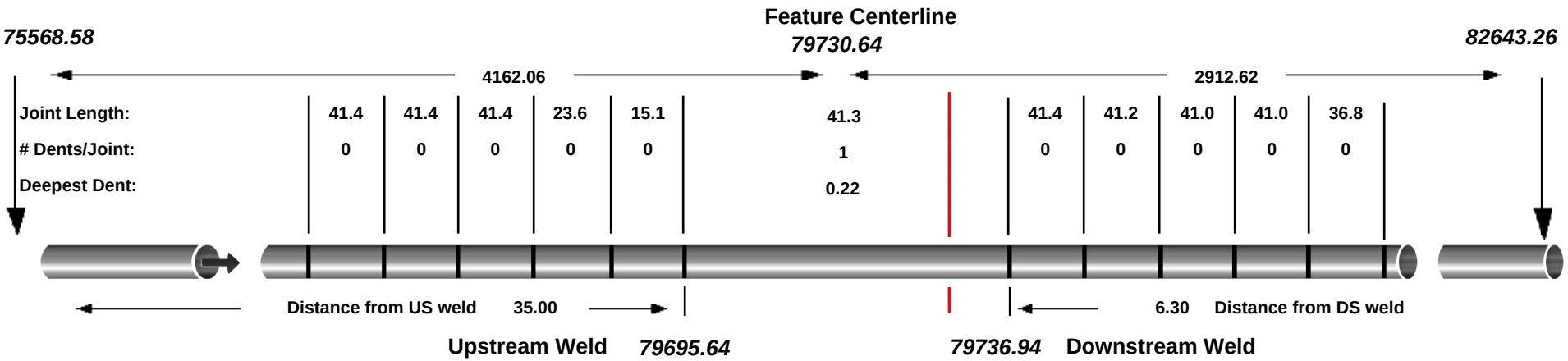
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

DENT - Dig Site Information Report

UPSTREAM REFERENCE
AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point

DOWNSTREAM REFERENCE
AGM 150, Sta. 801+04, At fence line by gate -- Han #3663



Feature Information

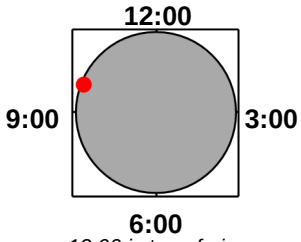
ID:	**14000002**	Distance from Launcher:	***79730.64***	***Feature Description***	
Time:	**23094.32**	Orientation on Pipe Wall:	**9:30**	**DENT**	
				Wall Thickness:	**0.188**
Latitude:	**47.88707405**	Longitude:	**-103.05543531**	Altitude:	**2269.348**
Additional Information:	**TDW Correlated Deformation**				

Upstream Locations		Downstream Locations	
2484.97	Bend right - 90 deg., 5D	5470.58	Bend left - 45 deg., 3D
4146.81	Bend left - 16 deg., 3D	5697.01	Bend right - 45 deg., 3D
4390.96	Bend left - 90 deg., 6D	7147.38	Bend left-up - 70 deg., 1.5D
5313.37	Bend right - 80 deg., 5D	8186.43	Bend right - 75 deg., 1.5D
7965.02	Bend left - 90 deg., 6D	9009.40	Bend left - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

DENT

Depth: **0.22**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

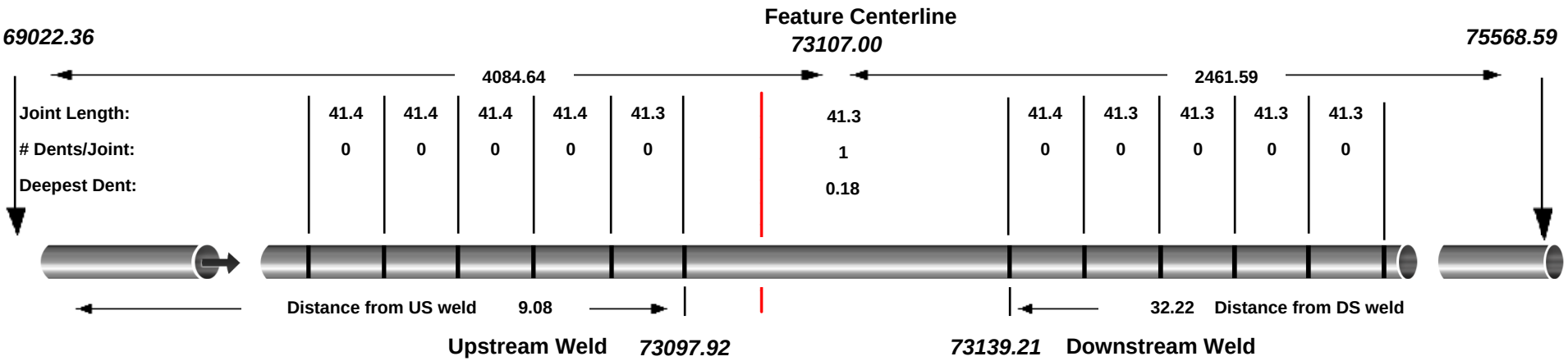
Generated: 11/22/2013

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

DENT - Dig Site Information Report

UPSTREAM REFERENCE
AGM 130, Sta. 679+55, On fence line -- Survey Point

DOWNSTREAM REFERENCE
AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point



Feature Information

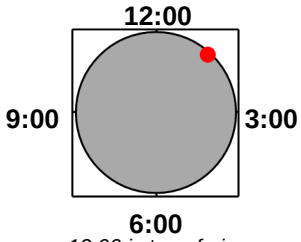
ID:	**14000001**	Distance from Launcher:	***73107.00***	***Feature Description***	
Time:	**21445.29**	Orientation on Pipe Wall:	**1:15**	**DENT**	
				Wall Thickness:	**0.188**
Latitude:	**47.87707890**	Longitude:	**-103.04205915**	Altitude:	**2327.426**
Additional Information:	**TDW Correlated Deformation**				

Upstream Locations		Downstream Locations	
1341.38	Bend left - 90 deg., 6D	1310.27	Bend right - 80 deg., 5D
4166.11	Bend right - 90 deg., 6D	2232.68	Bend left - 90 deg., 6D
7687.60	Bend left - 70 deg., 5D	2476.83	Bend left - 16 deg., 3D
13442.02	Bend right - 90 deg., 6D	4138.67	Bend right - 90 deg., 5D
17595.39	Bend left - 75 deg., 5D	12094.22	Bend left - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

DENT

Depth: **0.18**

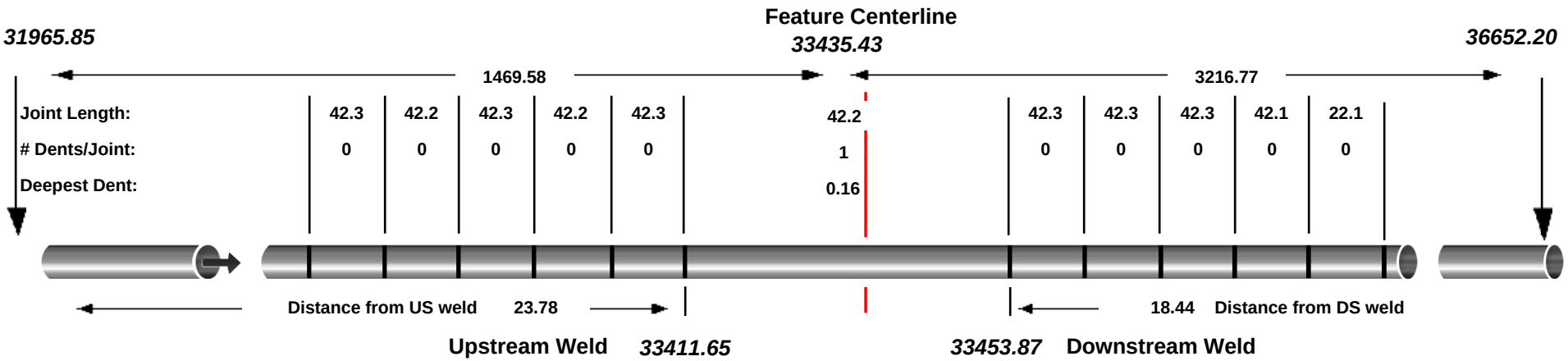
1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

Generated: 11/22/2013

DENT - Dig Site Information Report

UPSTREAM REFERENCE
AGM 060, Sta. 307+82, 35' off edge of rd -- Han #104

DOWNSTREAM REFERENCE
AGM 070, Sta. 354+82, 133' off center of rd -- Survey Point



Feature Information

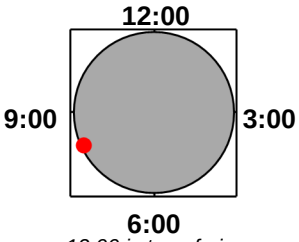
ID:	**14000000**	Distance from Launcher:	***33435.43***	***Feature Description***	
Time:	**11582.78**	Orientation on Pipe Wall:	**8:00**	**DENT**	
				Wall Thickness:	**0.322**
Latitude:	**47.80946853**	Longitude:	**-102.96316802**	Altitude:	**2316.577**
Additional Information:	**TDW Correlated Deformation**				

Upstream Locations		Downstream Locations	
1412.28	Bend right - 45 deg., 3D	8276.74	Bend right - 90 deg., 8D
6832.34	Bend right - 60 deg., 3D	12735.86	Bend left - 45 deg., 3D
9332.38	Bend right - 60 deg., 3D	14502.50	Bend left - 45 deg., 3D
12150.69	Bend right - 90 deg., 3D	16756.47	Bend right - 45 deg., 3D
13303.71	Bend left - 90 deg., 3D	19345.19	Bend right - 32 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

DENT

Depth: **0.16**

1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

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Charts

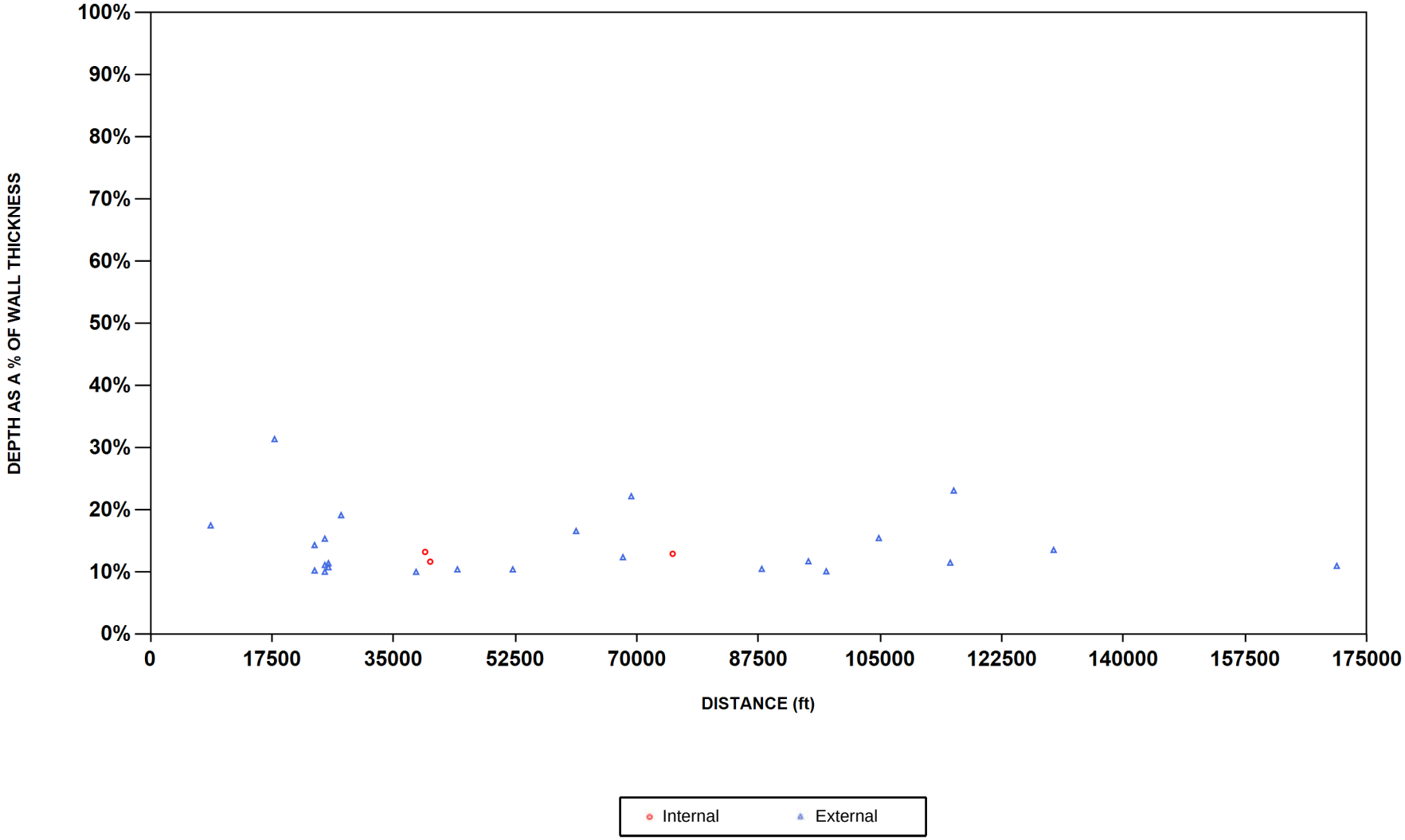
The Pipeline Summary report provides an overview of the pipeline condition.

The following charts are utilized in this report:

Metal Loss Depth	This chart highlights the predicted depths of defects as a percentage of wall thickness compared to distance. Areas of concentrated metal loss are easily detected as defects group.
Metal Loss Orientation	The distance from launch is plotted against the orientation of the defect. Orientation is based on 360° in a circle, with 0°or 360° marking the top of the pipe (180° the bottom). Displaying the orientation of defects around the circumference of the pipeline may aid in determining the type of corrosion mechanism present. For example, the majority of defects along the bottom of the pipe might indicate internal channel corrosion.
Metal Loss - Calculated Safe Max. Operating Pressure	The calculated safe maximum operating pressure of each defect is plotted compared to distance.
Velocity - MFL	Displays the speed of the tool relative to distance during the inspection. The specified contractual velocity of the inspection tool is 10 feet per second. If the tool exceeds this speed, the data collected by the tool may be degraded.
Defect Depth Histogram	Displays the total number of defects (pressure reducing groups/defects and non-pressure reducing groups /defects (where P'<P)) by predicted depth of the defect as a percentage of nominal wall.
Dent Depth	This chart highlights the predicted depths of deformations in inches or mm compared to distance.
Dent Orientation	The distance from launch is plotted against the orientation of the deformation indications. Orientation is based on 360° in a circle, with 0°or 360° marking the top of the pipe (180° the bottom).
Velocity - DEF	Displays the speed of the tool relative to distance during the inspection. The specified contractual velocity of the inspection tool is 10 feet per second. If the tool exceeds this speed, the data collected by the tool may be degraded.

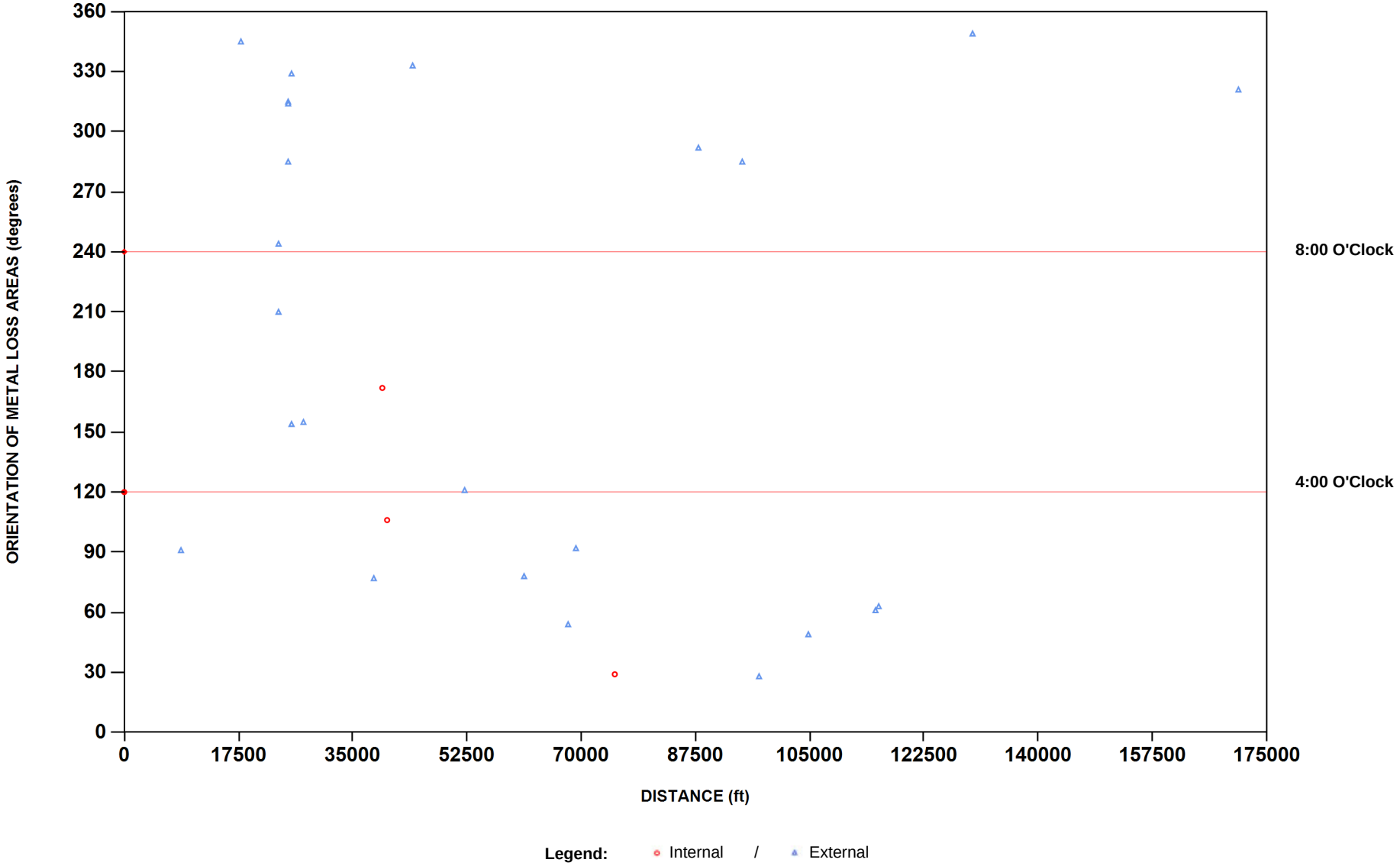
TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

Metal Loss Depth Graph



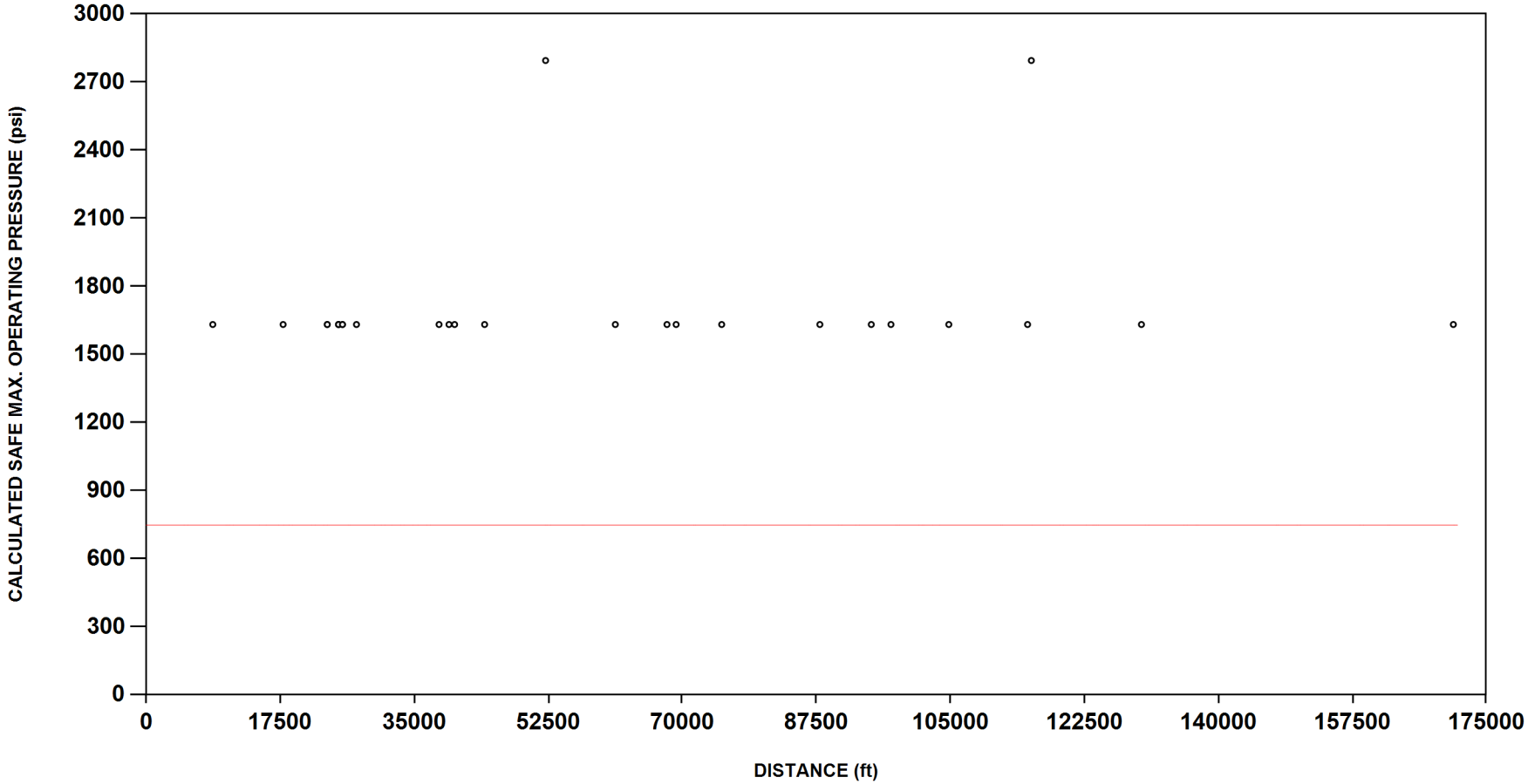
TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

Metal Loss Orientation Graph



TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

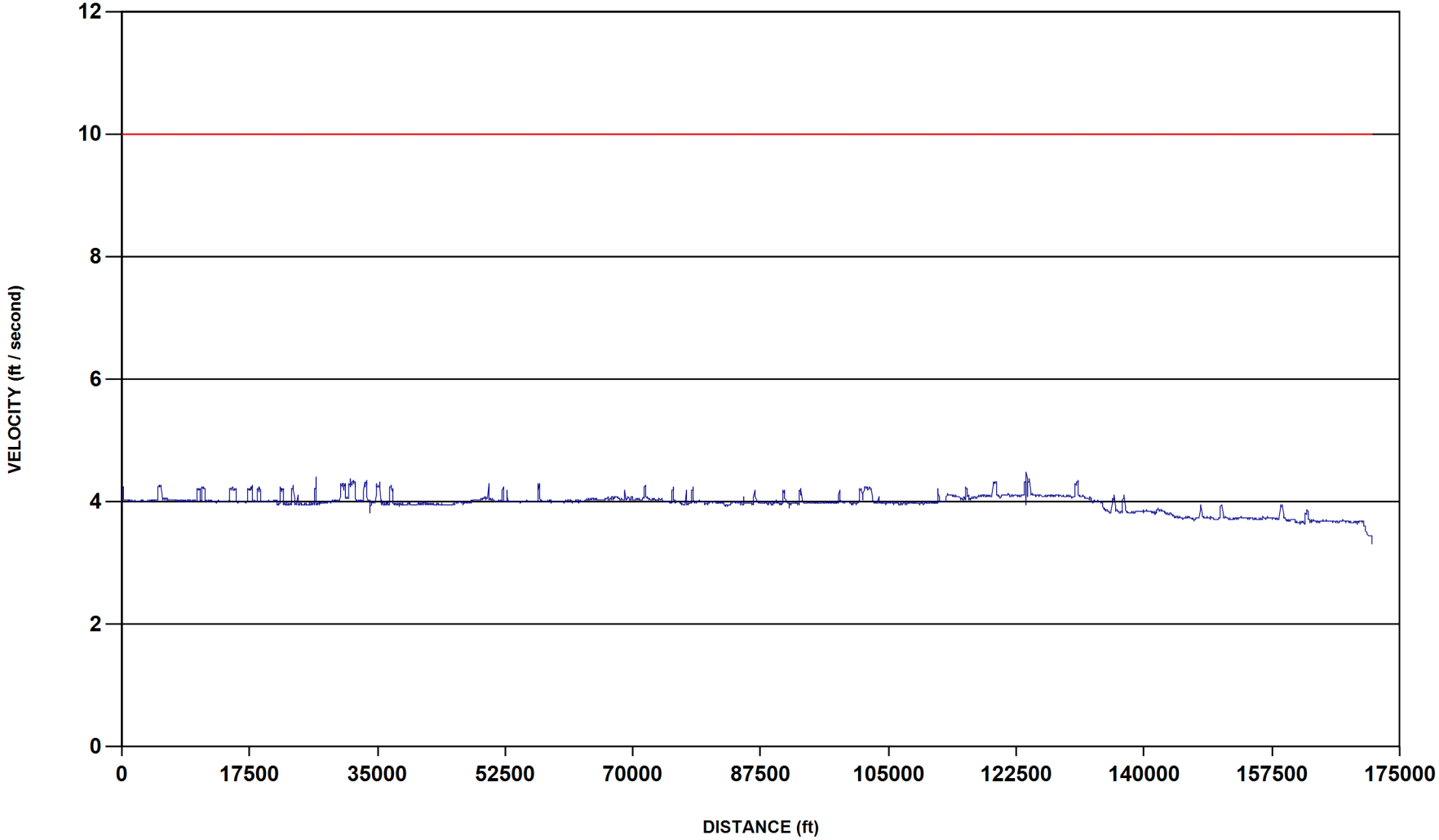
Metal Loss - Calculated Safe Max. Operating Pressure Graph



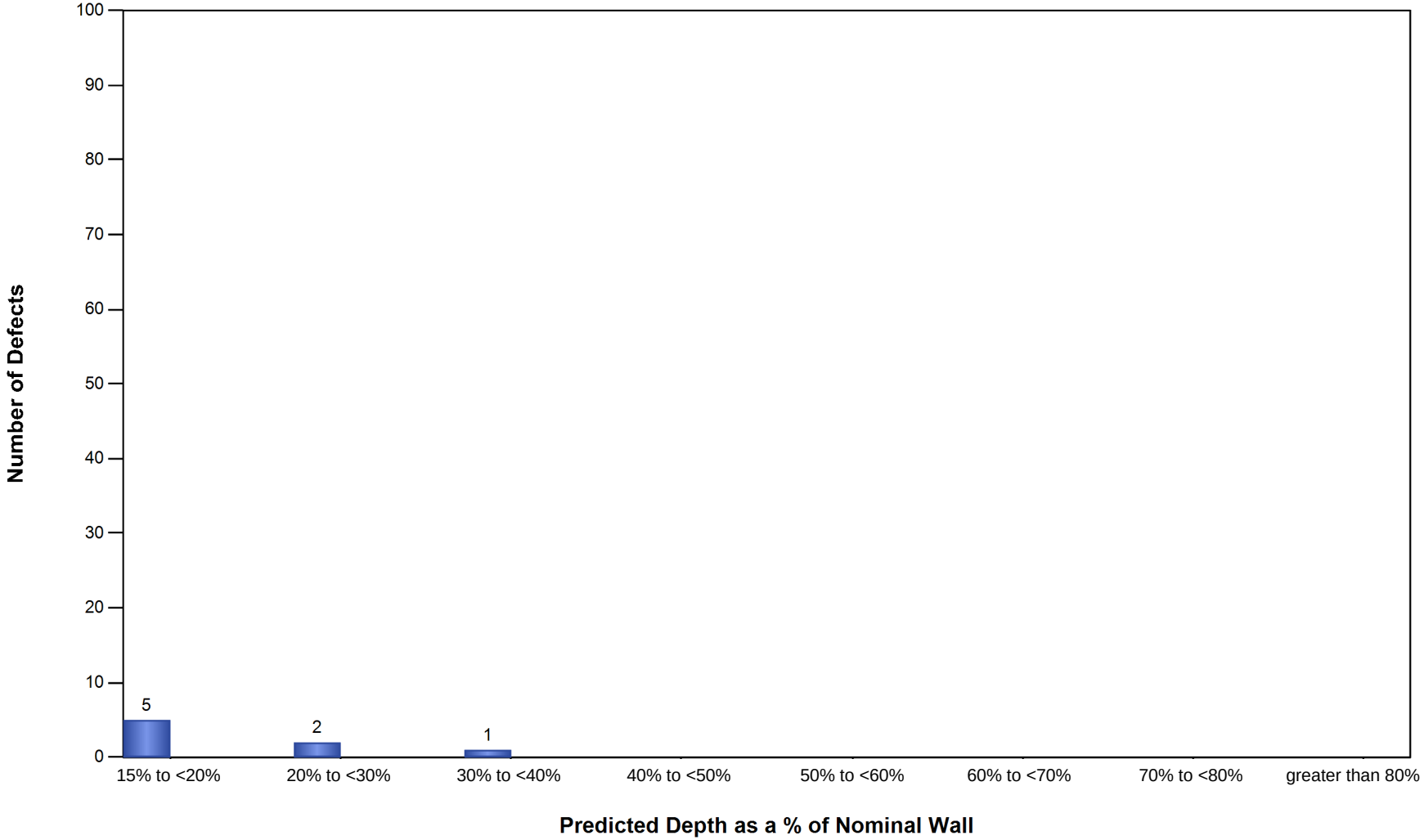
Metal Loss - Calculated Safe Max. Operating Pressure Graph

TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

Velocity Graph - MFL



Defect Depth Histogram



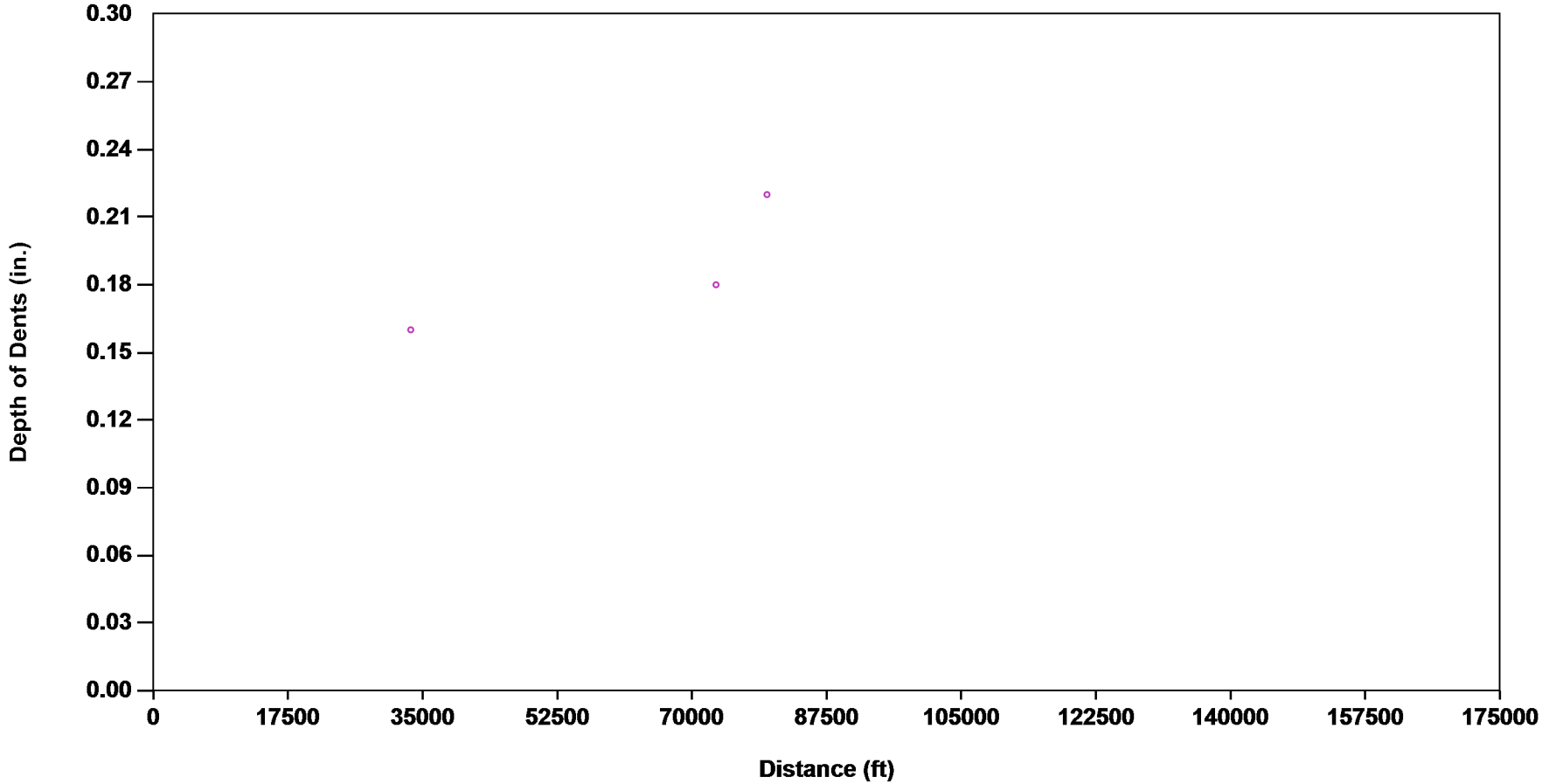
Total Defects: **27**

Non-Pressure-Reducing Groups

Pressure-Reducing Groups (where P' < P)

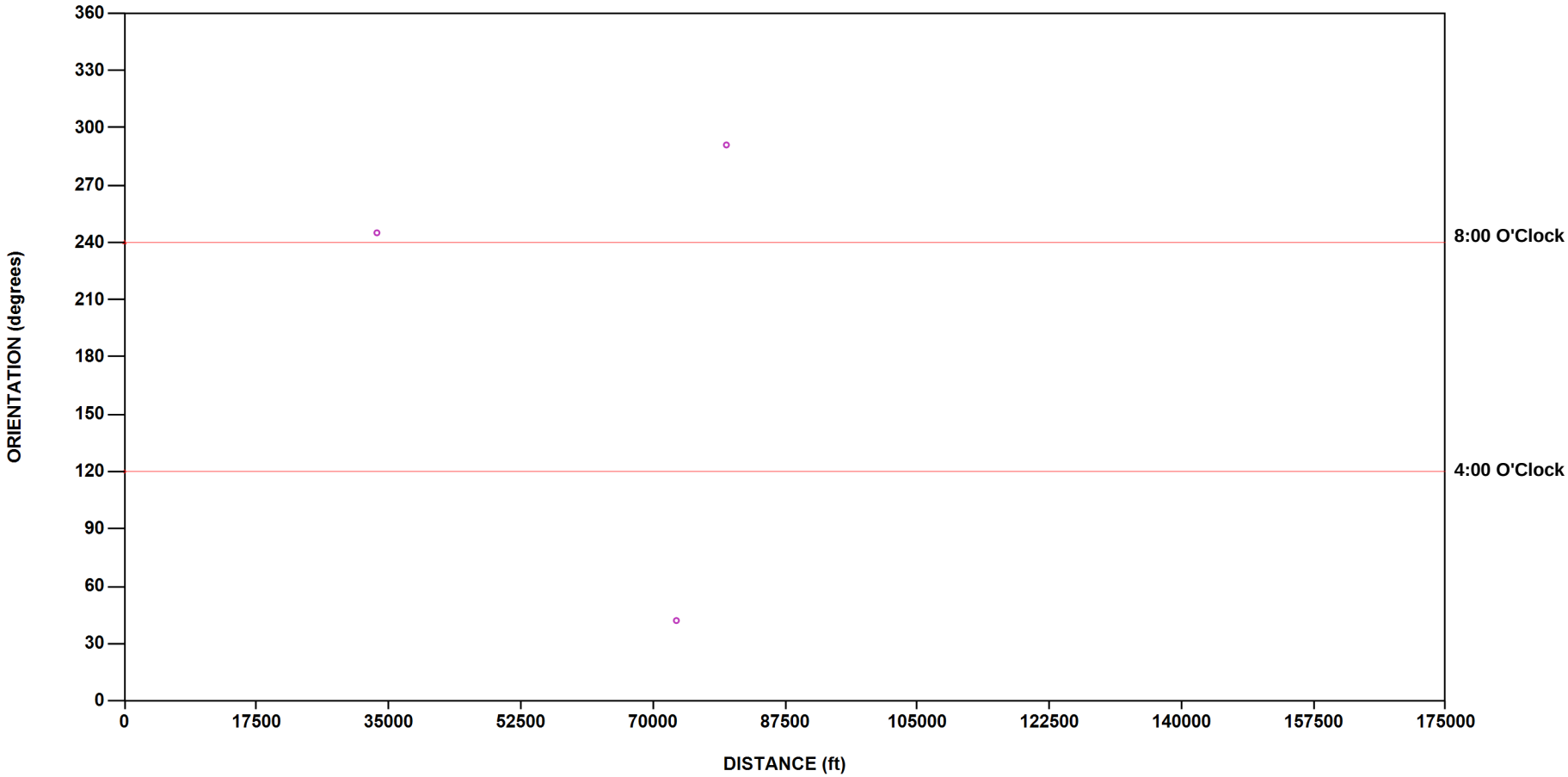
TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

Dent Depth Graph



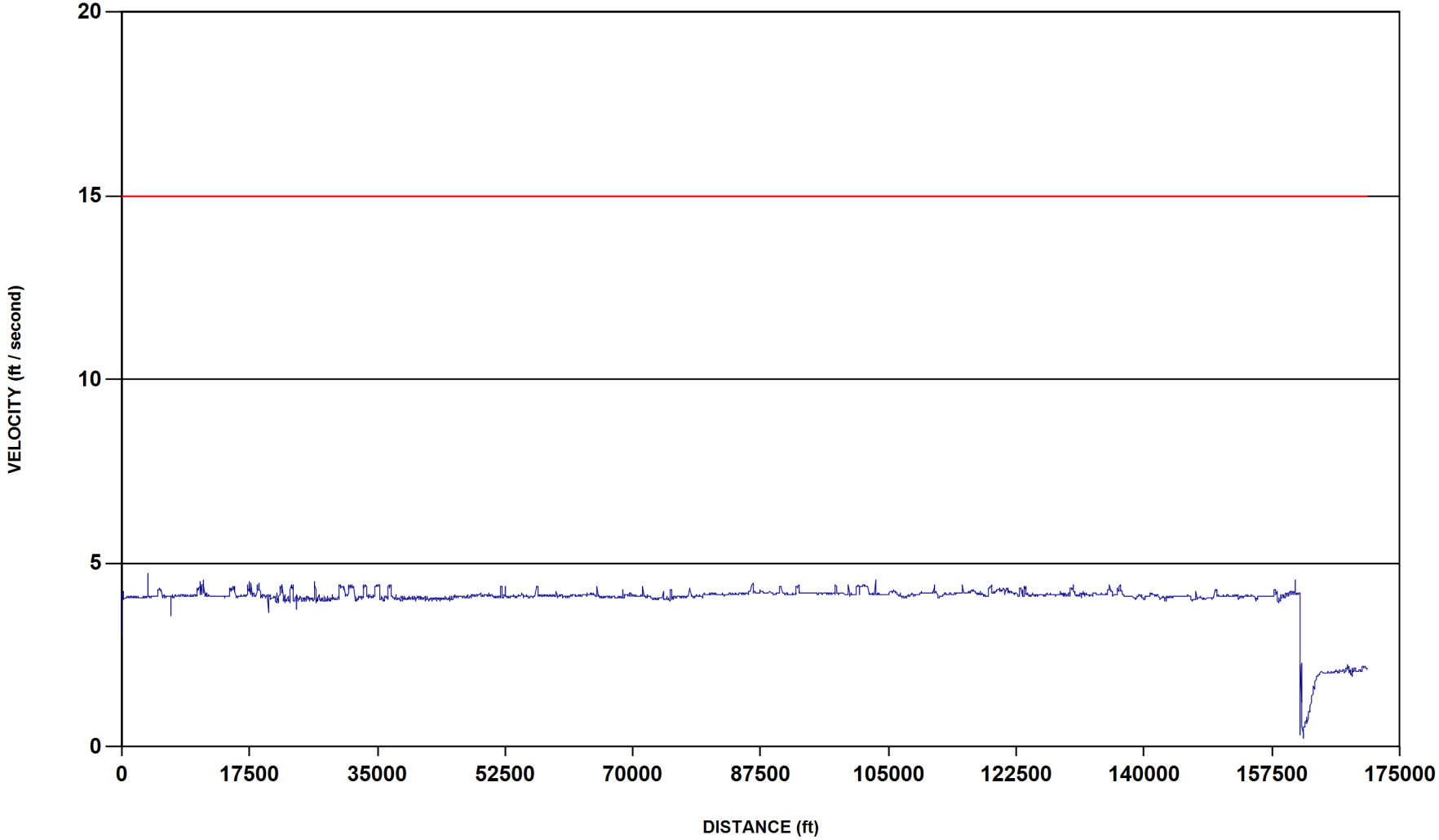
TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

Dent Orientation Graph



TDW Services, Inc.
Hiland Crude, LLC
Johnson's Corner to East Camp Creek

Velocity Graph - DEF



Velocity Graph - DEF

Locations Summary

DEFINITIONS

A location is a feature in the pipeline that can be used to correlate the inspection tool data to above ground references. Common location features include valves, fittings, flanges, tees, casings, repairs and aboveground markers (AGMs).

For example, a metal loss area could be referenced as being 200 feet down stream from a valve. Not all locations can be easily found from above ground. Some locations might not be useful if they are not above ground.

ID#	Each location is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Time	A reference time from the inspection tool. May also be used to locate features in the PIGTRAP software.
Distance	Given in either feet or meters, based on contractual agreements, this is the absolute distance measured by the tool from launch.
Joint #	This unique number identifies the girth weld number.
U/S Weld Dist.	The distance to the upstream (U/S) weld (in feet or meters).
D/S Weld Dist.	The distance to the downstream (D/S) weld (in feet or meters).
Description	Describes the location in greater detail. Possible entries include valves, flanges, fittings, tees, markers, etc.
Latitude	This shows the north/south position of the Location as supplied by the customer or recorded by an AGM box. For XYZ mapping runs, these values are the supplied survey points or were calculated by the tool.
Longitude	This shows the east/west position of the Location as supplied by the customer or recorded by an AGM box. For XYZ mapping runs, these values are the supplied survey points or were calculated by the tool.
Altitude	For XYZ mapping runs, this shows the elevation above sea level of the location as supplied by the customer or calculated by the tool.

Zeroes in Latitude and Longitude mean that no data was supplied by the customer. Calculated or estimated values can be viewed in the Pipe Listing report.

Locations Summary

ID#	Time	Dist (ft)	Joint #	U/S Weld Dist.	D/S Weld Dist.	Description	Latitude	Longitude	Altitude
10000001	3,331.63	0.0	110	1.5	1.6	Valve (Launcher), Sta. 0+00, Johnson's Corner Station	47.80616892	-102.90292470	2349.353
10000002	3,331.91	1.1	110	2.5	0.5	Flange	47.80617175	-102.90292502	2349.433
10000003	3,332.27	2.5	120	0.8	0.6	Pipe Support	47.80617565	-102.90292546	2349.549
10000004	3,332.49	3.5	130	0.2	1.0	Tee at 270 deg.	47.80617814	-102.90292571	2349.631
10000005	3,332.73	4.5	140	0.5	0.5	Flange	47.80618085	-102.90292600	2349.734
10000006	3,333.04	5.8	150	0.1	1.5	Bend down - 45 deg., 3D	47.80618413	-102.90292637	2349.617
10000007	3,333.54	7.9	160	1.3	12.9	Fitting on top of pipe	47.80618859	-102.90292697	2348.511
10000115	3,334.58	12.5	160	5.9	8.3	Pipe Entering Ground -- Survey Point	47.80619723	-102.90292820	2345.748
10000008	3,336.70	21.5	170	0.1	1.5	Bend up - 45 deg., 3D	47.80621533	-102.90292950	2339.771
10000009	3,495.37	670.5	340	0.1	3.1	Bend left - 90 deg., 3D	47.80797086	-102.90322660	2370.233
10000010	4,228.12	3,611.6	960	0.1	3.1	Bend left - 90 deg., 3D	47.80798196	-102.91514955	2389.949
10000011	4,300.46	3,902.7	1,020	44.4	4.7	AGM 010, Sta. 38+53, 33' off other line -- Survey Point	47.80718583	-102.91515600	2387.869
10000012	4,993.41	6,730.4	1,650	0.1	2.0	Bend right - 60 deg., 3D	47.79950710	-102.91569895	2413.604
10000013	5,162.61	7,413.4	1,810	0.1	1.4	Bend left - 45 deg., 3D	47.79815770	-102.91689325	2411.736
10000014	6,018.05	10,873.4	2,540	0.1	3.1	Bend right - 90 deg., 3D	47.78912759	-102.91519692	2475.084
10000015	6,039.04	10,958.1	2,570	3.0	39.2	AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point	47.78913457	-102.91554040	2473.373
10000016	6,935.41	14,575.2	3,320	0.1	1.4	Bend right - 45 deg., 3D	47.78882571	-102.92976285	2366.170
10000017	7,505.91	16,899.4	3,830	20.7	28.4	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	47.78914467	-102.93911620	2357.579
10000018	8,298.85	20,133.1	4,570	0.1	3.0	Bend left - 90 deg., 3D	47.78914207	-102.95215356	2358.400
10000019	8,586.34	21,286.2	4,830	0.1	3.1	Bend right - 90 deg., 3D	47.78599681	-102.95217589	2311.863
10000116	9,276.69	24,076.8	5,560	6.0	26.2	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	47.78569443	-102.96297669	2294.451
10000020	9,283.53	24,104.1	5,570	0.1	2.2	Bend right - 60 deg., 3D	47.78570635	-102.96308534	2295.638
10000021	9,910.64	26,604.1	6,190	0.1	2.2	Bend right - 60 deg., 3D	47.79194158	-102.96680325	2360.884
10000022	10,396.41	28,543.0	6,670	20.9	20.3	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	47.79625772	-102.96340939	2397.996
10000023	11,222.23	31,965.9	7,490	16.6	25.7	AGM 060, Sta. 307+82, 35' off edge of rd -- Han #104	47.80556987	-102.96373059	2318.862
10000024	11,235.65	32,023.8	7,510	0.1	1.5	Bend right - 45 deg., 3D	47.80572679	-102.96373177	2326.323
10000025	12,376.08	36,652.2	8,660	34.4	3.4	AGM 070, Sta. 354+82, 133' off center of rd -- Survey Point	47.81824011	-102.96314938	2306.900
10000026	13,644.64	41,715.3	9,900	1.2	8.3	Bend right - 90 deg., 8D	47.82556294	-102.97892251	2312.492

Locations Summary

ID#	Time	Dist (ft)	Joint #	U/S Weld Dist.	D/S Weld Dist.	Description	Latitude	Longitude	Altitude
10000117	13,664.84	41,796.1	9,930	14.2	27.2	AGM 080, Sta. 405+99, On fence line by AGM -- Survey Point	47.82578264	-102.97892218	2311.836
10000027	14,767.39	46,172.0	11,010	0.1	1.5	Bend left - 45 deg., 3D	47.83754419	-102.97798808	2296.003
10000028	15,023.14	47,193.9	11,270	23.0	18.3	AGM 090, Sta. 459+32. On fence line -- Han #116	47.84026706	-102.97889397	2294.872
10000029	15,209.70	47,938.6	11,460	0.1	1.5	Bend left - 45 deg., 3D	47.84217139	-102.97993935	2308.836
10000030	15,766.99	50,192.6	11,930	0.1	1.5	Bend right - 45 deg., 3D	47.84300188	-102.98899764	2341.650
10000031	16,404.91	52,767.9	12,540	29.7	12.6	AGM 100, Sta. 517-63, At aerial marker 122 -- Survey Point	47.84750470	-102.99657707	2388.178
10000032	16,408.02	52,781.1	12,550	0.1	1.0	Bend right - 32 deg., 3D	47.84752768	-102.99661744	2389.219
10000033	16,881.68	54,681.0	13,070	21.0	21.1	Fitting on top of pipe	47.85245896	-102.99835051	2411.389
10000034	17,089.67	55,514.2	13,300	1.5	5.2	Bend left - 75 deg., 5D	47.85459322	-102.99950953	2377.640
10000035	17,448.85	56,955.6	13,670	28.7	13.5	AGM 110, Sta. 560+08, 132' off gravel rd -- Han #3663	47.85448022	-103.00534686	2370.147
10000036	18,121.28	59,668.2	14,350	1.5	8.4	Bend right - 90 deg., 6D	47.85432365	-103.01632445	2388.879
10000037	18,820.82	62,474.7	15,030	17.3	32.4	AGM 120, Sta. 614+60, At aerial marker 121 -- Han #114	47.86195715	-103.01678906	2367.755
10000038	19,551.39	65,421.6	15,660	1.5	4.6	Bend left - 70 deg., 5D	47.86902847	-103.02240591	2363.450
10000039	20,420.62	68,944.1	16,440	1.5	8.3	Bend right - 90 deg., 6D	47.86900769	-103.03667604	2413.622
10000040	20,439.84	69,022.4	16,460	38.2	2.8	AGM 130, Sta. 679+55, On fence line -- Survey Point	47.86922073	-103.03668525	2416.610
10000041	21,115.49	71,768.9	17,120	1.7	8.3	Bend left - 90 deg., 6D	47.87667987	-103.03669253	2313.008
10000042	21,770.77	74,420.0	17,780	1.9	5.6	Bend right - 80 deg., 5D	47.87745713	-103.04733506	2322.379
10000043	22,001.49	75,342.9	18,020	1.9	8.0	Bend left - 90 deg., 6D	47.87996267	-103.04740433	2293.614
10000044	22,055.35	75,568.6	18,090	27.1	15.2	AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point	47.88016347	-103.04826455	2277.296
10000045	22,058.99	75,584.0	18,100	0.0	0.5	Bend left - 16 deg., 3D	47.88017515	-103.04832433	2275.793
10000046	22,476.12	77,248.7	18,520	1.5	6.2	Bend right - 90 deg., 5D	47.88031742	-103.05505429	2280.432
10000047	23,824.78	82,643.3	19,880	15.3	26.0	AGM 150, Sta. 801+04, At fence line by gate -- Han #3663	47.89458728	-103.05823184	2287.934
10000048	24,467.90	85,201.9	20,440	0.1	1.5	Bend left - 45 deg., 3D	47.90155161	-103.05823992	2346.815
10000049	24,524.80	85,428.4	20,500	0.1	1.5	Bend right - 45 deg., 3D	47.90196866	-103.05891855	2352.574
10000050	24,806.33	86,548.9	20,740	38.1	9.3	AGM 160, Sta. 841+16, 118' off aerial marker 119 -- Survey Point	47.90501692	-103.05903264	2320.583
10000051	24,886.24	86,878.6	20,840	0.1	1.3	Bend left-up - 70 deg., 1.5D	47.90591340	-103.05903025	2308.733
10000052	25,146.77	87,917.7	21,100	0.1	1.3	Bend right - 75 deg., 1.5D	47.90653833	-103.06313900	2304.072
10000053	25,353.66	88,740.7	21,290	0.1	1.5	Bend left - 45 deg., 3D	47.90876178	-103.06354002	2288.576
10000054	25,791.43	90,484.6	21,660	0.0	0.5	Bend left - 20 deg., 1.5D	47.91028916	-103.07018133	2261.615

Locations Summary

ID#	Time	Dist (ft)	Joint #	U/S Weld Dist.	D/S Weld Dist.	Description	Latitude	Longitude	Altitude
10000055	25,869.61	90,809.7	21,750	0.0	0.7	Bend left - 20 deg., 3D	47.91017327	-103.07148200	2260.604
10000056	26,016.87	91,399.2	21,890	0.1	1.5	Bend left - 48 deg., 3D	47.90924539	-103.07342324	2306.172
10000057	26,362.45	92,775.6	22,200	0.3	1.3	Bend right - 45 deg., 1.5D	47.90557217	-103.07449967	2264.778
10000058	26,421.58	93,022.6	22,270	32.3	9.9	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	47.90520632	-103.07533993	2264.318
10000059	27,659.37	97,962.0	23,310	0.1	1.5	Bend right - 45 deg., 3D	47.90489155	-103.09436633	2332.877
10000060	27,824.53	98,628.7	23,480	0.1	1.5	Bend left - 45 deg., 3D	47.90663794	-103.09507662	2353.596
10000061	27,862.36	98,780.0	23,520	49.3	0.3	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	47.90672674	-103.09567703	2355.138
10000062	28,162.59	99,978.5	23,780	0.1	1.2	Bend left - 40 deg., 3D	47.90843762	-103.09970511	2260.979
10000063	28,405.87	100,947.4	24,010	0.1	1.4	Bend right - 45 deg., 3D	47.90695446	-103.10285822	2227.399
10000064	29,047.51	103,598.0	24,640	0.1	0.9	Bend right - 30 deg., 1.5D	47.90956075	-103.11221662	2262.062
10000065	29,641.81	105,968.4	25,130	33.2	14.5	AGM 190, Sta. 1031+50, 117' off gravel rd -- Han #3663	47.91597421	-103.11250192	2330.838
10000066	29,648.61	105,995.7	25,150	1.4	8.2	Bend left - 90 deg., 6D	47.91604789	-103.11250749	2330.786
10000067	31,074.57	111,675.8	26,320	1.5	8.2	Bend right - 90 deg., 6D	47.91547591	-103.13198316	2254.257
10000068	31,073.91	111,673.0	26,320	2.0	7.8	AGM 200, Sta. 1090+77, At aerial marker 117 -- Han #141	47.91547922	-103.13197321	2254.221
10000069	32,030.08	115,567.2	27,170	0.0	0.4	Bend right - 20 deg., 1.5D	47.90926376	-103.14419293	2138.171
10000070	33,770.12	122,724.7	28,680	0.3	1.3	Bend left - 45 deg., 3D	47.90770597	-103.17265725	2107.074
10000071	34,044.17	123,859.4	28,950	0.2	7.6	Bend right - 60 deg., 10D	47.90523590	-103.17541695	2068.688
10000072	34,052.53	123,893.6	28,980	0.0	1.5	Bend up - 45 deg., 3D	47.90524647	-103.17555477	2069.290
10000073	34,055.04	123,904.6	29,000	0.1	1.5	Bend down - 45 deg., 3D	47.90524875	-103.17558679	2076.422
10000074	34,055.34	123,905.9	29,010	0.5	0.5	Flange	47.90524918	-103.17559173	2076.526
10000075	34,056.10	123,909.0	29,020	2.5	2.8	Pipe Support	47.90525026	-103.17560396	2076.515
10000076	34,056.80	123,912.1	29,030	0.1	1.0	Tee at 270 deg.	47.90525135	-103.17561634	2076.506
10000077	34,057.10	123,913.4	29,040	0.6	0.7	Pipe Support	47.90525184	-103.17562162	2076.501
10000078	34,057.34	123,914.5	29,050	0.4	2.7	Flange	47.90525222	-103.17562574	2076.495
10000079	34,057.60	123,915.6	29,050	1.6	1.6	Valve, Sta. 1213+36, AGM 220	47.90525263	-103.17563031	2076.487
10000080	34,057.86	123,916.6	29,050	2.6	0.5	Flange	47.90525300	-103.17563444	2076.482
10000081	34,058.05	123,917.5	29,060	0.2	11.3	Pipe Support	47.90525329	-103.17563771	2076.477
10000082	34,059.68	123,924.2	29,060	6.9	4.6	Fitting on top of pipe	47.90525563	-103.17566470	2076.443
10000083	34,060.87	123,929.2	29,070	0.2	1.0	Tee on bottom of pipe	47.90525740	-103.17568494	2076.403
10000084	34,061.92	123,933.6	29,080	3.7	0.7	Pipe Support	47.90525892	-103.17570272	2076.345
10000085	34,062.14	123,934.7	29,090	0.5	2.7	Flange	47.90525928	-103.17570690	2076.322

Locations Summary

ID#	Time	Dist (ft)	Joint #	U/S Weld Dist.	D/S Weld Dist.	Description	Latitude	Longitude	Altitude
10000086	34,062.39	123,935.8	29,090	1.6	1.6	Valve	47.90525967	-103.17571130	2076.298
10000087	34,062.65	123,936.9	29,090	2.7	0.5	Flange	47.90526006	-103.17571572	2076.277
10000088	34,062.86	123,937.8	29,100	0.3	1.0	Pipe Support	47.90526037	-103.17571933	2076.255
10000089	34,063.18	123,939.2	29,110	0.1	1.0	Tee at 270 deg.	47.90526084	-103.17572491	2076.230
10000090	34,063.42	123,940.2	29,120	0.4	0.5	Flange	47.90526121	-103.17572910	2076.205
10000091	34,063.71	123,941.5	29,130	0.1	1.5	Bend down - 45 deg., 3D	47.90526166	-103.17573389	2075.819
10000092	34,066.17	123,952.6	29,150	0.1	1.5	Bend up - 45 deg., 3D	47.90526494	-103.17576492	2068.383
10000093	34,075.61	123,992.1	29,180	0.1	1.4	Bend right - 45 deg., 3D	47.90528185	-103.17592244	2067.554
10000094	35,684.79	130,610.9	30,560	41.9	0.3	AGM 230, Sta. 1281+56, 39' east of aerial marker 114 -- Han #141	47.90955906	-103.19741570	2038.001
10000095	36,931.71	135,616.5	31,600	34.4	7.9	AGM 240, Sta. 1330+14, Corner of fence line -- Han #104	47.90953324	-103.21777179	1990.719
10000096	38,391.93	141,270.4	32,780	38.4	8.6	AGM 250, Sta. 1386+91, At aerial marker 113 -- Han #116	47.90966725	-103.24078149	2001.809
10000097	38,420.55	141,380.3	32,810	1.5	8.4	Bend left - 90 deg., 6D	47.90966290	-103.24122831	2004.535
10000098	38,589.66	142,031.7	32,960	1.8	7.9	Bend right - 90 deg., 6D	47.90787777	-103.24124565	2005.791
10000099	40,103.13	147,746.5	34,140	28.7	13.5	AGM 260, Sta. 1451+42, At aerial marker 112 -- Survey Point	47.90789107	-103.26449318	2036.133
10000100	41,668.73	153,626.7	35,380	0.1	1.4	Bend left - 50 deg., 1.5D	47.90973351	-103.28788483	2164.959
10000101	41,783.13	154,054.5	35,480	24.5	25.0	AGM 270, Sta. 1514+41, 48' off two track -- Survey Point	47.90923007	-103.28945698	2165.743
10000102	43,751.80	161,404.2	37,010	0.1	0.8	Bend right - 50 deg., 1.5D	47.91575512	-103.31526212	2291.019
10000118	44,224.10	163,154.9	37,410	12.0	36.1	AGM 280, Sta. 1604+70, On fence line -- Survey Point	47.92050479	-103.31530537	2221.864
10000103	44,237.94	163,206.0	37,430	0.1	7.6	Bend left - 82 deg., 5D	47.92064183	-103.31533180	2225.609
10000104	45,331.64	167,235.3	38,270	0.1	1.2	Bend left - 45 deg., 1.5D	47.92066186	-103.33162460	2387.081
10000105	46,442.62	171,253.4	39,110	0.1	1.4	Bend up - 45 deg., 3D	47.91831222	-103.34681288	2416.491
10000119	46,445.48	171,263.2	39,140	0.3	4.1	Pipe Exiting Ground -- Survey Point	47.91830952	-103.34684076	2423.238
10000106	46,446.93	171,268.0	39,150	0.1	1.6	Bend down - 45 deg., 3D	47.91830817	-103.34685434	2426.053
10000107	46,447.30	171,269.3	39,160	0.5	0.5	Flange	47.91830776	-103.34685914	2426.109
10000108	46,448.06	171,271.9	39,170	1.9	0.5	Pipe Support	47.91830699	-103.34686877	2426.048
10000109	46,448.32	171,272.9	39,180	0.3	1.0	Tee at 270 deg.	47.91830672	-103.34687242	2426.028
10000110	46,449.54	171,277.2	39,190	3.5	3.4	Pipe Support	47.91830543	-103.34688854	2425.929
10000111	46,450.63	171,281.0	39,200	0.1	1.0	Tee at 270 deg.	47.91830428	-103.34690284	2425.835
10000112	46,450.94	171,282.1	39,210	0.5	2.6	Flange	47.91830396	-103.34690690	2425.802
10000113	46,451.25	171,283.2	39,210	1.5	1.5	Valve (Receiver), Sta. 1684+96, East Camp Creek	47.91830357	-103.34691126	2425.774

Locations Summary

Locations	Number
Bend	59
Casing	0
Flange	12
Fitting	3
Marker	28
Repair	0
Tee	6
Valve	4
Pipe Support	8

Casings Summary

DEFINITIONS

A casing is a section of larger diameter pipe through which the pipeline passes. Usually installed to protect a pipeline from excessive external loading, casings can also shield pipelines from protective cathodic protection currents. Therefore, the condition of a pipeline inside a casing can provide valuable information.

TDW MFL tools detect when a casing is not centered around the pipeline. These casings are referred to as being eccentric. The closer the casing is to the pipeline, the stronger the signal seen by the inspection tool. The tool will not detect if the casing is shorted to the pipe wall. The tool might see evidence of a short, such as metal loss.

This information may be useful in updating pipeline databases and alignment sheets.

Sometimes spacers are identified inside casings. These are mechanical devices used to center the pipeline inside the casing and are not considered harmful.

ID#	Each location is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Time	A reference time from the inspection tool. May also be used to locate features in the PIGTRAP software.
Distance Start, End	Given in either feet or meters, this is the absolute distance measured by the tool from launch to the beginning and ending of the casing.
Casing Length	The total predicted casing length (in feet or meters).
Eccentric (side)	Identifies one of four conditions associated with the casing: 1- no eccentricity (blank); 2- eccentric on upstream side (upstream); 3- eccentric on downstream side (downstream); 4- eccentric on both ends (both)
# of Metal Loss in Casing	Provides the number of metal loss groups identified inside the casing.
Max. Depth of Metal Loss	If metal loss is identified inside the casing, this column provides the maximum predicted depth of all metal loss features.
Above Ground References	The name of the closest upstream and downstream references, usually an Aboveground Marker or a Valve.
Distance from Start/Upstream Side of Casing	The distance from the Aboveground Reference (AGM or Valve) to the start (upstream) side of the casing.

Casings Summary

ID#	Time	Distance (ft) Start	Distance (ft) End	Casing Length (ft)	Eccentric (side)	# of Metal Loss in Casing	Max. Depth of Metal Loss	Above Ground References	Distance from Start/Upstream Side of Casing
No Casings appear in this pipeline inspection									

Deformation Summary

DEFINITIONS

The Deformation Summary Report lists all the deformations and dents detected during the inspection, sorted by depth of deformation (descending)

Dents may affect the integrity of the pipeline and are considered harmful. A dent with associated metal loss is potentially more significant than a dent alone.

ID#	Each Deformation is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Distance	Given in either feet or meters, based on contractual agreements, this is the absolute distance measured by the tool from launch.
Depth	Depth of the indication in inches or mm.
Orientation	The orientation of the deformation indication in degrees (top of pipe = 0) and clock position, as viewed facing downstream.
Sub Type	The sub type of deformation if other than dent (i.e. Heavy Weld, Ovality, Buckle, Expansion).
Min X Sec Dia	The minimum measured Cross-Section (ID) measured within the scope of the deformation.
Description	Text describing a deformation in greater detail. Any special conditions are noted.
On Weld	Determination whether the indication crosses a girth (or seam) weld.
Metal Loss	"Yes" is listed if there is any metal loss associated with a dent.
Above-Ground References	The name of the closest upstream and downstream references, usually either an AGM or a valve.
Distance from Defect	The distance to the upstream and downstream reference listed in the previous column. Used for locating defects in the field.

Deformation Summary

ID#	Distance (ft)	Depth (in)	Depth %	Orientation (Deg / O'Clock)		Sub Type	Min X Sec Dia	Description	On Weld	Metal Loss	Above-Ground References	Distance from Defect
14000002	79,730.6	0.22	2.8%	291	9:30		7.98	TDW Correlated Deformation			**U/S:** AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point	4161.90
											D/S: AGM 150, Sta. 801+04, At fence line by gate -- Han #3663	2912.78
14000001	73,107.0	0.18	2.3%	42	1:15		8.02	TDW Correlated Deformation			**U/S:** AGM 130, Sta. 679+55, On fence line -- Survey Point	4084.53
											D/S: AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point	2461.70
14000000	33,435.4	0.16	2.0%	245	8:00		7.80	TDW Correlated Deformation			**U/S:** AGM 060, Sta. 307+82, 35' off edge of rd -- Han #104	1469.41
											D/S: AGM 070, Sta. 354+82, 133' off center of rd -- Survey Point	3216.94

Type	Number
DENT	3

Gains (Metal in Close Proximity)

DEFINITIONS

The inspection tool may detect ferrous metal objects located close to or touching the pipeline. They appear as additional metal added to the pipe, and are referred to as gains. This table identifies gains detected during the inspection.

Clamps or anchors around the pipeline are considered gains. Some metal objects can be potentially harmful to the pipeline. They can damage the pipeline's protective coating, or over time may dent or cause damage to the pipeline.

ID#	Each location is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Distance	Given in either feet or meters, based on contractual agreements, this is the absolute distance measured by the tool from launch.
Length	The measured length of the gain measured in feet or meters.
Width	The measured width of the gain measured in inches or millimeters. When full circumference , this is usually typical of a clamp or banding around the circumference of the pipeline.
Depth in Gauss	The difference in gauss reading (magnetic strength) at the gain. The greater the number, the greater the mass of the object, or the closer the proximity to the pipeline, or both. This table is sorted with highest depth in gauss listed in a descending order.
Orientation: Degrees / O'Clock	The distance from launch is plotted against the orientation of the defect. Orientation is based on 360 degrees in a circle, with 0 / 360 degrees marking the top of the pipe (180 degrees the bottom).
Joint #	This unique number identifies the girth weld number.
U/S Weld Dist.	The distance to the upstream (U/S) weld (in feet or meters).
D/S Weld Dist.	The distance to the downstream (D/S) weld (in feet or meters).

Gains (Metal in Close Proximity)

ID#	Distance (ft)	Length (in)	Width (in)	Depth in Gauss	Orientation Degrees	/	O'Clock	Joint #	U/S Weld Dist.	D/S Weld Dist.
13000000	53527.50	1.03	2.09	80	170 to 200		5:30 to 6:30	12770	10.7	30.7
13000001	104253.42	1.32	2.79	44	120 to 160		4:00 to 5:15	24790	1.3	48.2
13000002	104440.36	1.13	1.75	24	140 to 170		4:30 to 5:30	24820	40.5	8.8

Total Number of Gains
3

Nominal Wall Thickness

The following list provides locations along the pipeline where changes in wall thickness or pipe type occur. While the TDW inspection tool can easily detect changes in wall thickness, it cannot take direct thickness measurements. Therefore, where wall thicknesses are known, the tool can identify the locations where the thickness changes. Where wall thicknesses are not known, best efforts will be made to estimate thicknesses based on best available data.

ID#	Each wall thickness change ID is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Distance	Given in either feet or meters, based on contractual agreements, this is the absolute distance measured by the tool from launch.
Wall Thickness	The predicted wall thickness in inches or millimeters.
Pipetype	Type of pipe construction. Electric Resistance Weld (ERW), Seamless (SMLS), Lap Weld (LW), etc.
Yield Strength (SMYS)	Specified Minimum Yield Strength – A required strength level that measured yield stress of a pipe material must exceed, which is a function of pipe grade. The measured yield stress is the tensile stress required to produce a total elongation of 0.5 percent of a gage length as determined by an extensometer during a tensile test.
Safety Factor	(or design factor) Typically 0.72 per ASME B31.4 In setting the safety factor, due consideration has been given to and allowances made for the manufacturing tolerance and maximum allowable depth of imperfections provided for in the specifications.
Length of Segment	The length of the pipe for the specified wall thickness, measured in feet or meters.

Nominal Wall Thickness

ID#	Distance (ft)	Wall Thickness (in)	Pipetype	Yield Strength (SMYS)	Safety Factor	Length of Segment (ft)
11000000	-1.46	0.322	ERW	52000	0.72	207.07
11000001	205.61	0.188	ERW	52000	0.72	4684.21
11000002	4889.82	0.322	ERW	52000	0.72	626.16
11000003	5515.98	0.188	ERW	52000	0.72	4833.59
11000004	10349.56	0.322	ERW	52000	0.72	379.89
11000005	10729.45	0.188	ERW	52000	0.72	225.61
11000006	10955.06	0.322	ERW	52000	0.72	380.3
11000007	11335.36	0.188	ERW	52000	0.72	3481.77
11000008	14817.13	0.322	ERW	52000	0.72	800.22
11000009	15617.35	0.188	ERW	52000	0.72	1611.29
11000010	17228.64	0.322	ERW	52000	0.72	647.05
11000011	17875.69	0.188	ERW	52000	0.72	660.46
11000012	18536.15	0.322	ERW	52000	0.72	464.31
11000013	19000.46	0.188	ERW	52000	0.72	2680.29
11000014	21680.75	0.322	ERW	52000	0.72	450.09
11000015	22130.84	0.188	ERW	52000	0.72	1074.14
11000016	23204.98	0.322	ERW	52000	0.72	395.96
11000017	23600.94	0.188	ERW	52000	0.72	2796.59
11000018	26397.53	0.322	ERW	52000	0.72	207.78
11000019	26605.30	0.188	ERW	52000	0.72	3289.97
11000020	29895.28	0.322	ERW	52000	0.72	750.67
11000021	30645.95	0.188	ERW	52000	0.72	458.32
11000022	31104.27	0.322	ERW	52000	0.72	920.36
11000023	32024.63	0.188	ERW	52000	0.72	1133.53
11000024	33158.16	0.322	ERW	52000	0.72	464.67
11000025	33622.83	0.188	ERW	52000	0.72	1151.17
11000026	34773.99	0.322	ERW	52000	0.72	675.29
11000027	35449.28	0.188	ERW	52000	0.72	1206.36
11000028	36655.64	0.322	ERW	52000	0.72	458.56
11000029	37114.21	0.188	ERW	52000	0.72	15024.27
11000030	52138.48	0.322	ERW	52000	0.72	126.63
11000031	52265.11	0.188	ERW	52000	0.72	432.31
11000032	52697.42	0.322	ERW	52000	0.72	84.15
11000033	52781.56	0.188	ERW	52000	0.72	4145.35
11000034	56926.92	0.322	ERW	52000	0.72	295.41
11000035	57222.32	0.188	ERW	52000	0.72	14342.37
11000036	71564.70	0.322	ERW	52000	0.72	166.24
11000037	71730.93	0.188	ERW	52000	0.72	3641.66
11000038	75372.59	0.322	ERW	52000	0.72	211.72
11000039	75584.31	0.188	ERW	52000	0.72	2435.52

Nominal Wall Thickness

ID#	Distance (ft)	Wall Thickness (in)	Pipetype	Yield Strength (SMYS)	Safety Factor	Length of Segment (ft)
11000040	78019.83	0.322	ERW	52000	0.72	211.23
11000041	78231.07	0.188	ERW	52000	0.72	8327.1
11000042	86558.16	0.322	ERW	52000	0.72	239.4
11000043	86797.56	0.188	ERW	52000	0.72	3686.79
11000044	90484.35	0.322	ERW	52000	0.72	325.71
11000045	90810.06	0.188	ERW	52000	0.72	1952.59
11000046	92762.65	0.322	ERW	52000	0.72	312.06
11000047	93074.71	0.188	ERW	52000	0.72	4886.53
11000048	97961.24	0.322	ERW	52000	0.72	7.75
11000049	97968.99	0.188	ERW	52000	0.72	189.38
11000050	98158.37	0.322	ERW	52000	0.72	126.61
11000051	98284.97	0.188	ERW	52000	0.72	2661.65
11000052	100946.62	0.322	ERW	52000	0.72	455.28
11000053	101401.89	0.188	ERW	52000	0.72	124.33
11000054	101526.22	0.322	ERW	52000	0.72	1165.06
11000055	102691.28	0.188	ERW	52000	0.72	906.24
11000056	103597.52	0.322	ERW	52000	0.72	19.23
11000057	103616.76	0.188	ERW	52000	0.72	8054.3
11000058	111671.05	0.322	ERW	52000	0.72	212.75
11000059	111883.81	0.188	ERW	52000	0.72	3683.2
11000060	115567.01	0.322	ERW	52000	0.72	168.91
11000061	115735.92	0.188	ERW	52000	0.72	3484.34
11000062	119220.26	0.322	ERW	52000	0.72	506.81
11000063	119727.07	0.188	ERW	52000	0.72	2990.55
11000064	122717.62	0.322	ERW	52000	0.72	7.85
11000065	122725.47	0.188	ERW	52000	0.72	805.02
11000066	123530.50	0.322	ERW	52000	0.72	223.17
11000067	123753.67	0.188	ERW	52000	0.72	133.12
11000068	123886.78	0.322	ERW	52000	0.72	73.64
11000069	123960.42	0.188	ERW	52000	0.72	103.33
11000070	124063.75	0.322	ERW	52000	0.72	295.88
11000071	124359.63	0.188	ERW	52000	0.72	6167.12
11000072	130526.75	0.322	ERW	52000	0.72	422.59
11000073	130949.35	0.188	ERW	52000	0.72	4590.74
11000074	135540.09	0.322	ERW	52000	0.72	421.89
11000075	135961.97	0.188	ERW	52000	0.72	1004.96
11000076	136966.93	0.322	ERW	52000	0.72	379.91
11000077	137346.84	0.188	ERW	52000	0.72	10301.55
11000078	147648.39	0.322	ERW	52000	0.72	195.81
11000079	147844.19	0.188	ERW	52000	0.72	2461.02

Nominal Wall Thickness

ID#	Distance (ft)	Wall Thickness (in)	Pipetype	Yield Strength (SMYS)	Safety Factor	Length of Segment (ft)
11000080	150305.21	0.322	ERW	52000	0.72	422.2
11000081	150727.41	0.188	ERW	52000	0.72	7792.57
11000082	158519.98	0.322	ERW	52000	0.72	442.84
11000083	158962.82	0.188	ERW	52000	0.72	3133.68
11000084	162096.50	0.322	ERW	52000	0.72	288.87
11000085	162385.37	0.188	ERW	52000	0.72	8865.6
11000086	171250.97	0.322	ERW	52000	0.72	32.23

Wall Thickness	Pipetype	Total Length (ft)	Total Length (miles)	Percent of Total Distance
0.188	ERW	155,614	29.472	90.9%
0.322	ERW	15,670	2.968	9.1%

Repair Report

This table lists all the repairs to the pipeline detected during the inspection.

Pipeline repairs that are typically detected include:

- Sleeves
- Half sole
- Patches
- Stopples
- Clamps
- Weld + End
- Clock Spring

ID#	Each repair is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Distance	Given in either feet or meters, based on contractual agreements, this is the absolute distance measured by the tool from launch.
Length	Gives the linear length of the repair.
Type of Repair	Describes the type of repair detected during the inspection.

Repair Report

ID#	Distance (ft)	Length (ft)	Type of Repair
No Repairs have been detected on this pipeline inspection			

AGM Information Summary

DEFINITIONS

This table includes all values and above ground marker sites in the inspection run.

ID#	Each location is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Time	A reference time from the inspection tool. May also be used to locate features in the PIGTRAP software.
Distance	Given in either feet or meters, based on contractual agreements, this is the absolute distance measured by the tool from launch.
Description	Describes the AGM in greater detail. Generally includes only valves and markers.
Latitude	This shows the north/south position of the Location as supplied by the customer or recorded by an AGM box. For XYZ mapping runs, these values are the supplied survey points or were calculated by the tool.
Longitude	This shows the east/west position of the Location as supplied by the customer or recorded by an AGM box. For XYZ mapping runs, these values are the supplied survey points or were calculated by the tool.
Altitude	For XYZ mapping runs, this shows the elevation above sea level of the location as supplied by the customer or calculated by the tool.

Zeroes in Latitude and Longitude mean that no data was supplied by the customer. Calculated or estimated values can be viewed in the Pipe Listing report.

AGM Information Summary

ID#	Time	Distance(ft)	Description	Latitude	Longitude	Altitude
10000001	3331.63	0.00	Valve (Launcher), Sta. 0+00, Johnson's Corner Station	47.80616892	-102.90292470	2349.353
10000115	3334.58	12.47	Pipe Entering Ground -- Survey Point	47.80619723	-102.90292820	2345.748
10000011	4300.46	3902.72	AGM 010, Sta. 38+53, 33' off other line -- Survey Point	47.80718583	-102.91515600	2387.869
10000015	6039.04	10958.05	AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point	47.78913457	-102.91554040	2473.373
10000017	7505.91	16899.43	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	47.78914467	-102.93911620	2357.579
10000116	9276.69	24076.75	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	47.78569443	-102.96297669	2294.451
10000022	10396.41	28543.03	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	47.79625772	-102.96340939	2397.996
10000023	11222.23	31965.85	AGM 060, Sta. 307+82, 35' off edge of rd -- Han #104	47.80556987	-102.96373059	2318.862
10000025	12376.08	36652.21	AGM 070, Sta. 354+82, 133' off center of rd -- Survey Point	47.81824011	-102.96314938	2306.900
10000117	13664.84	41796.08	AGM 080, Sta. 405+99, On fence line by AGM -- Survey Point	47.82578264	-102.97892218	2311.836
10000028	15023.14	47193.87	AGM 090, Sta. 459+32. On fence line -- Han #116	47.84026706	-102.97889397	2294.872
10000031	16404.91	52767.95	AGM 100, Sta. 517-63, At aerial marker 122 -- Survey Point	47.84750470	-102.99657707	2388.178
10000035	17448.85	56955.61	AGM 110, Sta. 560+08, 132' off gravel rd -- Han #3663	47.85448022	-103.00534686	2370.147
10000037	18820.82	62474.65	AGM 120, Sta. 614+60, At aerial marker 121 -- Han #114	47.86195715	-103.01678906	2367.755
10000040	20439.84	69022.35	AGM 130, Sta. 679+55, On fence line -- Survey Point	47.86922073	-103.03668525	2416.610
10000044	22055.35	75568.59	AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point	47.88016347	-103.04826455	2277.296
10000047	23824.78	82643.27	AGM 150, Sta. 801+04, At fence line by gate -- Han #3663	47.89458728	-103.05823184	2287.934
10000050	24806.33	86548.88	AGM 160, Sta. 841+16, 118' off aerial marker 119 -- Survey Point	47.90501692	-103.05903264	2320.583
10000058	26421.58	93022.59	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	47.90520632	-103.07533993	2264.318
10000061	27862.36	98779.96	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	47.90672674	-103.09567703	2355.138
10000065	29641.81	105968.40	AGM 190, Sta. 1031+50, 117' off gravel rd -- Han #3663	47.91597421	-103.11250192	2330.838
10000068	31073.91	111673.05	AGM 200, Sta. 1090+77, At aerial marker 117 -- Han #141	47.91547922	-103.13197321	2254.221
10000079	34057.60	123915.57	Valve, Sta. 1213+36, AGM 220	47.90525263	-103.17563031	2076.487
10000086	34062.39	123935.77	Valve	47.90525967	-103.17571130	2076.298
10000094	35684.79	130610.87	AGM 230, Sta. 1281+56, 39' east of aerial marker 114 -- Han #141	47.90955906	-103.19741570	2038.001
10000095	36931.71	135616.52	AGM 240, Sta. 1330+14, Corner of fence line -- Han #104	47.90953324	-103.21777179	1990.719
10000096	38391.93	141270.44	AGM 250, Sta. 1386+91, At aerial marker 113 -- Han #116	47.90966725	-103.24078149	2001.809
10000099	40103.13	147746.48	AGM 260, Sta. 1451+42, At aerial marker 112 -- Survey Point	47.90789107	-103.26449318	2036.133
10000101	41783.13	154054.49	AGM 270, Sta. 1514+41, 48' off two track -- Survey Point	47.90923007	-103.28945698	2165.743
10000118	44224.10	163154.90	AGM 280, Sta. 1604+70, On fence line -- Survey Point	47.92050479	-103.31530537	2221.864
10000119	46445.48	171263.19	Pipe Exiting Ground -- Survey Point	47.91830952	-103.34684076	2423.238
10000113	46451.25	171283.21	Valve (Receiver), Sta. 1684+96, East Camp Creek	47.91830357	-103.34691126	2425.774

TYPE	NUMBER
Valves	4
Markers	28

Miscellaneous

DEFINITIONS

There are occasions when special notations or circumstances require the addition of a note. These notes are included in this table for your reference.

ID#	Each miscellaneous note is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Time	A reference time from the inspection tool. May also be used to locate features in the PIGTRAP software.
Distance	Given in either feet or meters, based on contractual agreements, this is the absolute distance measured by the tool from launch.
Memo	A description of the entry.

MEMO EXAMPLES

Gap or dent in casing	When the casing is not welded, or when a gap occurs in the weld, this signature is detected by the tool, and identified with a Misc. remark.
Inclusion	An anomaly in the cross section of the pipeline. Inclusions may be detrimental if they protrude through the pipe wall.
Mill anomaly	The process of manufacturing pipe can often leave indications in the pipe wall. Typically these anomalies are not detrimental, and are identified for the benefit of the client.
Sensor problems	Noting locations where anomalous sensor readings occurred.
Tool stops/starts	All tools are setup on a time-based system. When the tool stops, it continues to record, although not moving. When the tool moves very slowly, it is possible that its movement is not detected, and therefore, reported distances may appear shorter than actual. Many stops and starts may affect the overall distance accuracy of the tool.

Miscellaneous

ID#	Time	Distance (ft)	Memo
12000000	152.34	-26.31	Begin Run Tickle
12000001	47,762.48	171,326.78	End Run Tickle

Total	Number
Misc listings	2

Other Anomalies

DEFINITIONS

This Report lists anomalies that appear in the data which do not fall into typical metal loss categories. Examples range from manufacturing/mill anomalies in the pipe body and seam weld to construction-related and girth weld anomalies. Predicted wall loss depth estimations as well as pressure calculations are not generally applicable to these features and therefore these values do not appear in this table.

ID#	Each item is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Feature Description / Comments	Classification of the feature along with any additional comments if applicable.
Dist (ft)	Given in either feet or meters, based on contractual agreements, this is the absolute distance from launch.
Length (in)	Predicted length of the defect, reported in either inches or millimeters.
Width (in)	Predicted width of the defect, reported in either inches or millimeters.
Gauss Delta	The difference between high and low gauss readings (magnetic strength) at the feature. This table is sorted with the highest gauss listed in a descending order. Gauss delta indicates relative disturbance of the magnetic field at that location and does not necessarily represent relative severety when comparing one feature to another.
ID/OD	Determination whether the defect exists on the inside (INT) or outside (EXT) surface of the pipe.
Anomaly / Seam Orientation	Orientation of both the feature and the seam weld in the joint of pipe is reported in o'clock (12:00 at top of pipe) as viewed looking downstream. If the pipe is determined to be seamless construction and therefore has no seam, "SMLS" will appear. "N/D" will be populated for joints where the seam is not detected.
Aboveground References	The name of the closest upstream and downstream references, usually either an AGM or a Valve.
Distance from Defect	The distance to the upstream and downstream reference listed in the previous column. Used for locating defects in the field.

Other Anomalies

ID#	Feature Description/Comments	Dist (ft)	Length	Width	Gauss Delta	ID/OD	Anomaly/Seam Orientation O'clock	Above-Ground References		Distance from Defect
20000048	Seam Variation	166,138.4	1.53	0.41	33	INT	12:30 / N/D	**U/S:**	AGM 280, Sta. 1604+70, On fence line -- Survey Point	2983.46
								D/S:	Pipe Exiting Ground -- Survey Point	5124.82
20000036	Seam Variation	115,366.5	0.82	0.49	36	INT	11:15 / N/D	**U/S:**	AGM 200, Sta. 1090+77, At aerial marker 117 -- Han #141	3693.40
								D/S:	Valve, Sta. 1213+36, AGM 220	8549.12
20000029	Seam Variation	95,843.4	0.59	0.48	36	INT	2:45 / N/D	**U/S:**	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	2820.77
								D/S:	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	2936.60
20000003	Seam Variation	14,303.1	0.59	0.49	36	INT	4:15 / N/D	**U/S:**	AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point	3345.06
								D/S:	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	2596.32
20000014	Seam Variation	30,720.8	0.71	0.51	36	INT	4:30 / N/D	**U/S:**	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	2177.78
								D/S:	AGM 060, Sta. 307+82, 35' off edge of rd -- Han #104	1245.04
20000030	Seam Variation	95,845.5	0.47	0.42	33	INT	2:45 / N/D	**U/S:**	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	2822.93
								D/S:	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	2934.44
20000024	Seam Variation	86,278.1	0.47	0.47	26	INT	1:15 / N/D	**U/S:**	AGM 150, Sta. 801+04, At fence line by gate -- Han #3663	3634.77
								D/S:	AGM 160, Sta. 841+16, 118' off aerial marker 119 -- Survey Point	270.84
20000044	Seam Variation	150,832.3	0.71	0.59	29	INT	6:30 / N/D	**U/S:**	AGM 260, Sta. 1451+42, At aerial marker 112 -- Survey Point	3085.81
								D/S:	AGM 270, Sta. 1514+41, 48' off two track -- Survey Point	3222.19
20000002	Seam Variation	13,766.8	0.59	0.59	27	INT	1:15 / N/D	**U/S:**	AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point	2808.72
								D/S:	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	3132.66
20000004	Seam Variation	14,304.0	0.35	0.43	36	INT	4:15 / N/D	**U/S:**	AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point	3345.91
								D/S:	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	2595.47

Other Anomalies

ID#	Feature Description/Comments	Dist (ft)	Length	Width	Gauss Delta	ID/OD	Anomaly/Seam Orientation O'clock	Above-Ground References		Distance from Defect
20000042	Seam Variation	145,111.8	0.82	0.78	32	INT	2:15 / N/D	U/S:	AGM 250, Sta. 1386+91, At aerial marker 113 -- Han #116	3841.35
								D/S:	AGM 260, Sta. 1451+42, At aerial marker 112 -- Survey Point	2634.69
20000046	Seam Variation	159,426.3	0.82	0.63	24	INT	11:00 / N/D	U/S:	AGM 270, Sta. 1514+41, 48' off two track -- Survey Point	5371.73
								D/S:	AGM 280, Sta. 1604+70, On fence line -- Survey Point	3728.69
20000047	Seam Variation	164,108.1	0.82	0.63	30	INT	5:30 / N/D	U/S:	AGM 280, Sta. 1604+70, On fence line -- Survey Point	953.13
								D/S:	Pipe Exiting Ground -- Survey Point	7155.15
20000043	Seam Variation	150,831.8	0.82	0.61	24	INT	6:30 / N/D	U/S:	AGM 260, Sta. 1451+42, At aerial marker 112 -- Survey Point	3085.26
								D/S:	AGM 270, Sta. 1514+41, 48' off two track -- Survey Point	3222.74
20000045	Seam Variation	155,405.1	0.82	0.58	26	INT	7:30 / N/D	U/S:	AGM 270, Sta. 1514+41, 48' off two track -- Survey Point	1350.60
								D/S:	AGM 280, Sta. 1604+70, On fence line -- Survey Point	7749.82
20000039	Seam Variation	128,644.2	0.59	0.71	31	INT	4:15 / N/D	U/S:	Valve	4708.36
								D/S:	AGM 230, Sta. 1281+56, 39' east of aerial marker 114 -- Han #141	1966.74
20000041	Seam Variation	136,541.5	1.18	1.18	32	INT	6:00 / N/D	U/S:	AGM 240, Sta. 1330+14, Corner of fence line -- Han #104	924.96
								D/S:	AGM 250, Sta. 1386+91, At aerial marker 113 -- Han #116	4728.96
20000001	Seam Variation	9,178.7	0.47	0.50	29	INT	11:00 / N/D	U/S:	AGM 010, Sta. 38+53, 33' off other line -- Survey Point	5275.93
								D/S:	AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point	1779.40
20000026	Seam Variation	91,228.0	0.47	0.71	31	INT	9:15 / N/D	U/S:	AGM 160, Sta. 841+16, 118' off aerial marker 119 -- Survey Point	4679.06
								D/S:	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	1794.64
20000038	Seam Variation	116,312.1	0.78	0.62	26	INT	2:45 / N/D	U/S:	AGM 200, Sta. 1090+77, At aerial marker 117 -- Han #141	4638.98
								D/S:	Valve, Sta. 1213+36, AGM 220	7603.54
20000028	Seam Variation	95,843.3	0.59	0.65	31	INT	3:00 / N/D	U/S:	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	2820.64
								D/S:	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	2936.73

Other Anomalies

ID#	Feature Description/Comments	Dist (ft)	Length	Width	Gauss Delta	ID/OD	Anomaly/Seam Orientation O'clock	Above-Ground References		Distance from Defect
20000031	Seam Variation	95,845.6	0.47	0.51	28	INT	2:45 / N/D	**U/S:**	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	2823.04
								D/S:	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	2934.34
20000032	Seam Variation	96,204.1	0.59	0.91	27	INT	9:30 / N/D	**U/S:**	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	3181.47
								D/S:	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	2575.90

Other Anomalies Type	Number
Girth Weld Anomaly	0
Mill Anomaly	
Seam Variation	23

The Pipeline Listing Report presents all detected pipeline data in sequential order, beginning at launcher and ending at the receiver. The table includes welds, locations, metal loss defects, AGMs, wall thickness changes, etc.

ID#	Each item is automatically assigned a number in the software. This number is provided to assist the user of PIGTRAP software to more easily find any given defect.
Description	Describes the event at the particular location. Identifies the type of the descriptive, being a weld, location, pipe thickness change, etc.
Distance	Given in either feet or meters, based on contractual agreements, this is the absolute distance from launch.
Joint #	This unique number identifies the girth weld number.
U/S Weld	The distance to the upstream (U/S) weld (in feet or meters).
D/S Weld	The distance to the downstream (D/S) weld (in feet or meters).
Latitude	If GPS coordinates were provided for launch, receive and AGMs, this provides the predicted Latitude reading of the location from the first GPS reading based on INS readings obtained by the tool during the inspection.
Longitude	If GPS coordinates were provided for launch, receive and AGMs, this provides the predicted Longitude reading of the location from the first GPS reading based on INS readings obtained by the tool during the inspection.
Altitude	If GPS coordinates were provided for launch, receive and AGMs, this provides the predicted Altitude reading of the location from the first GPS reading based on INS readings obtained by the tool during the inspection.
Orientation: Deg. / O'Clock	Orientation is reported in degrees or o'clock (0 degrees/12:00 at top of pipe) as viewed looking downstream.
% Depth	Predicted depth of the defect as a percentage of nominal wall.
Length or WT (Pipe Thickness)	Predicted length of the defect, reported in either inches or millimeters – or if a wall thickness change, the new wall thickness begins at this point.
Width or YS (Yield Strength)	Predicted width of the defect, reported in either inches or millimeters – or if a wall thickness change, the new SMYS begins at this point.
P' (Calc. Safe Max. Operating Pressure) or SF (Safety Factor)	Calculated safe maximum operating pressure for the pipeline segment as calculated based on information provided by the Customer. TDW software uses either ASME B31G, MODIFIED ASME B31G or Z662-99 to calculate the calculated safe maximum allowable operating pressure (P') of the pipeline at a metal loss area.
(P'/P)	Percent of maximum established pressure, this is calculated by dividing the calculated safe pressure of the defect (P') by the current established maximum operating pressure of the pipeline (P). For TDW reporting, P is either established MOP provided by the customer or the calculated pressure rating for the pipe (P). Percentages less than 100% are considered pressure reducing.

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC

Johnson's Corner to East Camp Creek

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
12000000	Begin Run Tickle	-26.3	0	-	24.9	47.80616890	-102.90292471	2349.352							
11000000	WT CHANGE	-1.5	0	0.0	0.0	47.80616890	-102.90292471	2349.352				0.322	52000	0.72	
110	WELD	-1.5	110	0.0	3.0	47.80616890	-102.90292471	2349.352							
10000000	Flange	-1.1	110	0.4	2.6	47.80616890	-102.90292471	2349.352	0	12:00					
10000001	Valve (Launcher), Sta. 0+00, Johnson's Corner Station	0.0	110	1.5	1.6	47.80616892	-102.90292470	2349.353							
10000002	Flange	1.1	110	2.5	0.5	47.80617175	-102.90292502	2349.433	0	12:00					
120	WELD	1.6	120	0.0	1.3	47.80617303	-102.90292517	2349.470							
10000003	Pipe Support	2.5	120	0.8	0.6	47.80617565	-102.90292546	2349.549							
130	WELD	2.9	130	0.0	1.2	47.80617660	-102.90292555	2349.580							
10000004	Tee at 270 deg.	3.5	130	0.2	1.0	47.80617814	-102.90292571	2349.631	267	8:45					
140	WELD	4.1	140	0.0	0.9	47.80617965	-102.90292588	2349.689							
10000005	Flange	4.5	140	0.5	0.5	47.80618085	-102.90292600	2349.734	0	12:00					
150	WELD	5.0	150	0.0	1.6	47.80618201	-102.90292613	2349.722							
10000006	Bend down - 45 deg., 3D	5.8	150	0.1	1.5	47.80618413	-102.90292637	2349.617	0	12:00					
160	WELD	6.6	160	0.0	14.2	47.80618595	-102.90292659	2349.319							
10000007	Fitting on top of pipe	7.9	160	1.3	12.9	47.80618859	-102.90292697	2348.511	354	11:45					
10000115	Pipe Entering Ground -- Survey Point	12.5	160	5.9	8.3	47.80619723	-102.90292820	2345.748							
170	WELD	20.7	170	0.0	1.6	47.80621367	-102.90292936	2340.154							
10000008	Bend up - 45 deg., 3D	21.5	170	0.1	1.5	47.80621533	-102.90292950	2339.771	0	12:00					
180	WELD	22.3	180	0.0	37.5	47.80621744	-102.90292965	2339.671							
190	WELD	59.8	190	0.0	42.3	47.80631900	-102.90293476	2342.317							
200	WELD	102.1	200	0.0	42.3	47.80643374	-102.90294028	2346.085							
210	WELD	144.3	210	0.0	42.3	47.80654773	-102.90296304	2348.642							
220	WELD	186.6	220	0.0	19.0	47.80666196	-102.90298349	2351.753							
11000001	WT CHANGE	205.6	220	0.0	0.0	47.80671338	-102.90299158	2352.837				0.188	52000	0.72	
230	WELD	205.6	230	0.0	11.3	47.80671344	-102.90299159	2352.838							
240	WELD	216.9	240	0.0	49.1	47.80674418	-102.90299627	2353.438							
250	WELD	266.0	250	0.0	49.5	47.80687728	-102.90301836	2356.102							
260	WELD	315.5	260	0.0	49.4	47.80701130	-102.90304417	2357.893							
270	WELD	365.0	270	0.0	49.5	47.80714480	-102.90307228	2359.542							
280	WELD	414.4	280	0.0	49.4	47.80727868	-102.90309842	2361.689							
290	WELD	463.9	290	0.0	49.5	47.80741227	-102.90312650	2362.619							
300	WELD	513.4	300	0.0	49.6	47.80754569	-102.90315518	2365.069							
310	WELD	563.0	310	0.0	49.5	47.80767955	-102.90318677	2366.310							
320	WELD	612.5	320	0.0	43.1	47.80781308	-102.90321557	2368.786							

Criteria: ASME B31G: Modified

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
330	WELD	655.5	330	0.0	13.4	47.80793066	-102.90322440	2369.792							
340	WELD	668.9	340	0.0	3.2	47.80796722	-102.90322407	2370.170							
10000009	Bend left - 90 deg., 3D	670.5	340	0.1	3.1	47.80797086	-102.90322660	2370.233	0	12:00					
350	WELD	672.1	350	0.0	6.2	47.80797258	-102.90323199	2370.287							
360	WELD	678.3	360	0.0	32.7	47.80797280	-102.90325900	2370.445							
370	WELD	711.1	370	0.0	49.5	47.80797201	-102.90339133	2371.165							
380	WELD	760.5	380	0.0	49.6	47.80797093	-102.90359203	2370.866							
390	WELD	810.1	390	0.0	49.6	47.80797109	-102.90379294	2369.998							
400	WELD	859.7	400	0.0	49.6	47.80797075	-102.90399404	2369.030							
410	WELD	909.3	410	0.0	49.5	47.80797043	-102.90419467	2366.391							
420	WELD	958.8	420	0.0	49.4	47.80797062	-102.90439503	2364.966							
430	WELD	1,008.2	430	0.0	49.5	47.80797236	-102.90459517	2362.199							
440	WELD	1,057.7	440	0.0	50.9	47.80797419	-102.90479553	2362.470							
450	WELD	1,108.6	450	0.0	49.6	47.80797574	-102.90500163	2365.698							
460	WELD	1,158.2	460	0.0	49.4	47.80797648	-102.90520261	2367.167							
470	WELD	1,207.5	470	0.0	49.4	47.80797471	-102.90540305	2367.143							
480	WELD	1,256.9	480	0.0	49.3	47.80797296	-102.90560353	2366.737							
490	WELD	1,306.3	490	0.0	46.8	47.80797178	-102.90580394	2366.034							
500	WELD	1,353.1	500	0.0	49.1	47.80797142	-102.90599381	2364.528							
510	WELD	1,402.2	510	0.0	49.5	47.80797119	-102.90619294	2364.507							
520	WELD	1,451.6	520	0.0	49.3	47.80797145	-102.90639355	2364.663							
530	WELD	1,501.0	530	0.0	47.4	47.80797182	-102.90659361	2364.961							
540	WELD	1,548.4	540	0.0	49.1	47.80797255	-102.90678600	2366.817							
550	WELD	1,597.5	550	0.0	49.3	47.80797261	-102.90698504	2367.986							
560	WELD	1,646.8	560	0.0	49.3	47.80797131	-102.90718526	2368.625							
570	WELD	1,696.1	570	0.0	49.2	47.80796996	-102.90738551	2369.049							
580	WELD	1,745.3	580	0.0	49.5	47.80796984	-102.90758525	2369.324							
590	WELD	1,794.8	590	0.0	48.5	47.80796914	-102.90778620	2370.326							
600	WELD	1,843.3	600	0.0	49.3	47.80796704	-102.90798293	2370.454							
610	WELD	1,892.7	610	0.0	49.6	47.80796015	-102.90818279	2370.558							
620	WELD	1,942.2	620	0.0	49.3	47.80794875	-102.90838325	2371.400							
630	WELD	1,991.5	630	0.0	49.6	47.80793898	-102.90858275	2371.545							
640	WELD	2,041.1	640	0.0	49.5	47.80793819	-102.90878402	2371.153							
650	WELD	2,090.7	650	0.0	49.5	47.80794385	-102.90898501	2370.524							
660	WELD	2,140.2	660	0.0	45.7	47.80794949	-102.90918566	2370.527							
670	WELD	2,185.9	670	0.0	49.3	47.80795233	-102.90937081	2371.305							
680	WELD	2,235.2	680	0.0	49.6	47.80795630	-102.90957093	2371.672							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
690	WELD	2,284.8	690	0.0	49.5	47.80795998	-102.90977197	2371.367							
700	WELD	2,334.3	700	0.0	44.7	47.80796279	-102.90997266	2371.106							
710	WELD	2,379.0	710	0.0	48.5	47.80796647	-102.91015370	2371.107							
720	WELD	2,427.5	720	0.0	49.6	47.80797038	-102.91035054	2370.399							
730	WELD	2,477.1	730	0.0	49.4	47.80797397	-102.91055135	2369.104							
740	WELD	2,526.5	740	0.0	49.4	47.80797682	-102.91075148	2368.502							
750	WELD	2,575.9	750	0.0	49.5	47.80797956	-102.91095202	2368.730							
760	WELD	2,625.4	760	0.0	49.5	47.80798311	-102.91115273	2369.564							
770	WELD	2,674.9	770	0.0	49.6	47.80798593	-102.91135291	2372.444							
780	WELD	2,724.5	780	0.0	49.2	47.80798784	-102.91155356	2376.991							
790	WELD	2,773.7	790	0.0	49.1	47.80798979	-102.91175276	2380.110							
800	WELD	2,822.8	800	0.0	49.5	47.80799058	-102.91195190	2379.024							
810	WELD	2,872.4	810	0.0	49.5	47.80798950	-102.91215224	2376.933							
820	WELD	2,921.8	820	0.0	49.6	47.80798828	-102.91235292	2375.820							
830	WELD	2,971.4	830	0.0	49.6	47.80798759	-102.91255391	2374.809							
840	WELD	3,021.0	840	0.0	49.5	47.80798919	-102.91275460	2372.441							
850	WELD	3,070.5	850	0.0	49.6	47.80798848	-102.91295533	2372.131							
860	WELD	3,120.1	860	0.0	48.7	47.80798704	-102.91315646	2372.747							
870	WELD	3,168.8	870	0.0	49.6	47.80798762	-102.91335417	2373.724							
880	WELD	3,218.4	880	0.0	49.5	47.80798591	-102.91355522	2375.873							
890	WELD	3,267.8	890	0.0	49.3	47.80798451	-102.91375609	2377.413							
900	WELD	3,317.2	900	0.0	49.3	47.80798237	-102.91395623	2378.595							
910	WELD	3,366.5	910	0.0	49.5	47.80798129	-102.91415627	2379.510							
920	WELD	3,416.0	920	0.0	49.3	47.80797997	-102.91435688	2381.983							
930	WELD	3,465.3	930	0.0	45.7	47.80797935	-102.91455694	2384.860							
940	WELD	3,511.0	940	0.0	49.6	47.80797984	-102.91474228	2386.576							
950	WELD	3,560.6	950	0.0	49.4	47.80797984	-102.91494351	2388.421							
960	WELD	3,610.0	960	0.0	3.2	47.80798346	-102.91514402	2389.923							
10000010	Bend left - 90 deg., 3D	3,611.6	960	0.1	3.1	47.80798196	-102.91514955	2389.949	0	12:00					
970	WELD	3,613.2	970	0.0	47.7	47.80797844	-102.91515254	2389.951							
980	WELD	3,660.8	980	0.0	49.3	47.80784694	-102.91515629	2389.578							
990	WELD	3,710.1	990	0.0	49.4	47.80771233	-102.91515570	2388.795							
1000	WELD	3,759.5	1000	0.0	49.5	47.80757716	-102.91515373	2388.494							
1010	WELD	3,809.0	1010	0.0	49.3	47.80744196	-102.91515340	2388.760							
1020	WELD	3,858.4	1020	0.0	49.0	47.80730703	-102.91515425	2388.137							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
10000011	AGM 010, Sta. 38+53, 33' off other line -- Survey Point	3,902.7	1020	44.4	4.7	47.80718583	-102.91515600	2387.869						
1030	WELD	3,907.4	1030	0.0	49.4	47.80717309	-102.91515621	2387.874						
1040	WELD	3,956.8	1040	0.0	49.3	47.80703810	-102.91516090	2387.084						
1050	WELD	4,006.1	1050	0.0	49.2	47.80690332	-102.91516040	2387.477						
1060	WELD	4,055.3	1060	0.0	49.6	47.80676885	-102.91515649	2388.735						
1070	WELD	4,104.8	1070	0.0	49.0	47.80663328	-102.91515266	2390.334						
1080	WELD	4,153.9	1080	0.0	49.3	47.80649918	-102.91515380	2392.422						
1090	WELD	4,203.2	1090	0.0	49.3	47.80636438	-102.91515380	2393.285						
1100	WELD	4,252.5	1100	0.0	49.0	47.80622946	-102.91515460	2394.711						
1110	WELD	4,301.5	1110	0.0	37.5	47.80609546	-102.91515710	2396.442						
1120	WELD	4,339.0	1120	0.0	49.5	47.80599320	-102.91515995	2398.088						
1130	WELD	4,388.5	1130	0.0	40.7	47.80585794	-102.91516380	2399.164						
1140	WELD	4,429.2	1140	0.0	49.1	47.80574710	-102.91516602	2402.467						
1150	WELD	4,478.3	1150	0.0	49.3	47.80561318	-102.91516990	2406.950						
1160	WELD	4,527.6	1160	0.0	49.5	47.80547855	-102.91517370	2410.058						
1170	WELD	4,577.2	1170	0.0	49.3	47.80534373	-102.91517853	2415.103						
1180	WELD	4,626.5	1180	0.0	49.4	47.80520920	-102.91518117	2419.832						
1190	WELD	4,675.9	1190	0.0	49.2	47.80507462	-102.91517777	2422.642						
1200	WELD	4,725.1	1200	0.0	49.3	47.80494042	-102.91517489	2425.776						
1210	WELD	4,774.4	1210	0.0	49.0	47.80480614	-102.91516931	2428.945						
1220	WELD	4,823.4	1220	0.0	17.8	47.80467240	-102.91515978	2431.410						
1230	WELD	4,841.2	1230	0.0	48.7	47.80462385	-102.91515760	2432.495						
11000002	WT CHANGE	4,889.8	1230	0.0	0.0	47.80449084	-102.91516286	2434.318			0.322	52000	0.72	
1240	WELD	4,889.8	1240	0.0	42.2	47.80449081	-102.91516286	2434.318						
1250	WELD	4,932.1	1250	0.0	42.3	47.80437579	-102.91517502	2434.016						
1260	WELD	4,974.3	1260	0.0	42.2	47.80426095	-102.91518967	2431.820						
1270	WELD	5,016.6	1270	0.0	42.3	47.80414633	-102.91520067	2428.224						
1280	WELD	5,058.8	1280	0.0	42.3	47.80403154	-102.91520540	2424.429						
1290	WELD	5,101.1	1290	0.0	42.3	47.80391647	-102.91520779	2421.608						
1300	WELD	5,143.4	1300	0.0	42.3	47.80380152	-102.91521814	2418.970						
1310	WELD	5,185.7	1310	0.0	42.3	47.80368686	-102.91523313	2416.091						
1320	WELD	5,227.9	1320	0.0	42.2	47.80357231	-102.91524681	2412.787						
1330	WELD	5,270.2	1330	0.0	42.3	47.80345760	-102.91525205	2408.990						
1340	WELD	5,312.4	1340	0.0	42.2	47.80334236	-102.91525536	2407.304						
1350	WELD	5,354.6	1350	0.0	42.3	47.80322730	-102.91525790	2404.527						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
1360	WELD	5,396.9	1360	0.0	42.3	47.80311257	-102.91526873	2401.391						
1370	WELD	5,439.2	1370	0.0	11.3	47.80299752	-102.91528077	2401.945						
1380	WELD	5,450.4	1380	0.0	30.3	47.80296685	-102.91528171	2402.618						
1390	WELD	5,480.8	1390	0.0	35.2	47.80288477	-102.91528694	2406.365						
11000003	WT CHANGE	5,516.0	1390	0.0	0.0	47.80279018	-102.91529698	2411.522			0.188	52000	0.72	
1400	WELD	5,516.0	1400	0.0	40.3	47.80279015	-102.91529698	2411.522						
1410	WELD	5,556.3	1410	0.0	49.3	47.80268047	-102.91530851	2408.793						
1420	WELD	5,605.6	1420	0.0	49.2	47.80254631	-102.91531440	2405.177						
1430	WELD	5,654.8	1430	0.0	49.6	47.80241195	-102.91531590	2403.877						
1440	WELD	5,704.4	1440	0.0	49.5	47.80227655	-102.91531860	2402.250						
1450	WELD	5,753.9	1450	0.0	49.3	47.80214173	-102.91532295	2398.941						
1460	WELD	5,803.2	1460	0.0	49.5	47.80200714	-102.91532632	2398.006						
1470	WELD	5,852.7	1470	0.0	49.6	47.80187178	-102.91532733	2398.121						
1480	WELD	5,902.3	1480	0.0	49.7	47.80173633	-102.91532960	2396.945						
1490	WELD	5,952.0	1490	0.0	49.5	47.80160068	-102.91533265	2397.476						
1500	WELD	6,001.5	1500	0.0	49.6	47.80146545	-102.91533734	2398.673						
1510	WELD	6,051.1	1510	0.0	49.6	47.80133009	-102.91534305	2400.680						
1520	WELD	6,100.7	1520	0.0	49.6	47.80119458	-102.91534817	2403.105						
1530	WELD	6,150.3	1530	0.0	49.6	47.80105895	-102.91535130	2404.092						
1540	WELD	6,199.9	1540	0.0	49.6	47.80092338	-102.91535388	2406.124						
1550	WELD	6,249.5	1550	0.0	49.3	47.80078795	-102.91535590	2408.307						
1560	WELD	6,298.8	1560	0.0	49.6	47.80065327	-102.91535670	2409.706						
1570	WELD	6,348.3	1570	0.0	49.5	47.80051770	-102.91535858	2411.243						
1580	WELD	6,397.9	1580	0.0	49.5	47.80038234	-102.91536357	2413.678						
1590	WELD	6,447.4	1590	0.0	49.4	47.80024691	-102.91537507	2415.660						
1600	WELD	6,496.8	1600	0.0	49.5	47.80011281	-102.91540155	2415.989						
1610	WELD	6,546.3	1610	0.0	43.6	47.79998126	-102.91544735	2414.571						
1620	WELD	6,589.8	1620	0.0	49.5	47.79986708	-102.91549809	2413.577						
1630	WELD	6,639.4	1630	0.0	49.6	47.79973911	-102.91556442	2412.978						
1640	WELD	6,688.9	1640	0.0	40.5	47.79961239	-102.91563626	2413.387						
1650	WELD	6,729.4	1650	0.0	2.1	47.79950919	-102.91569662	2413.594						
10000012	Bend right - 60 deg., 3D	6,730.4	1650	0.1	2.0	47.79950710	-102.91569895	2413.604	0 12:00					
1660	WELD	6,731.5	1660	0.0	49.4	47.79950586	-102.91570264	2413.630						
1670	WELD	6,780.9	1670	0.0	49.2	47.79948602	-102.91590180	2415.496						
1680	WELD	6,830.1	1680	0.0	49.5	47.79946397	-102.91609895	2417.171						
1690	WELD	6,879.6	1690	0.0	49.4	47.79943386	-102.91629443	2418.801						
1700	WELD	6,929.0	1700	0.0	49.4	47.79939105	-102.91648435	2420.567						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
1710	WELD	6,978.4	1710	0.0	49.5	47.79932096	-102.91665429	2418.503							
1720	WELD	7,028.0	1720	0.0	47.1	47.79920304	-102.91674486	2413.329							
1730	WELD	7,075.0	1730	0.0	49.0	47.79907613	-102.91676891	2409.926							
1740	WELD	7,124.1	1740	0.0	49.5	47.79894274	-102.91677310	2405.272							
1750	WELD	7,173.5	1750	0.0	49.5	47.79880759	-102.91677811	2404.150							
1760	WELD	7,223.0	1760	0.0	45.6	47.79867274	-102.91679237	2403.124							
1770	WELD	7,268.6	1770	0.0	49.6	47.79854897	-102.91681267	2402.471							
1780	WELD	7,318.2	1780	0.0	48.8	47.79841524	-102.91683702	2407.800							
1790	WELD	7,367.0	1790	0.0	39.6	47.79828319	-102.91686350	2411.358							
1800	WELD	7,406.6	1800	0.0	6.0	47.79817600	-102.91688935	2411.716							
1810	WELD	7,412.7	1810	0.0	1.6	47.79815975	-102.91689347	2411.739							
10000013	Bend left - 45 deg., 3D	7,413.4	1810	0.1	1.4	47.79815770	-102.91689325	2411.736	0	12:00					
1820	WELD	7,414.2	1820	0.0	45.4	47.79815574	-102.91689203	2411.717							
1830	WELD	7,459.6	1830	0.0	49.1	47.79805439	-102.91678376	2410.084							
1840	WELD	7,508.8	1840	0.0	49.5	47.79794760	-102.91666322	2408.916							
1850	WELD	7,558.2	1850	0.0	49.2	47.79784058	-102.91654069	2408.734							
1860	WELD	7,607.4	1860	0.0	49.5	47.79773511	-102.91641665	2408.733							
1870	WELD	7,656.9	1870	0.0	49.4	47.79763051	-102.91628924	2408.014							
1880	WELD	7,706.3	1880	0.0	49.4	47.79752639	-102.91616146	2408.917							
1890	WELD	7,755.7	1890	0.0	48.3	47.79742225	-102.91603378	2411.042							
1900	WELD	7,804.0	1900	0.0	44.3	47.79732159	-102.91590754	2413.413							
1910	WELD	7,848.2	1910	0.0	49.4	47.79722914	-102.91579227	2416.560							
1920	WELD	7,897.7	1920	0.0	49.4	47.79712662	-102.91566255	2420.825							
1930	WELD	7,947.1	1930	0.0	49.5	47.79702397	-102.91553280	2423.782							
1940	WELD	7,996.5	1940	0.0	49.3	47.79692052	-102.91540418	2427.455							
1950	WELD	8,045.8	1950	0.0	49.5	47.79681567	-102.91527932	2430.388							
1960	WELD	8,095.3	1960	0.0	49.3	47.79670275	-102.91516877	2432.208							
1970	WELD	8,144.6	1970	0.0	49.6	47.79657531	-102.91510605	2435.667							
1980	WELD	8,194.2	1980	0.0	49.4	47.79644068	-102.91509474	2440.333							
1990	WELD	8,243.6	1990	0.0	49.5	47.79630628	-102.91511133	2444.409							
2000	WELD	8,293.1	2000	0.0	49.3	47.79617171	-102.91513148	2446.215							
2010	WELD	8,342.4	2010	0.0	49.4	47.79603722	-102.91514438	2447.629							
2020	WELD	8,391.8	2020	0.0	49.5	47.79590218	-102.91514860	2446.707							
2030	WELD	8,441.4	2030	0.0	49.5	47.79576687	-102.91514730	2444.590							
2040	WELD	8,490.9	2040	0.0	49.6	47.79563157	-102.91514540	2442.300							
2050	WELD	8,540.5	2050	0.0	49.5	47.79549594	-102.91514370	2440.893							
2060	WELD	8,590.0	2060	0.0	49.5	47.79536039	-102.91514330	2441.433							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
2070	WELD	8,639.5	2070	0.0	49.4	47.79522508	-102.91514355	2442.246							
2080	WELD	8,688.9	2080	0.0	49.3	47.79509022	-102.91514453	2445.780							
40000000	Metal Loss - EXTERNAL	8,694.1	2080	5.1	44.2	47.79507624	-102.91514482	2446.306	91	3:00	18%	0.95	0.60	1760	100%
2090	WELD	8,738.2	2090	0.0	49.5	47.79495616	-102.91514650	2451.405							
2100	WELD	8,787.7	2100	0.0	49.6	47.79482131	-102.91515056	2456.353							
2110	WELD	8,837.3	2110	0.0	49.3	47.79468692	-102.91515545	2462.208							
2120	WELD	8,886.7	2120	0.0	49.5	47.79455322	-102.91515901	2468.824							
2130	WELD	8,936.1	2130	0.0	49.5	47.79441832	-102.91515812	2471.907							
2140	WELD	8,985.6	2140	0.0	49.2	47.79428298	-102.91515384	2471.713							
2150	WELD	9,034.8	2150	0.0	49.6	47.79414868	-102.91515110	2471.440							
2160	WELD	9,084.4	2160	0.0	49.5	47.79401320	-102.91514960	2472.462							
2170	WELD	9,133.8	2170	0.0	49.5	47.79387803	-102.91514875	2469.499							
20000001	Seam Variation	9,178.7	2170	44.8	4.7	47.79375574	-102.91515098	2466.426	335	11:00	-	0.47	0.50		
2180	WELD	9,183.3	2180	0.0	49.3	47.79374303	-102.91515120	2466.176							
2190	WELD	9,232.7	2190	0.0	49.5	47.79360815	-102.91515260	2464.754							
2200	WELD	9,282.2	2200	0.0	49.4	47.79347277	-102.91515210	2465.404							
2210	WELD	9,331.6	2210	0.0	48.8	47.79333755	-102.91515320	2466.833							
2220	WELD	9,380.5	2220	0.0	49.3	47.79320411	-102.91515360	2468.671							
2230	WELD	9,429.8	2230	0.0	35.8	47.79306931	-102.91515350	2470.413							
2240	WELD	9,465.6	2240	0.0	49.2	47.79297136	-102.91515310	2472.596							
2250	WELD	9,514.8	2250	0.0	49.6	47.79283692	-102.91515324	2475.497							
2260	WELD	9,564.4	2260	0.0	49.4	47.79270134	-102.91515290	2477.406							
2270	WELD	9,613.8	2270	0.0	49.4	47.79256623	-102.91515360	2478.457							
2280	WELD	9,663.3	2280	0.0	49.6	47.79243113	-102.91515707	2479.865							
2290	WELD	9,712.9	2290	0.0	49.6	47.79229554	-102.91516030	2481.651							
2300	WELD	9,762.5	2300	0.0	49.3	47.79216002	-102.91516284	2483.778							
2310	WELD	9,811.8	2310	0.0	49.5	47.79202496	-102.91516480	2485.000							
2320	WELD	9,861.3	2320	0.0	49.4	47.79188928	-102.91516440	2485.065							
2330	WELD	9,910.7	2330	0.0	49.5	47.79175411	-102.91516540	2486.294							
2340	WELD	9,960.1	2340	0.0	48.7	47.79161901	-102.91516750	2487.896							
2350	WELD	10,008.8	2350	0.0	49.4	47.79148601	-102.91516790	2488.970							
2360	WELD	10,058.2	2360	0.0	49.4	47.79135075	-102.91516750	2488.832							
2370	WELD	10,107.6	2370	0.0	49.1	47.79121565	-102.91516766	2487.726							
2380	WELD	10,156.7	2380	0.0	49.1	47.79108168	-102.91516840	2490.335							
2390	WELD	10,205.8	2390	0.0	49.4	47.79094740	-102.91516894	2494.231							
2400	WELD	10,255.2	2400	0.0	49.4	47.79081211	-102.91516900	2494.514							
2410	WELD	10,304.6	2410	0.0	45.0	47.79067729	-102.91516980	2491.003							

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC

Johnson's Corner to East Camp Creek

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
11000004	WT CHANGE	10,349.6	2410	0.0	0.0	47.79055455	-102.91517240	2488.750			0.322	52000	0.72	
2420	WELD	10,349.6	2420	0.0	42.3	47.79055453	-102.91517240	2488.750						
2430	WELD	10,391.8	2430	0.0	42.2	47.79043917	-102.91517350	2489.765						
2440	WELD	10,434.1	2440	0.0	42.2	47.79032390	-102.91516893	2489.193						
2450	WELD	10,476.3	2450	0.0	42.3	47.79020959	-102.91515547	2484.929						
2460	WELD	10,518.6	2460	0.0	42.2	47.79009440	-102.91514930	2482.691						
2470	WELD	10,560.8	2470	0.0	42.2	47.78997905	-102.91514547	2482.754						
2480	WELD	10,603.1	2480	0.0	42.2	47.78986372	-102.91514030	2483.338						
2490	WELD	10,645.3	2490	0.0	42.2	47.78974833	-102.91514280	2485.128						
2500	WELD	10,687.5	2500	0.0	42.0	47.78963317	-102.91515360	2486.386						
11000005	WT CHANGE	10,729.5	2500	0.0	0.0	47.78951879	-102.91516288	2485.083			0.188	52000	0.72	
2510	WELD	10,729.5	2510	0.0	48.5	47.78951876	-102.91516288	2485.082						
2520	WELD	10,778.0	2520	0.0	48.9	47.78938700	-102.91517434	2480.919						
2530	WELD	10,826.9	2530	0.0	44.9	47.78925344	-102.91518475	2478.902						
2540	WELD	10,871.8	2540	0.0	3.1	47.78913118	-102.91519423	2475.217						
10000014	Bend right - 90 deg., 3D	10,873.4	2540	0.1	3.1	47.78912759	-102.91519692	2475.084	0 12:00					
2550	WELD	10,874.9	2550	0.0	30.8	47.78912603	-102.91520251	2475.032						
2560	WELD	10,905.8	2560	0.0	49.3	47.78912887	-102.91532885	2475.421						
11000006	WT CHANGE	10,955.1	2560	0.0	0.0	47.78913425	-102.91552837	2473.569			0.322	52000	0.72	
2570	WELD	10,955.1	2570	0.0	42.1	47.78913426	-102.91552841	2473.568						
10000015	AGM 020, Sta. 109+30, 270' off gravel rd -- Survey Point	10,958.1	2570	3.0	39.2	47.78913457	-102.91554040	2473.373						
2580	WELD	10,997.2	2580	0.0	42.3	47.78913867	-102.91569850	2470.186						
2590	WELD	11,039.5	2590	0.0	42.3	47.78914267	-102.91586743	2463.402						
2600	WELD	11,081.8	2600	0.0	42.3	47.78914598	-102.91603794	2459.857						
2610	WELD	11,124.0	2610	0.0	42.2	47.78914766	-102.91620891	2457.945						
2620	WELD	11,166.3	2620	0.0	42.3	47.78915021	-102.91637976	2455.285						
2630	WELD	11,208.5	2630	0.0	42.3	47.78915119	-102.91655066	2452.448						
2640	WELD	11,250.8	2640	0.0	42.3	47.78915127	-102.91672170	2450.326						
2650	WELD	11,293.1	2650	0.0	42.2	47.78915061	-102.91689252	2453.475						
11000007	WT CHANGE	11,335.4	2650	0.0	0.0	47.78915218	-102.91706372	2454.304			0.188	52000	0.72	
2660	WELD	11,335.4	2660	0.0	40.7	47.78915218	-102.91706376	2454.304						
2670	WELD	11,376.1	2670	0.0	49.5	47.78915342	-102.91722888	2453.697						
2680	WELD	11,425.5	2680	0.0	49.5	47.78915356	-102.91742951	2451.740						
2690	WELD	11,475.1	2690	0.0	49.0	47.78915250	-102.91763049	2450.464						
2700	WELD	11,524.1	2700	0.0	49.4	47.78915170	-102.91782964	2450.128						

Criteria: ASME B31G: Modified

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
2710	WELD	11,573.5	2710	0.0	49.1	47.78915180	-102.91803039	2449.956						
2720	WELD	11,622.6	2720	0.0	49.2	47.78915280	-102.91822952	2449.871						
2730	WELD	11,671.8	2730	0.0	49.4	47.78915488	-102.91842898	2450.171						
2740	WELD	11,721.2	2740	0.0	49.4	47.78915667	-102.91862937	2447.804						
2750	WELD	11,770.6	2750	0.0	49.4	47.78915764	-102.91882927	2443.864						
2760	WELD	11,820.0	2760	0.0	49.6	47.78915793	-102.91902972	2441.652						
2770	WELD	11,869.6	2770	0.0	49.5	47.78915670	-102.91923061	2440.446						
2780	WELD	11,919.1	2780	0.0	49.4	47.78915485	-102.91943120	2438.918						
2790	WELD	11,968.4	2790	0.0	49.5	47.78915486	-102.91963159	2436.859						
2800	WELD	12,017.9	2800	0.0	49.4	47.78915652	-102.91983192	2433.881						
2810	WELD	12,067.4	2810	0.0	49.3	47.78915656	-102.92003130	2428.823						
2820	WELD	12,116.6	2820	0.0	49.4	47.78915549	-102.92023053	2426.217						
2830	WELD	12,166.1	2830	0.0	49.4	47.78915423	-102.92043084	2423.272						
2840	WELD	12,215.5	2840	0.0	49.0	47.78915372	-102.92063110	2420.177						
2850	WELD	12,264.5	2850	0.0	49.5	47.78915366	-102.92082987	2416.691						
2860	WELD	12,314.1	2860	0.0	49.6	47.78915443	-102.92103086	2414.199						
2870	WELD	12,363.7	2870	0.0	49.6	47.78915588	-102.92123200	2411.469						
2880	WELD	12,413.3	2880	0.0	46.3	47.78915734	-102.92143289	2408.490						
2890	WELD	12,459.6	2890	0.0	48.7	47.78915884	-102.92162071	2405.879						
2900	WELD	12,508.3	2900	0.0	49.4	47.78916110	-102.92181820	2402.867						
2910	WELD	12,557.7	2910	0.0	49.4	47.78916451	-102.92201853	2400.398						
2920	WELD	12,607.1	2920	0.0	49.0	47.78916752	-102.92221869	2397.863						
2930	WELD	12,656.1	2930	0.0	44.3	47.78916986	-102.92241764	2396.853						
2940	WELD	12,700.4	2940	0.0	49.4	47.78917185	-102.92259767	2395.745						
2950	WELD	12,749.9	2950	0.0	49.0	47.78917562	-102.92279819	2394.530						
2960	WELD	12,798.9	2960	0.0	49.4	47.78918020	-102.92299688	2392.365						
2970	WELD	12,848.3	2970	0.0	49.4	47.78918517	-102.92319701	2389.457						
2980	WELD	12,897.7	2980	0.0	49.5	47.78919034	-102.92339721	2386.237						
2990	WELD	12,947.2	2990	0.0	49.5	47.78919532	-102.92359736	2382.901						
3000	WELD	12,996.7	3000	0.0	49.2	47.78919922	-102.92379636	2376.479						
3010	WELD	13,045.8	3010	0.0	49.4	47.78920329	-102.92399454	2371.014						
3020	WELD	13,095.2	3020	0.0	49.1	47.78920654	-102.92419422	2367.051						
3030	WELD	13,144.3	3030	0.0	49.4	47.78921028	-102.92439320	2363.581						
3040	WELD	13,193.8	3040	0.0	49.4	47.78921324	-102.92459244	2358.019						
3050	WELD	13,243.2	3050	0.0	49.1	47.78921545	-102.92479167	2352.369						
3060	WELD	13,292.3	3060	0.0	49.5	47.78922262	-102.92498792	2344.550						
3070	WELD	13,341.8	3070	0.0	49.5	47.78923717	-102.92518509	2337.309						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
3080	WELD	13,391.3	3080	0.0	49.5	47.78925687	-102.92538352	2335.755							
3090	WELD	13,440.8	3090	0.0	49.5	47.78927977	-102.92558098	2339.381							
3100	WELD	13,490.3	3100	0.0	49.5	47.78930321	-102.92577873	2340.176							
3110	WELD	13,539.8	3110	0.0	49.5	47.78932700	-102.92597611	2337.670							
3120	WELD	13,589.3	3120	0.0	49.5	47.78935049	-102.92617371	2336.281							
3130	WELD	13,638.8	3130	0.0	49.4	47.78937534	-102.92637106	2336.262							
3140	WELD	13,688.2	3140	0.0	49.6	47.78939994	-102.92656834	2336.958							
3150	WELD	13,737.7	3150	0.0	49.4	47.78942895	-102.92676496	2336.317							
20000002	Seam Variation	13,766.8	3150	29.0	20.4	47.78944700	-102.92687981	2335.499	42	1:15	-	0.59	0.59		
3160	WELD	13,787.2	3160	0.0	49.6	47.78945923	-102.92696049	2335.875							
3170	WELD	13,836.8	3170	0.0	49.2	47.78948433	-102.92715838	2336.005							
3180	WELD	13,885.9	3180	0.0	49.3	47.78950279	-102.92735612	2335.270							
3190	WELD	13,935.3	3190	0.0	49.5	47.78951821	-102.92755520	2334.258							
3200	WELD	13,984.8	3200	0.0	49.5	47.78953121	-102.92775521	2332.384							
3210	WELD	14,034.3	3210	0.0	49.6	47.78954267	-102.92795308	2324.909							
3220	WELD	14,083.9	3220	0.0	49.4	47.78954739	-102.92815351	2322.316							
3230	WELD	14,133.3	3230	0.0	49.2	47.78953531	-102.92835283	2321.802							
3240	WELD	14,182.5	3240	0.0	49.6	47.78949774	-102.92854295	2318.558							
3250	WELD	14,232.1	3250	0.0	49.5	47.78942403	-102.92871101	2317.833							
3260	WELD	14,281.6	3260	0.0	49.5	47.78933338	-102.92885892	2321.707							
20000003	Seam Variation	14,303.1	3260	21.5	28.0	47.78929400	-102.92892276	2324.395	134	4:15	-	0.59	0.49		
20000004	Seam Variation	14,304.0	3260	22.3	27.1	47.78929248	-102.92892529	2324.502	134	4:15	-	0.35	0.43		
3270	WELD	14,331.1	3270	0.0	49.5	47.78924415	-102.92900766	2327.596							
3280	WELD	14,380.6	3280	0.0	49.6	47.78915773	-102.92916114	2332.924							
3290	WELD	14,430.2	3290	0.0	49.2	47.78907277	-102.92931396	2341.541							
3300	WELD	14,479.4	3300	0.0	49.4	47.78898986	-102.92946613	2351.357							
3310	WELD	14,528.8	3310	0.0	45.6	47.78890632	-102.92961907	2360.846							
3320	WELD	14,574.4	3320	0.0	1.5	47.78882645	-102.92976004	2366.133							
10000016	Bend right - 45 deg., 3D	14,575.2	3320	0.1	1.4	47.78882571	-102.92976285	2366.170	0	12:00					
3330	WELD	14,576.0	3330	0.0	44.6	47.78882531	-102.92976587	2366.189							
3340	WELD	14,620.6	3340	0.0	49.5	47.78883483	-102.92994736	2365.374							
3350	WELD	14,670.0	3350	0.0	49.6	47.78884565	-102.93014724	2363.535							
3360	WELD	14,719.6	3360	0.0	49.6	47.78885915	-102.93034764	2361.629							
3370	WELD	14,769.2	3370	0.0	47.9	47.78887348	-102.93054792	2360.751							
11000008	WT CHANGE	14,817.1	3370	0.0	0.0	47.78889133	-102.93074072	2360.575				0.322	52000	0.72	
3380	WELD	14,817.1	3380	0.0	42.1	47.78889133	-102.93074076	2360.574							
3390	WELD	14,859.2	3390	0.0	42.2	47.78891111	-102.93090918	2358.158							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
3400	WELD	14,901.4	3400	0.0	42.2	47.78893633	-102.93107463	2351.984						
3410	WELD	14,943.6	3410	0.0	42.2	47.78896242	-102.93123845	2344.432						
3420	WELD	14,985.8	3420	0.0	42.2	47.78898794	-102.93140227	2336.699						
3430	WELD	15,028.0	3430	0.0	42.2	47.78901146	-102.93156771	2329.917						
3440	WELD	15,070.3	3440	0.0	42.2	47.78903472	-102.93173340	2323.523						
3450	WELD	15,112.5	3450	0.0	42.2	47.78905034	-102.93190047	2316.494						
3460	WELD	15,154.7	3460	0.0	42.3	47.78905790	-102.93206703	2307.505						
3470	WELD	15,197.0	3470	0.0	42.2	47.78905859	-102.93223555	2300.474						
3480	WELD	15,239.2	3480	0.0	42.2	47.78905691	-102.93240663	2299.511						
3490	WELD	15,281.4	3490	0.0	42.3	47.78906955	-102.93257684	2298.229						
3500	WELD	15,323.7	3500	0.0	42.2	47.78908020	-102.93274713	2300.366						
3510	WELD	15,365.9	3510	0.0	42.3	47.78909444	-102.93291585	2305.717						
3520	WELD	15,408.1	3520	0.0	42.2	47.78910991	-102.93308060	2315.725						
3530	WELD	15,450.4	3530	0.0	42.2	47.78911786	-102.93324503	2327.124						
3540	WELD	15,492.6	3540	0.0	42.2	47.78912150	-102.93341349	2334.757						
3550	WELD	15,534.8	3550	0.0	42.2	47.78912282	-102.93358246	2341.862						
3560	WELD	15,577.0	3560	0.0	40.3	47.78912278	-102.93375298	2345.295						
11000009	WT CHANGE	15,617.3	3560	0.0	0.0	47.78912942	-102.93391655	2343.803			0.188	52000	0.72	
3570	WELD	15,617.4	3570	0.0	28.3	47.78912942	-102.93391660	2343.802						
3580	WELD	15,645.7	3580	0.0	49.5	47.78913587	-102.93403096	2343.044						
3590	WELD	15,695.2	3590	0.0	49.1	47.78913935	-102.93423157	2344.148						
3600	WELD	15,744.3	3600	0.0	49.5	47.78914222	-102.93443061	2344.931						
3610	WELD	15,793.8	3610	0.0	49.4	47.78914478	-102.93463124	2345.314						
3620	WELD	15,843.2	3620	0.0	49.5	47.78914523	-102.93483201	2345.363						
3630	WELD	15,892.7	3630	0.0	49.5	47.78914393	-102.93503286	2344.059						
3640	WELD	15,942.2	3640	0.0	49.2	47.78914217	-102.93523368	2342.040						
3650	WELD	15,991.4	3650	0.0	49.4	47.78914109	-102.93543330	2341.938						
3660	WELD	16,040.7	3660	0.0	49.4	47.78914116	-102.93563387	2342.025						
3670	WELD	16,090.2	3670	0.0	49.4	47.78914209	-102.93583418	2340.557						
3680	WELD	16,139.5	3680	0.0	49.4	47.78914252	-102.93603423	2336.945						
3690	WELD	16,189.0	3690	0.0	49.4	47.78914279	-102.93623501	2335.601						
3700	WELD	16,238.4	3700	0.0	48.1	47.78914436	-102.93643561	2335.442						
3710	WELD	16,286.5	3710	0.0	49.5	47.78914695	-102.93663063	2334.124						
3720	WELD	16,336.0	3720	0.0	49.3	47.78914671	-102.93683095	2336.906						
3730	WELD	16,385.3	3730	0.0	49.2	47.78914550	-102.93703115	2337.673						
3740	WELD	16,434.5	3740	0.0	49.5	47.78914405	-102.93723105	2338.585						
3750	WELD	16,484.0	3750	0.0	49.6	47.78914209	-102.93743175	2338.853						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
3760	WELD	16,533.6	3760	0.0	49.5	47.78913982	-102.93763298	2337.874						
3770	WELD	16,583.1	3770	0.0	49.3	47.78913714	-102.93783385	2339.304						
3780	WELD	16,632.4	3780	0.0	49.3	47.78913563	-102.93803391	2341.787						
3790	WELD	16,681.7	3790	0.0	49.1	47.78913713	-102.93823450	2344.311						
3800	WELD	16,730.8	3800	0.0	49.5	47.78913974	-102.93843296	2349.177						
3810	WELD	16,780.3	3810	0.0	49.0	47.78914153	-102.93863278	2354.855						
3820	WELD	16,829.3	3820	0.0	49.5	47.78914295	-102.93883151	2357.462						
3830	WELD	16,878.8	3830	0.0	49.1	47.78914351	-102.93903228	2357.967						
10000017	AGM 030, Sta. 167+38, Under overhead wire line -- Han #102	16,899.4	3830	20.7	28.4	47.78914467	-102.93911620	2357.579						
3840	WELD	16,927.9	3840	0.0	49.4	47.78914557	-102.93923154	2357.641						
3850	WELD	16,977.3	3850	0.0	49.3	47.78914762	-102.93943210	2356.690						
3860	WELD	17,026.6	3860	0.0	49.5	47.78914737	-102.93963182	2354.663						
3870	WELD	17,076.1	3870	0.0	49.1	47.78914467	-102.93983224	2352.476						
3880	WELD	17,125.2	3880	0.0	9.8	47.78913957	-102.94003106	2351.475						
3890	WELD	17,134.9	3890	0.0	35.0	47.78913819	-102.94007048	2351.285						
3900	WELD	17,169.9	3900	0.0	49.5	47.78913343	-102.94021190	2349.563						
3910	WELD	17,219.4	3910	0.0	9.3	47.78912966	-102.94041142	2344.773						
11000010	WT CHANGE	17,228.6	3910	0.0	0.0	47.78912939	-102.94044829	2343.229			0.322	52000	0.72	
3920	WELD	17,228.7	3920	0.0	41.9	47.78912939	-102.94044833	2343.227						
3930	WELD	17,270.6	3930	0.0	42.2	47.78912864	-102.94061182	2332.204						
3940	WELD	17,312.8	3940	0.0	42.3	47.78913032	-102.94077696	2321.403						
3950	WELD	17,355.0	3950	0.0	42.2	47.78912710	-102.94094583	2315.047						
3960	WELD	17,397.3	3960	0.0	42.2	47.78912667	-102.94111655	2312.336						
3970	WELD	17,439.5	3970	0.0	42.2	47.78912362	-102.94128648	2307.485						
3980	WELD	17,481.7	3980	0.0	42.2	47.78912166	-102.94145739	2306.083						
3990	WELD	17,524.0	3990	0.0	42.2	47.78911787	-102.94162837	2305.805						
4000	WELD	17,566.2	4000	0.0	42.2	47.78911400	-102.94179934	2306.746						
4010	WELD	17,608.4	4010	0.0	42.2	47.78911118	-102.94196972	2310.626						
4020	WELD	17,650.6	4020	0.0	42.3	47.78911133	-102.94213886	2317.190						
4030	WELD	17,692.9	4030	0.0	42.2	47.78911654	-102.94230773	2323.573						
4040	WELD	17,735.1	4040	0.0	42.3	47.78912331	-102.94247694	2329.490						
4050	WELD	17,777.4	4050	0.0	42.2	47.78912297	-102.94264635	2335.348						
4060	WELD	17,819.6	4060	0.0	42.3	47.78912041	-102.94281560	2341.758						
4070	WELD	17,861.9	4070	0.0	13.8	47.78912189	-102.94298564	2346.660						
11000011	WT CHANGE	17,875.7	4070	0.0	0.0	47.78912216	-102.94304131	2347.899			0.188	52000	0.72	

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC

Johnson's Corner to East Camp Creek

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
4080	WELD	17,875.7	4080	0.0	37.4	47.78912216	-102.94304135	2347.899							
40000001	Metal Loss - EXTERNAL	17,876.6	4080	0.8	36.6	47.78912218	-102.94304485	2347.971	345	11:30	31%	0.62	0.46	1760	100%
4090	WELD	17,913.1	4090	0.0	49.5	47.78912328	-102.94319273	2351.087							
4100	WELD	17,962.6	4100	0.0	49.4	47.78912520	-102.94339302	2353.486							
4110	WELD	18,012.0	4110	0.0	49.6	47.78912960	-102.94359326	2354.086							
4120	WELD	18,061.6	4120	0.0	49.6	47.78913480	-102.94379402	2354.539							
4130	WELD	18,111.2	4130	0.0	49.3	47.78913920	-102.94399485	2354.145							
4140	WELD	18,160.5	4140	0.0	49.3	47.78914357	-102.94419422	2351.018							
4150	WELD	18,209.8	4150	0.0	49.5	47.78914544	-102.94439317	2346.994							
4160	WELD	18,259.3	4160	0.0	49.4	47.78914515	-102.94459271	2342.468							
4170	WELD	18,308.7	4170	0.0	49.6	47.78914313	-102.94479146	2336.801							
4180	WELD	18,358.3	4180	0.0	47.7	47.78914139	-102.94499111	2330.930							
4190	WELD	18,406.0	4190	0.0	49.7	47.78913998	-102.94518330	2325.661							
4200	WELD	18,455.7	4200	0.0	49.2	47.78913860	-102.94538359	2320.028							
4210	WELD	18,505.0	4210	0.0	31.2	47.78913329	-102.94558161	2314.729							
11000012	WT CHANGE	18,536.2	4210	0.0	0.0	47.78912718	-102.94570580	2310.360				0.322	52000	0.72	
4220	WELD	18,536.2	4220	0.0	42.1	47.78912718	-102.94570584	2310.359							
4230	WELD	18,578.3	4230	0.0	42.2	47.78912417	-102.94587584	2305.826							
4240	WELD	18,620.5	4240	0.0	42.3	47.78912157	-102.94604510	2299.923							
4250	WELD	18,662.8	4250	0.0	42.2	47.78911416	-102.94621490	2295.565							
4260	WELD	18,705.0	4260	0.0	42.2	47.78910992	-102.94638561	2292.938							
4270	WELD	18,747.3	4270	0.0	42.2	47.78910824	-102.94655678	2292.171							
4280	WELD	18,789.5	4280	0.0	42.2	47.78911086	-102.94672787	2291.298							
4290	WELD	18,831.7	4290	0.0	42.2	47.78911747	-102.94689875	2291.890							
4300	WELD	18,873.9	4300	0.0	42.2	47.78912406	-102.94706836	2296.819							
4310	WELD	18,916.2	4310	0.0	42.2	47.78912804	-102.94723762	2302.870							
4320	WELD	18,958.4	4320	0.0	42.1	47.78913237	-102.94740718	2308.673							
11000013	WT CHANGE	19,000.5	4320	0.0	0.0	47.78914021	-102.94757534	2315.219				0.188	52000	0.72	
4330	WELD	19,000.5	4330	0.0	39.2	47.78914021	-102.94757538	2315.220							
4340	WELD	19,039.7	4340	0.0	49.5	47.78914861	-102.94773251	2320.536							
4350	WELD	19,089.2	4350	0.0	49.5	47.78914961	-102.94793180	2325.675							
4360	WELD	19,138.7	4360	0.0	49.4	47.78914733	-102.94813070	2332.372							
4370	WELD	19,188.2	4370	0.0	49.3	47.78915261	-102.94832987	2337.886							
4380	WELD	19,237.5	4380	0.0	49.6	47.78915646	-102.94852838	2343.858							
4390	WELD	19,287.1	4390	0.0	49.6	47.78915769	-102.94872832	2349.340							
4400	WELD	19,336.7	4400	0.0	49.5	47.78915763	-102.94892891	2352.895							
4410	WELD	19,386.1	4410	0.0	49.4	47.78915685	-102.94912901	2356.296							

Criteria: ASME B31G: Modified

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
4420	WELD	19,435.5	4420	0.0	49.3	47.78915590	-102.94932906	2356.735						
4430	WELD	19,484.8	4430	0.0	49.2	47.78915439	-102.94952888	2356.099						
4440	WELD	19,534.1	4440	0.0	49.6	47.78915492	-102.94972815	2354.444						
4450	WELD	19,583.7	4450	0.0	49.4	47.78915707	-102.94992917	2352.302						
4460	WELD	19,633.1	4460	0.0	49.5	47.78915801	-102.95012900	2350.177						
4470	WELD	19,682.5	4470	0.0	48.9	47.78915973	-102.95032948	2348.858						
4480	WELD	19,731.5	4480	0.0	49.7	47.78916003	-102.95052764	2347.667						
4490	WELD	19,781.2	4490	0.0	49.7	47.78915903	-102.95072909	2347.645						
4500	WELD	19,830.9	4500	0.0	49.6	47.78915793	-102.95093046	2348.178						
4510	WELD	19,880.5	4510	0.0	49.7	47.78915506	-102.95113167	2350.158						
4520	WELD	19,930.2	4520	0.0	49.5	47.78915390	-102.95133298	2352.857						
4530	WELD	19,979.7	4530	0.0	49.3	47.78915164	-102.95153317	2356.047						
4540	WELD	20,029.0	4540	0.0	49.2	47.78914828	-102.95173249	2359.121						
4550	WELD	20,078.2	4550	0.0	47.3	47.78914547	-102.95193171	2359.433						
4560	WELD	20,125.5	4560	0.0	6.1	47.78914395	-102.95212377	2358.551						
4570	WELD	20,131.6	4570	0.0	3.2	47.78914378	-102.95214822	2358.424						
10000018	Bend left - 90 deg., 3D	20,133.1	4570	0.1	3.0	47.78914207	-102.95215356	2358.400	0 12:00					
4580	WELD	20,134.7	4580	0.0	6.2	47.78913827	-102.95215611	2358.440						
4590	WELD	20,141.0	4590	0.0	49.3	47.78912048	-102.95215670	2358.748						
4600	WELD	20,190.3	4600	0.0	49.0	47.78898591	-102.95216018	2358.432						
4610	WELD	20,239.3	4610	0.0	49.5	47.78885217	-102.95216616	2359.013						
4620	WELD	20,288.7	4620	0.0	49.6	47.78871702	-102.95216940	2359.517						
4630	WELD	20,338.3	4630	0.0	49.5	47.78858168	-102.95217140	2358.802						
4640	WELD	20,387.8	4640	0.0	49.5	47.78844690	-102.95217200	2355.618						
4650	WELD	20,437.3	4650	0.0	49.4	47.78831204	-102.95217231	2351.821						
4660	WELD	20,486.7	4660	0.0	49.5	47.78817723	-102.95217265	2348.356						
4670	WELD	20,536.2	4670	0.0	49.6	47.78804242	-102.95217335	2344.874						
4680	WELD	20,585.8	4680	0.0	49.5	47.78790701	-102.95217370	2342.206						
4690	WELD	20,635.3	4690	0.0	49.4	47.78777208	-102.95217150	2340.609						
4700	WELD	20,684.7	4700	0.0	49.2	47.78763725	-102.95216873	2337.936						
4710	WELD	20,733.8	4710	0.0	49.4	47.78750292	-102.95216860	2335.220						
4720	WELD	20,783.2	4720	0.0	49.4	47.78736798	-102.95217080	2333.558						
4730	WELD	20,832.6	4730	0.0	49.4	47.78723324	-102.95217324	2331.167						
4740	WELD	20,882.0	4740	0.0	49.5	47.78709817	-102.95217468	2328.907						
4750	WELD	20,931.5	4750	0.0	49.0	47.78696307	-102.95217509	2327.274						
4760	WELD	20,980.5	4760	0.0	49.7	47.78682925	-102.95217243	2325.724						
4770	WELD	21,030.2	4770	0.0	49.5	47.78669381	-102.95216950	2322.797						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
4780	WELD	21,079.7	4780	0.0	49.3	47.78655888	-102.95216732	2320.859							
4790	WELD	21,129.0	4790	0.0	49.5	47.78642462	-102.95216554	2318.282							
4800	WELD	21,178.5	4800	0.0	41.5	47.78628987	-102.95216330	2314.431							
4810	WELD	21,220.0	4810	0.0	40.3	47.78617670	-102.95216350	2312.357							
4820	WELD	21,260.3	4820	0.0	24.3	47.78606677	-102.95216829	2312.100							
4830	WELD	21,284.6	4830	0.0	3.2	47.78600038	-102.95217310	2311.895							
10000019	Bend right - 90 deg., 3D	21,286.2	4830	0.1	3.1	47.78599681	-102.95217589	2311.863	0	12:00					
4840	WELD	21,287.8	4840	0.0	26.6	47.78599537	-102.95218165	2311.846							
4850	WELD	21,314.4	4850	0.0	41.3	47.78599896	-102.95229129	2311.818							
4860	WELD	21,355.8	4860	0.0	41.2	47.78600544	-102.95245820	2311.450							
4870	WELD	21,397.0	4870	0.0	41.3	47.78601258	-102.95262485	2310.905							
4880	WELD	21,438.3	4880	0.0	41.3	47.78602098	-102.95279171	2310.376							
4890	WELD	21,479.6	4890	0.0	41.3	47.78603017	-102.95295849	2309.315							
4900	WELD	21,521.0	4900	0.0	41.2	47.78603789	-102.95312536	2307.931							
4910	WELD	21,562.1	4910	0.0	41.3	47.78604688	-102.95329129	2306.309							
4920	WELD	21,603.4	4920	0.0	41.4	47.78605619	-102.95345744	2303.614							
4930	WELD	21,644.8	4930	0.0	36.0	47.78606536	-102.95362432	2301.871							
11000014	WT CHANGE	21,680.7	4930	0.0	0.0	47.78607250	-102.95376945	2300.961				0.322	52000	0.72	
4940	WELD	21,680.8	4940	0.0	42.2	47.78607250	-102.95376949	2300.961							
4950	WELD	21,723.0	4950	0.0	42.2	47.78608030	-102.95394037	2300.678							
4960	WELD	21,765.2	4960	0.0	42.3	47.78608821	-102.95411108	2300.326							
4970	WELD	21,807.5	4970	0.0	42.3	47.78609839	-102.95428148	2298.937							
4980	WELD	21,849.8	4980	0.0	42.3	47.78611029	-102.95445029	2293.796							
4990	WELD	21,892.1	4990	0.0	42.2	47.78612185	-102.95461833	2287.021							
5000	WELD	21,934.3	5000	0.0	42.2	47.78613134	-102.95478787	2282.795							
5010	WELD	21,976.5	5010	0.0	42.3	47.78613877	-102.95495883	2282.680							
5020	WELD	22,018.8	5020	0.0	42.2	47.78614709	-102.95512936	2284.711							
5030	WELD	22,061.0	5030	0.0	42.3	47.78615669	-102.95529918	2289.005							
5040	WELD	22,103.3	5040	0.0	27.6	47.78616882	-102.95546740	2295.609							
11000015	WT CHANGE	22,130.8	5040	0.0	0.0	47.78618054	-102.95557697	2298.061				0.188	52000	0.72	
5050	WELD	22,130.9	5050	0.0	18.2	47.78618055	-102.95557701	2298.062							
5060	WELD	22,149.1	5060	0.0	41.3	47.78619026	-102.95564946	2298.753							
5070	WELD	22,190.4	5070	0.0	41.2	47.78621234	-102.95581327	2298.301							
5080	WELD	22,231.6	5080	0.0	41.3	47.78622280	-102.95597946	2297.841							
5090	WELD	22,272.9	5090	0.0	41.2	47.78621174	-102.95614565	2297.271							
5100	WELD	22,314.0	5100	0.0	41.3	47.78618088	-102.95630576	2296.924							
5110	WELD	22,355.3	5110	0.0	41.3	47.78613218	-102.95645660	2296.037							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
5120	WELD	22,396.6	5120	0.0	32.8	47.78607777	-102.95660303	2295.996							
5130	WELD	22,429.5	5130	0.0	30.2	47.78602965	-102.95671500	2294.578							
5140	WELD	22,459.6	5140	0.0	10.5	47.78598403	-102.95681670	2293.842							
5150	WELD	22,470.2	5150	0.0	9.4	47.78596848	-102.95685251	2293.622							
5160	WELD	22,479.5	5160	0.0	41.3	47.78595470	-102.95688459	2293.315							
5170	WELD	22,520.9	5170	0.0	41.0	47.78589360	-102.95702501	2292.437							
5180	WELD	22,561.8	5180	0.0	41.3	47.78583148	-102.95716304	2292.329							
5190	WELD	22,603.2	5190	0.0	41.6	47.78576982	-102.95730337	2292.136							
5200	WELD	22,644.7	5200	0.0	41.3	47.78570671	-102.95744299	2290.964							
5210	WELD	22,686.0	5210	0.0	41.3	47.78564053	-102.95757840	2289.786							
5220	WELD	22,727.4	5220	0.0	41.4	47.78557394	-102.95771321	2289.916							
5230	WELD	22,768.8	5230	0.0	41.3	47.78550666	-102.95784797	2290.584							
5240	WELD	22,810.1	5240	0.0	41.4	47.78543805	-102.95798076	2290.755							
5250	WELD	22,851.5	5250	0.0	41.0	47.78537035	-102.95811513	2291.148							
5260	WELD	22,892.5	5260	0.0	39.5	47.78531155	-102.95825616	2290.798							
5270	WELD	22,932.1	5270	0.0	41.4	47.78527238	-102.95840488	2289.699							
5280	WELD	22,973.4	5280	0.0	41.4	47.78525879	-102.95857056	2287.792							
5290	WELD	23,014.9	5290	0.0	41.4	47.78526442	-102.95873760	2285.194							
5300	WELD	23,056.3	5300	0.0	41.3	47.78528116	-102.95890305	2283.286							
5310	WELD	23,097.6	5310	0.0	41.4	47.78530009	-102.95906797	2282.196							
5320	WELD	23,138.9	5320	0.0	41.3	47.78532075	-102.95923238	2280.754							
5330	WELD	23,180.3	5330	0.0	24.7	47.78534096	-102.95939692	2279.715							
11000016	WT CHANGE	23,205.0	5330	0.0	0.0	47.78535050	-102.95949567	2278.578				0.322	52000	0.72	
5340	WELD	23,205.0	5340	0.0	42.0	47.78535051	-102.95949571	2278.577							
5350	WELD	23,247.0	5350	0.0	42.3	47.78536621	-102.95966314	2274.550							
5360	WELD	23,289.2	5360	0.0	42.3	47.78538304	-102.95982986	2267.420							
5370	WELD	23,331.6	5370	0.0	42.3	47.78539947	-102.95999720	2261.223							
5380	WELD	23,373.9	5380	0.0	42.3	47.78541360	-102.96016609	2256.719							
5390	WELD	23,416.1	5390	0.0	42.3	47.78542890	-102.96033546	2254.758							
5400	WELD	23,458.4	5400	0.0	42.3	47.78544392	-102.96050510	2254.383							
5410	WELD	23,500.7	5410	0.0	42.2	47.78546111	-102.96067324	2258.952							
5420	WELD	23,543.0	5420	0.0	42.3	47.78548308	-102.96084032	2263.627							
5430	WELD	23,585.3	5430	0.0	15.7	47.78550269	-102.96100849	2266.701							
11000017	WT CHANGE	23,600.9	5430	0.0	0.0	47.78550943	-102.96107072	2268.453				0.188	52000	0.72	
5440	WELD	23,600.9	5440	0.0	16.1	47.78550943	-102.96107075	2268.454							
5450	WELD	23,617.0	5450	0.0	41.2	47.78551614	-102.96113471	2270.492							
40000002	Metal Loss - EXTERNAL	23,636.6	5450	19.5	21.7	47.78552428	-102.96121263	2272.428	210	7:00	14%	0.73	0.53	1760	100%

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC

Johnson's Corner to East Camp Creek

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
40000003	Metal Loss - EXTERNAL	23,641.5	5450	24.5	16.7	47.78552625	-102.96123230	2272.934	244	8:00	10%	0.65	0.66	1760	100%
5460	WELD	23,658.2	5460	0.0	41.2	47.78553283	-102.96129872	2274.786							
5470	WELD	23,699.4	5470	0.0	41.2	47.78554906	-102.96146379	2277.777							
5480	WELD	23,740.6	5480	0.0	41.2	47.78556504	-102.96162904	2279.380							
5490	WELD	23,781.9	5490	0.0	41.3	47.78558188	-102.96179427	2280.657							
5500	WELD	23,823.2	5500	0.0	41.3	47.78559721	-102.96195999	2281.717							
5510	WELD	23,864.5	5510	0.0	41.3	47.78561191	-102.96212568	2283.600							
5520	WELD	23,905.7	5520	0.0	41.4	47.78562644	-102.96229152	2284.882							
5530	WELD	23,947.2	5530	0.0	41.2	47.78564075	-102.96245798	2287.432							
5540	WELD	23,988.3	5540	0.0	41.1	47.78565684	-102.96262341	2288.785							
5550	WELD	24,029.5	5550	0.0	41.3	47.78567483	-102.96278762	2291.280							
5560	WELD	24,070.8	5560	0.0	32.2	47.78569200	-102.96295284	2294.016							
10000116	AGM 040, Sta. 229+15, On fence line by AGM -- Survey Point	24,076.8	5560	6.0	26.2	47.78569443	-102.96297669	2294.451							
5570	WELD	24,103.0	5570	0.0	2.2	47.78570496	-102.96308171	2295.606							
10000020	Bend right - 60 deg., 3D	24,104.1	5570	0.1	2.2	47.78570635	-102.96308534	2295.638	0	12:00					
5580	WELD	24,105.2	5580	0.0	39.2	47.78570871	-102.96308773	2295.657							
5590	WELD	24,144.4	5590	0.0	41.3	47.78581219	-102.96313058	2295.882							
5600	WELD	24,185.8	5600	0.0	41.3	47.78592060	-102.96317665	2296.279							
5610	WELD	24,227.0	5610	0.0	41.2	47.78602907	-102.96322189	2297.414							
5620	WELD	24,268.2	5620	0.0	41.2	47.78613754	-102.96326600	2298.534							
5630	WELD	24,309.4	5630	0.0	41.2	47.78624616	-102.96330972	2299.713							
5640	WELD	24,350.6	5640	0.0	41.3	47.78635465	-102.96335307	2301.370							
5650	WELD	24,391.9	5650	0.0	41.2	47.78646337	-102.96339664	2303.791							
5660	WELD	24,433.0	5660	0.0	41.3	47.78657189	-102.96344008	2305.889							
5670	WELD	24,474.4	5670	0.0	41.4	47.78668093	-102.96348256	2308.140							
5680	WELD	24,515.7	5680	0.0	41.3	47.78679008	-102.96352492	2310.610							
5690	WELD	24,557.0	5690	0.0	41.6	47.78689870	-102.96356845	2312.900							
5700	WELD	24,598.6	5700	0.0	41.2	47.78700785	-102.96361497	2314.422							
5710	WELD	24,639.8	5710	0.0	41.3	47.78711588	-102.96366144	2316.715							
5720	WELD	24,681.1	5720	0.0	41.7	47.78722427	-102.96370649	2319.507							
5730	WELD	24,722.8	5730	0.0	41.5	47.78733426	-102.96375029	2322.212							
5740	WELD	24,764.3	5740	0.0	41.3	47.78744329	-102.96379417	2325.085							
5750	WELD	24,805.6	5750	0.0	41.2	47.78755218	-102.96383701	2328.065							
5760	WELD	24,846.8	5760	0.0	41.4	47.78766058	-102.96387993	2331.764							
5770	WELD	24,888.2	5770	0.0	41.1	47.78776916	-102.96392453	2335.363							

Criteria: ASME B31G: Modified

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
5780	WELD	24,929.4	5780	0.0	41.2	47.78787706	-102.96396994	2337.725							
5790	WELD	24,970.5	5790	0.0	41.2	47.78798525	-102.96401556	2338.473							
5800	WELD	25,011.8	5800	0.0	41.1	47.78809375	-102.96406043	2338.690							
5810	WELD	25,052.9	5810	0.0	41.5	47.78820219	-102.96410365	2340.421							
5820	WELD	25,094.3	5820	0.0	41.2	47.78831161	-102.96414695	2342.690							
40000004	Metal Loss - EXTERNAL	25,109.0	5820	14.6	26.6	47.78835012	-102.96416274	2343.684	315	10:30	10%	0.65	0.49	1760	100%
40000005	Metal Loss - EXTERNAL	25,113.9	5820	19.6	21.6	47.78836310	-102.96416819	2344.057	285	9:30	15%	0.71	0.57	1760	100%
40000006	Metal Loss - EXTERNAL	25,118.9	5820	24.5	16.7	47.78837602	-102.96417361	2344.465	314	10:15	11%	0.63	0.52	1760	100%
5830	WELD	25,135.5	5830	0.0	41.3	47.78841959	-102.96419228	2346.110							
5840	WELD	25,176.8	5840	0.0	41.5	47.78852684	-102.96424184	2349.527							
5850	WELD	25,218.3	5850	0.0	41.3	47.78863337	-102.96429747	2352.973							
5860	WELD	25,259.5	5860	0.0	41.1	47.78873667	-102.96436277	2355.761							
5870	WELD	25,300.7	5870	0.0	41.2	47.78883644	-102.96443920	2357.652							
5880	WELD	25,341.9	5880	0.0	40.4	47.78893203	-102.96452725	2358.498							
5890	WELD	25,382.3	5890	0.0	41.2	47.78902341	-102.96461933	2357.891							
5900	WELD	25,423.5	5900	0.0	41.2	47.78911569	-102.96471495	2357.984							
5910	WELD	25,464.8	5910	0.0	41.2	47.78920752	-102.96481218	2357.978							
5920	WELD	25,506.0	5920	0.0	41.3	47.78929875	-102.96491003	2357.930							
5930	WELD	25,547.3	5930	0.0	41.1	47.78939103	-102.96500654	2358.283							
5940	WELD	25,588.4	5940	0.0	41.3	47.78948294	-102.96510251	2359.159							
5950	WELD	25,629.7	5950	0.0	41.3	47.78957545	-102.96519846	2360.077							
40000007	Metal Loss - EXTERNAL	25,630.8	5950	1.1	40.2	47.78957789	-102.96520106	2360.088	154	5:00	11%	0.58	0.48	1760	100%
40000008	Metal Loss - EXTERNAL	25,630.9	5950	1.1	40.1	47.78957799	-102.96520117	2360.088	329	10:45	11%	0.53	0.44	1760	100%
5960	WELD	25,671.0	5960	0.0	41.3	47.78966790	-102.96529426	2360.483							
5970	WELD	25,712.3	5970	0.0	41.6	47.78976093	-102.96538894	2361.330							
5980	WELD	25,753.9	5980	0.0	41.9	47.78985530	-102.96548268	2361.894							
5990	WELD	25,795.8	5990	0.0	41.1	47.78995045	-102.96557714	2362.142							
6000	WELD	25,836.9	6000	0.0	41.2	47.79004222	-102.96567276	2361.937							
6010	WELD	25,878.1	6010	0.0	41.6	47.79013341	-102.96577054	2362.099							
6020	WELD	25,919.6	6020	0.0	41.2	47.79022390	-102.96587218	2361.520							
6030	WELD	25,960.8	6030	0.0	41.2	47.79031325	-102.96597399	2361.099							
6040	WELD	26,002.0	6040	0.0	41.4	47.79040327	-102.96607445	2361.448							
6050	WELD	26,043.4	6050	0.0	41.3	47.79049488	-102.96617224	2362.239							
6060	WELD	26,084.7	6060	0.0	41.4	47.79058805	-102.96626648	2362.469							
6070	WELD	26,126.1	6070	0.0	41.4	47.79068327	-102.96635655	2363.224							
6080	WELD	26,167.4	6080	0.0	41.4	47.79078166	-102.96643841	2364.623							
6090	WELD	26,208.8	6090	0.0	41.4	47.79088472	-102.96650656	2366.467							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
6100	WELD	26,250.2	6100	0.0	41.4	47.79099239	-102.96655600	2368.221							
6110	WELD	26,291.6	6110	0.0	41.5	47.79110319	-102.96658767	2368.560							
6120	WELD	26,333.0	6120	0.0	41.2	47.79121541	-102.96660992	2368.367							
6130	WELD	26,374.2	6130	0.0	23.3	47.79132643	-102.96663419	2369.389							
11000018	WT CHANGE	26,397.5	6130	0.0	0.0	47.79138904	-102.96665033	2369.768				0.322	52000	0.72	
6140	WELD	26,397.5	6140	0.0	42.3	47.79138907	-102.96665034	2369.769							
6150	WELD	26,439.8	6150	0.0	42.3	47.79150290	-102.96667859	2370.128							
6160	WELD	26,482.1	6160	0.0	42.2	47.79161653	-102.96670343	2366.415							
6170	WELD	26,524.3	6170	0.0	42.3	47.79172965	-102.96673288	2363.430							
6180	WELD	26,566.6	6180	0.0	36.4	47.79184234	-102.96676967	2362.790							
6190	WELD	26,602.9	6190	0.0	2.4	47.79193862	-102.96680394	2360.930							
10000021	Bend right - 60 deg., 3D	26,604.1	6190	0.1	2.2	47.79194158	-102.96680325	2360.884	0	12:00					
11000019	WT CHANGE	26,605.3	6190	0.0	0.0	47.79194412	-102.96680057	2360.924				0.188	52000	0.72	
6200	WELD	26,605.3	6200	0.0	24.4	47.79194414	-102.96680054	2360.924							
6210	WELD	26,629.7	6210	0.0	38.1	47.79198447	-102.96672236	2363.179							
6220	WELD	26,667.8	6220	0.0	41.4	47.79204956	-102.96660214	2364.852							
6230	WELD	26,709.2	6230	0.0	41.2	47.79212170	-102.96647354	2366.292							
6240	WELD	26,750.4	6240	0.0	41.3	47.79219367	-102.96634638	2370.946							
6250	WELD	26,791.7	6250	0.0	41.3	47.79226685	-102.96622045	2375.969							
6260	WELD	26,833.0	6260	0.0	41.1	47.79234031	-102.96609452	2380.159							
6270	WELD	26,874.1	6270	0.0	41.3	47.79241222	-102.96596716	2384.373							
6280	WELD	26,915.3	6280	0.0	41.2	47.79248330	-102.96583754	2386.644							
6290	WELD	26,956.6	6290	0.0	41.3	47.79255385	-102.96570688	2386.945							
6300	WELD	26,997.9	6300	0.0	40.7	47.79262335	-102.96557527	2387.724							
6310	WELD	27,038.6	6310	0.0	41.4	47.79269121	-102.96544530	2391.431							
6320	WELD	27,080.0	6320	0.0	41.3	47.79276004	-102.96531304	2395.416							
6330	WELD	27,121.3	6330	0.0	41.2	47.79282848	-102.96518054	2398.065							
6340	WELD	27,162.5	6340	0.0	41.3	47.79289675	-102.96504746	2396.368							
6350	WELD	27,203.8	6350	0.0	41.3	47.79296440	-102.96491341	2395.547							
6360	WELD	27,245.1	6360	0.0	41.2	47.79303212	-102.96477966	2395.827							
6370	WELD	27,286.3	6370	0.0	41.3	47.79310000	-102.96464676	2396.755							
6380	WELD	27,327.6	6380	0.0	41.3	47.79316894	-102.96451514	2400.042							
6390	WELD	27,368.8	6390	0.0	41.3	47.79324057	-102.96438644	2402.060							
6400	WELD	27,410.1	6400	0.0	41.5	47.79331615	-102.96426271	2404.823							
6410	WELD	27,451.6	6410	0.0	41.3	47.79339971	-102.96415007	2406.550							
40000009	Metal Loss - EXTERNAL	27,454.6	6410	3.0	38.3	47.79340612	-102.96414247	2406.579	155	5:00	19%	0.50	0.69	1760	100%
6420	WELD	27,492.9	6420	0.0	41.4	47.79349036	-102.96405104	2406.379							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
6430	WELD	27,534.3	6430	0.0	41.1	47.79358556	-102.96396135	2404.255						
6440	WELD	27,575.3	6440	0.0	41.3	47.79368138	-102.96387515	2401.761						
6450	WELD	27,616.6	6450	0.0	41.2	47.79377849	-102.96379052	2399.623						
6460	WELD	27,657.8	6460	0.0	41.3	47.79387614	-102.96370768	2399.710						
6470	WELD	27,699.1	6470	0.0	41.4	47.79397561	-102.96363000	2402.401						
6480	WELD	27,740.5	6480	0.0	41.2	47.79407896	-102.96356378	2405.954						
6490	WELD	27,781.7	6490	0.0	41.3	47.79418639	-102.96351554	2408.612						
6500	WELD	27,823.1	6500	0.0	41.1	47.79429659	-102.96348191	2411.517						
6510	WELD	27,864.2	6510	0.0	41.3	47.79440698	-102.96345687	2416.383						
6520	WELD	27,905.5	6520	0.0	41.2	47.79451874	-102.96344084	2419.697						
6530	WELD	27,946.6	6530	0.0	41.2	47.79463098	-102.96343272	2420.924						
6540	WELD	27,987.9	6540	0.0	41.3	47.79474366	-102.96343036	2420.406						
6550	WELD	28,029.2	6550	0.0	41.4	47.79485643	-102.96343000	2420.257						
6560	WELD	28,070.6	6560	0.0	39.2	47.79496961	-102.96342950	2419.982						
6570	WELD	28,109.7	6570	0.0	41.2	47.79507653	-102.96342930	2418.195						
6580	WELD	28,150.9	6580	0.0	41.2	47.79518855	-102.96342910	2414.458						
6590	WELD	28,192.1	6590	0.0	41.1	47.79530084	-102.96342800	2412.155						
6600	WELD	28,233.2	6600	0.0	41.3	47.79541292	-102.96342720	2409.884						
6610	WELD	28,274.6	6610	0.0	41.3	47.79552520	-102.96342670	2406.000						
6620	WELD	28,315.9	6620	0.0	41.3	47.79563786	-102.96342660	2403.542						
6630	WELD	28,357.2	6630	0.0	41.2	47.79575049	-102.96342490	2401.351						
6640	WELD	28,398.4	6640	0.0	41.4	47.79586274	-102.96342151	2399.090						
6650	WELD	28,439.7	6650	0.0	41.2	47.79597552	-102.96341681	2397.789						
6660	WELD	28,481.0	6660	0.0	41.2	47.79608815	-102.96341286	2397.336						
6670	WELD	28,522.1	6670	0.0	41.2	47.79620057	-102.96341050	2397.938						
10000022	AGM 050, Sta. 273+50, 208' off edge of rd -- Survey Point	28,543.0	6670	20.9	20.3	47.79625772	-102.96340939	2397.996						
6680	WELD	28,563.3	6680	0.0	41.2	47.79631324	-102.96340790	2397.912						
6690	WELD	28,604.6	6690	0.0	41.3	47.79642549	-102.96340521	2396.089						
6700	WELD	28,645.8	6700	0.0	41.3	47.79653797	-102.96340450	2393.505						
6710	WELD	28,687.1	6710	0.0	41.2	47.79665032	-102.96340480	2390.944						
6720	WELD	28,728.4	6720	0.0	41.3	47.79676179	-102.96340530	2385.345						
6730	WELD	28,769.7	6730	0.0	41.5	47.79687412	-102.96340540	2381.688						
6740	WELD	28,811.2	6740	0.0	41.4	47.79698727	-102.96340443	2379.325						
6750	WELD	28,852.6	6750	0.0	41.2	47.79709973	-102.96340360	2376.733						
6760	WELD	28,893.7	6760	0.0	41.8	47.79721186	-102.96340410	2374.118						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
6770	WELD	28,935.5	6770	0.0	41.3	47.79732562	-102.96340579	2371.770						
6780	WELD	28,976.8	6780	0.0	41.3	47.79743792	-102.96340630	2370.141						
6790	WELD	29,018.0	6790	0.0	41.4	47.79755050	-102.96340620	2369.450						
6800	WELD	29,059.4	6800	0.0	41.1	47.79766333	-102.96340770	2368.865						
6810	WELD	29,100.6	6810	0.0	41.2	47.79777545	-102.96340986	2366.630						
6820	WELD	29,141.8	6820	0.0	41.2	47.79788749	-102.96341292	2364.272						
6830	WELD	29,183.0	6830	0.0	41.5	47.79799957	-102.96341527	2360.979						
6840	WELD	29,224.5	6840	0.0	41.4	47.79811258	-102.96341610	2358.136						
6850	WELD	29,265.9	6850	0.0	41.2	47.79822515	-102.96341780	2355.754						
6860	WELD	29,307.0	6860	0.0	41.3	47.79833713	-102.96341910	2352.824						
6870	WELD	29,348.3	6870	0.0	41.2	47.79844958	-102.96341960	2350.011						
6880	WELD	29,389.6	6880	0.0	40.7	47.79856187	-102.96342018	2347.713						
6890	WELD	29,430.2	6890	0.0	41.4	47.79867245	-102.96342245	2344.667						
6900	WELD	29,471.7	6900	0.0	41.3	47.79878502	-102.96342545	2341.385						
6910	WELD	29,513.0	6910	0.0	41.3	47.79889747	-102.96342819	2338.402						
6920	WELD	29,554.4	6920	0.0	41.2	47.79901007	-102.96342937	2336.141						
6930	WELD	29,595.6	6930	0.0	41.4	47.79912237	-102.96343090	2333.619						
6940	WELD	29,637.0	6940	0.0	41.2	47.79923501	-102.96343450	2331.480						
6950	WELD	29,678.2	6950	0.0	41.1	47.79934713	-102.96343670	2329.015						
6960	WELD	29,719.3	6960	0.0	41.0	47.79945896	-102.96343690	2327.044						
6970	WELD	29,760.3	6970	0.0	41.3	47.79957088	-102.96343706	2325.597						
6980	WELD	29,801.6	6980	0.0	41.3	47.79968342	-102.96343890	2324.155						
6990	WELD	29,842.9	6990	0.0	41.2	47.79979604	-102.96343647	2323.537						
7000	WELD	29,884.1	7000	0.0	11.1	47.79990849	-102.96343039	2321.944						
11000020	WT CHANGE	29,895.3	7000	0.0	0.0	47.79993882	-102.96342970	2321.684			0.322	52000	0.72	
7010	WELD	29,895.3	7010	0.0	33.0	47.79993885	-102.96342970	2321.684						
7020	WELD	29,928.3	7020	0.0	42.2	47.80002896	-102.96343010	2320.340						
7030	WELD	29,970.5	7030	0.0	42.2	47.80014442	-102.96342931	2318.654						
7040	WELD	30,012.7	7040	0.0	42.2	47.80025925	-102.96342527	2315.105						
7050	WELD	30,055.0	7050	0.0	42.2	47.80037406	-102.96342053	2311.544						
7060	WELD	30,097.2	7060	0.0	42.2	47.80048905	-102.96341627	2308.954						
7070	WELD	30,139.4	7070	0.0	42.2	47.80060392	-102.96341640	2305.780						
7080	WELD	30,181.6	7080	0.0	42.2	47.80071896	-102.96341986	2303.152						
7090	WELD	30,223.8	7090	0.0	42.2	47.80083412	-102.96342270	2301.546						
7100	WELD	30,266.1	7100	0.0	42.2	47.80094915	-102.96342170	2298.539						
7110	WELD	30,308.3	7110	0.0	42.2	47.80106384	-102.96342665	2294.665						
7120	WELD	30,350.5	7120	0.0	42.2	47.80117853	-102.96343740	2291.434						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
7130	WELD	30,392.7	7130	0.0	42.3	47.80129352	-102.96343655	2288.652							
7140	WELD	30,435.0	7140	0.0	42.2	47.80140853	-102.96342940	2287.653							
7150	WELD	30,477.2	7150	0.0	42.2	47.80152372	-102.96343491	2287.954							
7160	WELD	30,519.5	7160	0.0	42.3	47.80163891	-102.96344087	2288.337							
7170	WELD	30,561.7	7170	0.0	42.2	47.80175385	-102.96344820	2290.719							
7180	WELD	30,604.0	7180	0.0	42.0	47.80186811	-102.96345857	2295.697							
11000021	WT CHANGE	30,646.0	7180	0.0	0.0	47.80198236	-102.96346542	2298.663				0.188	52000	0.72	
7190	WELD	30,646.0	7190	0.0	32.7	47.80198238	-102.96346542	2298.663							
7200	WELD	30,678.6	7200	0.0	49.1	47.80207146	-102.96347388	2299.298							
20000014	Seam Variation	30,720.8	7200	42.2	6.9	47.80218577	-102.96349459	2298.521	138	4:30	-	0.71	0.51		
7210	WELD	30,727.7	7210	0.0	49.4	47.80220430	-102.96349869	2298.267							
7220	WELD	30,777.1	7220	0.0	48.6	47.80233733	-102.96353188	2297.933							
7230	WELD	30,825.7	7230	0.0	49.4	47.80246813	-102.96356577	2299.609							
7240	WELD	30,875.1	7240	0.0	41.3	47.80260106	-102.96359674	2303.120							
7250	WELD	30,916.4	7250	0.0	45.1	47.80271335	-102.96361138	2303.395							
7260	WELD	30,961.6	7260	0.0	49.5	47.80283636	-102.96362480	2303.009							
7270	WELD	31,011.1	7270	0.0	49.5	47.80297088	-102.96364358	2303.746							
7280	WELD	31,060.5	7280	0.0	43.7	47.80310525	-102.96366004	2306.657							
11000022	WT CHANGE	31,104.3	7280	0.0	0.0	47.80322442	-102.96366818	2309.105				0.322	52000	0.72	
7290	WELD	31,104.3	7290	0.0	42.2	47.80322444	-102.96366818	2309.106							
7300	WELD	31,146.5	7300	0.0	42.2	47.80333947	-102.96367139	2311.823							
7310	WELD	31,188.8	7310	0.0	42.3	47.80345472	-102.96367420	2312.661							
7320	WELD	31,231.0	7320	0.0	42.2	47.80356964	-102.96367309	2309.343							
7330	WELD	31,273.3	7330	0.0	42.3	47.80368447	-102.96367480	2306.350							
7340	WELD	31,315.5	7340	0.0	42.3	47.80379958	-102.96368215	2305.474							
7350	WELD	31,357.8	7350	0.0	42.3	47.80391457	-102.96368670	2302.534							
7360	WELD	31,400.1	7360	0.0	42.2	47.80402897	-102.96370280	2299.823							
7370	WELD	31,442.3	7370	0.0	42.2	47.80414361	-102.96372028	2299.274							
7380	WELD	31,484.5	7380	0.0	42.3	47.80425896	-102.96372018	2299.467							
7390	WELD	31,526.8	7390	0.0	42.2	47.80437426	-102.96372198	2299.313							
7400	WELD	31,569.0	7400	0.0	42.2	47.80448946	-102.96372462	2299.557							
7410	WELD	31,611.3	7410	0.0	42.3	47.80460473	-102.96372371	2300.085							
7420	WELD	31,653.6	7420	0.0	42.3	47.80472000	-102.96372507	2300.095							
7430	WELD	31,695.8	7430	0.0	42.3	47.80483520	-102.96373077	2300.674							
7440	WELD	31,738.1	7440	0.0	42.2	47.80495042	-102.96373778	2301.455							
7450	WELD	31,780.3	7450	0.0	42.2	47.80506562	-102.96374220	2303.076							
7460	WELD	31,822.5	7460	0.0	42.2	47.80518022	-102.96373277	2307.464							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
7470	WELD	31,864.8	7470	0.0	42.3	47.80529496	-102.96372352	2310.991							
7480	WELD	31,907.1	7480	0.0	42.2	47.80541000	-102.96372369	2313.848							
7490	WELD	31,949.3	7490	0.0	42.2	47.80552489	-102.96372914	2317.152							
10000023	AGM 060, Sta. 307+82, 35' off edge of rd -- Han #104	31,965.9	7490	16.6	25.7	47.80556987	-102.96373059	2318.862							
7500	WELD	31,991.5	7500	0.0	31.5	47.80563960	-102.96373130	2321.845							
7510	WELD	32,023.1	7510	0.0	1.6	47.80572485	-102.96373260	2326.247							
10000024	Bend right - 45 deg., 3D	32,023.8	7510	0.1	1.5	47.80572679	-102.96373177	2326.323	0	12:00					
11000023	WT CHANGE	32,024.6	7510	0.0	0.0	47.80572865	-102.96373030	2326.384				0.188	52000	0.72	
7520	WELD	32,024.6	7520	0.0	36.1	47.80572867	-102.96373027	2326.385							
7530	WELD	32,060.7	7530	0.0	9.7	47.80580072	-102.96362961	2329.041							
7540	WELD	32,070.5	7540	0.0	41.2	47.80582062	-102.96360372	2329.854							
7550	WELD	32,111.6	7550	0.0	41.3	47.80590643	-102.96349642	2332.765							
7560	WELD	32,152.9	7560	0.0	41.4	47.80599597	-102.96339570	2336.675							
7570	WELD	32,194.3	7570	0.0	41.3	47.80609187	-102.96330830	2339.065							
7580	WELD	32,235.6	7580	0.0	41.2	47.80619714	-102.96324934	2337.577							
7590	WELD	32,276.8	7590	0.0	41.1	47.80630728	-102.96321426	2337.617							
7600	WELD	32,318.0	7600	0.0	41.1	47.80641828	-102.96319230	2341.234							
7610	WELD	32,359.1	7610	0.0	41.2	47.80652981	-102.96317728	2344.985							
7620	WELD	32,400.3	7620	0.0	40.1	47.80664216	-102.96317008	2346.706							
7630	WELD	32,440.4	7630	0.0	41.3	47.80675200	-102.96316780	2346.494							
7640	WELD	32,481.7	7640	0.0	41.2	47.80686487	-102.96316710	2347.923							
7650	WELD	32,522.9	7650	0.0	41.3	47.80697751	-102.96316875	2349.927							
7660	WELD	32,564.1	7660	0.0	41.3	47.80709026	-102.96317090	2349.722							
7670	WELD	32,605.4	7670	0.0	41.2	47.80720292	-102.96317070	2346.814							
7680	WELD	32,646.7	7680	0.0	41.1	47.80731560	-102.96317090	2344.741							
7690	WELD	32,687.8	7690	0.0	41.3	47.80742795	-102.96317090	2342.806							
7700	WELD	32,729.1	7700	0.0	41.4	47.80754084	-102.96317270	2341.570							
7710	WELD	32,770.5	7710	0.0	41.2	47.80765407	-102.96317495	2341.084							
7720	WELD	32,811.7	7720	0.0	41.3	47.80776680	-102.96317550	2341.089							
7730	WELD	32,853.0	7730	0.0	41.2	47.80787959	-102.96317640	2341.225							
7740	WELD	32,894.2	7740	0.0	41.3	47.80799216	-102.96317640	2340.919							
7750	WELD	32,935.5	7750	0.0	41.2	47.80810485	-102.96317650	2339.813							
7760	WELD	32,976.7	7760	0.0	41.3	47.80821745	-102.96317690	2338.124							
7770	WELD	33,017.9	7770	0.0	41.4	47.80833010	-102.96317680	2336.875							
7780	WELD	33,059.3	7780	0.0	40.6	47.80844304	-102.96318046	2334.969							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
7790	WELD	33,099.9	7790	0.0	41.3	47.80855376	-102.96318279	2333.609							
7800	WELD	33,141.2	7800	0.0	17.0	47.80866635	-102.96317749	2331.740							
11000024	WT CHANGE	33,158.2	7800	0.0	0.0	47.80871264	-102.96317541	2330.716				0.322	52000	0.72	
7810	WELD	33,158.2	7810	0.0	42.2	47.80871267	-102.96317541	2330.715							
7820	WELD	33,200.4	7820	0.0	42.3	47.80882778	-102.96317210	2327.571							
7830	WELD	33,242.7	7830	0.0	42.2	47.80894259	-102.96316970	2323.331							
7840	WELD	33,284.9	7840	0.0	42.3	47.80905780	-102.96316800	2321.386							
7850	WELD	33,327.1	7850	0.0	42.2	47.80917303	-102.96316700	2318.605							
7860	WELD	33,369.4	7860	0.0	42.3	47.80928816	-102.96317372	2316.534							
7870	WELD	33,411.7	7870	0.0	42.2	47.80940361	-102.96317271	2316.837							
14000000	DENT	33,435.4	7870	23.6	18.6	47.80946853	-102.96316802	2316.577	245	8:00	2.0%				
7880	WELD	33,453.9	7880	0.0	42.3	47.80951889	-102.96316590	2316.215							
7890	WELD	33,496.1	7890	0.0	42.3	47.80963427	-102.96316858	2315.452							
7900	WELD	33,538.4	7900	0.0	42.3	47.80974968	-102.96317313	2315.303							
7910	WELD	33,580.7	7910	0.0	42.1	47.80986513	-102.96317234	2316.723							
11000025	WT CHANGE	33,622.8	7910	0.0	0.0	47.80997956	-102.96316653	2320.336				0.188	52000	0.72	
7920	WELD	33,622.8	7920	0.0	22.1	47.80997959	-102.96316652	2320.337							
7930	WELD	33,644.9	7930	0.0	41.3	47.81003991	-102.96316154	2321.742							
7940	WELD	33,686.2	7940	0.0	41.3	47.81015246	-102.96315324	2322.511							
7950	WELD	33,727.6	7950	0.0	41.2	47.81026522	-102.96315525	2322.869							
7960	WELD	33,768.8	7960	0.0	41.4	47.81037767	-102.96316347	2322.152							
7970	WELD	33,810.2	7970	0.0	41.3	47.81049047	-102.96317099	2321.634							
7980	WELD	33,851.5	7980	0.0	41.3	47.81060336	-102.96317460	2321.483							
7990	WELD	33,892.8	7990	0.0	41.2	47.81071613	-102.96317710	2321.998							
8000	WELD	33,934.0	8000	0.0	41.2	47.81082879	-102.96317880	2321.621							
8010	WELD	33,975.2	8010	0.0	41.1	47.81094146	-102.96317809	2320.552							
8020	WELD	34,016.4	8020	0.0	41.2	47.81105391	-102.96317402	2319.501							
8030	WELD	34,057.5	8030	0.0	41.3	47.81116642	-102.96316590	2317.981							
8040	WELD	34,098.8	8040	0.0	41.3	47.81127907	-102.96315774	2316.172							
8050	WELD	34,140.0	8050	0.0	41.4	47.81139069	-102.96315417	2310.047							
8060	WELD	34,181.5	8060	0.0	41.3	47.81150284	-102.96315270	2304.791							
8070	WELD	34,222.8	8070	0.0	41.2	47.81161559	-102.96315240	2301.632							
8080	WELD	34,263.9	8080	0.0	41.2	47.81172810	-102.96315220	2299.848							
8090	WELD	34,305.1	8090	0.0	41.0	47.81184069	-102.96315431	2298.767							
8100	WELD	34,346.1	8100	0.0	41.2	47.81195276	-102.96315720	2297.369							
8110	WELD	34,387.3	8110	0.0	41.5	47.81206553	-102.96315820	2295.826							
8120	WELD	34,428.8	8120	0.0	41.4	47.81217908	-102.96315810	2295.329							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
8130	WELD	34,470.2	8130	0.0	41.2	47.81229224	-102.96315630	2294.959						
8140	WELD	34,511.4	8140	0.0	41.2	47.81240477	-102.96315385	2296.576						
8150	WELD	34,552.6	8150	0.0	41.2	47.81251732	-102.96315221	2297.491						
8160	WELD	34,593.8	8160	0.0	41.1	47.81262998	-102.96315150	2296.660						
8170	WELD	34,634.9	8170	0.0	41.2	47.81274229	-102.96315186	2294.316						
8180	WELD	34,676.1	8180	0.0	41.3	47.81285503	-102.96315250	2293.355						
8190	WELD	34,717.5	8190	0.0	41.1	47.81296779	-102.96315043	2292.923						
8200	WELD	34,758.6	8200	0.0	15.4	47.81308027	-102.96315010	2293.639						
11000026	WT CHANGE	34,774.0	8200	0.0	0.0	47.81312220	-102.96315023	2293.281			0.322	52000	0.72	
8210	WELD	34,774.0	8210	0.0	42.3	47.81312223	-102.96315023	2293.280						
8220	WELD	34,816.3	8220	0.0	42.2	47.81323762	-102.96315680	2291.723						
8230	WELD	34,858.5	8230	0.0	42.3	47.81335302	-102.96316200	2290.500						
8240	WELD	34,900.8	8240	0.0	42.3	47.81346713	-102.96315662	2285.023						
8250	WELD	34,943.0	8250	0.0	42.2	47.81357849	-102.96314224	2274.500						
8260	WELD	34,985.2	8260	0.0	42.2	47.81369077	-102.96313467	2264.957						
8270	WELD	35,027.5	8270	0.0	42.2	47.81380499	-102.96313340	2258.984						
8280	WELD	35,069.7	8280	0.0	42.2	47.81392017	-102.96313761	2256.480						
8290	WELD	35,111.9	8290	0.0	42.2	47.81403550	-102.96314539	2256.341						
8300	WELD	35,154.1	8300	0.0	42.2	47.81415087	-102.96315082	2257.771						
8310	WELD	35,196.4	8310	0.0	42.3	47.81426619	-102.96315355	2259.882						
8320	WELD	35,238.6	8320	0.0	42.2	47.81438140	-102.96315610	2261.943						
8330	WELD	35,280.9	8330	0.0	42.3	47.81449686	-102.96315779	2263.864						
8340	WELD	35,323.1	8340	0.0	42.2	47.81461211	-102.96315840	2266.473						
8350	WELD	35,365.4	8350	0.0	42.2	47.81472722	-102.96315940	2269.832						
8360	WELD	35,407.6	8360	0.0	41.7	47.81484225	-102.96315946	2273.510						
11000027	WT CHANGE	35,449.3	8360	0.0	0.0	47.81495573	-102.96316679	2276.076			0.188	52000	0.72	
8370	WELD	35,449.3	8370	0.0	15.6	47.81495576	-102.96316679	2276.077						
8380	WELD	35,464.9	8380	0.0	41.1	47.81499845	-102.96316820	2276.537						
8390	WELD	35,506.0	8390	0.0	41.2	47.81511104	-102.96316619	2277.771						
8400	WELD	35,547.2	8400	0.0	41.6	47.81522358	-102.96316560	2278.894						
8410	WELD	35,588.8	8410	0.0	41.3	47.81533701	-102.96316400	2280.358						
8420	WELD	35,630.1	8420	0.0	41.2	47.81544994	-102.96316290	2281.324						
8430	WELD	35,671.3	8430	0.0	41.1	47.81556275	-102.96316216	2282.229						
8440	WELD	35,712.4	8440	0.0	41.1	47.81567523	-102.96316100	2281.754						
8450	WELD	35,753.5	8450	0.0	41.3	47.81578741	-102.96315966	2279.803						
8460	WELD	35,794.8	8460	0.0	41.4	47.81590029	-102.96315761	2279.196						
8470	WELD	35,836.1	8470	0.0	41.2	47.81601325	-102.96315507	2279.146						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
8480	WELD	35,877.3	8480	0.0	41.3	47.81612575	-102.96315302	2280.217						
8490	WELD	35,918.6	8490	0.0	41.2	47.81623837	-102.96315050	2279.417						
8500	WELD	35,959.8	8500	0.0	41.3	47.81635069	-102.96314768	2281.660						
8510	WELD	36,001.1	8510	0.0	41.3	47.81646326	-102.96314480	2284.568						
8520	WELD	36,042.3	8520	0.0	41.2	47.81657558	-102.96314390	2287.205						
8530	WELD	36,083.5	8530	0.0	41.3	47.81668786	-102.96314390	2289.521						
8540	WELD	36,124.8	8540	0.0	41.2	47.81680044	-102.96314503	2291.841						
8550	WELD	36,166.0	8550	0.0	41.3	47.81691278	-102.96314858	2293.562						
8560	WELD	36,207.3	8560	0.0	41.2	47.81702559	-102.96315064	2294.478						
8570	WELD	36,248.6	8570	0.0	39.9	47.81713810	-102.96315150	2294.986						
8580	WELD	36,288.4	8580	0.0	40.7	47.81724707	-102.96315160	2295.823						
8590	WELD	36,329.1	8590	0.0	41.3	47.81735789	-102.96315130	2298.583						
8600	WELD	36,370.4	8600	0.0	41.3	47.81747003	-102.96315190	2302.545						
8610	WELD	36,411.6	8610	0.0	41.4	47.81758281	-102.96315380	2303.607						
8620	WELD	36,453.1	8620	0.0	41.3	47.81769595	-102.96315512	2303.712						
8630	WELD	36,494.4	8630	0.0	41.0	47.81780880	-102.96315540	2304.664						
8640	WELD	36,535.4	8640	0.0	41.2	47.81792095	-102.96315480	2304.993						
8650	WELD	36,576.6	8650	0.0	41.2	47.81803355	-102.96315620	2304.995						
8660	WELD	36,617.8	8660	0.0	37.8	47.81814613	-102.96315300	2306.378						
10000025	AGM 070, Sta. 354+82, 133' off center of rd -- Survey Point	36,652.2	8660	34.4	3.4	47.81824011	-102.96314938	2306.900						
11000028	WT CHANGE	36,655.6	8660	0.0	0.0	47.81824949	-102.96314888	2306.823			0.322	52000	0.72	
8670	WELD	36,655.7	8670	0.0	36.1	47.81824952	-102.96314888	2306.823						
8680	WELD	36,691.7	8680	0.0	42.3	47.81834806	-102.96314542	2306.418						
8690	WELD	36,734.0	8690	0.0	42.2	47.81846326	-102.96314573	2308.675						
8700	WELD	36,776.2	8700	0.0	42.2	47.81857823	-102.96314562	2312.369						
8710	WELD	36,818.5	8710	0.0	42.3	47.81869278	-102.96313533	2317.025						
8720	WELD	36,860.7	8720	0.0	42.3	47.81880646	-102.96315144	2321.568						
8730	WELD	36,903.0	8730	0.0	42.2	47.81890769	-102.96323234	2323.795						
8740	WELD	36,945.3	8740	0.0	42.2	47.81900235	-102.96332960	2327.013						
8750	WELD	36,987.5	8750	0.0	42.3	47.81909824	-102.96342477	2328.552						
8760	WELD	37,029.7	8760	0.0	42.2	47.81919594	-102.96351613	2329.853						
8770	WELD	37,072.0	8770	0.0	42.2	47.81929386	-102.96360661	2331.695						
11000029	WT CHANGE	37,114.2	8770	0.0	0.0	47.81939185	-102.96369637	2335.029			0.188	52000	0.72	
8780	WELD	37,114.2	8780	0.0	25.0	47.81939187	-102.96369639	2335.029						
8790	WELD	37,139.2	8790	0.0	41.2	47.81945002	-102.96374941	2336.282						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
8800	WELD	37,180.4	8800	0.0	41.3	47.81954564	-102.96383720	2338.292							
8810	WELD	37,221.7	8810	0.0	41.6	47.81964097	-102.96392687	2338.748							
8820	WELD	37,263.2	8820	0.0	41.3	47.81973638	-102.96401798	2339.584							
8830	WELD	37,304.5	8830	0.0	41.0	47.81983171	-102.96410750	2339.708							
8840	WELD	37,345.6	8840	0.0	41.4	47.81992601	-102.96419743	2339.644							
8850	WELD	37,386.9	8850	0.0	41.2	47.82001994	-102.96429081	2339.749							
8860	WELD	37,428.1	8860	0.0	41.2	47.82011327	-102.96438471	2339.982							
8870	WELD	37,469.4	8870	0.0	41.3	47.82020672	-102.96447820	2341.836							
8880	WELD	37,510.6	8880	0.0	41.2	47.82030073	-102.96457024	2343.813							
8890	WELD	37,551.8	8890	0.0	41.2	47.82039494	-102.96466167	2346.396							
8900	WELD	37,593.0	8900	0.0	41.3	47.82048888	-102.96475294	2348.912							
8910	WELD	37,634.3	8910	0.0	41.4	47.82058361	-102.96484384	2351.259							
8920	WELD	37,675.7	8920	0.0	41.2	47.82067898	-102.96493407	2352.023							
8930	WELD	37,716.9	8930	0.0	41.2	47.82077428	-102.96502317	2352.374							
8940	WELD	37,758.1	8940	0.0	41.6	47.82087014	-102.96511129	2353.249							
8950	WELD	37,799.8	8950	0.0	41.2	47.82096651	-102.96520071	2354.774							
8960	WELD	37,841.0	8960	0.0	41.3	47.82106107	-102.96529121	2356.478							
8970	WELD	37,882.3	8970	0.0	41.2	47.82115538	-102.96538319	2357.698							
8980	WELD	37,923.5	8980	0.0	41.4	47.82124971	-102.96547424	2359.364							
8990	WELD	37,964.9	8990	0.0	41.4	47.82134512	-102.96556378	2361.274							
9000	WELD	38,006.2	9000	0.0	41.4	47.82144043	-102.96565321	2363.160							
9010	WELD	38,047.6	9010	0.0	41.5	47.82153605	-102.96574256	2365.060							
9020	WELD	38,089.1	9020	0.0	41.4	47.82163160	-102.96583204	2367.754							
9030	WELD	38,130.5	9030	0.0	41.4	47.82172715	-102.96592129	2369.428							
9040	WELD	38,171.9	9040	0.0	41.4	47.82182302	-102.96601032	2370.050							
9050	WELD	38,213.3	9050	0.0	41.3	47.82191902	-102.96609852	2370.976							
40000010	Metal Loss - EXTERNAL	38,238.5	9050	25.2	16.1	47.82197729	-102.96615290	2371.230	77	2:30	10%	0.33	0.57	1760	100%
9060	WELD	38,254.5	9060	0.0	41.2	47.82201437	-102.96618790	2371.240							
9070	WELD	38,295.8	9070	0.0	39.8	47.82210890	-102.96627883	2371.096							
9080	WELD	38,335.6	9080	0.0	41.5	47.82219638	-102.96637450	2371.038							
9090	WELD	38,377.1	9090	0.0	41.8	47.82228302	-102.96648300	2370.133							
9100	WELD	38,419.0	9100	0.0	41.3	47.82235883	-102.96660923	2368.939							
9110	WELD	38,460.3	9110	0.0	41.3	47.82241769	-102.96675161	2367.333							
9120	WELD	38,501.7	9120	0.0	41.3	47.82246819	-102.96690135	2365.165							
9130	WELD	38,542.9	9130	0.0	41.3	47.82252174	-102.96704870	2363.740							
9140	WELD	38,584.2	9140	0.0	41.3	47.82257496	-102.96719646	2362.832							
9150	WELD	38,625.5	9150	0.0	41.2	47.82262737	-102.96734474	2361.432							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
9160	WELD	38,666.7	9160	0.0	41.2	47.82267984	-102.96749275	2360.455							
9170	WELD	38,707.9	9170	0.0	41.3	47.82273246	-102.96764095	2359.446							
9180	WELD	38,749.2	9180	0.0	41.2	47.82278506	-102.96778926	2358.228							
9190	WELD	38,790.4	9190	0.0	41.1	47.82283646	-102.96793812	2357.145							
9200	WELD	38,831.5	9200	0.0	41.5	47.82288823	-102.96808640	2356.073							
9210	WELD	38,873.0	9210	0.0	41.2	47.82294009	-102.96823627	2354.093							
9220	WELD	38,914.2	9220	0.0	41.1	47.82299188	-102.96838451	2352.487							
9230	WELD	38,955.3	9230	0.0	41.2	47.82304418	-102.96853224	2350.835							
9240	WELD	38,996.5	9240	0.0	41.4	47.82309634	-102.96867978	2347.929							
9250	WELD	39,037.9	9250	0.0	41.1	47.82314975	-102.96882786	2346.202							
9260	WELD	39,079.0	9260	0.0	41.1	47.82320308	-102.96897485	2344.779							
9270	WELD	39,120.2	9270	0.0	41.3	47.82325462	-102.96912323	2343.752							
9280	WELD	39,161.5	9280	0.0	41.2	47.82330595	-102.96927244	2342.325							
9290	WELD	39,202.7	9290	0.0	41.2	47.82335737	-102.96942126	2340.906							
9300	WELD	39,243.9	9300	0.0	41.5	47.82340872	-102.96956997	2339.954							
9310	WELD	39,285.4	9310	0.0	41.1	47.82346075	-102.96971939	2339.176							
9320	WELD	39,326.5	9320	0.0	41.3	47.82351341	-102.96986691	2338.178							
9330	WELD	39,367.7	9330	0.0	41.1	47.82356684	-102.97001440	2337.191							
9340	WELD	39,408.9	9340	0.0	41.3	47.82361974	-102.97016160	2335.872							
9350	WELD	39,450.1	9350	0.0	41.2	47.82367209	-102.97030992	2334.837							
9360	WELD	39,491.4	9360	0.0	41.2	47.82372503	-102.97045754	2333.376							
9370	WELD	39,532.5	9370	0.0	41.2	47.82377770	-102.97060534	2332.411							
40000011	Metal Loss - INTERNAL	39,535.7	9370	3.1	38.0	47.82378173	-102.97061670	2332.291	172	5:30	13%	0.40	0.57	1760	100%
9380	WELD	39,573.7	9380	0.0	41.2	47.82383082	-102.97075258	2330.864							
9390	WELD	39,614.9	9390	0.0	41.2	47.82388412	-102.97090008	2330.512							
9400	WELD	39,656.1	9400	0.0	41.1	47.82393700	-102.97104771	2330.290							
9410	WELD	39,697.3	9410	0.0	41.1	47.82398905	-102.97119576	2328.561							
9420	WELD	39,738.4	9420	0.0	41.1	47.82404103	-102.97134369	2326.964							
9430	WELD	39,779.5	9430	0.0	41.4	47.82409319	-102.97149182	2325.938							
9440	WELD	39,821.0	9440	0.0	41.2	47.82414568	-102.97164085	2324.974							
9450	WELD	39,862.2	9450	0.0	41.3	47.82419838	-102.97178869	2323.208							
9460	WELD	39,903.5	9460	0.0	41.0	47.82425141	-102.97193652	2323.001							
9470	WELD	39,944.5	9470	0.0	41.3	47.82430420	-102.97208334	2322.218							
9480	WELD	39,985.8	9480	0.0	41.2	47.82435744	-102.97223130	2321.918							
9490	WELD	40,027.0	9490	0.0	41.3	47.82441035	-102.97237887	2321.011							
9500	WELD	40,068.3	9500	0.0	41.3	47.82446368	-102.97252689	2321.100							
9510	WELD	40,109.6	9510	0.0	41.2	47.82451683	-102.97267470	2320.848							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
9520	WELD	40,150.8	9520	0.0	41.2	47.82456966	-102.97282252	2321.193							
9530	WELD	40,191.9	9530	0.0	41.3	47.82462263	-102.97296997	2320.895							
9540	WELD	40,233.2	9540	0.0	41.1	47.82467560	-102.97311803	2321.549							
40000012	Metal Loss - INTERNAL	40,270.5	9540	37.3	3.8	47.82472317	-102.97325196	2321.667	106	3:30	12%	0.48	0.41	1760	100%
9550	WELD	40,274.3	9550	0.0	41.1	47.82472800	-102.97326551	2321.624							
9560	WELD	40,315.4	9560	0.0	41.2	47.82478043	-102.97341330	2322.036							
9570	WELD	40,356.6	9570	0.0	41.2	47.82483304	-102.97356138	2323.268							
9580	WELD	40,397.8	9580	0.0	41.5	47.82488475	-102.97370983	2324.134							
9590	WELD	40,439.3	9590	0.0	41.2	47.82493669	-102.97385961	2325.228							
9600	WELD	40,480.5	9600	0.0	41.8	47.82498763	-102.97400886	2326.290							
9610	WELD	40,522.3	9610	0.0	41.2	47.82503766	-102.97416123	2327.811							
9620	WELD	40,563.5	9620	0.0	41.3	47.82508429	-102.97431335	2329.138							
9630	WELD	40,604.8	9630	0.0	41.3	47.82512469	-102.97446945	2329.252							
9640	WELD	40,646.1	9640	0.0	41.3	47.82515473	-102.97463079	2328.291							
9650	WELD	40,687.3	9650	0.0	41.1	47.82517521	-102.97479549	2327.800							
9660	WELD	40,728.5	9660	0.0	41.4	47.82519324	-102.97496033	2327.528							
9670	WELD	40,769.8	9670	0.0	41.4	47.82521154	-102.97512581	2327.945							
9680	WELD	40,811.2	9680	0.0	41.2	47.82522859	-102.97529167	2327.931							
9690	WELD	40,852.3	9690	0.0	41.3	47.82524532	-102.97545688	2327.717							
9700	WELD	40,893.6	9700	0.0	41.6	47.82526205	-102.97562247	2328.208							
9710	WELD	40,935.2	9710	0.0	41.2	47.82527902	-102.97578936	2327.615							
9720	WELD	40,976.4	9720	0.0	41.4	47.82529577	-102.97595444	2326.383							
9730	WELD	41,017.8	9730	0.0	41.3	47.82531324	-102.97612030	2325.597							
9740	WELD	41,059.1	9740	0.0	41.3	47.82532993	-102.97628599	2325.392							
9750	WELD	41,100.4	9750	0.0	41.2	47.82534624	-102.97645183	2325.498							
9760	WELD	41,141.6	9760	0.0	41.2	47.82536170	-102.97661734	2325.008							
9770	WELD	41,182.8	9770	0.0	41.4	47.82537693	-102.97678301	2324.319							
9780	WELD	41,224.2	9780	0.0	41.6	47.82539269	-102.97694919	2324.675							
9790	WELD	41,265.8	9790	0.0	41.3	47.82540904	-102.97711612	2324.236							
9800	WELD	41,307.1	9800	0.0	41.3	47.82542672	-102.97728168	2323.434							
9810	WELD	41,348.4	9810	0.0	41.2	47.82544403	-102.97744716	2322.863							
9820	WELD	41,389.7	9820	0.0	41.1	47.82545994	-102.97761272	2322.146							
9830	WELD	41,430.8	9830	0.0	41.3	47.82547555	-102.97777802	2320.891							
9840	WELD	41,472.1	9840	0.0	41.4	47.82549045	-102.97794412	2319.926							
9850	WELD	41,513.5	9850	0.0	41.5	47.82550407	-102.97811045	2318.385							
9860	WELD	41,555.0	9860	0.0	41.4	47.82551724	-102.97827773	2317.296							
9870	WELD	41,596.5	9870	0.0	41.6	47.82553034	-102.97844468	2316.454							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
9880	WELD	41,638.0	9880	0.0	41.1	47.82554407	-102.97861184	2315.085							
9890	WELD	41,679.2	9890	0.0	31.8	47.82555421	-102.97877788	2313.880							
9900	WELD	41,710.9	9900	0.0	9.5	47.82555939	-102.97890614	2312.629							
10000026	Bend right - 90 deg., 8D	41,715.3	9900	1.2	8.3	47.82556294	-102.97892251	2312.492	0	12:00					
9910	WELD	41,720.5	9910	0.0	20.4	47.82557599	-102.97892740	2312.497							
9920	WELD	41,740.9	9920	0.0	41.0	47.82563206	-102.97892508	2312.325							
9930	WELD	41,781.9	9930	0.0	41.4	47.82574398	-102.97892299	2311.761							
10000117	AGM 080, Sta. 405+99, On fence line by AGM -- Survey Point	41,796.1	9930	14.2	27.2	47.82578264	-102.97892218	2311.836							
9940	WELD	41,823.3	9940	0.0	41.3	47.82585674	-102.97892000	2312.430							
9950	WELD	41,864.6	9950	0.0	41.2	47.82596952	-102.97891780	2311.103							
9960	WELD	41,905.8	9960	0.0	41.3	47.82608188	-102.97891750	2310.143							
9970	WELD	41,947.1	9970	0.0	41.3	47.82619463	-102.97891970	2308.926							
9980	WELD	41,988.5	9980	0.0	41.3	47.82630746	-102.97892157	2308.388							
9990	WELD	42,029.8	9990	0.0	41.3	47.82642022	-102.97892360	2308.632							
10000	WELD	42,071.1	10000	0.0	41.2	47.82653308	-102.97892440	2309.728							
10010	WELD	42,112.3	10010	0.0	41.3	47.82664563	-102.97892540	2309.587							
10020	WELD	42,153.6	10020	0.0	41.1	47.82675844	-102.97892500	2311.199							
10030	WELD	42,194.7	10030	0.0	41.3	47.82687080	-102.97892560	2312.188							
10040	WELD	42,236.0	10040	0.0	41.2	47.82698370	-102.97892520	2311.986							
10050	WELD	42,277.2	10050	0.0	41.2	47.82709621	-102.97892384	2310.792							
10060	WELD	42,318.4	10060	0.0	41.3	47.82720858	-102.97892350	2309.676							
10070	WELD	42,359.7	10070	0.0	41.3	47.82732140	-102.97892360	2308.183							
10080	WELD	42,401.0	10080	0.0	41.4	47.82743406	-102.97892320	2305.671							
10090	WELD	42,442.4	10090	0.0	41.1	47.82754703	-102.97892156	2304.178							
10100	WELD	42,483.5	10100	0.0	41.3	47.82765937	-102.97891960	2303.399							
10110	WELD	42,524.8	10110	0.0	41.8	47.82777217	-102.97891780	2302.481							
10120	WELD	42,566.6	10120	0.0	41.3	47.82788655	-102.97891630	2302.245							
10130	WELD	42,607.9	10130	0.0	41.7	47.82799933	-102.97891540	2302.054							
10140	WELD	42,649.6	10140	0.0	41.1	47.82811328	-102.97891540	2301.842							
10150	WELD	42,690.7	10150	0.0	41.2	47.82822562	-102.97891560	2301.699							
10160	WELD	42,731.9	10160	0.0	41.3	47.82833814	-102.97891670	2300.827							
10170	WELD	42,773.1	10170	0.0	41.1	47.82845094	-102.97891670	2299.630							
10180	WELD	42,814.3	10180	0.0	41.1	47.82856331	-102.97891570	2298.454							
10190	WELD	42,855.4	10190	0.0	41.5	47.82867566	-102.97891400	2297.940							
10200	WELD	42,896.9	10200	0.0	41.3	47.82878900	-102.97891310	2296.548							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
10210	WELD	42,938.2	10210	0.0	41.1	47.82890183	-102.97891220	2295.819							
10220	WELD	42,979.3	10220	0.0	41.1	47.82901414	-102.97891150	2294.957							
10230	WELD	43,020.4	10230	0.0	41.2	47.82912656	-102.97891170	2294.334							
10240	WELD	43,061.6	10240	0.0	41.3	47.82923911	-102.97891306	2293.407							
10250	WELD	43,102.9	10250	0.0	41.1	47.82935192	-102.97891400	2293.503							
10260	WELD	43,144.0	10260	0.0	41.3	47.82946449	-102.97891450	2293.034							
10270	WELD	43,185.3	10270	0.0	41.1	47.82957722	-102.97891440	2292.422							
10280	WELD	43,226.4	10280	0.0	41.4	47.82968947	-102.97891490	2292.130							
10290	WELD	43,267.7	10290	0.0	41.3	47.82980232	-102.97891701	2291.418							
10300	WELD	43,309.0	10300	0.0	40.5	47.82991506	-102.97891999	2290.354							
10310	WELD	43,349.5	10310	0.0	41.1	47.83002564	-102.97892287	2289.290							
10320	WELD	43,390.6	10320	0.0	41.2	47.83013798	-102.97892463	2288.423							
10330	WELD	43,431.8	10330	0.0	41.3	47.83025055	-102.97892540	2287.892							
10340	WELD	43,473.0	10340	0.0	41.2	47.83036331	-102.97892410	2287.897							
10350	WELD	43,514.3	10350	0.0	41.1	47.83047585	-102.97892290	2288.962							
10360	WELD	43,555.4	10360	0.0	41.2	47.83058823	-102.97892400	2289.584							
10370	WELD	43,596.6	10370	0.0	41.2	47.83070081	-102.97892550	2289.735							
10380	WELD	43,637.7	10380	0.0	41.2	47.83081325	-102.97892670	2289.285							
10390	WELD	43,678.9	10390	0.0	41.2	47.83092584	-102.97892820	2288.811							
10400	WELD	43,720.2	10400	0.0	41.6	47.83103848	-102.97892972	2288.839							
10410	WELD	43,761.7	10410	0.0	41.3	47.83115204	-102.97893040	2288.726							
10420	WELD	43,803.0	10420	0.0	40.4	47.83126478	-102.97892960	2289.203							
10430	WELD	43,843.4	10430	0.0	41.2	47.83137510	-102.97892910	2289.126							
10440	WELD	43,884.6	10440	0.0	41.2	47.83148773	-102.97892831	2289.346							
10450	WELD	43,925.7	10450	0.0	40.9	47.83160026	-102.97892416	2288.694							
10460	WELD	43,966.6	10460	0.0	40.3	47.83171188	-102.97892020	2288.694							
10470	WELD	44,007.0	10470	0.0	41.3	47.83182206	-102.97891821	2289.689							
10480	WELD	44,048.2	10480	0.0	41.0	47.83193487	-102.97891830	2290.285							
10490	WELD	44,089.2	10490	0.0	40.4	47.83204676	-102.97892112	2291.658							
10500	WELD	44,129.7	10500	0.0	40.4	47.83215711	-102.97892613	2293.012							
10510	WELD	44,170.1	10510	0.0	40.5	47.83226747	-102.97893144	2294.876							
40000013	Metal Loss - EXTERNAL	44,184.9	10510	14.8	25.7	47.83230798	-102.97893339	2295.752	333	11:00	10%	1.14	0.56	1760	100%
10520	WELD	44,210.6	10520	0.0	40.5	47.83237808	-102.97893470	2297.395							
10530	WELD	44,251.1	10530	0.0	33.9	47.83248852	-102.97892938	2300.060							
10540	WELD	44,285.0	10540	0.0	41.1	47.83258095	-102.97892219	2301.572							
10550	WELD	44,326.1	10550	0.0	41.3	47.83269331	-102.97891649	2301.657							
10560	WELD	44,367.4	10560	0.0	41.3	47.83280605	-102.97891200	2301.549							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
10570	WELD	44,408.7	10570	0.0	41.2	47.83291873	-102.97890755	2300.641						
10580	WELD	44,449.9	10580	0.0	40.4	47.83303131	-102.97890510	2300.009						
10590	WELD	44,490.3	10590	0.0	41.2	47.83314149	-102.97890390	2298.105						
10600	WELD	44,531.5	10600	0.0	40.3	47.83325391	-102.97890490	2297.066						
10610	WELD	44,571.8	10610	0.0	41.3	47.83336411	-102.97890760	2297.352						
10620	WELD	44,613.1	10620	0.0	41.3	47.83347657	-102.97890980	2297.465						
10630	WELD	44,654.4	10630	0.0	41.2	47.83358953	-102.97891050	2297.657						
10640	WELD	44,695.6	10640	0.0	41.0	47.83370200	-102.97891060	2297.606						
10650	WELD	44,736.7	10650	0.0	41.4	47.83381420	-102.97891040	2297.745						
10660	WELD	44,778.1	10660	0.0	40.8	47.83392706	-102.97891110	2298.134						
10670	WELD	44,818.8	10670	0.0	41.4	47.83403835	-102.97891100	2299.287						
10680	WELD	44,860.2	10680	0.0	41.2	47.83415098	-102.97891169	2302.697						
10690	WELD	44,901.4	10690	0.0	41.2	47.83426299	-102.97891210	2306.594						
10700	WELD	44,942.6	10700	0.0	41.1	47.83437535	-102.97891280	2308.773						
10710	WELD	44,983.7	10710	0.0	41.2	47.83448757	-102.97891379	2310.497						
10720	WELD	45,024.9	10720	0.0	41.1	47.83460020	-102.97891560	2311.450						
10730	WELD	45,066.0	10730	0.0	41.3	47.83471265	-102.97891610	2312.767						
10740	WELD	45,107.3	10740	0.0	41.2	47.83482511	-102.97891520	2315.358						
10750	WELD	45,148.5	10750	0.0	41.4	47.83493776	-102.97891241	2317.370						
10760	WELD	45,189.9	10760	0.0	41.1	47.83505069	-102.97890853	2319.393						
10770	WELD	45,231.1	10770	0.0	41.2	47.83516303	-102.97890446	2321.399						
10780	WELD	45,272.3	10780	0.0	41.2	47.83527547	-102.97890190	2323.044						
10790	WELD	45,313.5	10790	0.0	41.2	47.83538816	-102.97890210	2322.835						
10800	WELD	45,354.7	10800	0.0	41.1	47.83550059	-102.97890350	2322.441						
10810	WELD	45,395.8	10810	0.0	41.2	47.83561290	-102.97890290	2320.634						
10820	WELD	45,437.0	10820	0.0	41.2	47.83572532	-102.97890200	2319.173						
10830	WELD	45,478.2	10830	0.0	41.2	47.83583773	-102.97890250	2319.244						
10840	WELD	45,519.4	10840	0.0	41.2	47.83595023	-102.97890546	2319.324						
10850	WELD	45,560.6	10850	0.0	41.3	47.83606246	-102.97890964	2322.020						
10860	WELD	45,601.9	10860	0.0	41.3	47.83617477	-102.97891368	2326.236						
10870	WELD	45,643.2	10870	0.0	30.9	47.83628746	-102.97891872	2328.162						
10880	WELD	45,674.1	10880	0.0	38.1	47.83637191	-102.97892060	2328.693						
10890	WELD	45,712.2	10890	0.0	41.3	47.83647597	-102.97891619	2328.165						
10900	WELD	45,753.5	10900	0.0	40.9	47.83658770	-102.97889276	2326.367						
10910	WELD	45,794.3	10910	0.0	41.3	47.83669359	-102.97884112	2322.967						
10920	WELD	45,835.6	10920	0.0	41.3	47.83679147	-102.97876005	2318.000						
10930	WELD	45,877.0	10930	0.0	41.4	47.83688199	-102.97866335	2311.593						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
10940	WELD	45,918.3	10940	0.0	41.3	47.83697255	-102.97856567	2306.216							
10950	WELD	45,959.6	10950	0.0	41.4	47.83706507	-102.97847057	2302.551							
10960	WELD	46,001.0	10960	0.0	41.3	47.83715905	-102.97837847	2299.886							
10970	WELD	46,042.3	10970	0.0	41.4	47.83725272	-102.97828491	2297.787							
10980	WELD	46,083.7	10980	0.0	41.4	47.83734515	-102.97818899	2296.441							
10990	WELD	46,125.1	10990	0.0	36.4	47.83743811	-102.97809386	2295.671							
11000	WELD	46,161.5	11000	0.0	9.7	47.83752044	-102.97801108	2295.739							
11010	WELD	46,171.2	11010	0.0	1.6	47.83754227	-102.97798907	2295.988							
10000027	Bend left - 45 deg., 3D	46,172.0	11010	0.1	1.5	47.83754419	-102.97798808	2296.003	0	12:00					
11020	WELD	46,172.8	11020	0.0	11.2	47.83754633	-102.97798800	2296.013							
11030	WELD	46,184.0	11030	0.0	35.8	47.83757648	-102.97799634	2296.048							
11040	WELD	46,219.8	11040	0.0	41.4	47.83767248	-102.97802461	2295.430							
11050	WELD	46,261.2	11050	0.0	41.4	47.83778264	-102.97806017	2294.358							
11060	WELD	46,302.6	11060	0.0	41.3	47.83789296	-102.97809652	2293.362							
11070	WELD	46,343.9	11070	0.0	41.3	47.83800319	-102.97813210	2292.381							
11080	WELD	46,385.2	11080	0.0	41.4	47.83811346	-102.97816712	2291.673							
11090	WELD	46,426.5	11090	0.0	41.4	47.83822392	-102.97820246	2291.158							
11100	WELD	46,467.9	11100	0.0	41.4	47.83833433	-102.97823663	2291.280							
11110	WELD	46,509.3	11110	0.0	41.4	47.83844453	-102.97827212	2291.557							
11120	WELD	46,550.6	11120	0.0	41.3	47.83855439	-102.97831120	2291.689							
11130	WELD	46,591.9	11130	0.0	41.4	47.83866378	-102.97835279	2291.752							
11140	WELD	46,633.3	11140	0.0	41.4	47.83877327	-102.97839397	2292.355							
11150	WELD	46,674.7	11150	0.0	41.3	47.83888301	-102.97843421	2292.950							
11160	WELD	46,716.0	11160	0.0	41.3	47.83899268	-102.97847456	2293.202							
11170	WELD	46,757.4	11170	0.0	41.4	47.83910262	-102.97851370	2293.211							
11180	WELD	46,798.7	11180	0.0	41.4	47.83921274	-102.97855183	2293.505							
11190	WELD	46,840.1	11190	0.0	41.4	47.83932314	-102.97858903	2293.835							
11200	WELD	46,881.5	11200	0.0	41.3	47.83943350	-102.97862470	2292.968							
11210	WELD	46,922.8	11210	0.0	41.3	47.83954401	-102.97865900	2293.303							
11220	WELD	46,964.1	11220	0.0	41.3	47.83965468	-102.97869191	2293.570							
11230	WELD	47,005.5	11230	0.0	41.4	47.83976533	-102.97872529	2293.844							
11240	WELD	47,046.9	11240	0.0	41.3	47.83987585	-102.97875969	2294.267							
11250	WELD	47,088.2	11250	0.0	41.4	47.83998581	-102.97879705	2294.423							
11260	WELD	47,129.5	11260	0.0	41.3	47.84009582	-102.97883510	2293.989							
11270	WELD	47,170.9	11270	0.0	41.4	47.84020574	-102.97887333	2294.419							
10000028	AGM 090, Sta. 459+32. On fence line -- Han #116	47,193.9	11270	23.0	18.3	47.84026706	-102.97889397	2294.872							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
11280	WELD	47,212.2	11280	0.0	41.4	47.84031591	-102.97891038	2294.917						
11290	WELD	47,253.6	11290	0.0	41.3	47.84042557	-102.97895051	2294.518						
11300	WELD	47,294.9	11300	0.0	41.3	47.84053360	-102.97899863	2294.600						
11310	WELD	47,336.2	11310	0.0	41.2	47.84064053	-102.97905274	2294.831						
11320	WELD	47,377.5	11320	0.0	41.3	47.84074688	-102.97910843	2295.644						
11330	WELD	47,418.8	11330	0.0	41.4	47.84085303	-102.97916512	2296.497						
11340	WELD	47,460.1	11340	0.0	41.3	47.84095935	-102.97922189	2297.460						
11350	WELD	47,501.4	11350	0.0	41.4	47.84106529	-102.97927897	2298.501						
11360	WELD	47,542.8	11360	0.0	41.3	47.84117093	-102.97933808	2299.004						
11370	WELD	47,584.1	11370	0.0	41.4	47.84127659	-102.97939724	2299.846						
11380	WELD	47,625.4	11380	0.0	41.3	47.84138246	-102.97945556	2300.227						
11390	WELD	47,666.7	11390	0.0	41.3	47.84148843	-102.97951288	2300.785						
11400	WELD	47,708.0	11400	0.0	41.3	47.84159437	-102.97957016	2301.997						
11410	WELD	47,749.3	11410	0.0	41.3	47.84170039	-102.97962812	2302.819						
11420	WELD	47,790.7	11420	0.0	41.4	47.84180608	-102.97968754	2303.978						
11430	WELD	47,832.1	11430	0.0	41.3	47.84191148	-102.97974810	2305.650						
11440	WELD	47,873.4	11440	0.0	40.9	47.84201495	-102.97981464	2307.588						
11450	WELD	47,914.4	11450	0.0	23.5	47.84211467	-102.97988922	2308.548						
11460	WELD	47,937.8	11460	0.0	1.6	47.84217005	-102.97993702	2308.829						
10000029	Bend left - 45 deg., 3D	47,938.6	11460	0.1	1.5	47.84217139	-102.97993935	2308.836	0 12:00					
11470	WELD	47,939.4	11470	0.0	44.5	47.84217234	-102.97994210	2308.839						
11480	WELD	47,983.9	11480	0.0	39.0	47.84219831	-102.98011988	2309.128						
11490	WELD	48,022.9	11490	0.0	46.3	47.84221568	-102.98027566	2310.187						
11500	WELD	48,069.1	11500	0.0	49.5	47.84223311	-102.98046165	2310.716						
11510	WELD	48,118.6	11510	0.0	49.5	47.84224990	-102.98066093	2311.319						
11520	WELD	48,168.2	11520	0.0	49.6	47.84226769	-102.98086015	2311.587						
11530	WELD	48,217.7	11530	0.0	49.6	47.84228497	-102.98105932	2312.048						
11540	WELD	48,267.3	11540	0.0	49.6	47.84230210	-102.98125899	2312.808						
11550	WELD	48,317.0	11550	0.0	49.7	47.84232024	-102.98145898	2313.356						
11560	WELD	48,366.7	11560	0.0	48.2	47.84234132	-102.98165802	2313.859						
11570	WELD	48,414.9	11570	0.0	49.6	47.84236305	-102.98185100	2314.229						
11580	WELD	48,464.4	11580	0.0	49.4	47.84238385	-102.98205010	2314.268						
11590	WELD	48,513.9	11590	0.0	49.7	47.84240185	-102.98224904	2314.835						
11600	WELD	48,563.6	11600	0.0	49.6	47.84241777	-102.98244922	2315.669						
11610	WELD	48,613.2	11610	0.0	49.7	47.84243429	-102.98264933	2316.772						
11620	WELD	48,662.9	11620	0.0	49.7	47.84245190	-102.98284898	2317.698						
11630	WELD	48,712.6	11630	0.0	49.7	47.84247245	-102.98304850	2317.989						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
11640	WELD	48,762.3	11640	0.0	49.5	47.84249287	-102.98324788	2318.238						
11650	WELD	48,811.8	11650	0.0	49.1	47.84251195	-102.98344703	2319.341						
11660	WELD	48,860.9	11660	0.0	49.7	47.84252916	-102.98364491	2319.983						
11670	WELD	48,910.6	11670	0.0	49.7	47.84254483	-102.98384510	2320.423						
11680	WELD	48,960.3	11680	0.0	49.7	47.84255914	-102.98404569	2321.869						
11690	WELD	49,009.9	11690	0.0	49.5	47.84257501	-102.98424572	2323.551						
11700	WELD	49,059.5	11700	0.0	49.2	47.84259291	-102.98444511	2324.151						
11710	WELD	49,108.7	11710	0.0	49.3	47.84261095	-102.98464320	2324.961						
11720	WELD	49,158.0	11720	0.0	49.6	47.84262851	-102.98484126	2325.238						
11730	WELD	49,207.6	11730	0.0	49.6	47.84264711	-102.98504045	2326.308						
11740	WELD	49,257.2	11740	0.0	49.5	47.84266622	-102.98523932	2328.196						
11750	WELD	49,306.6	11750	0.0	49.7	47.84268452	-102.98543818	2329.897						
11760	WELD	49,356.3	11760	0.0	49.7	47.84270165	-102.98563817	2330.374						
11770	WELD	49,406.0	11770	0.0	49.6	47.84271791	-102.98583814	2330.374						
11780	WELD	49,455.6	11780	0.0	49.1	47.84273555	-102.98603772	2329.508						
11790	WELD	49,504.7	11790	0.0	49.6	47.84275418	-102.98623519	2329.597						
11800	WELD	49,554.3	11800	0.0	49.7	47.84277316	-102.98643433	2330.358						
11810	WELD	49,604.0	11810	0.0	49.6	47.84279166	-102.98663384	2330.597						
11820	WELD	49,653.6	11820	0.0	49.8	47.84280958	-102.98683317	2331.491						
11830	WELD	49,703.3	11830	0.0	49.6	47.84282693	-102.98703297	2332.252						
11840	WELD	49,752.9	11840	0.0	49.6	47.84284398	-102.98723214	2333.209						
11850	WELD	49,802.5	11850	0.0	49.6	47.84286093	-102.98743167	2334.257						
11860	WELD	49,852.1	11860	0.0	49.4	47.84287885	-102.98763114	2335.110						
11870	WELD	49,901.5	11870	0.0	49.7	47.84289749	-102.98782928	2336.029						
11880	WELD	49,951.2	11880	0.0	49.7	47.84291462	-102.98802883	2337.049						
11890	WELD	50,000.9	11890	0.0	49.7	47.84293307	-102.98822833	2337.551						
11900	WELD	50,050.5	11900	0.0	49.7	47.84295127	-102.98842787	2337.992						
11910	WELD	50,100.3	11910	0.0	49.7	47.84296787	-102.98862755	2338.434						
11920	WELD	50,150.0	11920	0.0	41.8	47.84298557	-102.98882728	2340.058						
11930	WELD	50,191.8	11930	0.0	1.6	47.84300094	-102.98899490	2341.637						
10000030	Bend right - 45 deg., 3D	50,192.6	11930	0.1	1.5	47.84300188	-102.98899764	2341.650	0 12:00					
11940	WELD	50,193.4	11940	0.0	7.0	47.84300328	-102.98900002	2341.657						
11950	WELD	50,200.3	11950	0.0	36.2	47.84301849	-102.98901672	2341.730						
11960	WELD	50,236.5	11960	0.0	49.8	47.84309833	-102.98910323	2342.703						
11970	WELD	50,286.3	11970	0.0	49.5	47.84321307	-102.98921082	2342.389						
11980	WELD	50,335.8	11980	0.0	49.6	47.84333023	-102.98931056	2341.977						
11990	WELD	50,385.4	11990	0.0	49.6	47.84344684	-102.98941226	2341.867						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
12000	WELD	50,435.0	12000	0.0	49.7	47.84356169	-102.98951826	2340.075						
12010	WELD	50,484.7	12010	0.0	49.4	47.84367530	-102.98962791	2340.369						
12020	WELD	50,534.1	12020	0.0	46.1	47.84378885	-102.98973489	2343.753						
12030	WELD	50,580.2	12030	0.0	49.7	47.84389561	-102.98983333	2345.645						
12040	WELD	50,629.9	12040	0.0	49.5	47.84400995	-102.98994135	2346.606						
12050	WELD	50,679.5	12050	0.0	47.0	47.84412282	-102.99005150	2347.224						
12060	WELD	50,726.4	12060	0.0	49.5	47.84422854	-102.99015860	2347.790						
12070	WELD	50,775.9	12070	0.0	49.6	47.84433907	-102.99027342	2348.777						
12080	WELD	50,825.5	12080	0.0	49.6	47.84444932	-102.99039010	2349.749						
12090	WELD	50,875.1	12090	0.0	49.6	47.84455932	-102.99050717	2350.714						
12100	WELD	50,924.7	12100	0.0	49.6	47.84467021	-102.99062271	2351.409						
12110	WELD	50,974.4	12110	0.0	41.4	47.84478149	-102.99073720	2352.080						
12120	WELD	51,015.7	12120	0.0	41.4	47.84487402	-102.99083317	2352.496						
12130	WELD	51,057.1	12130	0.0	41.4	47.84496595	-102.99093045	2352.806						
12140	WELD	51,098.5	12140	0.0	41.3	47.84505757	-102.99102846	2353.573						
12150	WELD	51,139.8	12150	0.0	41.4	47.84514886	-102.99112709	2354.110						
12160	WELD	51,181.2	12160	0.0	41.3	47.84523980	-102.99122650	2354.249						
12170	WELD	51,222.5	12170	0.0	41.4	47.84533010	-102.99132687	2353.990						
12180	WELD	51,263.9	12180	0.0	41.3	47.84542057	-102.99142738	2353.561						
12190	WELD	51,305.2	12190	0.0	41.4	47.84551017	-102.99152946	2353.555						
12200	WELD	51,346.6	12200	0.0	41.3	47.84559799	-102.99163496	2353.861						
12210	WELD	51,387.9	12210	0.0	41.3	47.84568130	-102.99174776	2354.014						
12220	WELD	51,429.2	12220	0.0	41.3	47.84575827	-102.99187018	2354.860						
12230	WELD	51,470.6	12230	0.0	41.4	47.84582761	-102.99200231	2355.221						
12240	WELD	51,511.9	12240	0.0	41.3	47.84588915	-102.99214265	2356.447						
12250	WELD	51,553.2	12250	0.0	41.3	47.84594281	-102.99229006	2357.485						
12260	WELD	51,594.6	12260	0.0	41.3	47.84598649	-102.99244443	2358.857						
12270	WELD	51,635.9	12270	0.0	41.3	47.84602525	-102.99260194	2359.540						
12280	WELD	51,677.2	12280	0.0	41.4	47.84606177	-102.99276050	2360.501						
12290	WELD	51,718.6	12290	0.0	41.3	47.84609689	-102.99291990	2361.048						
12300	WELD	51,759.9	12300	0.0	41.4	47.84613114	-102.99307967	2361.960						
12310	WELD	51,801.3	12310	0.0	41.4	47.84616489	-102.99323965	2363.531						
12320	WELD	51,842.7	12320	0.0	41.3	47.84620102	-102.99339859	2364.543						
12330	WELD	51,884.0	12330	0.0	41.3	47.84623802	-102.99355729	2365.658						
12340	WELD	51,925.3	12340	0.0	49.6	47.84627638	-102.99371466	2367.005						
12350	WELD	51,974.9	12350	0.0	41.4	47.84632629	-102.99390166	2367.586						
12360	WELD	52,016.3	12360	0.0	41.4	47.84637018	-102.99405614	2369.060						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
12370	WELD	52,057.7	12370	0.0	41.3	47.84641468	-102.99421014	2370.932							
12380	WELD	52,099.0	12380	0.0	39.5	47.84645712	-102.99436556	2371.782							
11000030	WT CHANGE	52,138.5	12380	0.0	0.0	47.84649859	-102.99451328	2371.979				0.322	52000	0.72	
12390	WELD	52,138.5	12390	0.0	42.1	47.84649860	-102.99451332	2371.979							
40000014	Metal Loss - EXTERNAL	52,146.7	12390	8.1	34.0	47.84650771	-102.99454365	2372.142	121	4:00	10%	1.65	1.56	3014	100%
12400	WELD	52,180.6	12400	0.0	42.3	47.84654894	-102.99466689	2373.204							
12410	WELD	52,222.8	12410	0.0	42.3	47.84661387	-102.99480860	2373.893							
11000031	WT CHANGE	52,265.1	12410	0.0	0.0	47.84668395	-102.99494446	2375.390				0.188	52000	0.72	
12420	WELD	52,265.1	12420	0.0	22.8	47.84668397	-102.99494450	2375.391							
12430	WELD	52,287.9	12430	0.0	41.3	47.84672214	-102.99501738	2376.623							
12440	WELD	52,329.2	12440	0.0	41.4	47.84679012	-102.99515107	2377.896							
12450	WELD	52,370.6	12450	0.0	41.3	47.84685671	-102.99528652	2378.174							
12460	WELD	52,411.9	12460	0.0	41.3	47.84692367	-102.99542166	2378.273							
12470	WELD	52,453.2	12470	0.0	41.4	47.84699036	-102.99555707	2378.699							
12480	WELD	52,494.6	12480	0.0	41.4	47.84705640	-102.99569299	2380.478							
12490	WELD	52,536.0	12490	0.0	41.4	47.84712263	-102.99582826	2382.118							
12500	WELD	52,577.3	12500	0.0	41.3	47.84718861	-102.99596435	2383.944							
12510	WELD	52,618.7	12510	0.0	41.4	47.84725417	-102.99610094	2385.498							
12520	WELD	52,660.0	12520	0.0	37.4	47.84732044	-102.99623684	2385.650							
11000032	WT CHANGE	52,697.4	12520	0.0	0.0	47.84738103	-102.99635845	2385.765				0.322	52000	0.72	
12530	WELD	52,697.4	12530	0.0	40.9	47.84738105	-102.99635848	2385.765							
12540	WELD	52,738.3	12540	0.0	42.3	47.84745079	-102.99648776	2385.873							
10000031	AGM 100, Sta. 517-63, At aerial marker 122 -- Survey Point	52,767.9	12540	29.7	12.6	47.84750470	-102.99657707	2388.178							
12550	WELD	52,780.6	12550	0.0	1.0	47.84752654	-102.99661625	2389.192							
10000032	Bend right - 32 deg., 3D	52,781.1	12550	0.1	1.0	47.84752768	-102.99661744	2389.219	0	12:00					
11000033	WT CHANGE	52,781.6	12550	0.0	0.0	47.84752879	-102.99661847	2389.244				0.188	52000	0.72	
12560	WELD	52,781.6	12560	0.0	7.5	47.84752883	-102.99661849	2389.244							
12570	WELD	52,789.1	12570	0.0	23.6	47.84754786	-102.99662999	2389.599							
12580	WELD	52,812.7	12580	0.0	38.9	47.84760674	-102.99666788	2390.741							
12590	WELD	52,851.6	12590	0.0	41.4	47.84770279	-102.99673496	2391.717							
12600	WELD	52,893.0	12600	0.0	41.4	47.84780484	-102.99680660	2392.727							
12610	WELD	52,934.4	12610	0.0	41.4	47.84790728	-102.99687646	2394.281							
12620	WELD	52,975.9	12620	0.0	41.4	47.84800992	-102.99694572	2395.986							
12630	WELD	53,017.3	12630	0.0	41.4	47.84811212	-102.99701705	2397.562							
12640	WELD	53,058.7	12640	0.0	41.4	47.84821386	-102.99708985	2399.061							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
12650	WELD	53,100.0	12650	0.0	41.4	47.84831536	-102.99716259	2401.162						
12660	WELD	53,141.4	12660	0.0	41.4	47.84841699	-102.99723544	2403.085						
12670	WELD	53,182.8	12670	0.0	41.4	47.84851807	-102.99730953	2405.534						
12680	WELD	53,224.2	12680	0.0	41.4	47.84861889	-102.99738430	2408.352						
12690	WELD	53,265.6	12690	0.0	41.4	47.84871957	-102.99745966	2410.480						
12700	WELD	53,307.0	12700	0.0	41.3	47.84882027	-102.99753529	2411.774						
12710	WELD	53,348.3	12710	0.0	41.3	47.84892097	-102.99761078	2412.735						
12720	WELD	53,389.6	12720	0.0	41.4	47.84902106	-102.99768818	2413.139						
12730	WELD	53,431.0	12730	0.0	41.4	47.84912213	-102.99776293	2413.853						
12740	WELD	53,472.4	12740	0.0	7.5	47.84922533	-102.99783092	2414.989						
12750	WELD	53,479.9	12750	0.0	13.4	47.84924436	-102.99784215	2415.245						
12760	WELD	53,493.3	12760	0.0	23.5	47.84927883	-102.99786046	2415.699						
12770	WELD	53,516.8	12770	0.0	41.3	47.84933982	-102.99788996	2416.355						
13000000	GAIN	53,527.5	12770	10.7	30.7	47.84936791	-102.99790230	2416.412	185 6:00					
12780	WELD	53,558.1	12780	0.0	41.4	47.84944922	-102.99793069	2418.626						
12790	WELD	53,599.5	12790	0.0	41.3	47.84955934	-102.99796478	2422.552						
12800	WELD	53,640.8	12800	0.0	41.3	47.84966940	-102.99799683	2427.504						
12810	WELD	53,682.1	12810	0.0	41.3	47.84978003	-102.99802624	2431.999						
12820	WELD	53,723.4	12820	0.0	41.3	47.84989122	-102.99805333	2435.376						
12830	WELD	53,764.7	12830	0.0	41.3	47.85000327	-102.99807373	2437.394						
12840	WELD	53,806.0	12840	0.0	41.3	47.85011597	-102.99808397	2439.353						
12850	WELD	53,847.3	12850	0.0	41.4	47.85022895	-102.99808530	2441.201						
12860	WELD	53,888.7	12860	0.0	41.4	47.85034188	-102.99807855	2442.691						
12870	WELD	53,930.1	12870	0.0	41.4	47.85045446	-102.99806872	2444.733						
12880	WELD	53,971.4	12880	0.0	41.4	47.85056706	-102.99805771	2445.860						
12890	WELD	54,012.8	12890	0.0	41.4	47.85067979	-102.99804749	2446.677						
12900	WELD	54,054.2	12900	0.0	41.4	47.85079256	-102.99803715	2447.303						
12910	WELD	54,095.6	12910	0.0	19.3	47.85090535	-102.99802601	2447.448						
12920	WELD	54,114.9	12920	0.0	6.7	47.85095784	-102.99801952	2447.130						
12930	WELD	54,121.6	12930	0.0	15.4	47.85097610	-102.99801715	2447.146						
12940	WELD	54,137.0	12940	0.0	41.3	47.85101817	-102.99801287	2447.275						
12950	WELD	54,178.3	12950	0.0	41.4	47.85113098	-102.99800155	2447.731						
12960	WELD	54,219.7	12960	0.0	41.4	47.85124351	-102.99799178	2445.850						
12970	WELD	54,261.1	12970	0.0	41.4	47.85135604	-102.99798494	2442.689						
12980	WELD	54,302.5	12980	0.0	41.4	47.85146863	-102.99797928	2439.670						
12990	WELD	54,343.9	12990	0.0	41.4	47.85158129	-102.99797725	2437.239						
13000	WELD	54,385.3	13000	0.0	41.4	47.85169330	-102.99799211	2434.308						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
13010	WELD	54,426.7	13010	0.0	41.4	47.85180393	-102.99802325	2430.960							
13020	WELD	54,468.1	13020	0.0	41.4	47.85191326	-102.99806299	2427.694							
13030	WELD	54,509.4	13030	0.0	41.4	47.85202135	-102.99811062	2426.327							
13040	WELD	54,550.8	13040	0.0	41.3	47.85212729	-102.99816783	2424.247							
13050	WELD	54,592.1	13050	0.0	41.4	47.85223295	-102.99822606	2421.582							
13060	WELD	54,633.5	13060	0.0	26.4	47.85233816	-102.99828421	2416.926							
13070	WELD	54,659.9	13070	0.0	42.1	47.85240520	-102.99832114	2413.682							
10000033	Fitting on top of pipe	54,681.0	13070	21.0	21.1	47.85245896	-102.99835051	2411.389	342	11:15					
13080	WELD	54,702.0	13080	0.0	14.2	47.85251291	-102.99837901	2410.334							
13090	WELD	54,716.2	13090	0.0	41.4	47.85254957	-102.99839831	2410.061							
13100	WELD	54,757.5	13100	0.0	41.3	47.85265603	-102.99845444	2409.573							
13110	WELD	54,798.9	13110	0.0	41.4	47.85276277	-102.99850964	2409.644							
13120	WELD	54,840.3	13120	0.0	41.3	47.85286954	-102.99856485	2409.370							
13130	WELD	54,881.6	13130	0.0	35.7	47.85297602	-102.99862071	2407.567							
13140	WELD	54,917.3	13140	0.0	9.1	47.85306729	-102.99866957	2404.979							
13150	WELD	54,926.3	13150	0.0	38.1	47.85309070	-102.99868133	2404.347							
13160	WELD	54,964.4	13160	0.0	41.3	47.85318849	-102.99873145	2400.724							
13170	WELD	55,005.8	13170	0.0	41.3	47.85329462	-102.99878693	2397.182							
13180	WELD	55,047.1	13180	0.0	41.3	47.85340064	-102.99884266	2394.047							
13190	WELD	55,088.4	13190	0.0	41.4	47.85350672	-102.99889953	2391.456							
13200	WELD	55,129.8	13200	0.0	41.3	47.85361246	-102.99895830	2389.665							
13210	WELD	55,171.1	13210	0.0	41.3	47.85371782	-102.99901855	2388.621							
13220	WELD	55,212.4	13220	0.0	41.3	47.85382322	-102.99907820	2386.601							
13230	WELD	55,253.7	13230	0.0	41.3	47.85392859	-102.99913765	2384.521							
13240	WELD	55,295.1	13240	0.0	41.3	47.85403388	-102.99919777	2382.652							
13250	WELD	55,336.4	13250	0.0	41.4	47.85413916	-102.99925703	2380.255							
13260	WELD	55,377.8	13260	0.0	41.3	47.85424472	-102.99931638	2378.375							
13270	WELD	55,419.1	13270	0.0	41.4	47.85435026	-102.99937581	2377.986							
13280	WELD	55,460.5	13280	0.0	38.5	47.85445627	-102.99943362	2377.894							
13290	WELD	55,499.0	13290	0.0	11.2	47.85455527	-102.99948629	2377.970							
13300	WELD	55,510.1	13300	0.0	6.7	47.85458400	-102.99950124	2377.718							
10000034	Bend left - 75 deg., 5D	55,514.2	13300	1.5	5.2	47.85459322	-102.99950953	2377.640	0	12:00					
13310	WELD	55,516.8	13310	0.0	28.8	47.85459519	-102.99951991	2377.618							
13320	WELD	55,545.7	13320	0.0	39.3	47.85458893	-102.99963761	2376.643							
13330	WELD	55,584.9	13330	0.0	6.0	47.85458231	-102.99979645	2375.244							
13340	WELD	55,591.0	13340	0.0	37.1	47.85458145	-102.99982097	2375.168							
13350	WELD	55,628.1	13350	0.0	41.4	47.85457687	-102.99997116	2374.507							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
13360	WELD	55,669.5	13360	0.0	41.4	47.85457242	-103.00013878	2374.766						
13370	WELD	55,710.9	13370	0.0	41.4	47.85456909	-103.00030652	2374.903						
13380	WELD	55,752.3	13380	0.0	41.4	47.85456709	-103.00047421	2375.735						
13390	WELD	55,793.7	13390	0.0	41.4	47.85456446	-103.00064194	2375.225						
13400	WELD	55,835.1	13400	0.0	41.4	47.85456083	-103.00080952	2373.885						
13410	WELD	55,876.4	13410	0.0	41.4	47.85455668	-103.00097735	2373.348						
13420	WELD	55,917.9	13420	0.0	41.4	47.85455219	-103.00114497	2372.881						
13430	WELD	55,959.3	13430	0.0	41.4	47.85454741	-103.00131259	2373.029						
13440	WELD	56,000.7	13440	0.0	41.4	47.85454334	-103.00148007	2374.361						
13450	WELD	56,042.1	13450	0.0	41.4	47.85454091	-103.00164782	2376.444						
13460	WELD	56,083.6	13460	0.0	41.4	47.85454007	-103.00181479	2379.739						
13470	WELD	56,125.0	13470	0.0	41.4	47.85453970	-103.00198210	2382.907						
13480	WELD	56,166.4	13480	0.0	41.5	47.85453728	-103.00214976	2385.114						
13490	WELD	56,207.9	13490	0.0	41.4	47.85453362	-103.00231746	2386.404						
13500	WELD	56,249.3	13500	0.0	41.4	47.85453080	-103.00248517	2386.295						
13510	WELD	56,290.7	13510	0.0	41.4	47.85452750	-103.00265274	2386.165						
13520	WELD	56,332.2	13520	0.0	41.4	47.85452254	-103.00282026	2385.688						
13530	WELD	56,373.6	13530	0.0	41.4	47.85451756	-103.00298799	2385.342						
13540	WELD	56,415.0	13540	0.0	41.4	47.85451313	-103.00315571	2384.028						
13550	WELD	56,456.4	13550	0.0	41.4	47.85450883	-103.00332351	2383.921						
13560	WELD	56,497.9	13560	0.0	41.4	47.85450651	-103.00349125	2383.428						
13570	WELD	56,539.2	13570	0.0	41.3	47.85450420	-103.00365894	2382.578						
13580	WELD	56,580.6	13580	0.0	41.4	47.85450103	-103.00382641	2381.925						
13590	WELD	56,621.9	13590	0.0	41.3	47.85449765	-103.00399416	2381.420						
13600	WELD	56,663.3	13600	0.0	41.4	47.85449529	-103.00416197	2381.079						
13610	WELD	56,704.6	13610	0.0	41.3	47.85449520	-103.00432987	2380.609						
13620	WELD	56,746.0	13620	0.0	41.3	47.85449586	-103.00449772	2379.779						
13630	WELD	56,787.3	13630	0.0	41.3	47.85449345	-103.00466531	2378.157						
13640	WELD	56,828.6	13640	0.0	41.4	47.85449194	-103.00483259	2375.471						
13650	WELD	56,869.9	13650	0.0	41.0	47.85449240	-103.00500011	2372.791						
13660	WELD	56,911.0	13660	0.0	16.0	47.85448688	-103.00516594	2371.358						
11000034	WT CHANGE	56,926.9	13660	0.0	0.0	47.85448450	-103.00523070	2371.017			0.322	52000	0.72	
13670	WELD	56,926.9	13670	0.0	42.1	47.85448450	-103.00523074	2371.017						
10000035	AGM 110, Sta. 560+08, 132' off gravel rd -- Han #3663	56,955.6	13670	28.7	13.5	47.85448022	-103.00534686	2370.147						
13680	WELD	56,969.1	13680	0.0	42.3	47.85447834	-103.00540055	2368.039						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
13690	WELD	57,011.4	13690	0.0	42.3	47.85447980	-103.00556922	2361.673						
13700	WELD	57,053.6	13700	0.0	42.3	47.85447463	-103.00574036	2362.446						
13710	WELD	57,095.9	13710	0.0	42.2	47.85447663	-103.00591096	2365.420						
13720	WELD	57,138.1	13720	0.0	42.2	47.85446741	-103.00608129	2367.760						
13730	WELD	57,180.4	13730	0.0	42.0	47.85446584	-103.00625194	2371.324						
11000035	WT CHANGE	57,222.3	13730	0.0	0.0	47.85446724	-103.00642193	2372.918			0.188	52000	0.72	
13740	WELD	57,222.3	13740	0.0	5.7	47.85446724	-103.00642197	2372.918						
13750	WELD	57,228.1	13750	0.0	5.5	47.85446724	-103.00644509	2373.043						
13760	WELD	57,233.6	13760	0.0	41.4	47.85446724	-103.00646746	2373.139						
13770	WELD	57,275.0	13770	0.0	41.4	47.85446784	-103.00663521	2371.694						
13780	WELD	57,316.3	13780	0.0	41.3	47.85446816	-103.00680280	2372.320						
13790	WELD	57,357.7	13790	0.0	41.3	47.85446511	-103.00697026	2373.563						
13800	WELD	57,399.0	13800	0.0	41.4	47.85446355	-103.00713803	2373.306						
13810	WELD	57,440.4	13810	0.0	41.3	47.85446207	-103.00730577	2372.935						
13820	WELD	57,481.7	13820	0.0	41.4	47.85445981	-103.00747343	2373.084						
13830	WELD	57,523.1	13830	0.0	41.4	47.85445676	-103.00764100	2372.566						
13840	WELD	57,564.5	13840	0.0	41.4	47.85445305	-103.00780854	2371.855						
13850	WELD	57,605.9	13850	0.0	41.4	47.85444867	-103.00797578	2370.129						
13860	WELD	57,647.3	13860	0.0	41.3	47.85444457	-103.00814271	2366.938						
13870	WELD	57,688.6	13870	0.0	41.4	47.85444032	-103.00830972	2364.188						
13880	WELD	57,730.0	13880	0.0	41.3	47.85443741	-103.00847718	2362.462						
13890	WELD	57,771.3	13890	0.0	41.3	47.85443487	-103.00864454	2360.930						
13900	WELD	57,812.6	13900	0.0	41.3	47.85443187	-103.00881202	2359.872						
13910	WELD	57,854.0	13910	0.0	41.3	47.85442905	-103.00897951	2359.681						
13920	WELD	57,895.3	13920	0.0	41.3	47.85442652	-103.00914690	2359.993						
13930	WELD	57,936.6	13930	0.0	41.4	47.85442441	-103.00931444	2361.042						
13940	WELD	57,977.9	13940	0.0	41.4	47.85442288	-103.00948188	2362.270						
13950	WELD	58,019.3	13950	0.0	41.3	47.85442114	-103.00964950	2363.749						
13960	WELD	58,060.6	13960	0.0	41.4	47.85441954	-103.00981717	2363.422						
13970	WELD	58,102.0	13970	0.0	41.4	47.85441759	-103.00998472	2364.419						
13980	WELD	58,143.4	13980	0.0	41.3	47.85441569	-103.01015245	2364.574						
13990	WELD	58,184.7	13990	0.0	41.4	47.85441455	-103.01031973	2367.083						
14000	WELD	58,226.1	14000	0.0	41.4	47.85441353	-103.01048684	2370.166						
14010	WELD	58,267.5	14010	0.0	41.4	47.85441171	-103.01065390	2373.823						
14020	WELD	58,308.9	14020	0.0	41.4	47.85440997	-103.01082098	2377.392						
14030	WELD	58,350.3	14030	0.0	41.4	47.85440908	-103.01098839	2379.856						
14040	WELD	58,391.7	14040	0.0	41.4	47.85440800	-103.01115572	2381.822						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
14050	WELD	58,433.1	14050	0.0	41.4	47.85440651	-103.01132286	2383.928						
14060	WELD	58,474.5	14060	0.0	41.4	47.85440398	-103.01149058	2385.985						
14070	WELD	58,515.9	14070	0.0	41.4	47.85440102	-103.01165806	2388.050						
14080	WELD	58,557.3	14080	0.0	41.4	47.85439735	-103.01182541	2389.589						
14090	WELD	58,598.7	14090	0.0	41.4	47.85439386	-103.01199300	2390.770						
14100	WELD	58,640.1	14100	0.0	41.4	47.85439067	-103.01216040	2392.236						
14110	WELD	58,681.5	14110	0.0	41.5	47.85438740	-103.01232797	2393.497						
14120	WELD	58,722.9	14120	0.0	41.4	47.85438572	-103.01249564	2395.171						
14130	WELD	58,764.3	14130	0.0	41.3	47.85438443	-103.01266322	2396.381						
14140	WELD	58,805.7	14140	0.0	41.4	47.85438157	-103.01283105	2396.686						
14150	WELD	58,847.0	14150	0.0	41.4	47.85437707	-103.01299874	2396.474						
14160	WELD	58,888.4	14160	0.0	41.4	47.85437352	-103.01316630	2395.381						
14170	WELD	58,929.8	14170	0.0	41.4	47.85437047	-103.01333392	2394.579						
14180	WELD	58,971.2	14180	0.0	41.3	47.85436748	-103.01350168	2395.032						
14190	WELD	59,012.6	14190	0.0	41.4	47.85436428	-103.01366918	2394.036						
14200	WELD	59,053.9	14200	0.0	41.4	47.85436087	-103.01383676	2393.355						
14210	WELD	59,095.3	14210	0.0	41.3	47.85435846	-103.01400436	2392.680						
14220	WELD	59,136.6	14220	0.0	41.3	47.85435809	-103.01417204	2391.941						
14230	WELD	59,177.9	14230	0.0	41.4	47.85435815	-103.01433944	2391.642						
14240	WELD	59,219.3	14240	0.0	41.4	47.85435834	-103.01450708	2390.690						
14250	WELD	59,260.7	14250	0.0	41.4	47.85435813	-103.01467484	2390.508						
14260	WELD	59,302.0	14260	0.0	41.3	47.85435626	-103.01484256	2389.595						
14270	WELD	59,343.4	14270	0.0	41.4	47.85435206	-103.01500992	2388.999						
14280	WELD	59,384.7	14280	0.0	41.3	47.85434717	-103.01517742	2388.606						
14290	WELD	59,426.1	14290	0.0	41.3	47.85434191	-103.01534468	2388.448						
14300	WELD	59,467.4	14300	0.0	41.3	47.85433688	-103.01551219	2388.399						
14310	WELD	59,508.7	14310	0.0	41.4	47.85433099	-103.01567955	2388.316						
14320	WELD	59,550.1	14320	0.0	41.3	47.85432564	-103.01584712	2388.120						
14330	WELD	59,591.4	14330	0.0	41.3	47.85432223	-103.01601455	2388.089						
14340	WELD	59,632.7	14340	0.0	30.8	47.85432069	-103.01618240	2388.091						
14350	WELD	59,663.5	14350	0.0	9.9	47.85432013	-103.01630688	2388.742						
10000036	Bend right - 90 deg., 6D	59,668.2	14350	1.5	8.4	47.85432365	-103.01632445	2388.879	0 12:00					
14360	WELD	59,673.3	14360	0.0	12.7	47.85433674	-103.01632970	2388.953						
14370	WELD	59,686.1	14370	0.0	35.0	47.85437176	-103.01633070	2388.932						
14380	WELD	59,721.1	14380	0.0	41.4	47.85446740	-103.01633170	2389.578						
14390	WELD	59,762.5	14390	0.0	41.4	47.85458032	-103.01633170	2390.721						
14400	WELD	59,803.9	14400	0.0	41.3	47.85469309	-103.01633241	2392.232						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
14410	WELD	59,845.2	14410	0.0	41.3	47.85480582	-103.01633531	2392.826							
14420	WELD	59,886.5	14420	0.0	41.4	47.85491867	-103.01634141	2392.447							
14430	WELD	59,927.9	14430	0.0	41.4	47.85503145	-103.01634823	2391.797							
14440	WELD	59,969.3	14440	0.0	41.3	47.85514420	-103.01635543	2391.266							
14450	WELD	60,010.6	14450	0.0	41.4	47.85525678	-103.01636415	2391.632							
14460	WELD	60,051.9	14460	0.0	41.3	47.85536944	-103.01637326	2392.488							
14470	WELD	60,093.3	14470	0.0	41.3	47.85548203	-103.01638176	2393.851							
14480	WELD	60,134.6	14480	0.0	41.4	47.85559474	-103.01638928	2394.823							
14490	WELD	60,176.0	14490	0.0	41.3	47.85570737	-103.01639717	2395.142							
14500	WELD	60,217.3	14500	0.0	41.4	47.85581995	-103.01640464	2394.228							
14510	WELD	60,258.7	14510	0.0	41.3	47.85593265	-103.01641124	2392.895							
14520	WELD	60,300.0	14520	0.0	41.4	47.85604544	-103.01641672	2391.628							
14530	WELD	60,341.3	14530	0.0	41.3	47.85615801	-103.01642050	2390.245							
14540	WELD	60,382.6	14540	0.0	41.3	47.85627077	-103.01642388	2389.045							
14550	WELD	60,424.0	14550	0.0	41.4	47.85638347	-103.01642886	2388.949							
14560	WELD	60,465.3	14560	0.0	41.3	47.85649622	-103.01643405	2388.841							
14570	WELD	60,506.7	14570	0.0	41.4	47.85660875	-103.01643885	2389.201							
14580	WELD	60,548.0	14580	0.0	41.3	47.85672158	-103.01644376	2388.950							
14590	WELD	60,589.4	14590	0.0	41.4	47.85683441	-103.01644907	2389.092							
14600	WELD	60,630.7	14600	0.0	41.4	47.85694714	-103.01645489	2388.797							
14610	WELD	60,672.1	14610	0.0	41.4	47.85705984	-103.01646142	2389.292							
14620	WELD	60,713.5	14620	0.0	41.3	47.85717277	-103.01646766	2388.804							
14630	WELD	60,754.8	14630	0.0	41.4	47.85728551	-103.01647316	2389.294							
14640	WELD	60,796.1	14640	0.0	41.4	47.85739809	-103.01647967	2389.253							
14650	WELD	60,837.5	14650	0.0	41.4	47.85751081	-103.01648557	2388.617							
14660	WELD	60,878.9	14660	0.0	41.4	47.85762352	-103.01649047	2388.947							
14670	WELD	60,920.2	14670	0.0	41.4	47.85773630	-103.01649519	2390.168							
14680	WELD	60,961.6	14680	0.0	41.4	47.85784899	-103.01650041	2390.703							
14690	WELD	61,003.0	14690	0.0	41.4	47.85796168	-103.01650623	2392.327							
14700	WELD	61,044.4	14700	0.0	41.4	47.85807449	-103.01651199	2392.748							
14710	WELD	61,085.8	14710	0.0	49.5	47.85818716	-103.01651734	2393.732							
14720	WELD	61,135.3	14720	0.0	49.6	47.85832187	-103.01652261	2395.880							
14730	WELD	61,184.9	14730	0.0	49.5	47.85845674	-103.01652581	2397.675							
14740	WELD	61,234.4	14740	0.0	41.4	47.85859129	-103.01652919	2399.537							
40000015	Metal Loss - EXTERNAL	61,252.6	14740	18.2	23.2	47.85864084	-103.01653127	2400.456	78	2:30	17%	0.55	0.33	1760	100%
14750	WELD	61,275.7	14750	0.0	41.4	47.85870386	-103.01653429	2401.534							
14760	WELD	61,317.1	14760	0.0	41.4	47.85881657	-103.01654061	2403.210							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
14770	WELD	61,358.5	14770	0.0	41.4	47.85892918	-103.01654573	2404.425						
14780	WELD	61,399.9	14780	0.0	41.4	47.85904190	-103.01655034	2404.596						
14790	WELD	61,441.3	14790	0.0	41.3	47.85915464	-103.01655713	2404.367						
14800	WELD	61,482.6	14800	0.0	41.4	47.85926703	-103.01656444	2404.148						
14810	WELD	61,524.0	14810	0.0	41.4	47.85937968	-103.01657069	2403.695						
14820	WELD	61,565.4	14820	0.0	41.3	47.85949229	-103.01657652	2402.725						
14830	WELD	61,606.7	14830	0.0	41.3	47.85960485	-103.01658272	2400.598						
14840	WELD	61,648.1	14840	0.0	41.3	47.85971734	-103.01658837	2398.405						
14850	WELD	61,689.4	14850	0.0	41.4	47.85982984	-103.01659454	2395.899						
14860	WELD	61,730.8	14860	0.0	41.4	47.85994209	-103.01660055	2393.131						
14870	WELD	61,772.1	14870	0.0	41.3	47.86005452	-103.01660547	2390.531						
14880	WELD	61,813.5	14880	0.0	41.4	47.86016702	-103.01660968	2388.063						
14890	WELD	61,854.8	14890	0.0	41.4	47.86027961	-103.01661260	2385.904						
14900	WELD	61,896.2	14900	0.0	41.3	47.86039231	-103.01661550	2384.129						
14910	WELD	61,937.5	14910	0.0	41.3	47.86050499	-103.01661850	2382.215						
14920	WELD	61,978.8	14920	0.0	41.3	47.86061774	-103.01662230	2381.995						
14930	WELD	62,020.1	14930	0.0	41.4	47.86073045	-103.01662672	2381.578						
14940	WELD	62,061.5	14940	0.0	49.4	47.86084318	-103.01663182	2380.119						
14950	WELD	62,110.9	14950	0.0	49.4	47.86097751	-103.01663668	2376.643						
14960	WELD	62,160.3	14960	0.0	49.6	47.86111187	-103.01664033	2373.500						
14970	WELD	62,209.9	14970	0.0	49.4	47.86124732	-103.01664471	2372.053						
14980	WELD	62,259.3	14980	0.0	45.4	47.86138197	-103.01664880	2370.580						
14990	WELD	62,304.7	14990	0.0	6.0	47.86150582	-103.01665455	2370.173						
15000	WELD	62,310.7	15000	0.0	47.5	47.86152222	-103.01665601	2370.047						
15010	WELD	62,358.2	15010	0.0	49.5	47.86165153	-103.01666852	2368.884						
15020	WELD	62,407.7	15020	0.0	49.6	47.86178359	-103.01670561	2367.983						
15030	WELD	62,457.3	15030	0.0	49.7	47.86191291	-103.01676465	2368.154						
10000037	AGM 120, Sta. 614+60, At aerial marker 121 -- Han #114	62,474.7	15030	17.3	32.4	47.86195715	-103.01678906	2367.755						
15040	WELD	62,507.0	15040	0.0	49.7	47.86203808	-103.01684121	2367.498						
15050	WELD	62,556.7	15050	0.0	41.4	47.86215910	-103.01693167	2368.013						
15060	WELD	62,598.1	15060	0.0	41.3	47.86225847	-103.01701135	2367.435						
15070	WELD	62,639.4	15070	0.0	41.4	47.86235776	-103.01709094	2367.139						
15080	WELD	62,680.8	15080	0.0	41.4	47.86245716	-103.01717051	2366.821						
15090	WELD	62,722.1	15090	0.0	41.3	47.86255687	-103.01724903	2368.205						
15100	WELD	62,763.5	15100	0.0	43.3	47.86265637	-103.01732794	2370.505						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
15110	WELD	62,806.7	15110	0.0	43.0	47.86276029	-103.01741145	2371.274						
15120	WELD	62,849.8	15120	0.0	41.4	47.86286366	-103.01749460	2370.764						
15130	WELD	62,891.2	15130	0.0	41.4	47.86296340	-103.01757330	2370.190						
15140	WELD	62,932.5	15140	0.0	41.4	47.86306278	-103.01765254	2368.584						
15150	WELD	62,973.9	15150	0.0	41.3	47.86316184	-103.01773214	2366.457						
15160	WELD	63,015.2	15160	0.0	41.3	47.86326121	-103.01781140	2364.809						
15170	WELD	63,056.5	15170	0.0	41.3	47.86336090	-103.01789041	2363.499						
15180	WELD	63,097.9	15180	0.0	41.4	47.86346036	-103.01796939	2361.439						
15190	WELD	63,139.2	15190	0.0	41.4	47.86356009	-103.01804805	2360.287						
15200	WELD	63,180.6	15200	0.0	41.3	47.86365997	-103.01812625	2359.526						
15210	WELD	63,221.9	15210	0.0	41.3	47.86375996	-103.01820421	2358.677						
15220	WELD	63,263.3	15220	0.0	41.3	47.86385974	-103.01828245	2358.197						
15230	WELD	63,304.6	15230	0.0	41.4	47.86395929	-103.01836162	2357.618						
15240	WELD	63,346.0	15240	0.0	41.3	47.86405889	-103.01844058	2356.533						
15250	WELD	63,387.3	15250	0.0	49.6	47.86415838	-103.01851981	2355.139						
15260	WELD	63,436.9	15260	0.0	49.7	47.86427805	-103.01861424	2353.493						
15270	WELD	63,486.6	15270	0.0	49.7	47.86439808	-103.01870747	2351.365						
15280	WELD	63,536.4	15280	0.0	49.7	47.86451823	-103.01880076	2349.730						
15290	WELD	63,586.1	15290	0.0	49.7	47.86463789	-103.01889540	2347.966						
15300	WELD	63,635.8	15300	0.0	49.7	47.86475760	-103.01898950	2345.598						
15310	WELD	63,685.5	15310	0.0	49.5	47.86487745	-103.01908314	2342.080						
15320	WELD	63,735.0	15320	0.0	49.5	47.86499721	-103.01917622	2340.272						
15330	WELD	63,784.4	15330	0.0	49.6	47.86511638	-103.01927014	2340.535						
15340	WELD	63,834.0	15340	0.0	49.7	47.86523601	-103.01936414	2342.445						
15350	WELD	63,883.7	15350	0.0	49.7	47.86535524	-103.01945965	2343.859						
15360	WELD	63,933.4	15360	0.0	49.4	47.86547334	-103.01955751	2341.666						
15370	WELD	63,982.7	15370	0.0	49.4	47.86559163	-103.01964998	2335.363						
15380	WELD	64,032.1	15380	0.0	49.6	47.86571072	-103.01974385	2332.967						
15390	WELD	64,081.7	15390	0.0	49.6	47.86583028	-103.01983817	2334.108						
15400	WELD	64,131.3	15400	0.0	49.7	47.86594946	-103.01993036	2339.949						
15410	WELD	64,181.0	15410	0.0	49.5	47.86606862	-103.02002304	2346.274						
15420	WELD	64,230.5	15420	0.0	49.4	47.86618765	-103.02011659	2350.555						
15430	WELD	64,279.9	15430	0.0	49.7	47.86630605	-103.02021086	2353.507						
15440	WELD	64,329.5	15440	0.0	49.5	47.86642471	-103.02030716	2353.156						
15450	WELD	64,379.0	15450	0.0	49.6	47.86654249	-103.02040512	2352.534						
15460	WELD	64,428.6	15460	0.0	49.5	47.86666120	-103.02050115	2351.067						
15470	WELD	64,478.2	15470	0.0	49.7	47.86677919	-103.02059649	2346.529						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
15480	WELD	64,527.9	15480	0.0	49.5	47.86689663	-103.02069350	2340.166						
15490	WELD	64,577.4	15490	0.0	49.5	47.86701380	-103.02078889	2333.683						
15500	WELD	64,626.8	15500	0.0	49.5	47.86713122	-103.02088501	2328.328						
15510	WELD	64,676.4	15510	0.0	49.5	47.86724872	-103.02098033	2322.542						
15520	WELD	64,725.9	15520	0.0	49.5	47.86736672	-103.02107693	2319.608						
15530	WELD	64,775.4	15530	0.0	49.5	47.86748461	-103.02117383	2318.210						
15540	WELD	64,824.9	15540	0.0	49.4	47.86760289	-103.02126989	2315.250						
15550	WELD	64,874.3	15550	0.0	49.8	47.86772113	-103.02136476	2312.575						
15560	WELD	64,924.1	15560	0.0	49.7	47.86784061	-103.02145919	2312.399						
15570	WELD	64,973.8	15570	0.0	49.6	47.86795929	-103.02155427	2317.113						
15580	WELD	65,023.4	15580	0.0	49.7	47.86807809	-103.02164956	2321.044						
15590	WELD	65,073.1	15590	0.0	49.6	47.86819694	-103.02174578	2322.877						
15600	WELD	65,122.7	15600	0.0	49.6	47.86831572	-103.02184138	2325.308						
15610	WELD	65,172.2	15610	0.0	49.6	47.86843460	-103.02193475	2330.138						
15620	WELD	65,221.9	15620	0.0	49.6	47.86855241	-103.02202816	2338.337						
15630	WELD	65,271.5	15630	0.0	49.5	47.86866963	-103.02212164	2347.532						
15640	WELD	65,321.0	15640	0.0	49.7	47.86878697	-103.02221711	2354.692						
15650	WELD	65,370.7	15650	0.0	47.2	47.86890592	-103.02231057	2360.108						
15660	WELD	65,417.9	15660	0.0	6.1	47.86902055	-103.02239684	2363.293						
10000038	Bend left - 70 deg., 5D	65,421.6	15660	1.5	4.6	47.86902847	-103.02240591	2363.450	0 12:00					
15670	WELD	65,424.0	15670	0.0	6.4	47.86903003	-103.02241541	2363.433						
15680	WELD	65,430.5	15680	0.0	33.2	47.86902882	-103.02244208	2363.328						
15690	WELD	65,463.6	15690	0.0	49.2	47.86902352	-103.02257622	2362.110						
15700	WELD	65,512.8	15700	0.0	49.7	47.86901903	-103.02277460	2356.938						
15710	WELD	65,562.5	15710	0.0	49.7	47.86901666	-103.02297462	2351.636						
15720	WELD	65,612.2	15720	0.0	49.5	47.86901692	-103.02317531	2346.543						
15730	WELD	65,661.7	15730	0.0	49.7	47.86901843	-103.02337551	2343.752						
15740	WELD	65,711.4	15740	0.0	49.5	47.86901907	-103.02357634	2347.730						
15750	WELD	65,760.8	15750	0.0	49.4	47.86901855	-103.02377723	2349.245						
15760	WELD	65,810.3	15760	0.0	49.4	47.86901687	-103.02397787	2349.473						
15770	WELD	65,859.6	15770	0.0	49.6	47.86901608	-103.02417796	2349.631						
15780	WELD	65,909.2	15780	0.0	49.5	47.86901648	-103.02437931	2349.754						
15790	WELD	65,958.7	15790	0.0	49.6	47.86901661	-103.02457994	2349.835						
15800	WELD	66,008.2	15800	0.0	49.3	47.86901696	-103.02478103	2349.940						
15810	WELD	66,057.5	15810	0.0	49.7	47.86901619	-103.02498108	2349.952						
15820	WELD	66,107.2	15820	0.0	49.3	47.86901490	-103.02518233	2349.766						
15830	WELD	66,156.5	15830	0.0	49.4	47.86901405	-103.02538241	2349.797						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
15840	WELD	66,205.8	15840	0.0	49.5	47.86901465	-103.02558284	2350.545						
15850	WELD	66,255.4	15850	0.0	49.6	47.86901492	-103.02578382	2350.816						
15860	WELD	66,304.9	15860	0.0	49.5	47.86901454	-103.02598482	2351.584						
15870	WELD	66,354.4	15870	0.0	49.5	47.86901473	-103.02618560	2353.121						
15880	WELD	66,404.0	15880	0.0	48.9	47.86901535	-103.02638662	2353.690						
15890	WELD	66,452.8	15890	0.0	49.5	47.86901546	-103.02658475	2353.921						
15900	WELD	66,502.4	15900	0.0	49.4	47.86901459	-103.02678563	2353.009						
15910	WELD	66,551.8	15910	0.0	49.4	47.86901380	-103.02698588	2352.455						
15920	WELD	66,601.1	15920	0.0	49.4	47.86901361	-103.02718599	2351.785						
15930	WELD	66,650.5	15930	0.0	49.5	47.86901320	-103.02738638	2351.397						
15940	WELD	66,700.0	15940	0.0	49.5	47.86901294	-103.02758710	2352.009						
15950	WELD	66,749.5	15950	0.0	48.5	47.86901233	-103.02778789	2352.114						
15960	WELD	66,798.0	15960	0.0	49.5	47.86901148	-103.02798462	2352.237						
15970	WELD	66,847.4	15970	0.0	49.7	47.86901134	-103.02818526	2352.866						
15980	WELD	66,897.1	15980	0.0	49.6	47.86901167	-103.02838660	2354.198						
15990	WELD	66,946.7	15990	0.0	49.1	47.86901164	-103.02858776	2355.355						
16000	WELD	66,995.8	16000	0.0	49.6	47.86901198	-103.02878654	2357.515						
16010	WELD	67,045.4	16010	0.0	49.7	47.86901107	-103.02898773	2359.882						
16020	WELD	67,095.2	16020	0.0	49.5	47.86901014	-103.02918930	2360.717						
16030	WELD	67,144.7	16030	0.0	49.3	47.86901005	-103.02939017	2361.080						
16040	WELD	67,194.1	16040	0.0	49.4	47.86900935	-103.02959039	2362.473						
16050	WELD	67,243.5	16050	0.0	46.4	47.86900924	-103.02979058	2363.853						
16060	WELD	67,289.8	16060	0.0	49.6	47.86901006	-103.02997887	2362.999						
16070	WELD	67,339.4	16070	0.0	49.5	47.86901124	-103.03017987	2365.213						
16080	WELD	67,388.9	16080	0.0	49.4	47.86901235	-103.03038037	2368.751						
16090	WELD	67,438.3	16090	0.0	49.3	47.86901291	-103.03057972	2373.319						
16100	WELD	67,487.7	16100	0.0	49.6	47.86901252	-103.03077938	2376.628						
16110	WELD	67,537.3	16110	0.0	49.7	47.86901141	-103.03097979	2380.008						
16120	WELD	67,587.0	16120	0.0	49.6	47.86901051	-103.03118104	2383.141						
16130	WELD	67,636.6	16130	0.0	49.6	47.86900973	-103.03138193	2385.830						
16140	WELD	67,686.2	16140	0.0	49.6	47.86900892	-103.03158252	2388.437						
16150	WELD	67,735.8	16150	0.0	49.7	47.86900807	-103.03178335	2390.413						
16160	WELD	67,785.5	16160	0.0	49.7	47.86900692	-103.03198450	2392.011						
16170	WELD	67,835.2	16170	0.0	41.4	47.86900630	-103.03218540	2394.045						
16180	WELD	67,876.6	16180	0.0	41.4	47.86900562	-103.03235315	2394.262						
16190	WELD	67,918.0	16190	0.0	41.4	47.86900475	-103.03252096	2394.114						
16200	WELD	67,959.5	16200	0.0	41.4	47.86900368	-103.03268878	2393.878						

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC

Johnson's Corner to East Camp Creek

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
40000016	Metal Loss - EXTERNAL	67,998.5	16200	39.0	2.4	47.86900342	-103.03284664	2392.596	54	1:45	12%	0.99	0.98	1760	100%
16210	WELD	68,000.9	16210	0.0	41.4	47.86900341	-103.03285644	2392.537							
16220	WELD	68,042.3	16220	0.0	41.4	47.86900314	-103.03302405	2392.184							
16230	WELD	68,083.7	16230	0.0	41.4	47.86900259	-103.03319169	2392.514							
16240	WELD	68,125.1	16240	0.0	41.4	47.86900169	-103.03335930	2392.872							
16250	WELD	68,166.5	16250	0.0	41.4	47.86900035	-103.03352688	2393.704							
16260	WELD	68,207.9	16260	0.0	41.4	47.86899948	-103.03369443	2394.250							
16270	WELD	68,249.3	16270	0.0	41.4	47.86899841	-103.03386219	2394.883							
16280	WELD	68,290.7	16280	0.0	41.4	47.86899717	-103.03402980	2395.897							
16290	WELD	68,332.0	16290	0.0	41.4	47.86899702	-103.03419756	2397.025							
16300	WELD	68,373.4	16300	0.0	41.4	47.86899773	-103.03436508	2398.823							
16310	WELD	68,414.8	16310	0.0	41.4	47.86899893	-103.03453258	2401.268							
16320	WELD	68,456.2	16320	0.0	41.4	47.86899921	-103.03469950	2405.016							
16330	WELD	68,497.6	16330	0.0	41.3	47.86899831	-103.03486685	2407.211							
16340	WELD	68,538.9	16340	0.0	41.3	47.86899666	-103.03503438	2407.327							
16350	WELD	68,580.2	16350	0.0	41.4	47.86899547	-103.03520204	2406.143							
16360	WELD	68,621.6	16360	0.0	41.3	47.86899587	-103.03536950	2405.529							
16370	WELD	68,662.9	16370	0.0	41.4	47.86899620	-103.03553710	2407.721							
16380	WELD	68,704.2	16380	0.0	41.3	47.86899808	-103.03570482	2409.147							
16390	WELD	68,745.5	16390	0.0	41.4	47.86900137	-103.03587234	2409.132							
16400	WELD	68,786.9	16400	0.0	41.4	47.86900414	-103.03603994	2409.797							
16410	WELD	68,828.3	16410	0.0	41.3	47.86900564	-103.03620774	2410.564							
16420	WELD	68,869.6	16420	0.0	41.4	47.86900661	-103.03637535	2410.769							
16430	WELD	68,911.0	16430	0.0	28.4	47.86900594	-103.03654316	2411.598							
16440	WELD	68,939.4	16440	0.0	9.8	47.86900418	-103.03665801	2413.251							
10000039	Bend right - 90 deg., 6D	68,944.1	16440	1.5	8.3	47.86900769	-103.03667604	2413.622	0	12:00					
16450	WELD	68,949.2	16450	0.0	35.0	47.86902081	-103.03668095	2413.877							
16460	WELD	68,984.2	16460	0.0	40.9	47.86911676	-103.03668328	2414.690							
10000040	AGM 130, Sta. 679+55, On fence line -- Survey Point	69,022.4	16460	38.2	2.8	47.86922073	-103.03668525	2416.610							
16470	WELD	69,025.1	16470	0.0	37.8	47.86922838	-103.03668540	2416.787							
16480	WELD	69,062.9	16480	0.0	7.8	47.86933155	-103.03669010	2418.393							
16490	WELD	69,070.7	16490	0.0	45.2	47.86935280	-103.03669116	2418.630							
16500	WELD	69,115.9	16500	0.0	49.6	47.86947632	-103.03669290	2421.015							
16510	WELD	69,165.5	16510	0.0	49.4	47.86961189	-103.03669070	2421.062							
40000017	Metal Loss - EXTERNAL	69,194.0	16510	28.4	20.9	47.86968950	-103.03668930	2418.560	92	3:00	22%	0.55	0.33	1760	100%

Criteria: ASME B31G: Modified

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
16520	WELD	69,214.9	16520	0.0	49.5	47.86974655	-103.03668862	2416.830						
16530	WELD	69,264.4	16530	0.0	49.6	47.86988162	-103.03668770	2414.262						
16540	WELD	69,314.0	16540	0.0	49.3	47.87001703	-103.03668952	2416.007						
16550	WELD	69,363.3	16550	0.0	49.5	47.87015175	-103.03669180	2418.144						
16560	WELD	69,412.8	16560	0.0	49.3	47.87028676	-103.03669277	2420.042						
16570	WELD	69,462.1	16570	0.0	49.5	47.87042114	-103.03669060	2422.918						
16580	WELD	69,511.5	16580	0.0	49.4	47.87055577	-103.03668827	2426.570						
16590	WELD	69,560.9	16590	0.0	41.3	47.87069039	-103.03668800	2430.063						
16600	WELD	69,602.3	16600	0.0	41.4	47.87080318	-103.03669204	2431.743						
16610	WELD	69,643.6	16610	0.0	41.3	47.87091571	-103.03670290	2430.997						
16620	WELD	69,685.0	16620	0.0	41.3	47.87102794	-103.03670930	2427.328						
16630	WELD	69,726.3	16630	0.0	41.3	47.87113926	-103.03670653	2420.478						
16640	WELD	69,767.6	16640	0.0	41.4	47.87124995	-103.03670570	2412.734						
16650	WELD	69,809.0	16650	0.0	41.3	47.87136131	-103.03670710	2406.135						
16660	WELD	69,850.3	16660	0.0	49.5	47.87147263	-103.03670872	2399.510						
16670	WELD	69,899.8	16670	0.0	49.6	47.87160622	-103.03671153	2392.031						
16680	WELD	69,949.4	16680	0.0	49.4	47.87174048	-103.03671316	2385.569						
16690	WELD	69,998.8	16690	0.0	41.3	47.87187533	-103.03671580	2385.176						
16700	WELD	70,040.1	16700	0.0	41.4	47.87198736	-103.03671783	2390.038						
16710	WELD	70,081.5	16710	0.0	41.4	47.87209988	-103.03672104	2392.714						
16720	WELD	70,122.9	16720	0.0	41.3	47.87221273	-103.03672414	2394.551						
16730	WELD	70,164.2	16730	0.0	41.4	47.87232563	-103.03672660	2393.737						
16740	WELD	70,205.6	16740	0.0	41.3	47.87243845	-103.03672770	2391.936						
16750	WELD	70,246.9	16750	0.0	41.3	47.87255114	-103.03672840	2389.022						
16760	WELD	70,288.2	16760	0.0	41.3	47.87266401	-103.03672835	2387.606						
16770	WELD	70,329.6	16770	0.0	41.3	47.87277684	-103.03672790	2387.138						
16780	WELD	70,370.9	16780	0.0	41.4	47.87288971	-103.03672840	2386.971						
16790	WELD	70,412.3	16790	0.0	41.4	47.87300192	-103.03673190	2383.128						
16800	WELD	70,453.6	16800	0.0	41.3	47.87311307	-103.03673617	2376.077						
16810	WELD	70,494.9	16810	0.0	41.4	47.87322410	-103.03674074	2369.048						
16820	WELD	70,536.3	16820	0.0	41.3	47.87333597	-103.03674410	2363.516						
16830	WELD	70,577.6	16830	0.0	41.4	47.87344829	-103.03674420	2360.025						
16840	WELD	70,619.0	16840	0.0	41.4	47.87356106	-103.03674600	2358.848						
16850	WELD	70,660.4	16850	0.0	41.4	47.87367383	-103.03674850	2356.736						
16860	WELD	70,701.7	16860	0.0	41.4	47.87378644	-103.03675188	2354.192						
16870	WELD	70,743.1	16870	0.0	41.3	47.87389881	-103.03675407	2350.853						
16880	WELD	70,784.4	16880	0.0	41.4	47.87401143	-103.03675596	2348.469						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
16890	WELD	70,825.8	16890	0.0	41.4	47.87412413	-103.03675590	2346.238						
16900	WELD	70,867.1	16900	0.0	41.3	47.87423679	-103.03675540	2344.465						
16910	WELD	70,908.5	16910	0.0	41.4	47.87434956	-103.03675620	2343.328						
16920	WELD	70,949.8	16920	0.0	41.4	47.87446219	-103.03675700	2342.335						
16930	WELD	70,991.2	16930	0.0	41.3	47.87457496	-103.03675935	2341.707						
16940	WELD	71,032.5	16940	0.0	41.3	47.87468770	-103.03676246	2340.925						
16950	WELD	71,073.9	16950	0.0	41.4	47.87480038	-103.03676486	2342.164						
16960	WELD	71,115.3	16960	0.0	41.4	47.87491290	-103.03676637	2345.081						
16970	WELD	71,156.7	16970	0.0	41.4	47.87502510	-103.03676780	2349.152						
16980	WELD	71,198.0	16980	0.0	41.4	47.87513715	-103.03677031	2353.682						
16990	WELD	71,239.4	16990	0.0	41.4	47.87524957	-103.03677544	2356.809						
17000	WELD	71,280.8	17000	0.0	41.4	47.87536226	-103.03678340	2358.474						
17010	WELD	71,322.2	17010	0.0	41.4	47.87547505	-103.03678402	2356.549						
17020	WELD	71,363.6	17020	0.0	41.4	47.87558687	-103.03677391	2351.214						
17030	WELD	71,405.0	17030	0.0	41.4	47.87569829	-103.03675985	2345.229						
17040	WELD	71,446.4	17040	0.0	41.4	47.87580908	-103.03674682	2338.085						
17050	WELD	71,487.8	17050	0.0	41.4	47.87591914	-103.03673165	2329.874						
17060	WELD	71,529.2	17060	0.0	35.5	47.87603009	-103.03671717	2323.310						
11000036	WT CHANGE	71,564.7	17060	0.0	0.0	47.87612551	-103.03670624	2317.870			0.322	52000	0.72	
17070	WELD	71,564.7	17070	0.0	42.3	47.87612553	-103.03670623	2317.869						
17080	WELD	71,607.0	17080	0.0	42.3	47.87623983	-103.03669374	2313.369						
17090	WELD	71,649.3	17090	0.0	42.3	47.87635488	-103.03668940	2311.369						
17100	WELD	71,691.5	17100	0.0	39.4	47.87647012	-103.03668970	2312.273						
11000037	WT CHANGE	71,730.9	17100	0.0	0.0	47.87657757	-103.03668890	2313.625			0.188	52000	0.72	
17110	WELD	71,730.9	17110	0.0	32.9	47.87657760	-103.03668890	2313.625						
17120	WELD	71,763.9	17120	0.0	10.1	47.87666728	-103.03668719	2313.293						
10000041	Bend left - 90 deg., 6D	71,768.9	17120	1.7	8.3	47.87667987	-103.03669253	2313.008	0 12:00					
17130	WELD	71,773.9	17130	0.0	40.7	47.87668324	-103.03671173	2312.610						
17140	WELD	71,814.6	17140	0.0	41.4	47.87668568	-103.03687603	2309.794						
17150	WELD	71,856.0	17150	0.0	41.4	47.87669182	-103.03704370	2310.080						
17160	WELD	71,897.4	17160	0.0	41.4	47.87670071	-103.03721089	2311.117						
17170	WELD	71,938.9	17170	0.0	41.4	47.87671121	-103.03737810	2311.931						
17180	WELD	71,980.3	17180	0.0	41.4	47.87672204	-103.03754514	2312.700						
17190	WELD	72,021.7	17190	0.0	41.4	47.87673326	-103.03771172	2313.620						
17200	WELD	72,063.1	17200	0.0	41.3	47.87674519	-103.03787847	2314.027						
17210	WELD	72,104.4	17210	0.0	41.4	47.87675782	-103.03804507	2315.296						
17220	WELD	72,145.9	17220	0.0	41.4	47.87677033	-103.03821083	2319.808						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
17230	WELD	72,187.3	17230	0.0	41.4	47.87678131	-103.03837564	2326.346							
17240	WELD	72,228.7	17240	0.0	41.4	47.87678886	-103.03854105	2332.854							
17250	WELD	72,270.1	17250	0.0	41.4	47.87680068	-103.03870759	2333.936							
17260	WELD	72,311.5	17260	0.0	41.4	47.87681737	-103.03887298	2331.153							
17270	WELD	72,352.9	17270	0.0	41.5	47.87683304	-103.03903882	2328.394							
17280	WELD	72,394.3	17280	0.0	41.4	47.87684781	-103.03920517	2327.575							
17290	WELD	72,435.8	17290	0.0	41.4	47.87686270	-103.03937131	2329.293							
17300	WELD	72,477.1	17300	0.0	41.4	47.87687805	-103.03953746	2330.978							
17310	WELD	72,518.6	17310	0.0	41.4	47.87689430	-103.03970304	2333.187							
17320	WELD	72,560.0	17320	0.0	41.4	47.87690940	-103.03986906	2335.105							
17330	WELD	72,601.4	17330	0.0	41.4	47.87692355	-103.04003568	2336.024							
17340	WELD	72,642.8	17340	0.0	41.4	47.87693708	-103.04020229	2335.811							
17350	WELD	72,684.2	17350	0.0	41.4	47.87695031	-103.04036897	2334.372							
17360	WELD	72,725.6	17360	0.0	41.4	47.87696358	-103.04053521	2331.506							
17370	WELD	72,767.0	17370	0.0	41.4	47.87697649	-103.04070120	2327.900							
17380	WELD	72,808.3	17380	0.0	41.4	47.87698923	-103.04086706	2323.980							
17390	WELD	72,849.7	17390	0.0	41.3	47.87700148	-103.04103266	2319.276							
17400	WELD	72,891.1	17400	0.0	41.4	47.87701375	-103.04119697	2312.402							
17410	WELD	72,932.5	17410	0.0	41.4	47.87702743	-103.04136188	2306.437							
17420	WELD	72,973.9	17420	0.0	41.4	47.87704009	-103.04152822	2307.540							
17430	WELD	73,015.2	17430	0.0	41.4	47.87705227	-103.04169271	2314.151							
17440	WELD	73,056.6	17440	0.0	41.3	47.87706400	-103.04185780	2320.342							
17450	WELD	73,097.9	17450	0.0	41.3	47.87707619	-103.04202272	2326.240							
14000001	DENT	73,107.0	17450	9.0	32.3	47.87707890	-103.04205915	2327.426	42	1:15	2.3%				
17460	WELD	73,139.2	17460	0.0	41.4	47.87708846	-103.04218830	2331.572							
17470	WELD	73,180.6	17470	0.0	41.3	47.87710076	-103.04235295	2337.905							
17480	WELD	73,221.9	17480	0.0	41.3	47.87711297	-103.04251537	2347.370							
17490	WELD	73,263.2	17490	0.0	41.3	47.87712625	-103.04267917	2354.559							
17500	WELD	73,304.4	17500	0.0	41.3	47.87713709	-103.04284505	2359.178							
17510	WELD	73,345.7	17510	0.0	41.3	47.87714425	-103.04301208	2362.829							
17520	WELD	73,387.0	17520	0.0	41.3	47.87715130	-103.04317920	2365.631							
17530	WELD	73,428.3	17530	0.0	41.3	47.87715816	-103.04334661	2367.388							
17540	WELD	73,469.6	17540	0.0	41.3	47.87716499	-103.04351391	2367.896							
17550	WELD	73,510.9	17550	0.0	41.3	47.87717173	-103.04368132	2367.107							
17560	WELD	73,552.2	17560	0.0	41.4	47.87718011	-103.04384864	2365.573							
17570	WELD	73,593.6	17570	0.0	41.3	47.87718985	-103.04401582	2365.418							
17580	WELD	73,634.9	17580	0.0	41.4	47.87720047	-103.04418307	2365.474							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
17590	WELD	73,676.3	17590	0.0	41.3	47.87721222	-103.04435014	2365.585						
17600	WELD	73,717.6	17600	0.0	41.3	47.87722505	-103.04451669	2366.220						
17610	WELD	73,759.0	17610	0.0	33.7	47.87723936	-103.04468275	2367.238						
17620	WELD	73,792.7	17620	0.0	7.7	47.87725181	-103.04481822	2366.915						
17630	WELD	73,800.4	17630	0.0	41.1	47.87725504	-103.04484918	2366.927						
17640	WELD	73,841.5	17640	0.0	41.4	47.87727307	-103.04501387	2365.321						
17650	WELD	73,882.9	17650	0.0	41.4	47.87729172	-103.04517898	2363.369						
17660	WELD	73,924.2	17660	0.0	41.4	47.87730967	-103.04534446	2361.562						
17670	WELD	73,965.6	17670	0.0	41.3	47.87732637	-103.04551026	2360.044						
17680	WELD	74,007.0	17680	0.0	41.4	47.87734114	-103.04567596	2357.047						
17690	WELD	74,048.3	17690	0.0	41.4	47.87735281	-103.04584134	2351.824						
17700	WELD	74,089.7	17700	0.0	41.4	47.87736301	-103.04600717	2346.846						
17710	WELD	74,131.1	17710	0.0	41.3	47.87737335	-103.04617354	2342.518						
17720	WELD	74,172.4	17720	0.0	41.3	47.87738363	-103.04634019	2339.618						
17730	WELD	74,213.7	17730	0.0	41.4	47.87739452	-103.04650660	2336.120						
17740	WELD	74,255.1	17740	0.0	41.3	47.87740669	-103.04667289	2333.623						
17750	WELD	74,296.4	17750	0.0	41.3	47.87742041	-103.04683929	2330.972						
17760	WELD	74,337.7	17760	0.0	41.4	47.87743414	-103.04700526	2328.120						
17770	WELD	74,379.1	17770	0.0	36.3	47.87744470	-103.04717162	2324.448						
17780	WELD	74,415.4	17780	0.0	7.5	47.87745321	-103.04731800	2322.503						
10000042	Bend right - 80 deg., 5D	74,420.0	17780	1.9	5.6	47.87745713	-103.04733506	2322.379	0 12:00					
17790	WELD	74,422.9	17790	0.0	18.3	47.87746422	-103.04733984	2322.452						
17800	WELD	74,441.1	17800	0.0	36.9	47.87751446	-103.04734511	2322.681						
17810	WELD	74,478.0	17810	0.0	41.3	47.87761506	-103.04735426	2323.509						
17820	WELD	74,519.4	17820	0.0	41.4	47.87772759	-103.04736554	2324.374						
17830	WELD	74,560.7	17830	0.0	41.3	47.87784027	-103.04737621	2325.280						
17840	WELD	74,602.1	17840	0.0	41.4	47.87795297	-103.04738468	2326.601						
17850	WELD	74,643.4	17850	0.0	41.4	47.87806585	-103.04739066	2328.443						
17860	WELD	74,684.8	17860	0.0	41.3	47.87817853	-103.04739800	2331.118						
17870	WELD	74,726.1	17870	0.0	41.3	47.87829118	-103.04740599	2333.430						
17880	WELD	74,767.5	17880	0.0	41.4	47.87840389	-103.04741273	2334.346						
17890	WELD	74,808.9	17890	0.0	41.4	47.87851668	-103.04741680	2332.681						
17900	WELD	74,850.3	17900	0.0	41.4	47.87862940	-103.04741930	2329.288						
17910	WELD	74,891.7	17910	0.0	41.3	47.87874059	-103.04742453	2322.204						
17920	WELD	74,933.0	17920	0.0	41.4	47.87885119	-103.04743119	2314.075						
17930	WELD	74,974.4	17930	0.0	41.3	47.87896191	-103.04743714	2306.066						
17940	WELD	75,015.7	17940	0.0	41.3	47.87907350	-103.04744190	2300.157						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
17950	WELD	75,057.0	17950	0.0	41.4	47.87918566	-103.04744380	2295.653							
17960	WELD	75,098.4	17960	0.0	41.3	47.87929853	-103.04744620	2294.701							
17970	WELD	75,139.7	17970	0.0	41.4	47.87941107	-103.04745040	2296.290							
40000018	Metal Loss - INTERNAL	75,144.9	17970	5.2	36.2	47.87942520	-103.04745083	2296.521	29	12:45	13%	0.41	0.33	1760	100%
17980	WELD	75,181.1	17980	0.0	41.4	47.87952394	-103.04745310	2296.234							
17990	WELD	75,222.4	17990	0.0	40.8	47.87963679	-103.04745274	2295.483							
18000	WELD	75,263.3	18000	0.0	40.6	47.87974814	-103.04744733	2293.187							
18010	WELD	75,303.9	18010	0.0	33.9	47.87985867	-103.04743209	2293.142							
18020	WELD	75,337.7	18020	0.0	9.9	47.87994916	-103.04740333	2293.757							
10000043	Bend left - 90 deg., 6D	75,342.9	18020	1.9	8.0	47.87996267	-103.04740433	2293.614	0	12:00					
18030	WELD	75,347.7	18030	0.0	6.3	47.87996851	-103.04742135	2293.221							
18040	WELD	75,353.9	18040	0.0	18.7	47.87997251	-103.04744630	2292.626							
11000038	WT CHANGE	75,372.6	18040	0.0	0.0	47.87998445	-103.04751957	2290.783				0.322	52000	0.72	
18050	WELD	75,372.6	18050	0.0	42.0	47.87998445	-103.04751961	2290.782							
18060	WELD	75,414.6	18060	0.0	42.3	47.88001475	-103.04768299	2286.232							
18070	WELD	75,456.9	18070	0.0	42.3	47.88005480	-103.04784345	2283.904							
18080	WELD	75,499.2	18080	0.0	42.3	47.88010167	-103.04799995	2283.139							
18090	WELD	75,541.5	18090	0.0	42.3	47.88014091	-103.04816032	2279.175							
10000044	AGM 140, Sta. 729+65, 117' off center of rd -- Survey Point	75,568.6	18090	27.1	15.2	47.88016347	-103.04826455	2277.296							
18100	WELD	75,583.8	18100	0.0	0.5	47.88017506	-103.04832350	2275.808							
10000045	Bend left - 16 deg., 3D	75,584.0	18100	0.0	0.5	47.88017515	-103.04832433	2275.793	0	12:00					
11000039	WT CHANGE	75,584.3	18100	0.0	0.0	47.88017518	-103.04832533	2275.784				0.188	52000	0.72	
18110	WELD	75,584.3	18110	0.0	23.7	47.88017518	-103.04832536	2275.784							
18120	WELD	75,608.0	18120	0.0	40.9	47.88017686	-103.04842169	2275.190							
18130	WELD	75,648.9	18130	0.0	39.1	47.88017908	-103.04858763	2273.898							
18140	WELD	75,688.0	18140	0.0	36.1	47.88017907	-103.04874657	2274.394							
18150	WELD	75,724.2	18150	0.0	41.4	47.88017943	-103.04889309	2276.202							
18160	WELD	75,765.6	18160	0.0	41.4	47.88017990	-103.04906024	2280.420							
18170	WELD	75,807.0	18170	0.0	41.4	47.88018124	-103.04922506	2288.405							
18180	WELD	75,848.4	18180	0.0	41.4	47.88018374	-103.04938844	2298.300							
18190	WELD	75,889.8	18190	0.0	41.4	47.88018809	-103.04955371	2305.377							
18200	WELD	75,931.2	18200	0.0	41.4	47.88018931	-103.04972159	2305.386							
18210	WELD	75,972.7	18210	0.0	41.4	47.88019092	-103.04988697	2298.129							
18220	WELD	76,014.1	18220	0.0	41.4	47.88019470	-103.05005065	2289.049							
18230	WELD	76,055.5	18230	0.0	41.4	47.88020013	-103.05021492	2280.902							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
18240	WELD	76,096.9	18240	0.0	41.4	47.88020504	-103.05038126	2276.277						
18250	WELD	76,138.3	18250	0.0	41.4	47.88020991	-103.05054862	2273.440						
18260	WELD	76,179.7	18260	0.0	41.4	47.88021409	-103.05071628	2271.753						
18270	WELD	76,221.2	18270	0.0	41.4	47.88021813	-103.05088413	2271.340						
18280	WELD	76,262.6	18280	0.0	41.4	47.88022202	-103.05105190	2272.078						
18290	WELD	76,304.0	18290	0.0	41.4	47.88022629	-103.05121989	2272.128						
18300	WELD	76,345.4	18300	0.0	41.4	47.88023093	-103.05138760	2273.009						
18310	WELD	76,386.8	18310	0.0	41.4	47.88023617	-103.05155557	2273.072						
18320	WELD	76,428.2	18320	0.0	41.4	47.88024193	-103.05172340	2272.654						
18330	WELD	76,469.6	18330	0.0	41.4	47.88024815	-103.05189128	2272.269						
18340	WELD	76,511.0	18340	0.0	41.3	47.88025590	-103.05205880	2271.267						
18350	WELD	76,552.3	18350	0.0	41.4	47.88026036	-103.05222640	2271.619						
18360	WELD	76,593.6	18360	0.0	41.3	47.88026252	-103.05239454	2271.844						
18370	WELD	76,635.0	18370	0.0	41.3	47.88026384	-103.05256265	2271.194						
18380	WELD	76,676.3	18380	0.0	41.4	47.88026465	-103.05273084	2271.093						
18390	WELD	76,717.6	18390	0.0	41.3	47.88026719	-103.05289896	2271.533						
18400	WELD	76,759.0	18400	0.0	41.3	47.88027115	-103.05306687	2272.432						
18410	WELD	76,800.3	18410	0.0	41.3	47.88027494	-103.05323469	2274.372						
18420	WELD	76,841.6	18420	0.0	41.3	47.88027954	-103.05340268	2274.532						
18430	WELD	76,882.9	18430	0.0	41.3	47.88028325	-103.05357054	2275.280						
18440	WELD	76,924.3	18440	0.0	41.3	47.88028590	-103.05373842	2275.509						
18450	WELD	76,965.6	18450	0.0	41.3	47.88028821	-103.05390645	2275.941						
18460	WELD	77,006.9	18460	0.0	41.3	47.88029121	-103.05407437	2275.394						
18470	WELD	77,048.2	18470	0.0	41.3	47.88029443	-103.05424244	2275.267						
18480	WELD	77,089.5	18480	0.0	41.4	47.88029785	-103.05441054	2275.536						
18490	WELD	77,131.0	18490	0.0	41.3	47.88030134	-103.05457840	2276.303						
18500	WELD	77,172.3	18500	0.0	41.3	47.88030540	-103.05474633	2276.661						
18510	WELD	77,213.6	18510	0.0	30.5	47.88031009	-103.05491406	2278.296						
18520	WELD	77,244.2	18520	0.0	7.7	47.88031377	-103.05503752	2280.313						
10000046	Bend right - 90 deg., 5D	77,248.7	18520	1.5	6.2	47.88031742	-103.05505429	2280.432	0 12:00					
18530	WELD	77,251.9	18530	0.0	38.5	47.88032519	-103.05505927	2280.255						
18540	WELD	77,290.4	18540	0.0	41.3	47.88042978	-103.05504667	2276.364						
18550	WELD	77,331.7	18550	0.0	41.4	47.88054204	-103.05503871	2273.375						
18560	WELD	77,373.1	18560	0.0	41.3	47.88065477	-103.05503446	2271.581						
18570	WELD	77,414.4	18570	0.0	41.3	47.88076801	-103.05503044	2270.901						
18580	WELD	77,455.8	18580	0.0	41.3	47.88088111	-103.05502730	2270.326						
18590	WELD	77,497.1	18590	0.0	41.4	47.88099413	-103.05502620	2269.651						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
18600	WELD	77,538.5	18600	0.0	41.4	47.88110729	-103.05502474	2268.684						
18610	WELD	77,579.9	18610	0.0	41.3	47.88122028	-103.05502420	2269.117						
18620	WELD	77,621.2	18620	0.0	41.4	47.88133338	-103.05502258	2269.057						
18630	WELD	77,662.5	18630	0.0	41.4	47.88144657	-103.05502060	2269.351						
18640	WELD	77,703.9	18640	0.0	41.3	47.88155958	-103.05501920	2268.970						
18650	WELD	77,745.2	18650	0.0	41.3	47.88167243	-103.05501760	2268.540						
18660	WELD	77,786.5	18660	0.0	41.3	47.88178539	-103.05501417	2267.910						
18670	WELD	77,827.8	18670	0.0	41.3	47.88189842	-103.05501115	2267.508						
18680	WELD	77,869.2	18680	0.0	41.3	47.88201143	-103.05500840	2266.266						
18690	WELD	77,910.4	18690	0.0	41.3	47.88212447	-103.05500502	2265.544						
18700	WELD	77,951.8	18700	0.0	41.3	47.88223746	-103.05500160	2264.934						
18710	WELD	77,993.1	18710	0.0	26.7	47.88235044	-103.05500080	2263.555						
11000040	WT CHANGE	78,019.8	18710	0.0	0.0	47.88242339	-103.05500050	2263.201			0.322	52000	0.72	
18720	WELD	78,019.8	18720	0.0	42.3	47.88242342	-103.05500050	2263.201						
18730	WELD	78,062.1	18730	0.0	42.2	47.88253806	-103.05499736	2258.677						
18740	WELD	78,104.4	18740	0.0	42.2	47.88265250	-103.05499053	2253.767						
18750	WELD	78,146.6	18750	0.0	42.3	47.88276787	-103.05497967	2253.738						
18760	WELD	78,188.9	18760	0.0	42.2	47.88288323	-103.05497184	2254.601						
11000041	WT CHANGE	78,231.1	18760	0.0	0.0	47.88299786	-103.05496790	2258.865			0.188	52000	0.72	
18770	WELD	78,231.1	18770	0.0	40.4	47.88299789	-103.05496790	2258.866						
18780	WELD	78,271.5	18780	0.0	26.0	47.88310813	-103.05496535	2260.566						
18790	WELD	78,297.5	18790	0.0	18.2	47.88317913	-103.05496266	2260.594						
18800	WELD	78,315.7	18800	0.0	40.6	47.88322893	-103.05495984	2260.588						
18810	WELD	78,356.3	18810	0.0	41.4	47.88334001	-103.05495271	2259.980						
18820	WELD	78,397.7	18820	0.0	41.4	47.88345291	-103.05494807	2259.542						
18830	WELD	78,439.0	18830	0.0	41.4	47.88356594	-103.05494460	2259.301						
18840	WELD	78,480.4	18840	0.0	41.3	47.88367888	-103.05494200	2259.427						
18850	WELD	78,521.7	18850	0.0	41.4	47.88379194	-103.05494270	2258.936						
18860	WELD	78,563.1	18860	0.0	41.3	47.88390487	-103.05494551	2258.774						
18870	WELD	78,604.4	18870	0.0	41.2	47.88401774	-103.05494770	2258.514						
18880	WELD	78,645.6	18880	0.0	41.2	47.88413051	-103.05495241	2258.119						
18890	WELD	78,686.8	18890	0.0	41.4	47.88424292	-103.05496838	2258.034						
18900	WELD	78,728.2	18900	0.0	41.3	47.88435510	-103.05498771	2257.794						
18910	WELD	78,769.5	18910	0.0	41.4	47.88446735	-103.05500543	2257.917						
18920	WELD	78,810.9	18920	0.0	38.0	47.88457975	-103.05502124	2257.171						
18930	WELD	78,848.9	18930	0.0	40.9	47.88468307	-103.05503341	2255.753						
18940	WELD	78,889.8	18940	0.0	40.7	47.88479451	-103.05504856	2255.903						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
18950	WELD	78,930.5	18950	0.0	34.1	47.88490447	-103.05506979	2256.557							
18960	WELD	78,964.6	18960	0.0	41.3	47.88499678	-103.05508618	2257.064							
18970	WELD	79,005.8	18970	0.0	41.3	47.88510914	-103.05510147	2256.877							
18980	WELD	79,047.1	18980	0.0	41.4	47.88522143	-103.05511747	2257.106							
18990	WELD	79,088.5	18990	0.0	41.3	47.88533376	-103.05513251	2256.914							
19000	WELD	79,129.8	19000	0.0	41.3	47.88544602	-103.05514915	2256.957							
19010	WELD	79,171.1	19010	0.0	41.4	47.88555817	-103.05516865	2257.361							
19020	WELD	79,212.5	19020	0.0	41.4	47.88567034	-103.05518848	2257.808							
19030	WELD	79,253.9	19030	0.0	41.3	47.88578237	-103.05520887	2258.595							
19040	WELD	79,295.2	19040	0.0	41.3	47.88589438	-103.05523007	2259.331							
19050	WELD	79,336.5	19050	0.0	41.4	47.88600648	-103.05525137	2259.870							
19060	WELD	79,377.9	19060	0.0	41.4	47.88611854	-103.05527218	2261.150							
19070	WELD	79,419.3	19070	0.0	31.5	47.88623089	-103.05528947	2261.223							
19080	WELD	79,450.8	19080	0.0	40.5	47.88631578	-103.05530857	2261.395							
19090	WELD	79,491.3	19090	0.0	41.4	47.88642497	-103.05533461	2260.341							
19100	WELD	79,532.7	19100	0.0	41.4	47.88653725	-103.05535368	2260.045							
19110	WELD	79,574.1	19110	0.0	41.4	47.88664971	-103.05536967	2261.243							
19120	WELD	79,615.5	19120	0.0	41.4	47.88676202	-103.05538687	2262.727							
19130	WELD	79,656.9	19130	0.0	23.6	47.88687388	-103.05540325	2266.258							
19140	WELD	79,680.5	19140	0.0	15.1	47.88693785	-103.05541358	2267.862							
19150	WELD	79,695.6	19150	0.0	41.3	47.88697897	-103.05542051	2268.382							
14000002	DENT	79,730.6	19150	34.9	6.5	47.88707405	-103.05543531	2269.348	291	9:30	2.8%				
19160	WELD	79,736.9	19160	0.0	41.4	47.88709116	-103.05543784	2269.554							
19170	WELD	79,778.3	19170	0.0	41.2	47.88720336	-103.05545447	2271.100							
19180	WELD	79,819.5	19180	0.0	41.0	47.88731509	-103.05547049	2273.244							
19190	WELD	79,860.6	19190	0.0	41.0	47.88742609	-103.05548718	2274.841							
19200	WELD	79,901.6	19200	0.0	36.8	47.88753738	-103.05550563	2274.149							
19210	WELD	79,938.4	19210	0.0	7.4	47.88763717	-103.05552460	2273.629							
19220	WELD	79,945.8	19220	0.0	38.2	47.88765723	-103.05552828	2273.595							
19230	WELD	79,984.0	19230	0.0	41.4	47.88776096	-103.05554724	2272.976							
19240	WELD	80,025.4	19240	0.0	41.3	47.88787334	-103.05556461	2272.728							
19250	WELD	80,066.7	19250	0.0	41.4	47.88798536	-103.05558387	2272.284							
19260	WELD	80,108.1	19260	0.0	41.3	47.88809689	-103.05560735	2273.696							
19270	WELD	80,149.4	19270	0.0	41.2	47.88820794	-103.05563633	2275.616							
19280	WELD	80,190.6	19280	0.0	41.1	47.88831667	-103.05567961	2276.758							
19290	WELD	80,231.7	19290	0.0	41.3	47.88842189	-103.05573886	2275.571							
19300	WELD	80,273.0	19300	0.0	41.3	47.88852500	-103.05580606	2272.775							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
19310	WELD	80,314.3	19310	0.0	41.4	47.88862659	-103.05587847	2271.092						
19320	WELD	80,355.7	19320	0.0	41.4	47.88872712	-103.05595415	2270.752						
19330	WELD	80,397.1	19330	0.0	41.4	47.88882698	-103.05603130	2271.174						
19340	WELD	80,438.4	19340	0.0	41.4	47.88892623	-103.05611026	2270.672						
19350	WELD	80,479.8	19350	0.0	41.4	47.88902475	-103.05619158	2270.185						
19360	WELD	80,521.3	19360	0.0	41.3	47.88912299	-103.05627405	2270.324						
19370	WELD	80,562.6	19370	0.0	41.4	47.88922110	-103.05635642	2269.955						
19380	WELD	80,604.0	19380	0.0	41.4	47.88931877	-103.05644012	2269.157						
19390	WELD	80,645.4	19390	0.0	41.3	47.88941640	-103.05652384	2268.930						
19400	WELD	80,686.8	19400	0.0	41.3	47.88951445	-103.05660651	2268.595						
19410	WELD	80,728.0	19410	0.0	41.3	47.88961177	-103.05669081	2268.076						
19420	WELD	80,769.4	19420	0.0	41.3	47.88970931	-103.05677464	2267.314						
19430	WELD	80,810.7	19430	0.0	41.3	47.88980844	-103.05685373	2267.053						
19440	WELD	80,852.0	19440	0.0	41.3	47.88990719	-103.05693440	2265.285						
19450	WELD	80,893.2	19450	0.0	38.9	47.89000509	-103.05701678	2263.477						
19460	WELD	80,932.1	19460	0.0	7.7	47.89009747	-103.05709432	2262.724						
19470	WELD	80,939.8	19470	0.0	36.1	47.89011571	-103.05710956	2262.633						
19480	WELD	80,975.9	19480	0.0	41.3	47.89020161	-103.05718170	2262.232						
19490	WELD	81,017.2	19490	0.0	41.3	47.89029957	-103.05726548	2261.168						
19500	WELD	81,058.5	19500	0.0	41.4	47.89039719	-103.05734932	2259.924						
19510	WELD	81,099.9	19510	0.0	41.3	47.89049663	-103.05742879	2259.643						
19520	WELD	81,141.1	19520	0.0	41.4	47.89059684	-103.05750587	2259.370						
19530	WELD	81,182.5	19530	0.0	41.3	47.89069756	-103.05758173	2258.998						
19540	WELD	81,223.8	19540	0.0	41.4	47.89079724	-103.05766003	2258.940						
19550	WELD	81,265.2	19550	0.0	41.3	47.89089557	-103.05774219	2259.121						
19560	WELD	81,306.5	19560	0.0	41.3	47.89099422	-103.05782339	2259.544						
19570	WELD	81,347.8	19570	0.0	41.3	47.89109299	-103.05790408	2259.394						
19580	WELD	81,389.1	19580	0.0	41.3	47.89119160	-103.05798527	2259.646						
19590	WELD	81,430.3	19590	0.0	41.3	47.89129171	-103.05806306	2260.095						
19600	WELD	81,471.6	19600	0.0	41.2	47.89139447	-103.05813227	2261.126						
19610	WELD	81,512.9	19610	0.0	41.2	47.89150154	-103.05818539	2261.521						
19620	WELD	81,554.1	19620	0.0	41.3	47.89161272	-103.05821653	2261.347						
19630	WELD	81,595.3	19630	0.0	41.3	47.89172528	-103.05822980	2261.520						
19640	WELD	81,636.7	19640	0.0	41.2	47.89183812	-103.05823470	2261.513						
19650	WELD	81,677.9	19650	0.0	41.3	47.89195107	-103.05822859	2261.801						
19660	WELD	81,719.2	19660	0.0	41.3	47.89206382	-103.05822059	2262.589						
19670	WELD	81,760.5	19670	0.0	41.4	47.89217655	-103.05821670	2264.340						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
19680	WELD	81,801.8	19680	0.0	41.4	47.89228932	-103.05821871	2266.154						
19690	WELD	81,843.2	19690	0.0	41.3	47.89240221	-103.05822150	2268.225						
19700	WELD	81,884.5	19700	0.0	41.3	47.89251516	-103.05822330	2269.181						
19710	WELD	81,925.8	19710	0.0	41.3	47.89262783	-103.05822490	2271.267						
19720	WELD	81,967.2	19720	0.0	41.3	47.89274063	-103.05822682	2273.244						
19730	WELD	82,008.5	19730	0.0	41.3	47.89285359	-103.05822878	2275.325						
19740	WELD	82,049.8	19740	0.0	41.3	47.89296632	-103.05823020	2277.981						
19750	WELD	82,091.2	19750	0.0	41.3	47.89307908	-103.05823080	2279.719						
19760	WELD	82,132.5	19760	0.0	41.3	47.89319176	-103.05823174	2280.368						
19770	WELD	82,173.7	19770	0.0	41.3	47.89330454	-103.05823360	2280.834						
19780	WELD	82,215.0	19780	0.0	41.3	47.89341735	-103.05823480	2282.117						
19790	WELD	82,256.3	19790	0.0	41.3	47.89353001	-103.05823610	2283.720						
19800	WELD	82,297.6	19800	0.0	41.3	47.89364272	-103.05823740	2285.061						
19810	WELD	82,338.9	19810	0.0	41.3	47.89375541	-103.05823850	2286.155						
19820	WELD	82,380.2	19820	0.0	41.3	47.89386837	-103.05823882	2286.211						
19830	WELD	82,421.4	19830	0.0	41.3	47.89398128	-103.05823820	2286.428						
19840	WELD	82,462.8	19840	0.0	41.3	47.89409423	-103.05823509	2286.265						
19850	WELD	82,504.1	19850	0.0	41.3	47.89420706	-103.05823173	2286.298						
19860	WELD	82,545.4	19860	0.0	41.3	47.89431988	-103.05822910	2286.593						
19870	WELD	82,586.7	19870	0.0	41.3	47.89443265	-103.05822897	2287.517						
19880	WELD	82,628.0	19880	0.0	41.3	47.89454547	-103.05823100	2288.035						
10000047	AGM 150, Sta. 801+04, At fence line by gate -- Han #3663	82,643.3	19880	15.3	26.0	47.89458728	-103.05823184	2287.934						
19890	WELD	82,669.3	19890	0.0	41.3	47.89465821	-103.05823432	2287.917						
19900	WELD	82,710.6	19900	0.0	41.3	47.89477079	-103.05823859	2287.867						
19910	WELD	82,751.9	19910	0.0	41.3	47.89488343	-103.05824250	2288.542						
19920	WELD	82,793.1	19920	0.0	41.3	47.89499600	-103.05824491	2288.926						
19930	WELD	82,834.5	19930	0.0	41.3	47.89510866	-103.05824540	2289.528						
19940	WELD	82,875.8	19940	0.0	41.3	47.89522133	-103.05824370	2290.360						
19950	WELD	82,917.1	19950	0.0	41.4	47.89533396	-103.05824150	2290.984						
19960	WELD	82,958.4	19960	0.0	41.3	47.89544645	-103.05824110	2292.788						
19970	WELD	82,999.7	19970	0.0	41.3	47.89555897	-103.05824265	2294.048						
19980	WELD	83,041.1	19980	0.0	41.3	47.89567162	-103.05824431	2295.422						
19990	WELD	83,082.4	19990	0.0	41.4	47.89578411	-103.05824434	2296.037						
20000	WELD	83,123.8	20000	0.0	41.3	47.89589684	-103.05824250	2296.827						
20010	WELD	83,165.1	20010	0.0	41.3	47.89600930	-103.05824160	2299.996						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
20020	WELD	83,206.4	20020	0.0	41.4	47.89612145	-103.05824060	2303.885						
20030	WELD	83,247.8	20030	0.0	41.4	47.89623424	-103.05824100	2305.890						
20040	WELD	83,289.1	20040	0.0	41.3	47.89634677	-103.05824232	2307.874						
20050	WELD	83,330.4	20050	0.0	41.4	47.89645901	-103.05824367	2311.239						
20060	WELD	83,371.8	20060	0.0	41.3	47.89657099	-103.05824634	2316.297						
20070	WELD	83,413.1	20070	0.0	49.6	47.89668235	-103.05824880	2322.588						
20080	WELD	83,462.7	20080	0.0	49.5	47.89681721	-103.05825080	2324.571						
20090	WELD	83,512.2	20090	0.0	49.6	47.89695173	-103.05824860	2319.980						
20100	WELD	83,561.7	20100	0.0	49.6	47.89708673	-103.05824433	2318.696						
20110	WELD	83,611.3	20110	0.0	49.6	47.89722201	-103.05824150	2319.021						
20120	WELD	83,661.0	20120	0.0	49.5	47.89735702	-103.05823960	2321.504						
20130	WELD	83,710.4	20130	0.0	49.4	47.89749182	-103.05823730	2323.164						
20140	WELD	83,759.9	20140	0.0	49.7	47.89762658	-103.05823570	2325.697						
20150	WELD	83,809.6	20150	0.0	49.7	47.89776157	-103.05823420	2330.014						
20160	WELD	83,859.2	20160	0.0	49.5	47.89789655	-103.05823096	2333.851						
20170	WELD	83,908.7	20170	0.0	49.7	47.89803116	-103.05823505	2335.796						
20180	WELD	83,958.5	20180	0.0	49.8	47.89816653	-103.05823810	2334.545						
20190	WELD	84,008.3	20190	0.0	49.6	47.89830196	-103.05823908	2332.459						
20200	WELD	84,057.9	20200	0.0	49.4	47.89843639	-103.05824110	2327.640						
20210	WELD	84,107.3	20210	0.0	49.3	47.89857040	-103.05824270	2322.796						
20220	WELD	84,156.6	20220	0.0	49.8	47.89870440	-103.05824383	2322.521						
20230	WELD	84,206.4	20230	0.0	49.8	47.89883906	-103.05824601	2328.559						
20240	WELD	84,256.2	20240	0.0	49.4	47.89897363	-103.05824124	2334.841						
20250	WELD	84,305.6	20250	0.0	49.7	47.89910786	-103.05824289	2338.179						
20260	WELD	84,355.3	20260	0.0	49.5	47.89924336	-103.05824810	2340.511						
20270	WELD	84,404.8	20270	0.0	49.4	47.89937808	-103.05824860	2342.755						
20280	WELD	84,454.3	20280	0.0	49.5	47.89951273	-103.05824930	2344.734						
20290	WELD	84,503.7	20290	0.0	48.6	47.89964757	-103.05824970	2345.734						
20300	WELD	84,552.4	20300	0.0	49.6	47.89978009	-103.05825060	2346.327						
20310	WELD	84,601.9	20310	0.0	49.5	47.89991506	-103.05825140	2346.789						
20320	WELD	84,651.5	20320	0.0	49.5	47.90005003	-103.05825110	2347.122						
20330	WELD	84,701.0	20330	0.0	49.5	47.90018505	-103.05825095	2347.231						
20340	WELD	84,750.4	20340	0.0	49.4	47.90032017	-103.05824923	2346.371						
20350	WELD	84,799.9	20350	0.0	49.4	47.90045496	-103.05824741	2346.759						
20360	WELD	84,849.3	20360	0.0	49.4	47.90058935	-103.05824740	2349.599						
20370	WELD	84,898.7	20370	0.0	49.5	47.90072422	-103.05824750	2351.195						
20380	WELD	84,948.1	20380	0.0	49.6	47.90085945	-103.05824710	2352.438						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
20390	WELD	84,997.8	20390	0.0	50.0	47.90099476	-103.05824710	2352.920							
20400	WELD	85,047.8	20400	0.0	49.6	47.90113114	-103.05824595	2351.525							
20410	WELD	85,097.4	20410	0.0	49.5	47.90126653	-103.05824144	2349.125							
20420	WELD	85,146.9	20420	0.0	45.5	47.90140165	-103.05823964	2347.472							
20430	WELD	85,192.4	20430	0.0	8.8	47.90152566	-103.05823890	2346.851							
20440	WELD	85,201.1	20440	0.0	1.6	47.90154963	-103.05823918	2346.817							
10000048	Bend left - 45 deg., 3D	85,201.9	20440	0.1	1.5	47.90155161	-103.05823992	2346.815	0	12:00					
20450	WELD	85,202.8	20450	0.0	33.5	47.90155331	-103.05824186	2346.830							
20460	WELD	85,236.3	20460	0.0	49.6	47.90161722	-103.05834096	2347.664							
20470	WELD	85,285.9	20470	0.0	49.7	47.90170913	-103.05848960	2348.510							
20480	WELD	85,335.6	20480	0.0	49.6	47.90179979	-103.05863921	2349.104							
20490	WELD	85,385.3	20490	0.0	42.3	47.90189021	-103.05878871	2351.137							
20500	WELD	85,427.6	20500	0.0	1.6	47.90196692	-103.05891708	2352.566							
10000049	Bend right - 45 deg., 3D	85,428.4	20500	0.1	1.5	47.90196866	-103.05891855	2352.574	0	12:00					
20510	WELD	85,429.1	20510	0.0	6.8	47.90197072	-103.05891930	2352.579							
20520	WELD	85,435.9	20520	0.0	40.4	47.90198955	-103.05892053	2352.565							
20530	WELD	85,476.3	20530	0.0	49.6	47.90209964	-103.05892529	2352.148							
20540	WELD	85,525.9	20540	0.0	49.6	47.90223506	-103.05892993	2350.741							
20550	WELD	85,575.5	20550	0.0	49.5	47.90237051	-103.05893462	2349.620							
20560	WELD	85,625.1	20560	0.0	49.3	47.90250557	-103.05894107	2349.670							
20570	WELD	85,674.4	20570	0.0	49.5	47.90263992	-103.05894767	2349.544							
20580	WELD	85,723.8	20580	0.0	49.5	47.90277495	-103.05895280	2349.528							
20590	WELD	85,773.4	20590	0.0	49.6	47.90290987	-103.05895593	2349.593							
20600	WELD	85,823.0	20600	0.0	49.6	47.90304458	-103.05895966	2354.127							
20610	WELD	85,872.6	20610	0.0	49.6	47.90317910	-103.05896401	2358.812							
20620	WELD	85,922.2	20620	0.0	49.6	47.90331430	-103.05896850	2358.090							
20630	WELD	85,971.8	20630	0.0	49.7	47.90344900	-103.05897073	2353.502							
20640	WELD	86,021.4	20640	0.0	49.4	47.90358352	-103.05897190	2348.014							
20650	WELD	86,070.8	20650	0.0	49.4	47.90371793	-103.05897301	2345.900							
20660	WELD	86,120.2	20660	0.0	49.3	47.90385243	-103.05897390	2344.184							
20670	WELD	86,169.5	20670	0.0	49.6	47.90398670	-103.05897632	2342.627							
20680	WELD	86,219.2	20680	0.0	49.6	47.90412187	-103.05898135	2341.252							
20690	WELD	86,268.8	20690	0.0	49.6	47.90425682	-103.05898410	2338.419							
20000024	Seam Variation	86,278.1	20690	9.3	40.3	47.90428196	-103.05898410	2337.410	40	1:15	-	0.47	0.47		
20700	WELD	86,318.4	20700	0.0	49.6	47.90439148	-103.05898231	2333.787							
20710	WELD	86,368.0	20710	0.0	49.5	47.90452659	-103.05898000	2331.494							
20720	WELD	86,417.6	20720	0.0	44.2	47.90466080	-103.05898866	2327.639							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
20730	WELD	86,461.7	20730	0.0	49.1	47.90477998	-103.05900809	2324.241						
20740	WELD	86,510.8	20740	0.0	47.4	47.90491311	-103.05902460	2321.033						
10000050	AGM 160, Sta. 841+16, 118' off aerial marker 119 -- Survey Point	86,548.9	20740	38.1	9.3	47.90501692	-103.05903264	2320.583						
11000042	WT CHANGE	86,558.2	20740	0.0	0.0	47.90504216	-103.05903393	2320.565			0.322	52000	0.72	
20750	WELD	86,558.2	20750	0.0	6.0	47.90504219	-103.05903393	2320.565						
20760	WELD	86,564.2	20760	0.0	22.5	47.90505853	-103.05903447	2320.406						
20770	WELD	86,586.7	20770	0.0	42.2	47.90511978	-103.05903670	2319.038						
20780	WELD	86,628.9	20780	0.0	42.3	47.90523469	-103.05903102	2317.635						
20790	WELD	86,671.2	20790	0.0	42.2	47.90534888	-103.05901067	2315.457						
20800	WELD	86,713.4	20800	0.0	42.2	47.90546371	-103.05901088	2312.867						
20810	WELD	86,755.7	20810	0.0	41.9	47.90557859	-103.05902271	2311.350						
11000043	WT CHANGE	86,797.6	20810	0.0	0.0	47.90569292	-103.05902621	2311.234			0.188	52000	0.72	
20820	WELD	86,797.6	20820	0.0	33.5	47.90569294	-103.05902621	2311.233						
20830	WELD	86,831.1	20830	0.0	46.8	47.90578441	-103.05902700	2310.120						
20840	WELD	86,878.0	20840	0.0	1.3	47.90591197	-103.05902899	2308.716						
10000051	Bend left-up - 70 deg., 1.5D	86,878.6	20840	0.1	1.3	47.90591340	-103.05903025	2308.733	0 12:00					
20850	WELD	86,879.3	20850	0.0	15.1	47.90591414	-103.05903264	2308.778						
20860	WELD	86,894.4	20860	0.0	48.4	47.90592278	-103.05909428	2309.684						
20870	WELD	86,942.8	20870	0.0	20.1	47.90594771	-103.05928743	2310.144						
20880	WELD	86,962.9	20880	0.0	6.5	47.90595695	-103.05936760	2310.294						
20890	WELD	86,969.4	20890	0.0	23.1	47.90596000	-103.05939378	2310.561						
20900	WELD	86,992.5	20900	0.0	49.5	47.90597156	-103.05948599	2311.231						
20910	WELD	87,042.0	20910	0.0	49.6	47.90599970	-103.05968229	2311.970						
20920	WELD	87,091.6	20920	0.0	49.6	47.90603079	-103.05987785	2309.577						
20930	WELD	87,141.2	20930	0.0	49.3	47.90606328	-103.06007316	2307.628						
20940	WELD	87,190.4	20940	0.0	49.3	47.90609647	-103.06026687	2308.259						
20950	WELD	87,239.8	20950	0.0	49.3	47.90612977	-103.06046068	2307.710						
20960	WELD	87,289.1	20960	0.0	49.6	47.90616207	-103.06065497	2306.943						
20970	WELD	87,338.7	20970	0.0	49.6	47.90619329	-103.06085058	2306.831						
20980	WELD	87,388.2	20980	0.0	49.6	47.90622380	-103.06104658	2306.936						
20990	WELD	87,437.8	20990	0.0	49.4	47.90625591	-103.06124174	2306.627						
21000	WELD	87,487.2	21000	0.0	49.4	47.90628882	-103.06143610	2306.273						
21010	WELD	87,536.6	21010	0.0	49.3	47.90632238	-103.06163015	2305.609						
21020	WELD	87,585.8	21020	0.0	49.2	47.90635457	-103.06182422	2305.445						
21030	WELD	87,635.1	21030	0.0	49.5	47.90638589	-103.06201852	2307.227						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
21040	WELD	87,684.5	21040	0.0	49.5	47.90641653	-103.06221345	2310.054							
21050	WELD	87,734.0	21050	0.0	49.6	47.90644507	-103.06240922	2312.185							
21060	WELD	87,783.6	21060	0.0	49.6	47.90647180	-103.06260620	2310.574							
21070	WELD	87,833.2	21070	0.0	49.6	47.90650012	-103.06280279	2308.859							
21080	WELD	87,882.8	21080	0.0	27.5	47.90652391	-103.06300048	2306.472							
21090	WELD	87,910.3	21090	0.0	6.7	47.90653461	-103.06311071	2304.754							
21100	WELD	87,917.0	21100	0.0	1.3	47.90653723	-103.06313714	2304.160							
10000052	Bend right - 75 deg., 1.5D	87,917.7	21100	0.1	1.3	47.90653833	-103.06313900	2304.072	0	12:00					
21110	WELD	87,918.3	21110	0.0	6.0	47.90653989	-103.06313975	2303.981							
21120	WELD	87,924.3	21120	0.0	42.5	47.90655733	-103.06314184	2303.110							
40000019	Metal Loss - EXTERNAL	87,962.3	21120	38.0	4.6	47.90666006	-103.06315592	2299.230	292	9:30	11%	0.72	0.79	1760	100%
21130	WELD	87,966.9	21130	0.0	42.4	47.90667244	-103.06315781	2299.000							
21140	WELD	88,009.2	21140	0.0	44.8	47.90678738	-103.06317573	2298.253							
21150	WELD	88,054.0	21150	0.0	49.6	47.90690881	-103.06319378	2298.298							
21160	WELD	88,103.6	21160	0.0	49.1	47.90704316	-103.06321296	2297.100							
21170	WELD	88,152.6	21170	0.0	49.5	47.90717532	-103.06323323	2292.023							
21180	WELD	88,202.2	21180	0.0	49.6	47.90730923	-103.06325216	2288.713							
21190	WELD	88,251.8	21190	0.0	49.5	47.90744346	-103.06327095	2287.824							
21200	WELD	88,301.2	21200	0.0	49.6	47.90757769	-103.06328869	2287.822							
21210	WELD	88,350.9	21210	0.0	49.3	47.90771262	-103.06330567	2287.862							
21220	WELD	88,400.2	21220	0.0	49.5	47.90784666	-103.06332054	2287.207							
21230	WELD	88,449.7	21230	0.0	48.4	47.90798137	-103.06333821	2285.544							
21240	WELD	88,498.1	21240	0.0	49.5	47.90811285	-103.06335803	2284.732							
21250	WELD	88,547.7	21250	0.0	49.5	47.90824737	-103.06338006	2284.892							
21260	WELD	88,597.2	21260	0.0	49.1	47.90838091	-103.06340954	2285.222							
21270	WELD	88,646.3	21270	0.0	49.6	47.90851277	-103.06344599	2285.656							
21280	WELD	88,695.9	21280	0.0	44.0	47.90864435	-103.06349194	2287.524							
21290	WELD	88,740.0	21290	0.0	1.6	47.90876017	-103.06353821	2288.584							
10000053	Bend left - 45 deg., 3D	88,740.7	21290	0.1	1.5	47.90876178	-103.06354002	2288.576	0	12:00					
21300	WELD	88,741.5	21300	0.0	22.3	47.90876312	-103.06354242	2288.556							
21310	WELD	88,763.9	21310	0.0	49.3	47.90879130	-103.06362278	2288.242							
21320	WELD	88,813.2	21320	0.0	49.6	47.90885450	-103.06379946	2288.067							
21330	WELD	88,862.7	21330	0.0	49.3	47.90891639	-103.06397795	2286.612							
21340	WELD	88,912.0	21340	0.0	49.5	47.90897793	-103.06415530	2284.918							
21350	WELD	88,961.5	21350	0.0	49.5	47.90903965	-103.06433376	2282.721							
21360	WELD	89,011.1	21360	0.0	49.5	47.90910084	-103.06451311	2281.826							
21370	WELD	89,060.6	21370	0.0	49.5	47.90916179	-103.06469255	2281.752							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
21380	WELD	89,110.2	21380	0.0	49.5	47.90922309	-103.06487202	2281.651						
21390	WELD	89,159.7	21390	0.0	49.5	47.90928536	-103.06505021	2281.828						
21400	WELD	89,209.2	21400	0.0	49.6	47.90934761	-103.06522818	2282.889						
21410	WELD	89,258.8	21410	0.0	49.3	47.90940902	-103.06540673	2286.017						
21420	WELD	89,308.1	21420	0.0	49.6	47.90946666	-103.06558707	2287.975						
21430	WELD	89,357.7	21430	0.0	49.2	47.90951896	-103.06577218	2286.594						
21440	WELD	89,407.0	21440	0.0	49.5	47.90956465	-103.06595936	2284.073						
21450	WELD	89,456.5	21450	0.0	49.7	47.90960856	-103.06614855	2281.063						
21460	WELD	89,506.2	21460	0.0	47.7	47.90965313	-103.06633817	2278.494						
21470	WELD	89,553.9	21470	0.0	49.7	47.90969729	-103.06651951	2276.988						
21480	WELD	89,603.6	21480	0.0	49.7	47.90974392	-103.06670851	2276.255						
21490	WELD	89,653.3	21490	0.0	49.6	47.90978824	-103.06689810	2274.007						
21500	WELD	89,702.9	21500	0.0	49.7	47.90982936	-103.06708874	2271.269						
21510	WELD	89,752.6	21510	0.0	49.2	47.90986663	-103.06728182	2269.035						
21520	WELD	89,801.7	21520	0.0	49.4	47.90990162	-103.06747408	2267.157						
21530	WELD	89,851.1	21530	0.0	49.6	47.90993525	-103.06766777	2266.793						
21540	WELD	89,900.6	21540	0.0	49.4	47.90996643	-103.06786347	2266.296						
21550	WELD	89,950.0	21550	0.0	49.6	47.90999711	-103.06805916	2264.871						
21560	WELD	89,999.6	21560	0.0	49.5	47.91002583	-103.06825537	2262.098						
21570	WELD	90,049.1	21570	0.0	48.9	47.91005401	-103.06845132	2260.616						
21580	WELD	90,098.0	21580	0.0	48.7	47.91007979	-103.06864595	2259.728						
21590	WELD	90,146.7	21590	0.0	49.4	47.91010341	-103.06884031	2259.503						
21600	WELD	90,196.1	21600	0.0	49.3	47.91012580	-103.06903780	2258.997						
21610	WELD	90,245.4	21610	0.0	49.3	47.91014797	-103.06923526	2259.153						
21620	WELD	90,294.8	21620	0.0	49.4	47.91017020	-103.06943305	2259.628						
21630	WELD	90,344.2	21630	0.0	49.5	47.91019263	-103.06963076	2260.500						
21640	WELD	90,393.7	21640	0.0	49.0	47.91021952	-103.06982727	2259.591						
21650	WELD	90,442.7	21650	0.0	41.7	47.91025734	-103.07001840	2260.896						
11000044	WT CHANGE	90,484.3	21650	0.0	0.0	47.91028907	-103.07018037	2261.617			0.322	52000	0.72	
21660	WELD	90,484.4	21660	0.0	0.5	47.91028907	-103.07018041	2261.617						
10000054	Bend left - 20 deg., 1.5D	90,484.6	21660	0.0	0.5	47.91028916	-103.07018133	2261.615	0 12:00					
21670	WELD	90,484.9	21670	0.0	41.7	47.91028918	-103.07018231	2261.601						
21680	WELD	90,526.6	21680	0.0	42.2	47.91028144	-103.07034969	2257.252						
21690	WELD	90,568.8	21690	0.0	42.2	47.91026859	-103.07051911	2253.277						
21700	WELD	90,611.0	21700	0.0	42.2	47.91026008	-103.07068974	2251.693						
21710	WELD	90,653.2	21710	0.0	42.2	47.91024872	-103.07086007	2251.671						
21720	WELD	90,695.4	21720	0.0	42.3	47.91023781	-103.07103037	2253.821						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
21730	WELD	90,737.7	21730	0.0	42.2	47.91021976	-103.07119921	2256.129							
21740	WELD	90,779.9	21740	0.0	29.4	47.91019361	-103.07136554	2258.585							
21750	WELD	90,809.3	21750	0.0	0.7	47.91017360	-103.07148074	2260.582							
10000055	Bend left - 20 deg., 3D	90,809.7	21750	0.0	0.7	47.91017327	-103.07148200	2260.604	0	12:00					
11000045	WT CHANGE	90,810.1	21750	0.0	0.0	47.91017278	-103.07148315	2260.624				0.188	52000	0.72	
21760	WELD	90,810.1	21760	0.0	27.9	47.91017276	-103.07148318	2260.625							
21770	WELD	90,838.0	21770	0.0	45.8	47.91012849	-103.07157587	2262.046							
21780	WELD	90,883.8	21780	0.0	49.6	47.91005371	-103.07172499	2263.595							
21790	WELD	90,933.5	21790	0.0	49.1	47.90997201	-103.07188510	2266.528							
21800	WELD	90,982.5	21800	0.0	49.6	47.90989238	-103.07204528	2267.629							
21810	WELD	91,032.1	21810	0.0	50.9	47.90981266	-103.07220730	2270.095							
21820	WELD	91,083.0	21820	0.0	49.6	47.90972989	-103.07237191	2274.748							
21830	WELD	91,132.6	21830	0.0	49.3	47.90964978	-103.07253243	2280.048							
21840	WELD	91,181.9	21840	0.0	49.2	47.90957254	-103.07269429	2285.305							
20000026	Seam Variation	91,228.0	21840	46.1	3.1	47.90950277	-103.07284877	2289.378	279	9:15	-	0.47	0.71		
21850	WELD	91,231.1	21850	0.0	49.5	47.90949811	-103.07285930	2289.630							
21860	WELD	91,280.6	21860	0.0	49.6	47.90942318	-103.07302481	2295.252							
21870	WELD	91,330.2	21870	0.0	49.0	47.90934865	-103.07319062	2301.314							
21880	WELD	91,379.2	21880	0.0	19.3	47.90927583	-103.07335617	2305.259							
21890	WELD	91,398.4	21890	0.0	1.6	47.90924709	-103.07342162	2306.181							
10000056	Bend left - 48 deg., 3D	91,399.2	21890	0.1	1.5	47.90924539	-103.07342324	2306.172	0	12:00					
21900	WELD	91,400.0	21900	0.0	19.1	47.90924345	-103.07342431	2306.143							
21910	WELD	91,419.1	21910	0.0	49.4	47.90919149	-103.07343848	2305.135							
21920	WELD	91,468.5	21920	0.0	48.7	47.90906051	-103.07347487	2297.951							
21930	WELD	91,517.2	21930	0.0	49.5	47.90893115	-103.07351123	2291.087							
21940	WELD	91,566.7	21940	0.0	49.2	47.90879850	-103.07355002	2291.899							
21950	WELD	91,615.9	21950	0.0	49.5	47.90866710	-103.07358840	2294.975							
21960	WELD	91,665.5	21960	0.0	49.6	47.90853462	-103.07362499	2298.382							
21970	WELD	91,715.1	21970	0.0	49.7	47.90840210	-103.07366413	2301.200							
21980	WELD	91,764.8	21980	0.0	49.3	47.90827014	-103.07370390	2297.030							
21990	WELD	91,814.1	21990	0.0	49.5	47.90813873	-103.07374380	2293.078							
22000	WELD	91,863.6	22000	0.0	49.6	47.90800599	-103.07377965	2290.299							
22010	WELD	91,913.2	22010	0.0	49.6	47.90787323	-103.07381514	2286.792							
22020	WELD	91,962.8	22020	0.0	49.4	47.90774023	-103.07385036	2283.868							
22030	WELD	92,012.2	22030	0.0	49.7	47.90760810	-103.07388697	2280.673							
22040	WELD	92,061.9	22040	0.0	49.4	47.90747531	-103.07392435	2277.851							
22050	WELD	92,111.3	22050	0.0	49.4	47.90734344	-103.07396424	2275.625							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
22060	WELD	92,160.7	22060	0.0	49.7	47.90721181	-103.07400435	2274.043						
22070	WELD	92,210.3	22070	0.0	44.8	47.90707957	-103.07404574	2271.831						
22080	WELD	92,255.1	22080	0.0	48.6	47.90696023	-103.07408289	2269.586						
22090	WELD	92,303.7	22090	0.0	49.7	47.90683117	-103.07412265	2264.245						
22100	WELD	92,353.4	22100	0.0	45.3	47.90669840	-103.07416081	2265.828						
22110	WELD	92,398.7	22110	0.0	49.4	47.90657793	-103.07419710	2269.308						
22120	WELD	92,448.1	22120	0.0	49.6	47.90644639	-103.07423745	2269.476						
22130	WELD	92,497.7	22130	0.0	49.7	47.90631415	-103.07427781	2270.464						
22140	WELD	92,547.4	22140	0.0	49.6	47.90618140	-103.07431638	2271.514						
22150	WELD	92,597.0	22150	0.0	49.6	47.90604878	-103.07435573	2270.725						
22160	WELD	92,646.6	22160	0.0	39.9	47.90591606	-103.07439421	2270.967						
22170	WELD	92,686.5	22170	0.0	27.2	47.90580893	-103.07442247	2270.125						
22180	WELD	92,713.7	22180	0.0	49.0	47.90573602	-103.07444298	2269.072						
11000046	WT CHANGE	92,762.7	22180	0.0	0.0	47.90560568	-103.07448554	2266.222			0.322	52000	0.72	
22190	WELD	92,762.7	22190	0.0	12.1	47.90560565	-103.07448555	2266.221						
22200	WELD	92,774.8	22200	0.0	1.6	47.90557378	-103.07449782	2264.864						
10000057	Bend right - 45 deg., 1.5D	92,775.6	22200	0.3	1.3	47.90557217	-103.07449967	2264.778	0 12:00					
22210	WELD	92,776.3	22210	0.0	2.6	47.90557087	-103.07450206	2264.694						
22220	WELD	92,778.9	22220	0.0	42.2	47.90556733	-103.07451120	2264.425						
22230	WELD	92,821.2	22230	0.0	42.3	47.90550736	-103.07465821	2261.464						
22240	WELD	92,863.5	22240	0.0	42.2	47.90544419	-103.07480145	2262.426						
22250	WELD	92,905.7	22250	0.0	42.3	47.90537640	-103.07494006	2261.486						
22260	WELD	92,948.0	22260	0.0	42.2	47.90531062	-103.07508054	2262.576						
22270	WELD	92,990.2	22270	0.0	42.3	47.90524983	-103.07522612	2262.844						
10000058	AGM 170, Sta. 902+37, 144' off gravel rd -- Han #102	93,022.6	22270	32.3	9.9	47.90520632	-103.07533993	2264.318						
22280	WELD	93,032.5	22280	0.0	42.2	47.90519398	-103.07537565	2264.774						
11000047	WT CHANGE	93,074.7	22280	0.0	0.0	47.90515581	-103.07553754	2265.358			0.188	52000	0.72	
22290	WELD	93,074.7	22290	0.0	49.4	47.90515580	-103.07553758	2265.359						
22300	WELD	93,124.1	22300	0.0	49.4	47.90512106	-103.07573163	2266.190						
22310	WELD	93,173.6	22310	0.0	12.9	47.90508578	-103.07592495	2265.564						
22320	WELD	93,186.5	22320	0.0	47.7	47.90507574	-103.07597489	2265.790						
22330	WELD	93,234.2	22330	0.0	49.4	47.90503755	-103.07616006	2266.212						
22340	WELD	93,283.6	22340	0.0	49.5	47.90499764	-103.07635113	2267.942						
22350	WELD	93,333.1	22350	0.0	47.5	47.90495883	-103.07654330	2268.143						
22360	WELD	93,380.7	22360	0.0	48.9	47.90492212	-103.07672846	2268.877						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
22370	WELD	93,429.5	22370	0.0	49.7	47.90488391	-103.07691842	2269.363							
22380	WELD	93,479.2	22380	0.0	49.6	47.90484417	-103.07711092	2270.884							
22390	WELD	93,528.8	22390	0.0	49.3	47.90480408	-103.07730186	2276.877							
22400	WELD	93,578.1	22400	0.0	49.5	47.90476359	-103.07749064	2283.505							
22410	WELD	93,627.7	22410	0.0	49.3	47.90472270	-103.07768202	2284.872							
22420	WELD	93,677.0	22420	0.0	49.6	47.90468198	-103.07787305	2284.347							
22430	WELD	93,726.6	22430	0.0	48.1	47.90464062	-103.07806472	2283.877							
22440	WELD	93,774.7	22440	0.0	49.6	47.90459970	-103.07825007	2283.000							
22450	WELD	93,824.3	22450	0.0	49.7	47.90455732	-103.07844159	2283.185							
22460	WELD	93,873.9	22460	0.0	49.5	47.90451844	-103.07863480	2283.904							
22470	WELD	93,923.5	22470	0.0	49.6	47.90448009	-103.07882773	2285.203							
22480	WELD	93,973.1	22480	0.0	49.6	47.90444097	-103.07902048	2286.136							
22490	WELD	94,022.7	22490	0.0	49.5	47.90440340	-103.07921384	2286.496							
22500	WELD	94,072.1	22500	0.0	49.3	47.90436746	-103.07940731	2287.216							
22510	WELD	94,121.4	22510	0.0	49.5	47.90433309	-103.07960089	2288.036							
22520	WELD	94,170.9	22520	0.0	49.7	47.90429870	-103.07979516	2290.498							
22530	WELD	94,220.7	22530	0.0	49.7	47.90426425	-103.07998981	2293.063							
22540	WELD	94,270.4	22540	0.0	49.7	47.90423114	-103.08018483	2295.743							
22550	WELD	94,320.0	22550	0.0	49.7	47.90419691	-103.08037976	2298.082							
22560	WELD	94,369.7	22560	0.0	49.7	47.90416188	-103.08057438	2299.264							
22570	WELD	94,419.4	22570	0.0	49.7	47.90412637	-103.08076882	2301.442							
22580	WELD	94,469.1	22580	0.0	49.7	47.90409021	-103.08096344	2302.669							
22590	WELD	94,518.8	22590	0.0	49.7	47.90405434	-103.08115806	2304.334							
22600	WELD	94,568.5	22600	0.0	49.7	47.90401739	-103.08135209	2306.174							
22610	WELD	94,618.2	22610	0.0	49.3	47.90397954	-103.08154548	2307.856							
22620	WELD	94,667.5	22620	0.0	49.6	47.90394206	-103.08173747	2308.786							
40000020	Metal Loss - EXTERNAL	94,672.9	22620	5.4	44.3	47.90393801	-103.08175869	2308.966	285	9:30	12%	0.91	0.68	1760	100%
22630	WELD	94,717.1	22630	0.0	49.4	47.90390537	-103.08193179	2310.706							
22640	WELD	94,766.5	22640	0.0	49.5	47.90387342	-103.08212669	2310.934							
22650	WELD	94,815.9	22650	0.0	49.5	47.90384957	-103.08232441	2311.265							
22660	WELD	94,865.4	22660	0.0	49.6	47.90383637	-103.08252428	2311.757							
22670	WELD	94,915.0	22670	0.0	49.7	47.90383122	-103.08272585	2313.809							
22680	WELD	94,964.7	22680	0.0	49.7	47.90383342	-103.08292756	2314.203							
22690	WELD	95,014.4	22690	0.0	49.6	47.90384388	-103.08312861	2313.536							
22700	WELD	95,064.0	22700	0.0	49.7	47.90385801	-103.08332906	2315.148							
22710	WELD	95,113.7	22710	0.0	49.7	47.90387234	-103.08352939	2317.274							
22720	WELD	95,163.3	22720	0.0	41.4	47.90388511	-103.08373013	2319.855							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
22730	WELD	95,204.7	22730	0.0	10.3	47.90389677	-103.08389715	2320.805							
22740	WELD	95,215.1	22740	0.0	47.7	47.90389970	-103.08393877	2320.655							
22750	WELD	95,262.7	22750	0.0	49.7	47.90391524	-103.08413108	2320.273							
22760	WELD	95,312.5	22760	0.0	49.7	47.90393287	-103.08433078	2316.761							
22770	WELD	95,362.2	22770	0.0	49.7	47.90395016	-103.08452968	2311.382							
22780	WELD	95,411.9	22780	0.0	49.7	47.90396892	-103.08472656	2302.449							
22790	WELD	95,461.6	22790	0.0	49.4	47.90398872	-103.08492444	2296.256							
22800	WELD	95,511.0	22800	0.0	49.6	47.90400947	-103.08512271	2294.265							
22810	WELD	95,560.6	22810	0.0	49.5	47.90403073	-103.08532209	2293.634							
22820	WELD	95,610.1	22820	0.0	49.4	47.90405348	-103.08551964	2295.675							
22830	WELD	95,659.4	22830	0.0	49.6	47.90407830	-103.08571304	2305.037							
22840	WELD	95,709.0	22840	0.0	48.4	47.90410469	-103.08590613	2314.773							
22850	WELD	95,757.4	22850	0.0	45.4	47.90412738	-103.08609806	2320.042							
22860	WELD	95,802.8	22860	0.0	45.6	47.90414842	-103.08627931	2323.272							
20000028	Seam Variation	95,843.3	22860	40.4	5.1	47.90417351	-103.08643898	2326.647	90	3:00	-	0.59	0.65		
20000029	Seam Variation	95,843.4	22860	40.6	5.0	47.90417360	-103.08643948	2326.659	85	2:45	-	0.59	0.48		
20000030	Seam Variation	95,845.5	22860	42.7	2.8	47.90417514	-103.08644791	2326.861	85	2:45	-	0.47	0.42		
20000031	Seam Variation	95,845.6	22860	42.8	2.7	47.90417521	-103.08644833	2326.871	85	2:45	-	0.47	0.51		
22870	WELD	95,848.3	22870	0.0	45.4	47.90417716	-103.08645887	2327.110							
22880	WELD	95,893.7	22880	0.0	19.4	47.90421382	-103.08663481	2329.602							
22890	WELD	95,913.1	22890	0.0	48.0	47.90422990	-103.08670984	2330.364							
22900	WELD	95,961.1	22900	0.0	49.4	47.90424136	-103.08690175	2330.738							
22910	WELD	96,010.5	22910	0.0	49.7	47.90421504	-103.08709831	2329.912							
22920	WELD	96,060.2	22920	0.0	49.7	47.90417633	-103.08729123	2327.940							
22930	WELD	96,109.9	22930	0.0	49.2	47.90413870	-103.08748258	2320.550							
22940	WELD	96,159.1	22940	0.0	49.2	47.90410329	-103.08767119	2310.987							
20000032	Seam Variation	96,204.1	22940	45.0	4.3	47.90407129	-103.08784417	2303.133	290	9:30	-	0.59	0.91		
22950	WELD	96,208.3	22950	0.0	49.4	47.90406816	-103.08786068	2302.841							
22960	WELD	96,257.7	22960	0.0	49.6	47.90403196	-103.08805367	2304.751							
22970	WELD	96,307.4	22970	0.0	49.6	47.90399715	-103.08824758	2309.639							
22980	WELD	96,356.9	22980	0.0	49.5	47.90396287	-103.08844118	2314.471							
22990	WELD	96,406.5	22990	0.0	49.7	47.90392791	-103.08863533	2315.942							
23000	WELD	96,456.1	23000	0.0	49.4	47.90389071	-103.08882847	2312.900							
23010	WELD	96,505.5	23010	0.0	49.7	47.90385102	-103.08901663	2304.513							
23020	WELD	96,555.2	23020	0.0	49.6	47.90380772	-103.08920499	2296.238							
23030	WELD	96,604.8	23030	0.0	49.5	47.90376414	-103.08939259	2288.496							
23040	WELD	96,654.3	23040	0.0	49.7	47.90372100	-103.08958117	2282.626							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
23050	WELD	96,704.0	23050	0.0	49.5	47.90367928	-103.08977246	2278.511							
23060	WELD	96,753.4	23060	0.0	44.0	47.90364097	-103.08996405	2274.840							
23070	WELD	96,797.4	23070	0.0	49.6	47.90361826	-103.09013886	2271.906							
23080	WELD	96,847.0	23080	0.0	49.6	47.90360810	-103.09033904	2270.356							
23090	WELD	96,896.5	23090	0.0	49.6	47.90361370	-103.09053965	2268.552							
23100	WELD	96,946.2	23100	0.0	46.2	47.90363540	-103.09073849	2268.501							
23110	WELD	96,992.3	23110	0.0	46.0	47.90366387	-103.09092131	2270.903							
23120	WELD	97,038.3	23120	0.0	49.7	47.90369721	-103.09110132	2272.790							
23130	WELD	97,088.0	23130	0.0	49.7	47.90373871	-103.09129349	2272.886							
23140	WELD	97,137.6	23140	0.0	49.7	47.90378629	-103.09148209	2269.899							
23150	WELD	97,187.3	23150	0.0	49.5	47.90383803	-103.09166673	2263.701							
23160	WELD	97,236.9	23160	0.0	49.3	47.90389296	-103.09184985	2259.324							
40000021	Metal Loss - EXTERNAL	97,244.3	23160	7.4	41.9	47.90390153	-103.09187723	2259.286	28	12:45	10%	0.84	0.59	1760	100%
23170	WELD	97,286.2	23170	0.0	49.4	47.90394951	-103.09203099	2262.765							
23180	WELD	97,335.7	23180	0.0	49.3	47.90400756	-103.09220873	2271.212							
23190	WELD	97,385.0	23190	0.0	49.5	47.90406737	-103.09238730	2276.300							
23200	WELD	97,434.6	23200	0.0	49.5	47.90412994	-103.09256501	2280.246							
23210	WELD	97,484.0	23210	0.0	49.4	47.90419676	-103.09273938	2283.845							
23220	WELD	97,533.4	23220	0.0	49.4	47.90426508	-103.09291045	2290.337							
23230	WELD	97,582.8	23230	0.0	49.4	47.90433417	-103.09307984	2298.623							
23240	WELD	97,632.2	23240	0.0	49.3	47.90440385	-103.09324768	2307.535							
23250	WELD	97,681.4	23250	0.0	49.4	47.90447477	-103.09341606	2313.667							
23260	WELD	97,730.9	23260	0.0	46.6	47.90454787	-103.09358307	2319.066							
23270	WELD	97,777.4	23270	0.0	49.4	47.90461840	-103.09373881	2324.471							
23280	WELD	97,826.9	23280	0.0	49.5	47.90469350	-103.09390480	2329.334							
23290	WELD	97,876.3	23290	0.0	48.8	47.90476636	-103.09407285	2332.997							
23300	WELD	97,925.1	23300	0.0	36.2	47.90483712	-103.09424082	2333.619							
11000048	WT CHANGE	97,961.2	23300	0.0	0.0	47.90488996	-103.09436443	2332.891				0.322	52000	0.72	
23310	WELD	97,961.3	23310	0.0	1.6	47.90488998	-103.09436445	2332.891							
10000059	Bend right - 45 deg., 3D	97,962.0	23310	0.1	1.5	47.90489155	-103.09436633	2332.877	0	12:00					
23320	WELD	97,962.8	23320	0.0	6.2	47.90489360	-103.09436748	2332.876							
11000049	WT CHANGE	97,969.0	23320	0.0	0.0	47.90491076	-103.09437330	2332.933				0.188	52000	0.72	
23330	WELD	97,969.0	23330	0.0	44.2	47.90491079	-103.09437331	2332.933							
23340	WELD	98,013.2	23340	0.0	49.5	47.90502857	-103.09441303	2333.609							
23350	WELD	98,062.7	23350	0.0	49.6	47.90516031	-103.09445543	2333.805							
23360	WELD	98,112.3	23360	0.0	46.1	47.90529304	-103.09449361	2333.796							
11000050	WT CHANGE	98,158.4	23360	0.0	0.0	47.90541652	-103.09452582	2335.828				0.322	52000	0.72	

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
23370	WELD	98,158.4	23370	0.0	42.0	47.90541655	-103.09452582	2335.829						
23380	WELD	98,200.4	23380	0.0	42.3	47.90552912	-103.09455678	2337.892						
23390	WELD	98,242.7	23390	0.0	42.3	47.90564098	-103.09459360	2342.439						
11000051	WT CHANGE	98,285.0	23390	0.0	0.0	47.90575204	-103.09463669	2346.442			0.188	52000	0.72	
23400	WELD	98,285.0	23400	0.0	49.1	47.90575207	-103.09463670	2346.443						
23410	WELD	98,334.1	23410	0.0	49.7	47.90587915	-103.09469675	2351.781						
23420	WELD	98,383.8	23420	0.0	44.1	47.90600712	-103.09476164	2354.576						
23430	WELD	98,427.9	23430	0.0	49.1	47.90612259	-103.09481260	2355.171						
23440	WELD	98,477.0	23440	0.0	49.6	47.90625191	-103.09486425	2355.286						
23450	WELD	98,526.6	23450	0.0	49.3	47.90638218	-103.09491917	2355.016						
23460	WELD	98,575.9	23460	0.0	45.7	47.90651028	-103.09498000	2354.493						
23470	WELD	98,621.6	23470	0.0	6.3	47.90662235	-103.09506038	2353.656						
23480	WELD	98,627.9	23480	0.0	1.6	47.90663668	-103.09507427	2353.593						
10000060	Bend left - 45 deg., 3D	98,628.7	23480	0.1	1.5	47.90663794	-103.09507662	2353.596	0 12:00					
23490	WELD	98,629.5	23490	0.0	6.5	47.90663880	-103.09507944	2353.606						
23500	WELD	98,636.0	23500	0.0	45.1	47.90664258	-103.09510587	2353.755						
23510	WELD	98,681.1	23510	0.0	49.6	47.90666969	-103.09528463	2353.937						
23520	WELD	98,730.7	23520	0.0	49.5	47.90669900	-103.09548115	2355.129						
10000061	AGM 180, Sta. 959+92, 5' east of aerial marker 118 -- Survey Point	98,780.0	23520	49.3	0.3	47.90672674	-103.09567703	2355.138						
23530	WELD	98,780.2	23530	0.0	49.6	47.90672689	-103.09567805	2355.126						
23540	WELD	98,829.8	23540	0.0	44.9	47.90675681	-103.09587377	2352.565						
23550	WELD	98,874.7	23550	0.0	48.4	47.90678747	-103.09605051	2352.100						
23560	WELD	98,923.1	23560	0.0	49.5	47.90682505	-103.09623873	2352.622						
23570	WELD	98,972.6	23570	0.0	45.1	47.90686785	-103.09642921	2353.361						
23580	WELD	99,017.7	23580	0.0	49.6	47.90691242	-103.09659954	2353.629						
23590	WELD	99,067.2	23590	0.0	49.5	47.90697152	-103.09678049	2353.662						
23600	WELD	99,116.8	23600	0.0	49.6	47.90704667	-103.09694720	2353.540						
23610	WELD	99,166.4	23610	0.0	49.5	47.90714148	-103.09709065	2352.055						
23620	WELD	99,215.9	23620	0.0	49.5	47.90724617	-103.09721768	2350.597						
23630	WELD	99,265.3	23630	0.0	49.4	47.90735420	-103.09733733	2346.326						
23640	WELD	99,314.8	23640	0.0	47.6	47.90745021	-103.09747568	2341.156						
23650	WELD	99,362.4	23650	0.0	47.9	47.90753026	-103.09762549	2334.910						
23660	WELD	99,410.3	23660	0.0	49.0	47.90760977	-103.09777734	2327.588						
23670	WELD	99,459.3	23670	0.0	48.6	47.90769019	-103.09793327	2319.965						
23680	WELD	99,507.9	23680	0.0	49.6	47.90776915	-103.09808817	2311.687						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
23690	WELD	99,557.5	23690	0.0	49.6	47.90785081	-103.09824668	2304.761						
23700	WELD	99,607.2	23700	0.0	49.7	47.90793024	-103.09840703	2297.186						
23710	WELD	99,656.8	23710	0.0	47.2	47.90800550	-103.09857261	2290.210						
23720	WELD	99,704.0	23720	0.0	48.3	47.90807121	-103.09873598	2284.054						
23730	WELD	99,752.3	23730	0.0	49.6	47.90813659	-103.09890502	2278.299						
23740	WELD	99,801.9	23740	0.0	49.6	47.90820307	-103.09907950	2273.099						
23750	WELD	99,851.5	23750	0.0	49.3	47.90826981	-103.09925462	2269.568						
23760	WELD	99,900.9	23760	0.0	49.5	47.90833613	-103.09942866	2266.108						
23770	WELD	99,950.3	23770	0.0	27.5	47.90840145	-103.09960447	2263.191						
23780	WELD	99,977.8	23780	0.0	1.3	47.90843720	-103.09970254	2261.026						
10000062	Bend left - 40 deg., 3D	99,978.5	23780	0.1	1.2	47.90843762	-103.09970511	2260.979	0 12:00					
23790	WELD	99,979.2	23790	0.0	8.2	47.90843744	-103.09970774	2260.938						
23800	WELD	99,987.4	23800	0.0	46.9	47.90843357	-103.09974083	2260.459						
23810	WELD	100,034.2	23810	0.0	49.1	47.90841010	-103.09992758	2256.236						
23820	WELD	100,083.4	23820	0.0	45.6	47.90838345	-103.10012248	2252.414						
23830	WELD	100,129.0	23830	0.0	6.4	47.90835779	-103.10030238	2255.976						
23840	WELD	100,135.4	23840	0.0	42.2	47.90835379	-103.10032752	2256.628						
23850	WELD	100,177.5	23850	0.0	49.5	47.90831987	-103.10049111	2258.192						
23860	WELD	100,227.1	23860	0.0	49.6	47.90825711	-103.10066870	2256.978						
23870	WELD	100,276.7	23870	0.0	49.4	47.90817364	-103.10082658	2253.981						
23880	WELD	100,326.0	23880	0.0	49.4	47.90808375	-103.10097574	2251.815						
23890	WELD	100,375.4	23890	0.0	49.5	47.90799056	-103.10112100	2249.961						
23900	WELD	100,424.9	23900	0.0	49.4	47.90789769	-103.10126682	2246.996						
23910	WELD	100,474.2	23910	0.0	45.4	47.90780599	-103.10141377	2244.491						
23920	WELD	100,519.6	23920	0.0	49.3	47.90772233	-103.10154950	2242.858						
23930	WELD	100,569.0	23930	0.0	49.1	47.90763328	-103.10170001	2240.597						
23940	WELD	100,618.1	23940	0.0	49.5	47.90754504	-103.10185010	2237.984						
23950	WELD	100,667.6	23950	0.0	49.4	47.90745592	-103.10200148	2236.775						
23960	WELD	100,717.0	23960	0.0	49.3	47.90736682	-103.10215218	2236.503						
23970	WELD	100,766.3	23970	0.0	49.4	47.90727783	-103.10230268	2234.980						
23980	WELD	100,815.7	23980	0.0	49.6	47.90718880	-103.10245301	2232.605						
23990	WELD	100,865.2	23990	0.0	49.5	47.90709983	-103.10260446	2230.556						
24000	WELD	100,914.8	24000	0.0	31.8	47.90701174	-103.10275712	2228.990						
11000052	WT CHANGE	100,946.6	24000	0.0	0.0	47.90695510	-103.10285520	2227.428			0.322	52000	0.72	
24010	WELD	100,946.6	24010	0.0	1.6	47.90695510	-103.10285524	2227.428						
10000063	Bend right - 45 deg., 3D	100,947.4	24010	0.1	1.4	47.90695446	-103.10285822	2227.399	0 12:00					
24020	WELD	100,948.2	24020	0.0	31.1	47.90695437	-103.10286136	2227.385						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
24030	WELD	100,979.3	24030	0.0	42.3	47.90696132	-103.10298770	2227.381						
24040	WELD	101,021.6	24040	0.0	42.3	47.90697212	-103.10315814	2225.053						
24050	WELD	101,063.8	24050	0.0	42.3	47.90697813	-103.10332854	2220.965						
24060	WELD	101,106.1	24060	0.0	42.3	47.90696912	-103.10349961	2220.131						
24070	WELD	101,148.4	24070	0.0	42.3	47.90696503	-103.10367083	2218.614						
24080	WELD	101,190.6	24080	0.0	42.2	47.90697070	-103.10384201	2217.050						
24090	WELD	101,232.9	24090	0.0	42.3	47.90696351	-103.10401313	2217.897						
24100	WELD	101,275.2	24100	0.0	42.3	47.90695279	-103.10418384	2219.639						
24110	WELD	101,317.5	24110	0.0	42.2	47.90694780	-103.10435527	2218.727						
24120	WELD	101,359.7	24120	0.0	42.2	47.90694239	-103.10452646	2219.468						
11000053	WT CHANGE	101,401.9	24120	0.0	0.0	47.90693791	-103.10469657	2224.012			0.188	52000	0.72	
24130	WELD	101,401.9	24130	0.0	26.9	47.90693791	-103.10469661	2224.013						
24140	WELD	101,428.8	24140	0.0	49.1	47.90693467	-103.10480508	2226.374						
24150	WELD	101,477.9	24150	0.0	48.4	47.90692567	-103.10499979	2229.708						
11000054	WT CHANGE	101,526.2	24150	0.0	0.0	47.90690815	-103.10519794	2229.457			0.322	52000	0.72	
24160	WELD	101,526.2	24160	0.0	41.0	47.90690814	-103.10519798	2229.456						
24170	WELD	101,567.2	24170	0.0	42.3	47.90689091	-103.10536174	2226.429						
24180	WELD	101,609.5	24180	0.0	42.3	47.90687321	-103.10552984	2221.053						
24190	WELD	101,651.7	24190	0.0	42.4	47.90685681	-103.10569868	2217.004						
24200	WELD	101,694.1	24200	0.0	42.2	47.90685132	-103.10586957	2213.856						
24210	WELD	101,736.3	24210	0.0	42.3	47.90685433	-103.10604077	2212.560						
24220	WELD	101,778.6	24220	0.0	42.3	47.90685960	-103.10621196	2213.226						
24230	WELD	101,820.9	24230	0.0	42.3	47.90686868	-103.10638313	2213.495						
24240	WELD	101,863.2	24240	0.0	42.3	47.90688260	-103.10655363	2212.933						
24250	WELD	101,905.5	24250	0.0	42.3	47.90689980	-103.10672326	2211.829						
24260	WELD	101,947.8	24260	0.0	42.3	47.90691472	-103.10689335	2212.338						
24270	WELD	101,990.2	24270	0.0	42.4	47.90693441	-103.10706230	2212.548						
24280	WELD	102,032.5	24280	0.0	42.4	47.90697946	-103.10721970	2213.186						
24290	WELD	102,074.9	24290	0.0	42.3	47.90704485	-103.10736116	2212.845						
24300	WELD	102,117.3	24300	0.0	42.3	47.90711239	-103.10750039	2212.159						
24310	WELD	102,159.6	24310	0.0	42.4	47.90718026	-103.10763908	2211.709						
24320	WELD	102,202.0	24320	0.0	42.3	47.90725091	-103.10777482	2211.373						
24330	WELD	102,244.3	24330	0.0	42.4	47.90732568	-103.10790554	2210.809						
24340	WELD	102,286.7	24340	0.0	42.3	47.90740399	-103.10803164	2210.339						
24350	WELD	102,329.0	24350	0.0	42.3	47.90748341	-103.10815599	2210.233						
24360	WELD	102,371.3	24360	0.0	42.3	47.90756306	-103.10828018	2210.027						
24370	WELD	102,413.6	24370	0.0	42.3	47.90764443	-103.10840158	2209.890						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
24380	WELD	102,455.9	24380	0.0	42.3	47.90772586	-103.10852286	2209.824						
24390	WELD	102,498.2	24390	0.0	42.3	47.90780253	-103.10865104	2210.846						
24400	WELD	102,540.6	24400	0.0	42.3	47.90787806	-103.10877958	2214.412						
24410	WELD	102,582.9	24410	0.0	42.3	47.90795998	-103.10889892	2219.253						
24420	WELD	102,625.2	24420	0.0	42.3	47.90804500	-103.10901399	2222.864						
24430	WELD	102,667.4	24430	0.0	23.8	47.90812605	-103.10913579	2223.641						
11000055	WT CHANGE	102,691.3	24430	0.0	0.0	47.90817027	-103.10920654	2224.068			0.188	52000	0.72	
24440	WELD	102,691.3	24440	0.0	38.2	47.90817029	-103.10920657	2224.068						
24450	WELD	102,729.4	24450	0.0	49.7	47.90823886	-103.10932322	2225.058						
24460	WELD	102,779.1	24460	0.0	49.6	47.90832794	-103.10947506	2223.949						
24470	WELD	102,828.8	24470	0.0	49.2	47.90841675	-103.10962693	2225.583						
24480	WELD	102,878.0	24480	0.0	49.4	47.90850550	-103.10977662	2228.167						
24490	WELD	102,927.4	24490	0.0	49.3	47.90859356	-103.10992888	2228.076						
24500	WELD	102,976.7	24500	0.0	49.4	47.90868044	-103.11008221	2230.448						
24510	WELD	103,026.1	24510	0.0	49.2	47.90876458	-103.11023519	2238.193						
24520	WELD	103,075.3	24520	0.0	49.1	47.90884309	-103.11038946	2250.809						
24530	WELD	103,124.4	24530	0.0	49.3	47.90891725	-103.11055381	2256.221						
24540	WELD	103,173.8	24540	0.0	49.7	47.90898536	-103.11072670	2254.432						
24550	WELD	103,223.5	24550	0.0	49.3	47.90905011	-103.11090422	2253.208						
24560	WELD	103,272.7	24560	0.0	48.9	47.90911247	-103.11108115	2254.553						
24570	WELD	103,321.6	24570	0.0	40.5	47.90917566	-103.11125616	2252.675						
24580	WELD	103,362.1	24580	0.0	49.6	47.90922872	-103.11140038	2253.799						
24590	WELD	103,411.7	24590	0.0	49.3	47.90929371	-103.11157637	2257.151						
24600	WELD	103,461.0	24600	0.0	49.6	47.90935896	-103.11175160	2255.930						
24610	WELD	103,510.6	24610	0.0	49.5	47.90942644	-103.11192578	2253.947						
24620	WELD	103,560.1	24620	0.0	25.9	47.90950096	-103.11209263	2258.273						
24630	WELD	103,586.1	24630	0.0	11.5	47.90954139	-103.11217813	2261.046						
11000056	WT CHANGE	103,597.5	24630	0.0	0.0	47.90955973	-103.11221542	2262.051			0.322	52000	0.72	
24640	WELD	103,597.5	24640	0.0	1.0	47.90955975	-103.11221545	2262.051						
10000064	Bend right - 30 deg., 1.5D	103,598.0	24640	0.1	0.9	47.90956075	-103.11221662	2262.062	0 12:00					
24650	WELD	103,598.5	24650	0.0	18.3	47.90956186	-103.11221758	2262.059						
11000057	WT CHANGE	103,616.8	24650	0.0	0.0	47.90960649	-103.11225083	2261.736			0.188	52000	0.72	
24660	WELD	103,616.8	24660	0.0	43.0	47.90960652	-103.11225084	2261.736						
24670	WELD	103,659.8	24670	0.0	49.6	47.90971430	-103.11231882	2257.776						
24680	WELD	103,709.4	24680	0.0	49.4	47.90984206	-103.11238322	2253.734						
24690	WELD	103,758.7	24690	0.0	49.4	47.90997150	-103.11243793	2252.509						
24700	WELD	103,808.2	24700	0.0	49.2	47.91010131	-103.11248778	2257.116						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
24710	WELD	103,857.3	24710	0.0	49.3	47.91023140	-103.11253210	2261.927							
24720	WELD	103,906.6	24720	0.0	49.5	47.91036216	-103.11257261	2267.401							
24730	WELD	103,956.1	24730	0.0	49.6	47.91049436	-103.11260743	2273.428							
24740	WELD	104,005.8	24740	0.0	49.3	47.91062775	-103.11263527	2278.590							
24750	WELD	104,055.1	24750	0.0	49.3	47.91076179	-103.11265219	2282.102							
24760	WELD	104,104.4	24760	0.0	49.0	47.91089600	-103.11266098	2286.640							
24770	WELD	104,153.4	24770	0.0	49.5	47.91102843	-103.11266617	2293.594							
24780	WELD	104,202.9	24780	0.0	49.2	47.91116270	-103.11267021	2299.367							
24790	WELD	104,252.1	24790	0.0	49.4	47.91129656	-103.11267200	2303.241							
13000001	GAIN	104,253.4	24790	1.3	48.2	47.91130011	-103.11267200	2303.321	140	4:30					
24800	WELD	104,301.6	24800	0.0	49.1	47.91143103	-103.11266710	2305.558							
24810	WELD	104,350.7	24810	0.0	49.1	47.91156470	-103.11265770	2307.235							
24820	WELD	104,399.8	24820	0.0	49.3	47.91169834	-103.11264888	2310.006							
13000002	GAIN	104,440.4	24820	40.5	8.8	47.91180843	-103.11264042	2312.837	155	5:00					
24830	WELD	104,449.2	24830	0.0	49.3	47.91183234	-103.11263844	2313.342							
24840	WELD	104,498.5	24840	0.0	49.6	47.91196655	-103.11262689	2316.006							
24850	WELD	104,548.1	24850	0.0	49.7	47.91210149	-103.11261372	2317.967							
24860	WELD	104,597.8	24860	0.0	49.5	47.91223667	-103.11259855	2319.927							
24870	WELD	104,647.3	24870	0.0	49.6	47.91237131	-103.11258254	2322.311							
24880	WELD	104,696.9	24880	0.0	49.5	47.91250613	-103.11256828	2324.839							
24890	WELD	104,746.4	24890	0.0	49.6	47.91264061	-103.11255525	2327.346							
24900	WELD	104,796.0	24900	0.0	49.5	47.91277576	-103.11254399	2329.706							
40000022	Metal Loss - EXTERNAL	104,798.1	24900	2.1	47.4	47.91278159	-103.11254358	2329.794	49	1:30	15%	0.76	0.78	1760	100%
24910	WELD	104,845.5	24910	0.0	49.6	47.91291082	-103.11253596	2331.255							
24920	WELD	104,895.0	24920	0.0	49.5	47.91304601	-103.11253001	2331.304							
24930	WELD	104,944.6	24930	0.0	49.5	47.91318097	-103.11252598	2330.209							
24940	WELD	104,994.1	24940	0.0	49.5	47.91331603	-103.11252480	2329.015							
24950	WELD	105,043.6	24950	0.0	49.5	47.91345107	-103.11252420	2327.077							
24960	WELD	105,093.1	24960	0.0	49.7	47.91358604	-103.11252521	2326.948							
24970	WELD	105,142.8	24970	0.0	49.5	47.91372150	-103.11252500	2328.862							
24980	WELD	105,192.3	24980	0.0	49.7	47.91385663	-103.11252379	2330.374							
24990	WELD	105,242.0	24990	0.0	49.6	47.91399197	-103.11252210	2331.075							
25000	WELD	105,291.6	25000	0.0	49.6	47.91412737	-103.11251940	2330.934							
25010	WELD	105,341.2	25010	0.0	49.5	47.91426266	-103.11251675	2331.350							
25020	WELD	105,390.7	25020	0.0	49.5	47.91439754	-103.11251490	2331.725							
25030	WELD	105,440.2	25030	0.0	49.7	47.91453258	-103.11251301	2331.105							
25040	WELD	105,489.9	25040	0.0	49.5	47.91466798	-103.11251040	2330.576							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
25050	WELD	105,539.3	25050	0.0	49.6	47.91480292	-103.11250918	2329.607							
25060	WELD	105,588.9	25060	0.0	49.5	47.91493825	-103.11250748	2329.577							
25070	WELD	105,638.4	25070	0.0	49.3	47.91507311	-103.11250480	2329.684							
25080	WELD	105,687.8	25080	0.0	49.4	47.91520775	-103.11250170	2329.884							
25090	WELD	105,737.2	25090	0.0	49.5	47.91534254	-103.11249850	2329.957							
25100	WELD	105,786.7	25100	0.0	49.5	47.91547771	-103.11249570	2329.546							
25110	WELD	105,836.1	25110	0.0	49.5	47.91561272	-103.11249480	2329.190							
25120	WELD	105,885.7	25120	0.0	49.5	47.91574806	-103.11249660	2329.168							
25130	WELD	105,935.2	25130	0.0	47.8	47.91588348	-103.11250010	2330.010							
10000065	AGM 190, Sta. 1031+50, 117' off gravel rd -- Han #3663	105,968.4	25130	33.2	14.5	47.91597421	-103.11250192	2330.838							
25140	WELD	105,982.9	25140	0.0	8.1	47.91601395	-103.11250180	2330.961							
25150	WELD	105,991.0	25150	0.0	9.7	47.91603600	-103.11250160	2330.842							
10000066	Bend left - 90 deg., 6D	105,995.7	25150	1.4	8.2	47.91604789	-103.11250749	2330.786	0	12:00					
25160	WELD	106,000.7	25160	0.0	8.1	47.91605084	-103.11252716	2330.882							
25170	WELD	106,008.7	25170	0.0	46.5	47.91605074	-103.11256065	2331.177							
25180	WELD	106,055.3	25180	0.0	49.0	47.91605039	-103.11274872	2333.893							
25190	WELD	106,104.2	25190	0.0	49.6	47.91604967	-103.11294753	2335.885							
25200	WELD	106,153.9	25200	0.0	49.4	47.91604776	-103.11314862	2339.018							
25210	WELD	106,203.3	25210	0.0	49.6	47.91604653	-103.11334928	2342.580							
25220	WELD	106,252.9	25220	0.0	49.6	47.91604516	-103.11355058	2346.205							
25230	WELD	106,302.5	25230	0.0	49.5	47.91604290	-103.11375179	2349.830							
25240	WELD	106,352.1	25240	0.0	49.6	47.91604081	-103.11395279	2352.438							
25250	WELD	106,401.7	25250	0.0	49.6	47.91604012	-103.11415463	2353.163							
25260	WELD	106,451.3	25260	0.0	49.6	47.91604012	-103.11435663	2353.437							
25270	WELD	106,500.9	25270	0.0	49.6	47.91604128	-103.11455847	2351.597							
25280	WELD	106,550.4	25280	0.0	49.7	47.91604289	-103.11476022	2349.640							
25290	WELD	106,600.1	25290	0.0	49.5	47.91604468	-103.11496194	2347.880							
25300	WELD	106,649.6	25300	0.0	49.5	47.91604711	-103.11516311	2347.657							
25310	WELD	106,699.1	25310	0.0	49.6	47.91605106	-103.11536413	2347.123							
25320	WELD	106,748.7	25320	0.0	49.5	47.91605487	-103.11556550	2346.517							
25330	WELD	106,798.2	25330	0.0	49.7	47.91605784	-103.11576700	2346.041							
25340	WELD	106,847.9	25340	0.0	49.7	47.91606144	-103.11596887	2345.854							
25350	WELD	106,897.6	25350	0.0	49.2	47.91606442	-103.11617070	2345.792							
25360	WELD	106,946.8	25360	0.0	49.7	47.91606669	-103.11637058	2345.531							
25370	WELD	106,996.5	25370	0.0	49.4	47.91606787	-103.11657243	2345.810							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
25380	WELD	107,045.9	25380	0.0	49.5	47.91606784	-103.11677330	2345.536						
25390	WELD	107,095.4	25390	0.0	49.7	47.91606554	-103.11697382	2342.461						
25400	WELD	107,145.1	25400	0.0	49.7	47.91606244	-103.11717498	2338.965						
25410	WELD	107,194.8	25410	0.0	49.6	47.91605850	-103.11737664	2336.688						
25420	WELD	107,244.4	25420	0.0	49.6	47.91605208	-103.11757784	2335.475						
25430	WELD	107,294.0	25430	0.0	49.4	47.91604504	-103.11777942	2335.509						
25440	WELD	107,343.4	25440	0.0	49.0	47.91604201	-103.11798039	2336.187						
25450	WELD	107,392.4	25450	0.0	49.4	47.91604775	-103.11817920	2336.530						
25460	WELD	107,441.8	25460	0.0	49.5	47.91606671	-103.11837848	2336.019						
25470	WELD	107,491.3	25470	0.0	49.1	47.91609771	-103.11857415	2335.993						
25480	WELD	107,540.4	25480	0.0	49.2	47.91613214	-103.11876691	2338.573						
25490	WELD	107,589.7	25490	0.0	49.1	47.91616782	-103.11895976	2341.428						
25500	WELD	107,638.8	25500	0.0	49.5	47.91620269	-103.11915280	2342.499						
25510	WELD	107,688.3	25510	0.0	49.4	47.91624085	-103.11934568	2343.044						
25520	WELD	107,737.7	25520	0.0	48.5	47.91628840	-103.11953389	2343.984						
25530	WELD	107,786.2	25530	0.0	48.9	47.91634876	-103.11970881	2344.747						
25540	WELD	107,835.1	25540	0.0	49.4	47.91642380	-103.11987300	2344.592						
25550	WELD	107,884.5	25550	0.0	49.4	47.91650768	-103.12003030	2345.113						
25560	WELD	107,933.8	25560	0.0	49.6	47.91659505	-103.12018288	2346.713						
25570	WELD	107,983.4	25570	0.0	49.7	47.91668318	-103.12033565	2347.862						
25580	WELD	108,033.1	25580	0.0	49.6	47.91677069	-103.12049002	2348.233						
25590	WELD	108,082.7	25590	0.0	49.1	47.91685769	-103.12064414	2346.665						
25600	WELD	108,131.8	25600	0.0	49.5	47.91694353	-103.12079695	2344.363						
25610	WELD	108,181.2	25610	0.0	49.5	47.91703087	-103.12094994	2341.499						
25620	WELD	108,230.7	25620	0.0	49.5	47.91711834	-103.12110329	2340.005						
25630	WELD	108,280.2	25630	0.0	49.4	47.91720631	-103.12125592	2341.129						
25640	WELD	108,329.7	25640	0.0	49.6	47.91729297	-103.12140953	2342.041						
25650	WELD	108,379.2	25650	0.0	49.5	47.91737897	-103.12156461	2342.509						
25660	WELD	108,428.8	25660	0.0	49.5	47.91746089	-103.12172457	2343.443						
25670	WELD	108,478.3	25670	0.0	49.5	47.91753590	-103.12189156	2343.478						
25680	WELD	108,527.8	25680	0.0	49.6	47.91760171	-103.12206682	2341.688						
25690	WELD	108,577.4	25690	0.0	49.7	47.91765956	-103.12224847	2339.472						
25700	WELD	108,627.1	25700	0.0	49.7	47.91771454	-103.12243290	2337.224						
25710	WELD	108,676.8	25710	0.0	49.8	47.91776947	-103.12261731	2335.538						
25720	WELD	108,726.5	25720	0.0	49.7	47.91782365	-103.12280225	2334.834						
25730	WELD	108,776.2	25730	0.0	49.7	47.91787720	-103.12298753	2332.988						
25740	WELD	108,825.9	25740	0.0	49.6	47.91793071	-103.12317237	2329.664						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
25750	WELD	108,875.5	25750	0.0	49.4	47.91798309	-103.12335679	2325.666						
25760	WELD	108,924.9	25760	0.0	49.6	47.91803447	-103.12354155	2322.584						
25770	WELD	108,974.5	25770	0.0	49.5	47.91808402	-103.12372899	2319.590						
25780	WELD	109,024.0	25780	0.0	49.2	47.91813141	-103.12391721	2318.287						
25790	WELD	109,073.2	25790	0.0	49.5	47.91817597	-103.12410630	2317.543						
25800	WELD	109,122.8	25800	0.0	49.6	47.91821851	-103.12429744	2318.051						
25810	WELD	109,172.4	25810	0.0	49.4	47.91825976	-103.12448935	2318.146						
25820	WELD	109,221.8	25820	0.0	49.4	47.91829933	-103.12468147	2316.781						
25830	WELD	109,271.2	25830	0.0	49.4	47.91833739	-103.12487378	2314.027						
25840	WELD	109,320.6	25840	0.0	49.4	47.91837465	-103.12506647	2311.583						
25850	WELD	109,370.0	25850	0.0	47.4	47.91841199	-103.12525876	2307.870						
25860	WELD	109,417.4	25860	0.0	49.4	47.91844755	-103.12544297	2303.960						
25870	WELD	109,466.8	25870	0.0	49.5	47.91848424	-103.12563568	2301.426						
25880	WELD	109,516.3	25880	0.0	49.3	47.91852069	-103.12582958	2300.090						
25890	WELD	109,565.6	25890	0.0	49.6	47.91855694	-103.12602245	2299.256						
25900	WELD	109,615.2	25900	0.0	49.6	47.91859291	-103.12621684	2301.125						
25910	WELD	109,664.8	25910	0.0	49.6	47.91862537	-103.12641235	2302.568						
25920	WELD	109,714.5	25920	0.0	49.7	47.91865221	-103.12660983	2302.532						
25930	WELD	109,764.1	25930	0.0	49.4	47.91867345	-103.12680919	2301.174						
25940	WELD	109,813.5	25940	0.0	49.4	47.91868978	-103.12700814	2298.463						
25950	WELD	109,862.9	25950	0.0	49.4	47.91870480	-103.12720711	2295.782						
25960	WELD	109,912.3	25960	0.0	49.4	47.91871977	-103.12740594	2293.310						
25970	WELD	109,961.7	25970	0.0	49.5	47.91873551	-103.12760525	2290.928						
25980	WELD	110,011.2	25980	0.0	49.5	47.91875147	-103.12780449	2288.651						
25990	WELD	110,060.7	25990	0.0	49.6	47.91876710	-103.12800376	2286.948						
26000	WELD	110,110.3	26000	0.0	49.5	47.91877667	-103.12820429	2285.126						
26010	WELD	110,159.8	26010	0.0	49.6	47.91876680	-103.12840341	2281.261						
26020	WELD	110,209.3	26020	0.0	49.5	47.91872776	-103.12859472	2277.122						
26030	WELD	110,258.8	26030	0.0	49.5	47.91866964	-103.12877569	2274.925						
26040	WELD	110,308.3	26040	0.0	49.5	47.91858654	-103.12893310	2276.967						
26050	WELD	110,357.8	26050	0.0	49.6	47.91848343	-103.12906202	2279.491						
26060	WELD	110,407.4	26060	0.0	48.9	47.91837318	-103.12917799	2280.073						
26070	WELD	110,456.3	26070	0.0	49.5	47.91826216	-103.12928832	2279.435						
26080	WELD	110,505.7	26080	0.0	49.5	47.91814876	-103.12939721	2280.812						
26090	WELD	110,555.2	26090	0.0	49.4	47.91803490	-103.12950536	2282.505						
26100	WELD	110,604.7	26100	0.0	49.6	47.91792145	-103.12961383	2284.091						
26110	WELD	110,654.2	26110	0.0	49.4	47.91780827	-103.12972324	2282.923						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
26120	WELD	110,703.6	26120	0.0	49.5	47.91769544	-103.12983159	2278.868						
26130	WELD	110,753.1	26130	0.0	49.5	47.91758250	-103.12993937	2274.354						
26140	WELD	110,802.6	26140	0.0	49.0	47.91746975	-103.13004764	2269.116						
26150	WELD	110,851.6	26150	0.0	49.5	47.91735807	-103.13015635	2265.434						
26160	WELD	110,901.1	26160	0.0	49.5	47.91724527	-103.13026653	2263.178						
26170	WELD	110,950.6	26170	0.0	49.7	47.91713222	-103.13037658	2262.625						
26180	WELD	111,000.3	26180	0.0	49.5	47.91701818	-103.13048570	2263.825						
26190	WELD	111,049.7	26190	0.0	49.5	47.91690426	-103.13059348	2265.728						
26200	WELD	111,099.2	26200	0.0	49.5	47.91679089	-103.13070213	2266.857						
26210	WELD	111,148.7	26210	0.0	49.2	47.91667785	-103.13081166	2267.201						
26220	WELD	111,197.9	26220	0.0	49.5	47.91656533	-103.13092023	2266.336						
26230	WELD	111,247.4	26230	0.0	49.5	47.91645197	-103.13102920	2264.868						
26240	WELD	111,297.0	26240	0.0	49.5	47.91633896	-103.13113901	2262.335						
26250	WELD	111,346.4	26250	0.0	48.8	47.91622585	-103.13124856	2261.969						
26260	WELD	111,395.2	26260	0.0	49.0	47.91611417	-103.13135566	2260.646						
26270	WELD	111,444.1	26270	0.0	49.3	47.91600259	-103.13146458	2259.161						
26280	WELD	111,493.4	26280	0.0	49.6	47.91588970	-103.13157322	2258.304						
26290	WELD	111,543.0	26290	0.0	49.5	47.91577631	-103.13168381	2257.951						
26300	WELD	111,592.5	26300	0.0	48.8	47.91566311	-103.13179368	2257.377						
26310	WELD	111,641.3	26310	0.0	29.8	47.91555170	-103.13190213	2255.184						
11000058	WT CHANGE	111,671.1	26310	0.0	0.0	47.91548369	-103.13196836	2254.294			0.322	52000	0.72	
26320	WELD	111,671.1	26320	0.0	9.8	47.91548367	-103.13196838	2254.294						
10000067	Bend right - 90 deg., 6D	111,675.8	26320	1.5	8.2	47.91547591	-103.13198316	2254.257	0 12:00					
10000068	AGM 200, Sta. 1090+77, At aerial marker 117 -- Han #141	111,673.0	26320	2.0	7.8	47.91547922	-103.13197321	2254.221						
26330	WELD	111,680.8	26330	0.0	34.0	47.91548069	-103.13200203	2254.659						
26340	WELD	111,714.8	26340	0.0	42.2	47.91552685	-103.13212275	2255.352						
26350	WELD	111,757.1	26350	0.0	42.2	47.91557605	-103.13227647	2259.749						
26360	WELD	111,799.3	26360	0.0	42.3	47.91561101	-103.13243685	2267.019						
26370	WELD	111,841.6	26370	0.0	42.2	47.91563548	-103.13260402	2269.429						
11000059	WT CHANGE	111,883.8	26370	0.0	0.0	47.91564898	-103.13277415	2270.448			0.188	52000	0.72	
26380	WELD	111,883.8	26380	0.0	16.6	47.91564898	-103.13277419	2270.448						
26390	WELD	111,900.4	26390	0.0	6.0	47.91565273	-103.13284096	2270.193						
26400	WELD	111,906.4	26400	0.0	11.3	47.91565381	-103.13286555	2270.049						
26410	WELD	111,917.7	26410	0.0	14.5	47.91565439	-103.13291147	2270.017						
26420	WELD	111,932.2	26420	0.0	49.3	47.91565340	-103.13297027	2270.121						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
26430	WELD	111,981.5	26430	0.0	49.0	47.91562897	-103.13316438	2269.039						
26440	WELD	112,030.5	26440	0.0	31.6	47.91554939	-103.13332304	2265.948						
26450	WELD	112,062.1	26450	0.0	48.6	47.91549282	-103.13341903	2263.995						
26460	WELD	112,110.6	26460	0.0	49.6	47.91540536	-103.13356583	2260.201						
26470	WELD	112,160.3	26470	0.0	49.6	47.91531671	-103.13371727	2257.170						
26480	WELD	112,209.9	26480	0.0	49.7	47.91522765	-103.13386768	2254.026						
26490	WELD	112,259.6	26490	0.0	49.6	47.91513878	-103.13401864	2250.908						
26500	WELD	112,309.3	26500	0.0	49.7	47.91505147	-103.13417118	2247.293						
26510	WELD	112,359.0	26510	0.0	49.7	47.91496439	-103.13432474	2244.131						
26520	WELD	112,408.6	26520	0.0	49.7	47.91487728	-103.13447799	2241.166						
26530	WELD	112,458.3	26530	0.0	49.7	47.91478935	-103.13463100	2238.205						
26540	WELD	112,508.1	26540	0.0	49.7	47.91470132	-103.13478402	2236.175						
26550	WELD	112,557.8	26550	0.0	49.7	47.91461319	-103.13493625	2234.407						
26560	WELD	112,607.4	26560	0.0	49.4	47.91452485	-103.13508856	2233.345						
26570	WELD	112,656.8	26570	0.0	49.7	47.91443658	-103.13523940	2231.453						
26580	WELD	112,706.5	26580	0.0	49.8	47.91434770	-103.13539102	2229.304						
26590	WELD	112,756.3	26590	0.0	49.7	47.91425904	-103.13554337	2228.538						
26600	WELD	112,805.9	26600	0.0	49.6	47.91417105	-103.13569672	2229.156						
26610	WELD	112,855.6	26610	0.0	49.4	47.91408420	-103.13585059	2228.740						
26620	WELD	112,905.0	26620	0.0	49.6	47.91399797	-103.13600402	2225.548						
26630	WELD	112,954.6	26630	0.0	49.2	47.91391179	-103.13615820	2221.563						
26640	WELD	113,003.7	26640	0.0	49.6	47.91382707	-103.13631217	2218.969						
26650	WELD	113,053.4	26650	0.0	49.2	47.91374148	-103.13646768	2216.340						
26660	WELD	113,102.6	26660	0.0	45.2	47.91365639	-103.13662177	2212.863						
26670	WELD	113,147.9	26670	0.0	49.6	47.91357829	-103.13676324	2210.258						
26680	WELD	113,197.4	26680	0.0	49.5	47.91349258	-103.13691896	2210.185						
26690	WELD	113,246.9	26690	0.0	49.3	47.91340599	-103.13707360	2210.844						
26700	WELD	113,296.2	26700	0.0	49.5	47.91331876	-103.13722619	2210.786						
26710	WELD	113,345.8	26710	0.0	49.5	47.91323013	-103.13737768	2211.918						
26720	WELD	113,395.3	26720	0.0	49.5	47.91314129	-103.13753002	2213.936						
26730	WELD	113,444.8	26730	0.0	49.5	47.91305282	-103.13768250	2213.662						
26740	WELD	113,494.3	26740	0.0	49.6	47.91296485	-103.13783518	2210.904						
26750	WELD	113,543.9	26750	0.0	49.6	47.91287610	-103.13798636	2206.894						
26760	WELD	113,593.4	26760	0.0	49.7	47.91278706	-103.13813577	2200.516						
26770	WELD	113,643.1	26770	0.0	49.6	47.91269751	-103.13828528	2194.673						
26780	WELD	113,692.7	26780	0.0	49.6	47.91260897	-103.13843750	2191.124						
26790	WELD	113,742.4	26790	0.0	49.6	47.91252148	-103.13859161	2190.729						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
26800	WELD	113,792.0	26800	0.0	49.3	47.91243335	-103.13874445	2190.838							
26810	WELD	113,841.3	26810	0.0	49.6	47.91234391	-103.13889403	2190.629							
26820	WELD	113,890.9	26820	0.0	49.2	47.91225320	-103.13904375	2189.919							
26830	WELD	113,940.1	26830	0.0	49.1	47.91216441	-103.13919413	2188.979							
26840	WELD	113,989.2	26840	0.0	44.6	47.91207819	-103.13934715	2186.681							
26850	WELD	114,033.7	26850	0.0	49.2	47.91200018	-103.13948572	2183.434							
26860	WELD	114,082.9	26860	0.0	49.6	47.91191420	-103.13963867	2180.263							
26870	WELD	114,132.6	26870	0.0	49.6	47.91182749	-103.13979316	2178.047							
26880	WELD	114,182.2	26880	0.0	49.6	47.91174046	-103.13994765	2176.489							
26890	WELD	114,231.8	26890	0.0	49.4	47.91165253	-103.14010089	2175.761							
26900	WELD	114,281.2	26900	0.0	49.6	47.91156408	-103.14025215	2173.829							
26910	WELD	114,330.8	26910	0.0	49.4	47.91147452	-103.14040340	2171.844							
26920	WELD	114,380.2	26920	0.0	49.3	47.91138538	-103.14055372	2171.411							
26930	WELD	114,429.5	26930	0.0	49.6	47.91129788	-103.14070600	2171.130							
26940	WELD	114,479.1	26940	0.0	49.6	47.91121110	-103.14086043	2170.072							
26950	WELD	114,528.7	26950	0.0	49.4	47.91112428	-103.14101503	2167.915							
26960	WELD	114,578.0	26960	0.0	49.5	47.91103811	-103.14116861	2165.032							
26970	WELD	114,627.6	26970	0.0	49.7	47.91094784	-103.14131810	2161.994							
26980	WELD	114,677.2	26980	0.0	49.7	47.91085446	-103.14146434	2160.776							
26990	WELD	114,726.9	26990	0.0	49.6	47.91076339	-103.14161350	2157.540							
27000	WELD	114,776.5	27000	0.0	49.6	47.91067621	-103.14176769	2154.742							
27010	WELD	114,826.1	27010	0.0	49.7	47.91058868	-103.14192142	2153.063							
27020	WELD	114,875.8	27020	0.0	49.5	47.91050140	-103.14207517	2152.102							
27030	WELD	114,925.3	27030	0.0	49.2	47.91041318	-103.14222784	2150.807							
27040	WELD	114,974.5	27040	0.0	49.5	47.91032554	-103.14237902	2149.727							
27050	WELD	115,024.0	27050	0.0	49.3	47.91023707	-103.14253097	2148.472							
27060	WELD	115,073.3	27060	0.0	49.5	47.91014940	-103.14268341	2148.160							
40000023	Metal Loss - EXTERNAL	115,081.0	27060	7.7	41.8	47.91013580	-103.14270737	2148.015	61	2:00	12%	0.54	0.61	1760	100%
27070	WELD	115,122.8	27070	0.0	49.5	47.91006167	-103.14283631	2146.946							
27080	WELD	115,172.3	27080	0.0	49.6	47.90997407	-103.14298936	2145.288							
27090	WELD	115,221.9	27090	0.0	49.5	47.90988702	-103.14314306	2144.603							
27100	WELD	115,271.4	27100	0.0	49.6	47.90979851	-103.14329486	2143.304							
27110	WELD	115,321.0	27110	0.0	49.5	47.90970918	-103.14344571	2142.493							
20000036	Seam Variation	115,366.5	27110	45.4	4.1	47.90962571	-103.14358216	2141.435	341	11:15	-	0.82	0.49		
27120	WELD	115,370.5	27120	0.0	49.3	47.90961826	-103.14359432	2141.376							
27130	WELD	115,419.9	27130	0.0	49.7	47.90952914	-103.14374399	2140.045							
27140	WELD	115,469.5	27140	0.0	49.3	47.90944094	-103.14389715	2139.519							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
27150	WELD	115,518.9	27150	0.0	41.5	47.90935261	-103.14404809	2138.248							
27160	WELD	115,560.4	27160	0.0	6.6	47.90927618	-103.14417222	2138.286							
11000060	WT CHANGE	115,567.0	27160	0.0	0.0	47.90926411	-103.14419210	2138.172				0.322	52000	0.72	
27170	WELD	115,567.0	27170	0.0	0.5	47.90926410	-103.14419214	2138.172							
10000069	Bend right - 20 deg., 1.5D	115,567.2	27170	0.0	0.4	47.90926376	-103.14419293	2138.171	0	12:00					
27180	WELD	115,567.5	27180	0.0	41.7	47.90926342	-103.14419373	2138.169							
40000024	Metal Loss - EXTERNAL	115,575.1	27180	7.5	34.2	47.90925483	-103.14422175	2138.137	63	2:00	23%	1.40	2.21	3014	100%
27190	WELD	115,609.2	27190	0.0	42.2	47.90921586	-103.14434753	2137.399							
27200	WELD	115,651.4	27200	0.0	42.3	47.90916770	-103.14450334	2137.322							
27210	WELD	115,693.7	27210	0.0	42.2	47.90912038	-103.14465961	2137.587							
11000061	WT CHANGE	115,735.9	27210	0.0	0.0	47.90907345	-103.14481575	2139.579				0.188	52000	0.72	
27220	WELD	115,735.9	27220	0.0	49.6	47.90907344	-103.14481579	2139.579							
27230	WELD	115,785.5	27230	0.0	49.6	47.90901491	-103.14499642	2136.908							
27240	WELD	115,835.1	27240	0.0	49.5	47.90895472	-103.14517619	2133.822							
27250	WELD	115,884.5	27250	0.0	49.0	47.90889720	-103.14535731	2131.652							
27260	WELD	115,933.5	27260	0.0	13.2	47.90883986	-103.14553707	2130.662							
27270	WELD	115,946.8	27270	0.0	48.3	47.90882446	-103.14558554	2130.228							
27280	WELD	115,995.1	27280	0.0	49.4	47.90876786	-103.14576316	2130.616							
27290	WELD	116,044.5	27290	0.0	49.7	47.90870991	-103.14594457	2131.266							
27300	WELD	116,094.2	27300	0.0	49.6	47.90865076	-103.14612607	2130.994							
27310	WELD	116,143.7	27310	0.0	49.5	47.90859122	-103.14630648	2129.515							
27320	WELD	116,193.3	27320	0.0	49.5	47.90853008	-103.14648621	2128.892							
27330	WELD	116,242.8	27330	0.0	49.6	47.90846903	-103.14666582	2129.199							
27340	WELD	116,292.5	27340	0.0	49.6	47.90840924	-103.14684678	2128.918							
20000038	Seam Variation	116,312.1	27340	19.6	30.0	47.90838587	-103.14691835	2128.680	84	2:45	-	0.78	0.62		
27350	WELD	116,342.1	27350	0.0	49.6	47.90835028	-103.14702780	2127.806							
27360	WELD	116,391.6	27360	0.0	49.2	47.90829085	-103.14720875	2126.774							
27370	WELD	116,440.8	27370	0.0	49.3	47.90823185	-103.14738798	2126.191							
27380	WELD	116,490.1	27380	0.0	49.6	47.90817349	-103.14756792	2124.461							
27390	WELD	116,539.7	27390	0.0	49.6	47.90811438	-103.14774929	2124.120							
27400	WELD	116,589.3	27400	0.0	49.7	47.90805526	-103.14793095	2124.225							
27410	WELD	116,639.0	27410	0.0	49.7	47.90799595	-103.14811233	2124.419							
27420	WELD	116,688.7	27420	0.0	49.7	47.90793628	-103.14829382	2126.207							
27430	WELD	116,738.4	27430	0.0	49.7	47.90787655	-103.14847442	2129.174							
27440	WELD	116,788.0	27440	0.0	49.7	47.90781695	-103.14865497	2128.052							
27450	WELD	116,837.8	27450	0.0	49.4	47.90775743	-103.14883654	2127.275							
27460	WELD	116,887.2	27460	0.0	49.5	47.90769960	-103.14901743	2129.567							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
27470	WELD	116,936.6	27470	0.0	49.7	47.90764299	-103.14919948	2131.631						
27480	WELD	116,986.3	27480	0.0	49.7	47.90760333	-103.14939196	2132.783						
27490	WELD	117,036.1	27490	0.0	49.7	47.90759252	-103.14959286	2132.733						
27500	WELD	117,085.8	27500	0.0	48.3	47.90759170	-103.14979451	2134.124						
27510	WELD	117,134.0	27510	0.0	49.7	47.90759121	-103.14999003	2136.285						
27520	WELD	117,183.7	27520	0.0	49.8	47.90759091	-103.15019189	2137.183						
27530	WELD	117,233.5	27530	0.0	49.8	47.90759171	-103.15039411	2136.330						
27540	WELD	117,283.3	27540	0.0	49.7	47.90759169	-103.15059627	2134.835						
27550	WELD	117,333.0	27550	0.0	49.5	47.90759035	-103.15079772	2134.441						
27560	WELD	117,382.5	27560	0.0	49.5	47.90758894	-103.15099861	2134.020						
27570	WELD	117,432.0	27570	0.0	49.3	47.90758778	-103.15119968	2134.495						
27580	WELD	117,481.2	27580	0.0	49.5	47.90758791	-103.15139932	2134.542						
27590	WELD	117,530.8	27590	0.0	49.7	47.90758802	-103.15160066	2135.165						
27600	WELD	117,580.5	27600	0.0	48.1	47.90758754	-103.15180254	2136.536						
27610	WELD	117,628.6	27610	0.0	45.7	47.90758755	-103.15199745	2138.518						
27620	WELD	117,674.3	27620	0.0	49.7	47.90758850	-103.15218304	2140.362						
27630	WELD	117,724.0	27630	0.0	48.1	47.90759095	-103.15238455	2142.258						
27640	WELD	117,772.0	27640	0.0	49.6	47.90759253	-103.15257919	2143.903						
27650	WELD	117,821.6	27650	0.0	49.7	47.90759351	-103.15278000	2146.442						
27660	WELD	117,871.3	27660	0.0	49.0	47.90759320	-103.15298148	2147.322						
27670	WELD	117,920.3	27670	0.0	49.7	47.90759219	-103.15318048	2147.064						
27680	WELD	117,970.1	27680	0.0	49.7	47.90759189	-103.15338233	2145.455						
27690	WELD	118,019.8	27690	0.0	49.4	47.90759172	-103.15358376	2143.222						
27700	WELD	118,069.2	27700	0.0	49.7	47.90759082	-103.15378398	2140.092						
27710	WELD	118,118.9	27710	0.0	49.6	47.90759140	-103.15398440	2135.038						
27720	WELD	118,168.5	27720	0.0	49.4	47.90759122	-103.15418546	2131.625						
27730	WELD	118,218.0	27730	0.0	49.5	47.90759138	-103.15438583	2128.091						
27740	WELD	118,267.5	27740	0.0	49.6	47.90759163	-103.15458636	2125.102						
27750	WELD	118,317.1	27750	0.0	49.5	47.90759100	-103.15478774	2121.585						
27760	WELD	118,366.6	27760	0.0	49.6	47.90759028	-103.15498858	2118.478						
27770	WELD	118,416.2	27770	0.0	47.2	47.90759113	-103.15519003	2115.551						
27780	WELD	118,463.4	27780	0.0	49.5	47.90759217	-103.15538130	2113.178						
27790	WELD	118,512.8	27790	0.0	49.6	47.90759357	-103.15558197	2111.358						
27800	WELD	118,562.5	27800	0.0	49.0	47.90759492	-103.15578334	2109.085						
27810	WELD	118,611.4	27810	0.0	49.5	47.90759527	-103.15598248	2106.064						
27820	WELD	118,661.0	27820	0.0	49.4	47.90759641	-103.15618297	2102.439						
27830	WELD	118,710.3	27830	0.0	49.7	47.90759898	-103.15638322	2100.541						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
27840	WELD	118,760.0	27840	0.0	49.5	47.90760042	-103.15658488	2098.732						
27850	WELD	118,809.5	27850	0.0	49.4	47.90760146	-103.15678592	2097.295						
27860	WELD	118,858.9	27860	0.0	49.4	47.90760262	-103.15698658	2096.182						
27870	WELD	118,908.3	27870	0.0	49.7	47.90760417	-103.15718715	2093.812						
27880	WELD	118,958.0	27880	0.0	49.4	47.90760488	-103.15738886	2092.146						
27890	WELD	119,007.4	27890	0.0	46.4	47.90760475	-103.15758964	2091.832						
27900	WELD	119,053.9	27900	0.0	18.0	47.90760567	-103.15777824	2090.676						
27910	WELD	119,071.9	27910	0.0	49.7	47.90760613	-103.15785154	2090.684						
27920	WELD	119,121.6	27920	0.0	49.5	47.90760725	-103.15805318	2090.413						
27930	WELD	119,171.1	27930	0.0	49.1	47.90760910	-103.15825391	2088.996						
11000062	WT CHANGE	119,220.3	27930	0.0	0.0	47.90761455	-103.15845333	2088.290			0.322	52000	0.72	
27940	WELD	119,220.3	27940	0.0	42.1	47.90761455	-103.15845337	2088.290						
27950	WELD	119,262.4	27950	0.0	42.3	47.90762000	-103.15862427	2087.793						
27960	WELD	119,304.7	27960	0.0	42.3	47.90762470	-103.15879556	2086.374						
27970	WELD	119,347.0	27970	0.0	42.3	47.90762285	-103.15896690	2084.745						
27980	WELD	119,389.2	27980	0.0	42.2	47.90761369	-103.15913758	2084.142						
27990	WELD	119,431.4	27990	0.0	42.2	47.90760264	-103.15930791	2084.935						
28000	WELD	119,473.6	28000	0.0	42.2	47.90760037	-103.15947921	2086.321						
28010	WELD	119,515.9	28010	0.0	42.2	47.90760634	-103.15965021	2086.290						
28020	WELD	119,558.1	28020	0.0	42.2	47.90761144	-103.15982116	2085.180						
28030	WELD	119,600.4	28030	0.0	42.2	47.90761455	-103.15999232	2083.924						
28040	WELD	119,642.6	28040	0.0	42.2	47.90762022	-103.16016354	2084.145						
28050	WELD	119,684.8	28050	0.0	42.2	47.90762629	-103.16033463	2085.232						
11000063	WT CHANGE	119,727.1	28050	0.0	0.0	47.90762724	-103.16050607	2085.775			0.188	52000	0.72	
28060	WELD	119,727.1	28060	0.0	49.2	47.90762724	-103.16050611	2085.775						
28070	WELD	119,776.3	28070	0.0	49.6	47.90763023	-103.16070589	2087.346						
28080	WELD	119,825.9	28080	0.0	27.1	47.90763264	-103.16090748	2087.195						
28090	WELD	119,853.0	28090	0.0	49.0	47.90763382	-103.16101736	2087.092						
28100	WELD	119,902.0	28100	0.0	49.4	47.90763463	-103.16121648	2088.501						
28110	WELD	119,951.4	28110	0.0	49.7	47.90763578	-103.16141698	2089.236						
28120	WELD	120,001.0	28120	0.0	49.5	47.90763732	-103.16161857	2089.407						
28130	WELD	120,050.5	28130	0.0	49.7	47.90763727	-103.16181918	2089.751						
28140	WELD	120,100.2	28140	0.0	49.6	47.90763656	-103.16202079	2090.856						
28150	WELD	120,149.8	28150	0.0	49.6	47.90763596	-103.16222226	2090.781						
28160	WELD	120,199.4	28160	0.0	49.7	47.90763630	-103.16242350	2091.102						
28170	WELD	120,249.1	28170	0.0	49.6	47.90763832	-103.16262507	2092.425						
28180	WELD	120,298.7	28180	0.0	49.7	47.90763979	-103.16282652	2093.198						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
28190	WELD	120,348.4	28190	0.0	49.3	47.90764010	-103.16302800	2095.708						
28200	WELD	120,397.7	28200	0.0	49.7	47.90764058	-103.16322823	2097.999						
28210	WELD	120,447.4	28210	0.0	49.4	47.90764175	-103.16342988	2098.841						
28220	WELD	120,496.8	28220	0.0	49.7	47.90764337	-103.16362990	2101.490						
28230	WELD	120,546.5	28230	0.0	49.7	47.90764579	-103.16383039	2106.886						
28240	WELD	120,596.2	28240	0.0	49.4	47.90764739	-103.16403140	2110.522						
28250	WELD	120,645.6	28250	0.0	49.7	47.90764833	-103.16423164	2111.993						
28260	WELD	120,695.3	28260	0.0	49.7	47.90764853	-103.16443327	2112.948						
28270	WELD	120,745.0	28270	0.0	49.7	47.90764827	-103.16463448	2114.845						
28280	WELD	120,794.7	28280	0.0	49.6	47.90764874	-103.16483574	2116.756						
28290	WELD	120,844.3	28290	0.0	49.7	47.90764975	-103.16503655	2117.333						
28300	WELD	120,894.0	28300	0.0	49.4	47.90765007	-103.16523813	2118.032						
28310	WELD	120,943.3	28310	0.0	49.7	47.90765168	-103.16543824	2118.818						
28320	WELD	120,993.0	28320	0.0	49.7	47.90765301	-103.16563963	2119.375						
28330	WELD	121,042.7	28330	0.0	49.4	47.90765348	-103.16584080	2120.213						
28340	WELD	121,092.1	28340	0.0	49.7	47.90765345	-103.16604121	2122.491						
28350	WELD	121,141.8	28350	0.0	49.6	47.90765405	-103.16624213	2123.369						
28360	WELD	121,191.3	28360	0.0	49.7	47.90765658	-103.16644281	2123.581						
28370	WELD	121,241.0	28370	0.0	49.7	47.90765849	-103.16664399	2122.200						
28380	WELD	121,290.7	28380	0.0	49.6	47.90765956	-103.16684504	2119.672						
28390	WELD	121,340.3	28390	0.0	49.7	47.90766018	-103.16704578	2117.317						
28400	WELD	121,390.0	28400	0.0	49.8	47.90766205	-103.16724731	2115.046						
28410	WELD	121,439.8	28410	0.0	49.7	47.90766406	-103.16744870	2113.047						
28420	WELD	121,489.5	28420	0.0	49.6	47.90766535	-103.16765034	2111.473						
28430	WELD	121,539.1	28430	0.0	49.8	47.90766608	-103.16785164	2109.882						
28440	WELD	121,588.9	28440	0.0	50.6	47.90766641	-103.16805334	2109.683						
28450	WELD	121,639.5	28450	0.0	49.3	47.90766624	-103.16825818	2111.936						
28460	WELD	121,688.7	28460	0.0	49.3	47.90766644	-103.16845818	2113.774						
28470	WELD	121,738.0	28470	0.0	49.6	47.90766765	-103.16865828	2115.364						
28480	WELD	121,787.6	28480	0.0	49.6	47.90766987	-103.16885929	2116.687						
28490	WELD	121,837.2	28490	0.0	49.6	47.90767218	-103.16906025	2117.856						
28500	WELD	121,886.8	28500	0.0	49.6	47.90767361	-103.16926098	2117.550						
28510	WELD	121,936.4	28510	0.0	49.4	47.90767514	-103.16946215	2116.983						
28520	WELD	121,985.8	28520	0.0	49.7	47.90767615	-103.16966243	2118.011						
28530	WELD	122,035.4	28530	0.0	49.2	47.90767623	-103.16986366	2118.809						
28540	WELD	122,084.6	28540	0.0	49.6	47.90767720	-103.17006350	2119.437						
28550	WELD	122,134.2	28550	0.0	49.6	47.90767784	-103.17026444	2120.225						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
28560	WELD	122,183.8	28560	0.0	49.5	47.90767853	-103.17046523	2121.065							
28570	WELD	122,233.2	28570	0.0	49.6	47.90767938	-103.17066540	2119.774							
28580	WELD	122,282.9	28580	0.0	49.6	47.90768034	-103.17086644	2116.935							
28590	WELD	122,332.4	28590	0.0	49.6	47.90768316	-103.17106698	2113.365							
28600	WELD	122,382.1	28600	0.0	49.3	47.90768593	-103.17126776	2110.684							
28610	WELD	122,431.4	28610	0.0	49.6	47.90768787	-103.17146791	2108.670							
28620	WELD	122,481.0	28620	0.0	49.6	47.90768897	-103.17166917	2108.582							
28630	WELD	122,530.6	28630	0.0	49.7	47.90769065	-103.17187023	2107.931							
28640	WELD	122,580.3	28640	0.0	49.6	47.90769156	-103.17207172	2107.698							
28650	WELD	122,629.9	28650	0.0	49.2	47.90769125	-103.17227303	2108.048							
28660	WELD	122,679.0	28660	0.0	38.6	47.90769452	-103.17247266	2107.802							
11000064	WT CHANGE	122,717.6	28660	0.0	0.0	47.90770463	-103.17262894	2107.394				0.322	52000	0.72	
28670	WELD	122,717.6	28670	0.0	6.2	47.90770463	-103.17262898	2107.394							
28680	WELD	122,723.9	28680	0.0	1.6	47.90770651	-103.17265399	2107.133							
10000070	Bend left - 45 deg., 3D	122,724.7	28680	0.3	1.3	47.90770597	-103.17265725	2107.074	0	12:00					
11000065	WT CHANGE	122,725.5	28680	0.0	0.0	47.90770490	-103.17265962	2107.006				0.188	52000	0.72	
28690	WELD	122,725.5	28690	0.0	47.6	47.90770489	-103.17265965	2107.005							
28700	WELD	122,773.0	28700	0.0	48.7	47.90761013	-103.17279013	2103.784							
28710	WELD	122,821.7	28710	0.0	46.9	47.90750324	-103.17290660	2100.365							
28720	WELD	122,868.6	28720	0.0	49.5	47.90740065	-103.17302081	2098.194							
28730	WELD	122,918.2	28730	0.0	49.5	47.90729206	-103.17313929	2093.785							
28740	WELD	122,967.6	28740	0.0	49.6	47.90718326	-103.17325810	2092.000							
28750	WELD	123,017.2	28750	0.0	48.8	47.90707441	-103.17337755	2092.362							
28760	WELD	123,066.0	28760	0.0	23.5	47.90696764	-103.17349595	2091.157							
28770	WELD	123,089.5	28770	0.0	49.1	47.90691593	-103.17355249	2089.909							
28780	WELD	123,138.6	28780	0.0	49.3	47.90680754	-103.17367006	2088.623							
28790	WELD	123,188.0	28790	0.0	49.5	47.90670008	-103.17379034	2086.529							
28800	WELD	123,237.5	28800	0.0	49.6	47.90659249	-103.17391200	2085.417							
28810	WELD	123,287.1	28810	0.0	49.4	47.90648494	-103.17403405	2083.620							
28820	WELD	123,336.5	28820	0.0	49.5	47.90637804	-103.17415603	2082.956							
28830	WELD	123,386.0	28830	0.0	49.6	47.90627051	-103.17427764	2082.332							
28840	WELD	123,435.6	28840	0.0	49.7	47.90616245	-103.17439860	2081.819							
28850	WELD	123,485.3	28850	0.0	45.2	47.90605415	-103.17451976	2080.577							
11000066	WT CHANGE	123,530.5	28850	0.0	0.0	47.90595574	-103.17462944	2079.342				0.322	52000	0.72	
28860	WELD	123,530.5	28860	0.0	12.0	47.90595571	-103.17462947	2079.341							
28870	WELD	123,542.5	28870	0.0	42.3	47.90592954	-103.17465871	2078.741							
28880	WELD	123,584.8	28880	0.0	42.3	47.90583774	-103.17476110	2075.732							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
28890	WELD	123,627.1	28890	0.0	42.2	47.90574514	-103.17486129	2071.715							
28900	WELD	123,669.3	28900	0.0	42.3	47.90565272	-103.17496272	2070.177							
28910	WELD	123,711.6	28910	0.0	42.1	47.90556062	-103.17506564	2070.363							
11000067	WT CHANGE	123,753.7	28910	0.0	0.0	47.90546649	-103.17516291	2070.510				0.188	52000	0.72	
28920	WELD	123,753.7	28920	0.0	40.6	47.90546647	-103.17516293	2070.509							
28930	WELD	123,794.3	28930	0.0	37.5	47.90537501	-103.17525501	2069.887							
28940	WELD	123,831.8	28940	0.0	23.8	47.90529237	-103.17534424	2069.374							
28950	WELD	123,855.5	28950	0.0	7.8	47.90524134	-103.17540342	2068.791							
10000071	Bend right - 60 deg., 10D	123,859.4	28950	0.2	7.6	47.90523590	-103.17541695	2068.688	0	12:00					
28960	WELD	123,863.4	28960	0.0	23.4	47.90523612	-103.17543293	2068.657							
11000068	WT CHANGE	123,886.8	28960	0.0	0.0	47.90524424	-103.17552774	2068.813				0.322	52000	0.72	
28970	WELD	123,886.8	28970	0.0	6.1	47.90524424	-103.17552777	2068.813							
28980	WELD	123,892.9	28980	0.0	1.6	47.90524626	-103.17555206	2068.980							
10000072	Bend up - 45 deg., 3D	123,893.6	28980	0.0	1.5	47.90524647	-103.17555477	2069.290	0	12:00					
28990	WELD	123,894.4	28990	0.0	9.4	47.90524666	-103.17555727	2069.748							
29000	WELD	123,903.8	29000	0.0	1.6	47.90524852	-103.17558382	2076.115							
10000073	Bend down - 45 deg., 3D	123,904.6	29000	0.1	1.5	47.90524875	-103.17558679	2076.422	0	12:00					
29010	WELD	123,905.4	29010	0.0	0.9	47.90524902	-103.17558990	2076.529							
10000074	Flange	123,905.9	29010	0.5	0.5	47.90524918	-103.17559173	2076.526	0	12:00					
29020	WELD	123,906.3	29020	0.0	5.3	47.90524935	-103.17559360	2076.523							
10000075	Pipe Support	123,909.0	29020	2.5	2.8	47.90525026	-103.17560396	2076.515							
29030	WELD	123,911.6	29030	0.0	1.1	47.90525116	-103.17561415	2076.507							
10000076	Tee at 270 deg.	123,912.1	29030	0.1	1.0	47.90525135	-103.17561634	2076.506	256	8:30					
29040	WELD	123,912.7	29040	0.0	1.3	47.90525158	-103.17561880	2076.504							
10000077	Pipe Support	123,913.4	29040	0.6	0.7	47.90525184	-103.17562162	2076.501							
29050	WELD	123,914.0	29050	0.0	3.2	47.90525205	-103.17562393	2076.498							
10000078	Flange	123,914.5	29050	0.4	2.7	47.90525222	-103.17562574	2076.495	0	12:00					
10000079	Valve, Sta. 1213+36, AGM 220	123,915.6	29050	1.6	1.6	47.90525263	-103.17563031	2076.487							
10000080	Flange	123,916.6	29050	2.6	0.5	47.90525300	-103.17563444	2076.482	0	12:00					
29060	WELD	123,917.2	29060	0.0	11.5	47.90525319	-103.17563649	2076.478							
10000081	Pipe Support	123,917.5	29060	0.2	11.3	47.90525329	-103.17563771	2076.477							
10000082	Fitting on top of pipe	123,924.2	29060	6.9	4.6	47.90525563	-103.17566470	2076.443	357	11:45					
29070	WELD	123,928.6	29070	0.0	1.1	47.90525720	-103.17568260	2076.409							
10000083	Tee on bottom of pipe	123,929.2	29070	0.2	1.0	47.90525740	-103.17568494	2076.403	178	5:45					
29080	WELD	123,929.8	29080	0.0	4.4	47.90525761	-103.17568739	2076.397							
10000084	Pipe Support	123,933.6	29080	3.7	0.7	47.90525892	-103.17570272	2076.345							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
29090	WELD	123,934.2	29090	0.0	3.2	47.90525911	-103.17570491	2076.334							
10000085	Flange	123,934.7	29090	0.5	2.7	47.90525928	-103.17570690	2076.322	0	12:00					
10000086	Valve	123,935.8	29090	1.6	1.6	47.90525967	-103.17571130	2076.298							
10000087	Flange	123,936.9	29090	2.7	0.5	47.90526006	-103.17571572	2076.277	0	12:00					
29100	WELD	123,937.3	29100	0.0	1.3	47.90526022	-103.17571759	2076.266							
10000088	Pipe Support	123,937.8	29100	0.3	1.0	47.90526037	-103.17571933	2076.255							
29110	WELD	123,938.6	29110	0.0	1.2	47.90526065	-103.17572267	2076.239							
10000089	Tee at 270 deg.	123,939.2	29110	0.1	1.0	47.90526084	-103.17572491	2076.230	267	8:45					
29120	WELD	123,939.8	29120	0.0	0.9	47.90526106	-103.17572741	2076.215							
10000090	Flange	123,940.2	29120	0.4	0.5	47.90526121	-103.17572910	2076.205	0	12:00					
29130	WELD	123,940.7	29130	0.0	1.6	47.90526138	-103.17573088	2076.081							
10000091	Bend down - 45 deg., 3D	123,941.5	29130	0.1	1.5	47.90526166	-103.17573389	2075.819	0	12:00					
29140	WELD	123,942.3	29140	0.0	9.5	47.90526191	-103.17573628	2075.301							
29150	WELD	123,951.8	29150	0.0	1.6	47.90526468	-103.17576226	2068.720							
10000092	Bend up - 45 deg., 3D	123,952.6	29150	0.1	1.5	47.90526494	-103.17576492	2068.383	0	12:00					
29160	WELD	123,953.4	29160	0.0	7.1	47.90526524	-103.17576799	2068.296							
11000069	WT CHANGE	123,960.4	29160	0.0	0.0	47.90526795	-103.17579569	2067.993				0.188	52000	0.72	
29170	WELD	123,960.4	29170	0.0	31.0	47.90526795	-103.17579573	2067.993							
29180	WELD	123,991.4	29180	0.0	1.5	47.90528075	-103.17591994	2067.547							
10000093	Bend right - 45 deg., 3D	123,992.1	29180	0.1	1.4	47.90528185	-103.17592244	2067.554	0	12:00					
29190	WELD	123,992.9	29190	0.0	36.1	47.90528336	-103.17592465	2067.569							
29200	WELD	124,029.0	29200	0.0	34.7	47.90536416	-103.17601003	2069.424							
11000070	WT CHANGE	124,063.8	29200	0.0	0.0	47.90544269	-103.17608941	2071.231				0.322	52000	0.72	
29210	WELD	124,063.8	29210	0.0	42.2	47.90544272	-103.17608943	2071.232							
29220	WELD	124,105.9	29220	0.0	42.3	47.90553977	-103.17618156	2069.924							
29230	WELD	124,148.2	29230	0.0	42.3	47.90563838	-103.17627141	2069.198							
29240	WELD	124,190.5	29240	0.0	42.3	47.90573672	-103.17636164	2069.187							
29250	WELD	124,232.7	29250	0.0	42.3	47.90583544	-103.17645065	2069.155							
29260	WELD	124,275.1	29260	0.0	42.3	47.90593438	-103.17653915	2069.812							
29270	WELD	124,317.3	29270	0.0	42.3	47.90603254	-103.17662929	2071.483							
11000071	WT CHANGE	124,359.6	29270	0.0	0.0	47.90613088	-103.17671931	2072.345				0.188	52000	0.72	
29280	WELD	124,359.6	29280	0.0	25.7	47.90613091	-103.17671933	2072.345							
29290	WELD	124,385.3	29290	0.0	49.7	47.90619078	-103.17677300	2073.251							
29300	WELD	124,435.0	29300	0.0	42.7	47.90630685	-103.17687509	2076.846							
29310	WELD	124,477.7	29310	0.0	49.2	47.90640601	-103.17696282	2080.177							
29320	WELD	124,526.9	29320	0.0	49.6	47.90652027	-103.17706527	2083.148							
29330	WELD	124,576.5	29330	0.0	49.7	47.90663499	-103.17717058	2085.831							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
29340	WELD	124,626.1	29340	0.0	49.6	47.90674923	-103.17727801	2087.285						
29350	WELD	124,675.7	29350	0.0	49.6	47.90686344	-103.17738512	2086.724						
29360	WELD	124,725.3	29360	0.0	48.5	47.90697781	-103.17748989	2087.397						
29370	WELD	124,773.8	29370	0.0	49.4	47.90709077	-103.17759210	2087.445						
29380	WELD	124,823.2	29380	0.0	49.4	47.90720632	-103.17769525	2087.769						
29390	WELD	124,872.6	29390	0.0	49.7	47.90732201	-103.17779867	2088.945						
29400	WELD	124,922.3	29400	0.0	49.6	47.90743803	-103.17790103	2089.642						
29410	WELD	124,971.9	29410	0.0	49.4	47.90755449	-103.17800222	2090.296						
29420	WELD	125,021.3	29420	0.0	49.3	47.90767053	-103.17810423	2092.142						
29430	WELD	125,070.6	29430	0.0	49.5	47.90778625	-103.17820626	2094.075						
29440	WELD	125,120.1	29440	0.0	49.5	47.90790316	-103.17830820	2094.870						
29450	WELD	125,169.5	29450	0.0	49.4	47.90801949	-103.17841096	2095.151						
29460	WELD	125,218.9	29460	0.0	49.5	47.90813581	-103.17851288	2096.250						
29470	WELD	125,268.3	29470	0.0	49.5	47.90825275	-103.17861493	2097.235						
29480	WELD	125,317.8	29480	0.0	48.0	47.90836941	-103.17871803	2097.483						
29490	WELD	125,365.8	29490	0.0	49.6	47.90848156	-103.17881906	2098.720						
29500	WELD	125,415.4	29500	0.0	49.5	47.90859757	-103.17892212	2099.448						
29510	WELD	125,464.9	29510	0.0	49.5	47.90871368	-103.17902546	2100.771						
29520	WELD	125,514.5	29520	0.0	49.5	47.90882972	-103.17912932	2102.048						
29530	WELD	125,563.9	29530	0.0	49.6	47.90894505	-103.17923308	2103.711						
29540	WELD	125,613.5	29540	0.0	49.3	47.90906140	-103.17933558	2104.699						
29550	WELD	125,662.8	29550	0.0	40.1	47.90917820	-103.17943625	2105.273						
29560	WELD	125,702.9	29560	0.0	49.6	47.90927363	-103.17951594	2104.990						
29570	WELD	125,752.5	29570	0.0	49.4	47.90939187	-103.17961405	2105.689						
29580	WELD	125,801.8	29580	0.0	49.5	47.90950292	-103.17972616	2107.276						
29590	WELD	125,851.4	29590	0.0	49.3	47.90959030	-103.17987914	2109.028						
29600	WELD	125,900.7	29600	0.0	49.6	47.90965627	-103.18005357	2109.462						
29610	WELD	125,950.2	29610	0.0	49.6	47.90971697	-103.18023298	2109.562						
29620	WELD	125,999.8	29620	0.0	49.5	47.90977655	-103.18041343	2109.610						
29630	WELD	126,049.3	29630	0.0	49.6	47.90983760	-103.18059276	2109.045						
29640	WELD	126,098.9	29640	0.0	49.6	47.90989968	-103.18077170	2107.644						
29650	WELD	126,148.5	29650	0.0	49.5	47.90996171	-103.18095129	2106.750						
29660	WELD	126,198.1	29660	0.0	49.5	47.91002276	-103.18113096	2105.988						
29670	WELD	126,247.6	29670	0.0	49.5	47.91008371	-103.18131063	2104.985						
29680	WELD	126,297.1	29680	0.0	49.5	47.91014443	-103.18149065	2103.897						
29690	WELD	126,346.6	29690	0.0	49.5	47.91020472	-103.18167097	2103.176						
29700	WELD	126,396.1	29700	0.0	49.0	47.91026654	-103.18184981	2102.186						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
29710	WELD	126,445.1	29710	0.0	49.1	47.91032920	-103.18202611	2101.455						
29720	WELD	126,494.2	29720	0.0	49.4	47.91039190	-103.18220157	2098.462						
29730	WELD	126,543.6	29730	0.0	49.4	47.91045566	-103.18237894	2097.669						
29740	WELD	126,593.0	29740	0.0	49.5	47.91051847	-103.18255699	2097.973						
29750	WELD	126,642.5	29750	0.0	48.7	47.91058014	-103.18273618	2096.750						
29760	WELD	126,691.2	29760	0.0	13.6	47.91064041	-103.18291243	2095.379						
29770	WELD	126,704.9	29770	0.0	48.7	47.91065696	-103.18296198	2094.815						
29780	WELD	126,753.6	29780	0.0	49.4	47.91071510	-103.18313990	2093.144						
29790	WELD	126,803.0	29790	0.0	49.3	47.91077506	-103.18331980	2091.388						
29800	WELD	126,852.3	29800	0.0	49.5	47.91083715	-103.18349816	2090.036						
29810	WELD	126,901.8	29810	0.0	49.3	47.91089996	-103.18367652	2088.210						
29820	WELD	126,951.1	29820	0.0	49.5	47.91096318	-103.18385293	2086.532						
29830	WELD	127,000.7	29830	0.0	49.6	47.91102696	-103.18403053	2084.968						
29840	WELD	127,050.3	29840	0.0	49.2	47.91108968	-103.18420876	2083.899						
29850	WELD	127,099.5	29850	0.0	48.9	47.91115147	-103.18438684	2082.486						
29860	WELD	127,148.4	29860	0.0	49.5	47.91121199	-103.18456366	2082.156						
29870	WELD	127,197.9	29870	0.0	49.5	47.91127403	-103.18474213	2081.606						
29880	WELD	127,247.4	29880	0.0	49.5	47.91133768	-103.18491984	2081.417						
29890	WELD	127,296.8	29890	0.0	49.2	47.91140068	-103.18509754	2081.894						
29900	WELD	127,346.0	29900	0.0	49.5	47.91146170	-103.18527627	2082.149						
29910	WELD	127,395.5	29910	0.0	49.6	47.91152226	-103.18545580	2082.228						
29920	WELD	127,445.1	29920	0.0	49.6	47.91158284	-103.18563655	2082.762						
29930	WELD	127,494.7	29930	0.0	49.5	47.91164334	-103.18581728	2083.451						
29940	WELD	127,544.3	29940	0.0	49.4	47.91170314	-103.18599778	2083.782						
29950	WELD	127,593.6	29950	0.0	49.4	47.91176178	-103.18617856	2082.900						
29960	WELD	127,643.1	29960	0.0	40.2	47.91181729	-103.18636182	2082.605						
29970	WELD	127,683.2	29970	0.0	46.8	47.91185892	-103.18651297	2082.975						
29980	WELD	127,730.1	29980	0.0	46.8	47.91188754	-103.18669744	2083.256						
29990	WELD	127,776.9	29990	0.0	49.6	47.91189041	-103.18688766	2085.034						
30000	WELD	127,826.5	30000	0.0	49.6	47.91188242	-103.18708838	2087.394						
30010	WELD	127,876.0	30010	0.0	49.5	47.91185859	-103.18728633	2089.130						
30020	WELD	127,925.5	30020	0.0	49.4	47.91180676	-103.18747104	2090.316						
30030	WELD	127,974.9	30030	0.0	49.1	47.91173198	-103.18763831	2091.516						
30040	WELD	128,024.0	30040	0.0	49.6	47.91165281	-103.18779955	2091.079						
30050	WELD	128,073.7	30050	0.0	49.5	47.91157226	-103.18796158	2089.268						
30060	WELD	128,123.2	30060	0.0	49.6	47.91149142	-103.18812288	2086.536						
30070	WELD	128,172.8	30070	0.0	49.4	47.91141103	-103.18828466	2083.203						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
30080	WELD	128,222.2	30080	0.0	49.6	47.91133117	-103.18844607	2080.079							
30090	WELD	128,271.8	30090	0.0	49.4	47.91125163	-103.18860874	2078.210							
30100	WELD	128,321.1	30100	0.0	49.6	47.91117320	-103.18877109	2074.558							
30110	WELD	128,370.8	30110	0.0	49.6	47.91109368	-103.18893397	2070.639							
30120	WELD	128,420.4	30120	0.0	49.3	47.91101392	-103.18909685	2068.618							
30130	WELD	128,469.7	30130	0.0	49.6	47.91093406	-103.18925834	2066.772							
30140	WELD	128,519.3	30140	0.0	49.6	47.91085340	-103.18942011	2065.438							
30150	WELD	128,568.9	30150	0.0	49.5	47.91077200	-103.18958081	2062.384							
30160	WELD	128,618.4	30160	0.0	49.4	47.91069133	-103.18974140	2059.943							
20000039	Seam Variation	128,644.2	30160	25.8	23.7	47.91064985	-103.18982607	2058.812	134	4:15	-	0.59	0.71		
30170	WELD	128,667.8	30170	0.0	49.1	47.91061225	-103.18990413	2057.775							
30180	WELD	128,716.9	30180	0.0	49.4	47.91053474	-103.19006682	2056.121							
30190	WELD	128,766.3	30190	0.0	49.6	47.91045612	-103.19023067	2055.575							
30200	WELD	128,815.9	30200	0.0	49.5	47.91037636	-103.19039362	2055.208							
30210	WELD	128,865.4	30210	0.0	49.5	47.91029884	-103.19055839	2052.782							
30220	WELD	128,914.9	30220	0.0	49.6	47.91022666	-103.19072782	2048.639							
30230	WELD	128,964.5	30230	0.0	49.4	47.91015809	-103.19090089	2044.090							
30240	WELD	129,013.9	30240	0.0	49.5	47.91009259	-103.19107674	2041.130							
30250	WELD	129,063.5	30250	0.0	49.3	47.91002942	-103.19125470	2039.199							
30260	WELD	129,112.8	30260	0.0	44.8	47.90996831	-103.19143330	2037.146							
30270	WELD	129,157.6	30270	0.0	49.5	47.90991334	-103.19159639	2035.777							
30280	WELD	129,207.1	30280	0.0	49.6	47.90985712	-103.19177960	2034.606							
30290	WELD	129,256.7	30290	0.0	49.4	47.90980692	-103.19196715	2033.228							
30300	WELD	129,306.0	30300	0.0	49.2	47.90976196	-103.19215649	2032.286							
30310	WELD	129,355.2	30310	0.0	49.3	47.90972081	-103.19234680	2031.668							
30320	WELD	129,404.5	30320	0.0	49.1	47.90968319	-103.19253944	2030.356							
30330	WELD	129,453.6	30330	0.0	49.7	47.90964657	-103.19273135	2028.809							
30340	WELD	129,503.3	30340	0.0	48.1	47.90961156	-103.19292638	2028.553							
30350	WELD	129,551.4	30350	0.0	49.4	47.90958015	-103.19311659	2028.481							
30360	WELD	129,600.8	30360	0.0	49.4	47.90955221	-103.19331339	2027.762							
30370	WELD	129,650.2	30370	0.0	49.4	47.90952874	-103.19351139	2027.233							
30380	WELD	129,699.7	30380	0.0	49.4	47.90951317	-103.19371084	2025.848							
30390	WELD	129,749.1	30390	0.0	48.1	47.90950424	-103.19391167	2024.756							
30400	WELD	129,797.1	30400	0.0	44.8	47.90949985	-103.19410676	2023.800							
30410	WELD	129,842.0	30410	0.0	49.0	47.90950043	-103.19428885	2022.070							
30420	WELD	129,891.0	30420	0.0	49.4	47.90950385	-103.19448772	2020.798							
30430	WELD	129,940.4	30430	0.0	48.7	47.90950875	-103.19468905	2020.572							

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC

Johnson's Corner to East Camp Creek

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
40000025	Metal Loss - EXTERNAL	129,950.5	30430	10.0	38.6	47.90950977	-103.19473003	2020.403	349	11:30	14%	1.29	0.55	1760	100%
30440	WELD	129,989.1	30440	0.0	49.4	47.90951300	-103.19488712	2020.950							
30450	WELD	130,038.4	30450	0.0	49.3	47.90951699	-103.19508801	2021.713							
30460	WELD	130,087.7	30460	0.0	49.3	47.90952058	-103.19528837	2021.975							
30470	WELD	130,137.0	30470	0.0	49.5	47.90952367	-103.19548936	2021.924							
30480	WELD	130,186.5	30480	0.0	49.2	47.90952543	-103.19569120	2022.239							
30490	WELD	130,235.7	30490	0.0	47.3	47.90952790	-103.19589208	2022.601							
30500	WELD	130,283.0	30500	0.0	49.4	47.90953068	-103.19608478	2023.309							
30510	WELD	130,332.4	30510	0.0	49.6	47.90953404	-103.19628559	2024.261							
30520	WELD	130,381.9	30520	0.0	49.4	47.90953845	-103.19648691	2026.880							
30530	WELD	130,431.3	30530	0.0	49.4	47.90954617	-103.19668719	2030.009							
30540	WELD	130,480.7	30540	0.0	46.0	47.90955178	-103.19688726	2032.605							
11000072	WT CHANGE	130,526.8	30540	0.0	0.0	47.90955367	-103.19707394	2034.839				0.322	52000	0.72	
30550	WELD	130,526.8	30550	0.0	42.2	47.90955367	-103.19707398	2034.839							
30560	WELD	130,568.9	30560	0.0	42.2	47.90955620	-103.19724547	2036.674							
10000094	AGM 230, Sta. 1281+56, 39' east of aerial marker 114 -- Han #141	130,610.9	30560	41.9	0.3	47.90955906	-103.19741570	2038.001							
30570	WELD	130,611.2	30570	0.0	42.3	47.90955907	-103.19741706	2038.015							
30580	WELD	130,653.5	30580	0.0	42.3	47.90955767	-103.19758875	2038.570							
30590	WELD	130,695.7	30590	0.0	42.3	47.90955823	-103.19776054	2038.022							
30600	WELD	130,738.0	30600	0.0	42.3	47.90955800	-103.19793218	2036.810							
30610	WELD	130,780.3	30610	0.0	42.3	47.90955692	-103.19810384	2036.486							
30620	WELD	130,822.6	30620	0.0	42.3	47.90955699	-103.19827574	2037.510							
30630	WELD	130,864.9	30630	0.0	42.3	47.90955707	-103.19844732	2038.308							
30640	WELD	130,907.1	30640	0.0	42.2	47.90955738	-103.19861882	2040.786							
11000073	WT CHANGE	130,949.3	30640	0.0	0.0	47.90955854	-103.19879013	2042.738				0.188	52000	0.72	
30650	WELD	130,949.4	30650	0.0	48.6	47.90955854	-103.19879017	2042.738							
30660	WELD	130,998.0	30660	0.0	49.3	47.90956052	-103.19898752	2043.463							
30670	WELD	131,047.3	30670	0.0	30.7	47.90956147	-103.19918766	2042.988							
30680	WELD	131,078.0	30680	0.0	45.1	47.90955903	-103.19931227	2043.164							
30690	WELD	131,123.1	30690	0.0	49.5	47.90955497	-103.19949574	2043.232							
30700	WELD	131,172.6	30700	0.0	49.5	47.90955171	-103.19969712	2043.328							
30710	WELD	131,222.1	30710	0.0	49.5	47.90954854	-103.19989839	2044.730							
30720	WELD	131,271.7	30720	0.0	49.6	47.90954659	-103.20009979	2045.846							
30730	WELD	131,321.2	30730	0.0	48.7	47.90954560	-103.20030133	2045.839							
30740	WELD	131,369.9	30740	0.0	49.5	47.90954584	-103.20049922	2045.132							

Criteria: ASME B31G: Modified

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
30750	WELD	131,419.4	30750	0.0	49.4	47.90954596	-103.20070064	2044.153						
30760	WELD	131,468.8	30760	0.0	49.6	47.90954598	-103.20090153	2043.112						
30770	WELD	131,518.4	30770	0.0	49.6	47.90954566	-103.20110308	2041.723						
30780	WELD	131,568.0	30780	0.0	49.6	47.90954445	-103.20130455	2041.367						
30790	WELD	131,617.7	30790	0.0	49.4	47.90954398	-103.20150609	2041.402						
30800	WELD	131,667.1	30800	0.0	49.6	47.90954440	-103.20170684	2042.417						
30810	WELD	131,716.7	30810	0.0	49.4	47.90954526	-103.20190831	2042.966						
30820	WELD	131,766.1	30820	0.0	49.4	47.90954668	-103.20210940	2043.566						
30830	WELD	131,815.5	30830	0.0	49.3	47.90954806	-103.20231086	2044.091						
30840	WELD	131,864.8	30840	0.0	49.3	47.90954758	-103.20251165	2043.861						
30850	WELD	131,914.1	30850	0.0	49.5	47.90954637	-103.20271207	2043.328						
30860	WELD	131,963.6	30860	0.0	48.8	47.90954584	-103.20291297	2043.213						
30870	WELD	132,012.4	30870	0.0	49.4	47.90954571	-103.20311111	2043.981						
30880	WELD	132,061.8	30880	0.0	49.5	47.90954607	-103.20331195	2045.504						
30890	WELD	132,111.3	30890	0.0	49.2	47.90954638	-103.20351372	2047.168						
30900	WELD	132,160.5	30900	0.0	49.5	47.90954609	-103.20371312	2048.428						
30910	WELD	132,210.0	30910	0.0	49.6	47.90954554	-103.20391503	2050.030						
30920	WELD	132,259.6	30920	0.0	49.5	47.90954515	-103.20411711	2050.545						
30930	WELD	132,309.1	30930	0.0	49.4	47.90954431	-103.20431833	2050.167						
30940	WELD	132,358.5	30940	0.0	49.3	47.90954422	-103.20451966	2050.068						
30950	WELD	132,407.8	30950	0.0	49.2	47.90954506	-103.20472145	2048.921						
30960	WELD	132,457.0	30960	0.0	49.1	47.90954578	-103.20492300	2047.956						
30970	WELD	132,506.1	30970	0.0	49.5	47.90954553	-103.20512425	2047.394						
30980	WELD	132,555.6	30980	0.0	49.5	47.90954447	-103.20532575	2046.997						
30990	WELD	132,605.2	30990	0.0	49.6	47.90954356	-103.20552722	2047.096						
31000	WELD	132,654.8	31000	0.0	49.6	47.90954365	-103.20572867	2046.859						
31010	WELD	132,704.4	31010	0.0	49.6	47.90954398	-103.20593050	2046.186						
31020	WELD	132,754.1	31020	0.0	49.6	47.90954361	-103.20613225	2044.335						
31030	WELD	132,803.7	31030	0.0	49.6	47.90954282	-103.20633371	2041.940						
31040	WELD	132,853.3	31040	0.0	49.6	47.90954292	-103.20653461	2038.802						
31050	WELD	132,902.8	31050	0.0	49.7	47.90954369	-103.20673545	2034.692						
31060	WELD	132,952.5	31060	0.0	49.3	47.90954410	-103.20693746	2032.253						
31070	WELD	133,001.8	31070	0.0	49.6	47.90954445	-103.20713769	2030.953						
31080	WELD	133,051.4	31080	0.0	49.7	47.90954430	-103.20733911	2029.769						
31090	WELD	133,101.0	31090	0.0	49.7	47.90954385	-103.20754102	2028.739						
31100	WELD	133,150.7	31100	0.0	49.7	47.90954335	-103.20774250	2027.020						
31110	WELD	133,200.3	31110	0.0	49.6	47.90954282	-103.20794370	2023.572						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
31120	WELD	133,249.9	31120	0.0	49.4	47.90954314	-103.20814494	2021.273						
31130	WELD	133,299.3	31130	0.0	49.6	47.90954342	-103.20834575	2020.967						
31140	WELD	133,348.9	31140	0.0	49.6	47.90954288	-103.20854684	2019.516						
31150	WELD	133,398.6	31150	0.0	49.4	47.90954221	-103.20874856	2018.778						
31160	WELD	133,448.0	31160	0.0	49.5	47.90954207	-103.20894987	2017.564						
31170	WELD	133,497.4	31170	0.0	49.6	47.90954247	-103.20915105	2017.342						
31180	WELD	133,547.0	31180	0.0	49.4	47.90954232	-103.20935236	2016.710						
31190	WELD	133,596.4	31190	0.0	49.6	47.90954186	-103.20955299	2017.415						
31200	WELD	133,646.0	31200	0.0	49.3	47.90954165	-103.20975434	2017.405						
31210	WELD	133,695.3	31210	0.0	49.6	47.90954161	-103.20995484	2017.369						
31220	WELD	133,744.9	31220	0.0	49.2	47.90954085	-103.21015630	2017.411						
31230	WELD	133,794.1	31230	0.0	49.6	47.90954049	-103.21035652	2017.438						
31240	WELD	133,843.7	31240	0.0	49.6	47.90954056	-103.21055797	2017.460						
31250	WELD	133,893.3	31250	0.0	49.4	47.90954060	-103.21075945	2018.043						
31260	WELD	133,942.7	31260	0.0	49.3	47.90954202	-103.21096017	2018.038						
31270	WELD	133,992.0	31270	0.0	49.3	47.90954216	-103.21116055	2017.911						
31280	WELD	134,041.4	31280	0.0	49.6	47.90954140	-103.21136115	2017.486						
31290	WELD	134,091.0	31290	0.0	49.5	47.90954029	-103.21156245	2015.686						
31300	WELD	134,140.5	31300	0.0	49.7	47.90953889	-103.21176399	2015.048						
31310	WELD	134,190.1	31310	0.0	48.7	47.90953854	-103.21196573	2012.855						
31320	WELD	134,238.9	31320	0.0	49.2	47.90953950	-103.21216386	2012.110						
31330	WELD	134,288.1	31330	0.0	49.3	47.90954055	-103.21236422	2011.629						
31340	WELD	134,337.4	31340	0.0	49.2	47.90954146	-103.21256466	2011.203						
31350	WELD	134,386.6	31350	0.0	49.4	47.90954189	-103.21276459	2010.703						
31360	WELD	134,435.9	31360	0.0	49.0	47.90954017	-103.21296595	2009.381						
31370	WELD	134,485.0	31370	0.0	49.1	47.90953863	-103.21316597	2009.182						
31380	WELD	134,534.0	31380	0.0	49.2	47.90953735	-103.21336560	2008.446						
31390	WELD	134,583.2	31390	0.0	49.2	47.90953663	-103.21356561	2008.454						
31400	WELD	134,632.5	31400	0.0	49.4	47.90953596	-103.21376568	2008.524						
31410	WELD	134,681.9	31410	0.0	49.2	47.90953663	-103.21396703	2009.065						
31420	WELD	134,731.1	31420	0.0	49.7	47.90953774	-103.21416771	2009.532						
31430	WELD	134,780.7	31430	0.0	49.6	47.90953913	-103.21436970	2009.482						
31440	WELD	134,830.4	31440	0.0	49.3	47.90953911	-103.21457123	2009.114						
31450	WELD	134,879.7	31450	0.0	49.7	47.90953813	-103.21477166	2008.605						
31460	WELD	134,929.4	31460	0.0	49.6	47.90953681	-103.21497340	2007.313						
31470	WELD	134,979.0	31470	0.0	49.4	47.90953523	-103.21517488	2005.595						
31480	WELD	135,028.4	31480	0.0	49.1	47.90953424	-103.21537640	2004.396						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
31490	WELD	135,077.5	31490	0.0	47.5	47.90953410	-103.21557655	2003.445						
31500	WELD	135,125.0	31500	0.0	49.5	47.90953523	-103.21577020	2003.073						
31510	WELD	135,174.5	31510	0.0	49.5	47.90953589	-103.21597150	2002.250						
31520	WELD	135,224.0	31520	0.0	49.3	47.90953517	-103.21617218	2001.193						
31530	WELD	135,273.3	31530	0.0	49.2	47.90953546	-103.21637340	2000.918						
31540	WELD	135,322.5	31540	0.0	49.3	47.90953557	-103.21657510	2000.385						
31550	WELD	135,371.8	31550	0.0	49.4	47.90953471	-103.21677675	2000.098						
31560	WELD	135,421.2	31560	0.0	49.4	47.90953684	-103.21697839	2000.406						
31570	WELD	135,470.6	31570	0.0	49.4	47.90953340	-103.21717924	2000.184						
31580	WELD	135,520.0	31580	0.0	20.1	47.90952790	-103.21738032	1997.890						
11000074	WT CHANGE	135,540.1	31580	0.0	0.0	47.90952969	-103.21746192	1997.028			0.322	52000	0.72	
31590	WELD	135,540.1	31590	0.0	42.1	47.90952969	-103.21746196	1997.027						
31600	WELD	135,582.2	31600	0.0	42.2	47.90953505	-103.21763261	1993.849						
10000095	AGM 240, Sta. 1330+14, Corner of fence line -- Han #104	135,616.5	31600	34.4	7.9	47.90953324	-103.21777179	1990.719						
31610	WELD	135,624.4	31610	0.0	42.2	47.90953283	-103.21780364	1990.184						
31620	WELD	135,666.6	31620	0.0	42.2	47.90953143	-103.21797538	1988.803						
31630	WELD	135,708.8	31630	0.0	42.2	47.90953016	-103.21814688	1988.471						
31640	WELD	135,751.0	31640	0.0	42.2	47.90952642	-103.21831833	1986.737						
31650	WELD	135,793.2	31650	0.0	42.2	47.90952702	-103.21848964	1983.825						
31660	WELD	135,835.4	31660	0.0	42.2	47.90953088	-103.21866091	1981.059						
31670	WELD	135,877.7	31670	0.0	42.2	47.90953491	-103.21883259	1980.177						
31680	WELD	135,919.8	31680	0.0	42.2	47.90953776	-103.21900323	1984.154						
11000075	WT CHANGE	135,962.0	31680	0.0	0.0	47.90953766	-103.21917332	1988.745			0.188	52000	0.72	
31690	WELD	135,962.0	31690	0.0	45.0	47.90953766	-103.21917336	1988.746						
31700	WELD	136,006.9	31700	0.0	49.5	47.90953569	-103.21935595	1990.435						
31710	WELD	136,056.4	31710	0.0	49.4	47.90953694	-103.21955687	1991.448						
31720	WELD	136,105.9	31720	0.0	49.3	47.90954261	-103.21975777	1990.828						
31730	WELD	136,155.2	31730	0.0	49.4	47.90954575	-103.21995851	1991.037						
31740	WELD	136,204.5	31740	0.0	49.5	47.90954696	-103.22015933	1991.177						
31750	WELD	136,254.0	31750	0.0	49.2	47.90954738	-103.22036029	1990.607						
31760	WELD	136,303.2	31760	0.0	49.4	47.90954633	-103.22056099	1989.893						
31770	WELD	136,352.6	31770	0.0	49.3	47.90954740	-103.22076213	1989.908						
31780	WELD	136,402.0	31780	0.0	49.4	47.90955139	-103.22096250	1991.934						
31790	WELD	136,451.4	31790	0.0	49.5	47.90955380	-103.22116322	1992.755						
31800	WELD	136,500.9	31800	0.0	49.2	47.90955153	-103.22136492	1992.282						

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC

Johnson's Corner to East Camp Creek

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
20000041	Seam Variation	136,541.5	31800	40.6	8.7	47.90955097	-103.22153039	1991.711	185	6:00	-	1.18	1.18		
31810	WELD	136,550.1	31810	0.0	49.3	47.90955124	-103.22156548	1991.736							
31820	WELD	136,599.5	31820	0.0	49.4	47.90955330	-103.22176637	1990.938							
31830	WELD	136,648.9	31830	0.0	49.1	47.90955219	-103.22196811	1991.195							
31840	WELD	136,698.0	31840	0.0	49.1	47.90955012	-103.22216879	1991.158							
31850	WELD	136,747.1	31850	0.0	23.7	47.90955006	-103.22236803	1991.423							
31860	WELD	136,770.8	31860	0.0	49.5	47.90955098	-103.22246432	1991.864							
31870	WELD	136,820.3	31870	0.0	49.6	47.90955301	-103.22266554	1992.238							
31880	WELD	136,869.9	31880	0.0	49.6	47.90955402	-103.22286702	1992.128							
31890	WELD	136,919.5	31890	0.0	47.4	47.90955751	-103.22306853	1991.765							
11000076	WT CHANGE	136,966.9	31890	0.0	0.0	47.90955643	-103.22326149	1990.517				0.322	52000	0.72	
31900	WELD	136,966.9	31900	0.0	42.0	47.90955642	-103.22326153	1990.517							
31910	WELD	137,008.9	31910	0.0	42.2	47.90955706	-103.22343208	1988.521							
31920	WELD	137,051.1	31920	0.0	42.2	47.90956201	-103.22360333	1987.570							
31930	WELD	137,093.3	31930	0.0	42.2	47.90956377	-103.22377485	1986.535							
31940	WELD	137,135.5	31940	0.0	42.2	47.90956173	-103.22394663	1986.371							
31950	WELD	137,177.8	31950	0.0	42.3	47.90956390	-103.22411827	1986.309							
31960	WELD	137,220.0	31960	0.0	42.2	47.90956848	-103.22428965	1987.270							
31970	WELD	137,262.3	31970	0.0	42.3	47.90957131	-103.22446098	1989.385							
31980	WELD	137,304.6	31980	0.0	42.3	47.90956927	-103.22463276	1990.369							
11000077	WT CHANGE	137,346.8	31980	0.0	0.0	47.90956793	-103.22480451	1991.166				0.188	52000	0.72	
31990	WELD	137,346.8	31990	0.0	48.2	47.90956793	-103.22480455	1991.166							
32000	WELD	137,395.0	32000	0.0	46.5	47.90956996	-103.22500040	1992.074							
32010	WELD	137,441.6	32010	0.0	49.7	47.90957352	-103.22518943	1992.101							
32020	WELD	137,491.2	32020	0.0	49.4	47.90957341	-103.22539076	1992.018							
32030	WELD	137,540.7	32030	0.0	49.3	47.90957211	-103.22559151	1992.304							
32040	WELD	137,589.9	32040	0.0	49.2	47.90957481	-103.22579204	1992.808							
32050	WELD	137,639.1	32050	0.0	49.6	47.90957636	-103.22599252	1993.004							
32060	WELD	137,688.7	32060	0.0	49.6	47.90957597	-103.22619385	1993.233							
32070	WELD	137,738.3	32070	0.0	49.5	47.90957665	-103.22639514	1993.510							
32080	WELD	137,787.8	32080	0.0	49.2	47.90957656	-103.22659625	1993.878							
32090	WELD	137,837.0	32090	0.0	49.4	47.90957736	-103.22679651	1993.755							
32100	WELD	137,886.3	32100	0.0	49.2	47.90957913	-103.22699808	1993.772							
32110	WELD	137,935.6	32110	0.0	49.2	47.90957972	-103.22719893	1993.546							
32120	WELD	137,984.7	32120	0.0	49.1	47.90958116	-103.22739971	1993.835							
32130	WELD	138,033.9	32130	0.0	49.2	47.90958116	-103.22760092	1994.148							
32140	WELD	138,083.0	32140	0.0	49.2	47.90958226	-103.22780196	1994.149							

Criteria: ASME B31G: Modified

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
32150	WELD	138,132.3	32150	0.0	49.3	47.90958262	-103.22800283	1994.195						
32160	WELD	138,181.6	32160	0.0	49.1	47.90958139	-103.22820440	1994.009						
32170	WELD	138,230.7	32170	0.0	49.3	47.90958154	-103.22840559	1994.438						
32180	WELD	138,280.0	32180	0.0	49.3	47.90958198	-103.22860638	1994.444						
32190	WELD	138,329.3	32190	0.0	44.0	47.90958195	-103.22880660	1994.548						
32200	WELD	138,373.2	32200	0.0	49.3	47.90958169	-103.22898524	1994.398						
32210	WELD	138,422.5	32210	0.0	49.3	47.90958202	-103.22918633	1994.431						
32220	WELD	138,471.9	32220	0.0	49.3	47.90958400	-103.22938718	1994.495						
32230	WELD	138,521.2	32230	0.0	49.6	47.90958767	-103.22958776	1994.793						
32240	WELD	138,570.7	32240	0.0	49.3	47.90959134	-103.22978930	1994.718						
32250	WELD	138,620.1	32250	0.0	49.3	47.90959277	-103.22998980	1994.806						
32260	WELD	138,669.4	32260	0.0	49.2	47.90959318	-103.23019004	1994.849						
32270	WELD	138,718.6	32270	0.0	49.5	47.90959384	-103.23039094	1995.409						
32280	WELD	138,768.1	32280	0.0	49.3	47.90959592	-103.23059206	1995.382						
32290	WELD	138,817.4	32290	0.0	49.3	47.90959859	-103.23079260	1995.835						
32300	WELD	138,866.7	32300	0.0	49.5	47.90960058	-103.23099334	1996.094						
32310	WELD	138,916.2	32310	0.0	49.4	47.90960316	-103.23119484	1996.452						
32320	WELD	138,965.6	32320	0.0	49.5	47.90960491	-103.23139583	1996.112						
32330	WELD	139,015.1	32330	0.0	49.2	47.90960661	-103.23159711	1996.781						
32340	WELD	139,064.3	32340	0.0	49.4	47.90960948	-103.23179722	1996.708						
32350	WELD	139,113.7	32350	0.0	49.5	47.90961192	-103.23199781	1996.477						
32360	WELD	139,163.2	32360	0.0	49.5	47.90961322	-103.23219888	1996.799						
32370	WELD	139,212.7	32370	0.0	49.1	47.90961395	-103.23240015	1996.719						
32380	WELD	139,261.8	32380	0.0	49.5	47.90961359	-103.23259966	1996.847						
32390	WELD	139,311.3	32390	0.0	49.6	47.90961329	-103.23280096	1996.683						
32400	WELD	139,360.9	32400	0.0	49.4	47.90961301	-103.23300257	1996.161						
32410	WELD	139,410.2	32410	0.0	49.4	47.90961312	-103.23320339	1996.494						
32420	WELD	139,459.6	32420	0.0	49.3	47.90961416	-103.23340523	1996.578						
32430	WELD	139,508.9	32430	0.0	49.6	47.90961586	-103.23360602	1997.048						
32440	WELD	139,558.5	32440	0.0	49.2	47.90961721	-103.23380826	1996.827						
32450	WELD	139,607.7	32450	0.0	49.3	47.90961830	-103.23400882	1997.530						
32460	WELD	139,657.0	32460	0.0	49.3	47.90962102	-103.23420973	1997.657						
32470	WELD	139,706.4	32470	0.0	49.4	47.90962503	-103.23441063	1997.804						
32480	WELD	139,755.7	32480	0.0	49.2	47.90962833	-103.23461129	1998.232						
32490	WELD	139,804.9	32490	0.0	49.3	47.90963024	-103.23481178	1998.642						
32500	WELD	139,854.2	32500	0.0	49.1	47.90963164	-103.23501268	1998.672						
32510	WELD	139,903.3	32510	0.0	49.4	47.90963261	-103.23521350	1998.936						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
32520	WELD	139,952.8	32520	0.0	49.5	47.90963423	-103.23541531	1999.039						
32530	WELD	140,002.2	32530	0.0	49.5	47.90963554	-103.23561713	1999.117						
32540	WELD	140,051.7	32540	0.0	49.4	47.90963768	-103.23581894	1999.413						
32550	WELD	140,101.2	32550	0.0	49.5	47.90963898	-103.23602075	1999.519						
32560	WELD	140,150.6	32560	0.0	49.6	47.90963884	-103.23622262	1999.854						
32570	WELD	140,200.3	32570	0.0	49.4	47.90963852	-103.23642453	1999.731						
32580	WELD	140,249.7	32580	0.0	49.5	47.90963852	-103.23662547	2000.116						
32590	WELD	140,299.2	32590	0.0	49.3	47.90963999	-103.23682716	2000.166						
32600	WELD	140,348.5	32600	0.0	49.6	47.90964170	-103.23702778	2000.394						
32610	WELD	140,398.1	32610	0.0	49.6	47.90964223	-103.23722949	2000.218						
32620	WELD	140,447.7	32620	0.0	49.6	47.90964241	-103.23743121	2000.794						
32630	WELD	140,497.3	32630	0.0	49.3	47.90964135	-103.23763353	2001.347						
32640	WELD	140,546.5	32640	0.0	49.1	47.90964113	-103.23783453	2002.533						
32650	WELD	140,595.7	32650	0.0	49.5	47.90964104	-103.23803465	2002.591						
32660	WELD	140,645.2	32660	0.0	49.2	47.90964254	-103.23823614	2001.210						
32670	WELD	140,694.4	32670	0.0	49.5	47.90964535	-103.23843653	2000.479						
32680	WELD	140,743.9	32680	0.0	49.6	47.90964811	-103.23863783	2001.084						
32690	WELD	140,793.5	32690	0.0	49.6	47.90965065	-103.23883900	2001.590						
32700	WELD	140,843.1	32700	0.0	49.5	47.90965386	-103.23904055	2001.907						
32710	WELD	140,892.6	32710	0.0	49.5	47.90965639	-103.23924225	2001.769						
32720	WELD	140,942.1	32720	0.0	49.5	47.90966011	-103.23944394	2001.374						
32730	WELD	140,991.6	32730	0.0	49.4	47.90966448	-103.23964502	2001.495						
32740	WELD	141,041.0	32740	0.0	44.9	47.90966739	-103.23984587	2001.489						
32750	WELD	141,085.9	32750	0.0	49.5	47.90966798	-103.24002893	2001.751						
32760	WELD	141,135.4	32760	0.0	47.5	47.90966816	-103.24023058	2002.367						
32770	WELD	141,182.9	32770	0.0	49.1	47.90966927	-103.24042427	2001.919						
32780	WELD	141,232.0	32780	0.0	47.0	47.90966832	-103.24062462	2001.677						
10000096	AGM 250, Sta. 1386+91, At aerial marker 113 -- Han #116	141,270.4	32780	38.4	8.6	47.90966725	-103.24078149	2001.809						
32790	WELD	141,279.1	32790	0.0	47.3	47.90966701	-103.24081682	2002.070						
32800	WELD	141,326.3	32800	0.0	49.2	47.90966611	-103.24101010	2003.877						
32810	WELD	141,375.5	32810	0.0	9.9	47.90966687	-103.24121085	2004.480						
10000097	Bend left - 90 deg., 6D	141,380.3	32810	1.5	8.4	47.90966290	-103.24122831	2004.535	0 12:00					
32820	WELD	141,385.4	32820	0.0	19.7	47.90964964	-103.24123280	2004.711						
32830	WELD	141,405.1	32830	0.0	48.9	47.90959567	-103.24123310	2005.620						
32840	WELD	141,454.1	32840	0.0	48.9	47.90946151	-103.24123280	2005.487						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
32850	WELD	141,502.9	32850	0.0	49.0	47.90932703	-103.24123210	2004.882						
32860	WELD	141,552.0	32860	0.0	49.3	47.90919195	-103.24123300	2004.579						
32870	WELD	141,601.3	32870	0.0	49.3	47.90905637	-103.24123190	2004.524						
32880	WELD	141,650.7	32880	0.0	49.3	47.90892088	-103.24123140	2004.929						
32890	WELD	141,700.0	32890	0.0	49.5	47.90878521	-103.24123210	2004.734						
32900	WELD	141,749.5	32900	0.0	49.4	47.90864979	-103.24123200	2005.185						
32910	WELD	141,798.9	32910	0.0	49.5	47.90851406	-103.24123250	2005.095						
32920	WELD	141,848.4	32920	0.0	49.3	47.90837857	-103.24123400	2005.207						
32930	WELD	141,897.6	32930	0.0	49.0	47.90824355	-103.24123729	2005.900						
32940	WELD	141,946.6	32940	0.0	49.5	47.90810956	-103.24123770	2006.713						
32950	WELD	141,996.1	32950	0.0	30.6	47.90797377	-103.24123740	2006.727						
32960	WELD	142,026.7	32960	0.0	9.7	47.90789026	-103.24123878	2006.072						
10000098	Bend right - 90 deg., 6D	142,031.7	32960	1.8	7.9	47.90787777	-103.24124565	2005.791	0 12:00					
32970	WELD	142,036.4	32970	0.0	17.5	47.90787521	-103.24126419	2005.809						
32980	WELD	142,054.0	32980	0.0	48.5	47.90787524	-103.24133621	2006.424						
32990	WELD	142,102.5	32990	0.0	49.4	47.90787668	-103.24153376	2006.617						
33000	WELD	142,151.9	33000	0.0	49.4	47.90787880	-103.24173512	2007.113						
33010	WELD	142,201.3	33010	0.0	49.5	47.90788060	-103.24193515	2007.929						
33020	WELD	142,250.8	33020	0.0	49.4	47.90788107	-103.24213576	2008.862						
33030	WELD	142,300.2	33030	0.0	49.5	47.90788139	-103.24233578	2009.252						
33040	WELD	142,349.7	33040	0.0	49.5	47.90788046	-103.24253672	2010.710						
33050	WELD	142,399.1	33050	0.0	49.5	47.90788079	-103.24273725	2011.248						
33060	WELD	142,448.7	33060	0.0	49.6	47.90788220	-103.24293806	2012.576						
33070	WELD	142,498.3	33070	0.0	49.5	47.90788369	-103.24313975	2013.396						
33080	WELD	142,547.8	33080	0.0	49.0	47.90788405	-103.24334068	2014.952						
33090	WELD	142,596.8	33090	0.0	49.5	47.90788373	-103.24353974	2017.414						
33100	WELD	142,646.3	33100	0.0	49.4	47.90788345	-103.24374052	2018.894						
33110	WELD	142,695.7	33110	0.0	49.5	47.90788182	-103.24393957	2020.309						
33120	WELD	142,745.2	33120	0.0	49.2	47.90788086	-103.24413708	2021.306						
33130	WELD	142,794.4	33130	0.0	49.3	47.90787990	-103.24433410	2021.863						
33140	WELD	142,843.6	33140	0.0	48.9	47.90788030	-103.24453069	2023.157						
33150	WELD	142,892.6	33150	0.0	49.5	47.90788135	-103.24472515	2025.931						
33160	WELD	142,942.0	33160	0.0	49.2	47.90788241	-103.24492359	2027.615						
33170	WELD	142,991.3	33170	0.0	49.5	47.90788297	-103.24512202	2029.207						
33180	WELD	143,040.7	33180	0.0	49.4	47.90788263	-103.24532163	2030.114						
33190	WELD	143,090.1	33190	0.0	49.4	47.90788097	-103.24552095	2031.055						
33200	WELD	143,139.5	33200	0.0	49.3	47.90787937	-103.24572062	2031.378						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
33210	WELD	143,188.9	33210	0.0	49.3	47.90787948	-103.24592136	2030.897						
33220	WELD	143,238.1	33220	0.0	49.3	47.90788099	-103.24612038	2030.784						
33230	WELD	143,287.4	33230	0.0	49.5	47.90788224	-103.24631946	2030.341						
33240	WELD	143,336.9	33240	0.0	49.5	47.90788273	-103.24651902	2029.191						
33250	WELD	143,386.4	33250	0.0	49.6	47.90788332	-103.24671775	2028.710						
33260	WELD	143,436.0	33260	0.0	49.3	47.90788409	-103.24691406	2030.049						
33270	WELD	143,485.3	33270	0.0	49.4	47.90788565	-103.24711416	2030.582						
33280	WELD	143,534.7	33280	0.0	49.4	47.90788658	-103.24731471	2030.654						
33290	WELD	143,584.2	33290	0.0	49.5	47.90788702	-103.24751482	2030.990						
33300	WELD	143,633.6	33300	0.0	48.7	47.90788646	-103.24771515	2030.442						
33310	WELD	143,682.3	33310	0.0	48.8	47.90788517	-103.24791105	2031.283						
33320	WELD	143,731.1	33320	0.0	49.1	47.90788468	-103.24810935	2031.563						
33330	WELD	143,780.2	33330	0.0	49.1	47.90788384	-103.24830952	2032.103						
33340	WELD	143,829.4	33340	0.0	49.1	47.90788304	-103.24850958	2032.127						
33350	WELD	143,878.5	33350	0.0	49.0	47.90788266	-103.24870960	2033.333						
33360	WELD	143,927.4	33360	0.0	49.3	47.90788264	-103.24890906	2032.830						
33370	WELD	143,976.7	33370	0.0	49.1	47.90788339	-103.24911052	2032.769						
33380	WELD	144,025.8	33380	0.0	49.2	47.90788404	-103.24931115	2033.649						
33390	WELD	144,075.0	33390	0.0	48.9	47.90788594	-103.24951197	2033.708						
33400	WELD	144,123.9	33400	0.0	49.2	47.90788735	-103.24971214	2033.999						
33410	WELD	144,173.1	33410	0.0	48.9	47.90788789	-103.24991401	2033.550						
33420	WELD	144,222.0	33420	0.0	49.0	47.90788723	-103.25011458	2033.919						
33430	WELD	144,271.0	33430	0.0	49.2	47.90788644	-103.25031545	2033.358						
33440	WELD	144,320.2	33440	0.0	49.3	47.90788666	-103.25051720	2033.184						
33450	WELD	144,369.5	33450	0.0	49.4	47.90788639	-103.25071871	2031.924						
33460	WELD	144,418.9	33460	0.0	49.4	47.90788701	-103.25092058	2031.253						
33470	WELD	144,468.3	33470	0.0	49.3	47.90788579	-103.25112179	2033.316						
33480	WELD	144,517.6	33480	0.0	49.5	47.90788443	-103.25132230	2034.343						
33490	WELD	144,567.0	33490	0.0	49.3	47.90788416	-103.25152395	2035.105						
33500	WELD	144,616.3	33500	0.0	49.3	47.90788482	-103.25172572	2035.397						
33510	WELD	144,665.6	33510	0.0	49.5	47.90788459	-103.25192737	2036.277						
33520	WELD	144,715.1	33520	0.0	49.4	47.90788305	-103.25212959	2035.099						
33530	WELD	144,764.6	33530	0.0	49.3	47.90788107	-103.25233110	2035.796						
33540	WELD	144,813.8	33540	0.0	49.6	47.90788058	-103.25253185	2035.847						
33550	WELD	144,863.4	33550	0.0	49.7	47.90788155	-103.25273384	2036.151						
33560	WELD	144,913.1	33560	0.0	49.5	47.90788314	-103.25293592	2036.155						
33570	WELD	144,962.7	33570	0.0	49.6	47.90788322	-103.25313747	2035.430						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
33580	WELD	145,012.2	33580	0.0	49.3	47.90788269	-103.25333946	2034.973							
33590	WELD	145,061.5	33590	0.0	49.5	47.90788352	-103.25354043	2035.140							
33600	WELD	145,111.0	33600	0.0	49.5	47.90788470	-103.25374243	2034.847							
20000042	Seam Variation	145,111.8	33600	0.8	48.7	47.90788472	-103.25374589	2034.844	71	2:15	-	0.82	0.78		
33610	WELD	145,160.5	33610	0.0	49.4	47.90788646	-103.25394422	2034.960							
33620	WELD	145,209.9	33620	0.0	49.4	47.90788794	-103.25414565	2034.836							
33630	WELD	145,259.3	33630	0.0	49.5	47.90788862	-103.25434680	2034.651							
33640	WELD	145,308.8	33640	0.0	49.3	47.90788858	-103.25454864	2034.159							
33650	WELD	145,358.0	33650	0.0	48.9	47.90788658	-103.25475027	2033.581							
33660	WELD	145,406.9	33660	0.0	49.2	47.90788364	-103.25495016	2033.272							
33670	WELD	145,456.1	33670	0.0	49.2	47.90788177	-103.25515092	2033.101							
33680	WELD	145,505.3	33680	0.0	49.2	47.90788158	-103.25535175	2032.654							
33690	WELD	145,554.5	33690	0.0	49.4	47.90788328	-103.25555204	2032.109							
33700	WELD	145,604.0	33700	0.0	49.5	47.90788594	-103.25575305	2032.410							
33710	WELD	145,653.4	33710	0.0	49.6	47.90788660	-103.25595490	2032.451							
33720	WELD	145,703.1	33720	0.0	49.3	47.90788569	-103.25615693	2032.540							
33730	WELD	145,752.4	33730	0.0	49.2	47.90788403	-103.25635771	2032.963							
33740	WELD	145,801.6	33740	0.0	49.5	47.90788485	-103.25655849	2032.428							
33750	WELD	145,851.1	33750	0.0	49.6	47.90788667	-103.25676066	2032.330							
33760	WELD	145,900.7	33760	0.0	49.6	47.90788754	-103.25696246	2033.086							
33770	WELD	145,950.3	33770	0.0	49.4	47.90788771	-103.25716393	2034.239							
33780	WELD	145,999.7	33780	0.0	49.7	47.90788736	-103.25736476	2034.221							
33790	WELD	146,049.3	33790	0.0	49.4	47.90788868	-103.25756661	2034.324							
33800	WELD	146,098.7	33800	0.0	49.6	47.90789163	-103.25776683	2034.587							
33810	WELD	146,148.3	33810	0.0	49.5	47.90789374	-103.25796864	2034.909							
33820	WELD	146,197.7	33820	0.0	49.6	47.90789391	-103.25816961	2035.755							
33830	WELD	146,247.4	33830	0.0	49.6	47.90789278	-103.25837132	2035.245							
33840	WELD	146,296.9	33840	0.0	49.5	47.90789132	-103.25857294	2034.607							
33850	WELD	146,346.4	33850	0.0	49.3	47.90789087	-103.25877460	2033.780							
33860	WELD	146,395.7	33860	0.0	49.2	47.90789079	-103.25897579	2033.559							
33870	WELD	146,444.9	33870	0.0	49.2	47.90789083	-103.25917719	2034.803							
33880	WELD	146,494.1	33880	0.0	49.1	47.90789150	-103.25937854	2035.853							
33890	WELD	146,543.3	33890	0.0	49.2	47.90789168	-103.25957996	2036.696							
33900	WELD	146,592.5	33900	0.0	49.4	47.90789181	-103.25978154	2036.697							
33910	WELD	146,641.8	33910	0.0	49.4	47.90789117	-103.25998354	2036.547							
33920	WELD	146,691.2	33920	0.0	49.2	47.90788866	-103.26018530	2035.781							
33930	WELD	146,740.4	33930	0.0	48.9	47.90788741	-103.26038661	2033.772							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
33940	WELD	146,789.3	33940	0.0	48.8	47.90788909	-103.26058728	2031.516						
33950	WELD	146,838.2	33950	0.0	48.8	47.90789305	-103.26078704	2032.531						
33960	WELD	146,887.0	33960	0.0	49.1	47.90789411	-103.26098786	2034.431						
33970	WELD	146,936.0	33970	0.0	49.1	47.90789358	-103.26118962	2033.354						
33980	WELD	146,985.1	33980	0.0	49.1	47.90789433	-103.26139099	2031.894						
33990	WELD	147,034.2	33990	0.0	49.1	47.90789552	-103.26159183	2031.750						
34000	WELD	147,083.4	34000	0.0	48.9	47.90789605	-103.26179313	2033.096						
34010	WELD	147,132.3	34010	0.0	49.1	47.90789508	-103.26199319	2033.830						
34020	WELD	147,181.4	34020	0.0	49.5	47.90789383	-103.26219401	2033.707						
34030	WELD	147,230.9	34030	0.0	49.2	47.90789224	-103.26239571	2032.218						
34040	WELD	147,280.1	34040	0.0	49.6	47.90789185	-103.26259642	2032.747						
34050	WELD	147,329.8	34050	0.0	49.3	47.90789047	-103.26279832	2033.887						
34060	WELD	147,379.1	34060	0.0	48.5	47.90789037	-103.26299880	2031.474						
34070	WELD	147,427.5	34070	0.0	49.4	47.90788796	-103.26319614	2030.976						
34080	WELD	147,476.9	34080	0.0	49.4	47.90788379	-103.26339702	2031.286						
34090	WELD	147,526.3	34090	0.0	49.4	47.90787899	-103.26359868	2032.116						
34100	WELD	147,575.7	34100	0.0	49.3	47.90787772	-103.26379950	2034.941						
34110	WELD	147,625.1	34110	0.0	23.3	47.90787619	-103.26400029	2036.348						
11000078	WT CHANGE	147,648.4	34110	0.0	0.0	47.90787731	-103.26409511	2037.419			0.322	52000	0.72	
34120	WELD	147,648.4	34120	0.0	27.1	47.90787731	-103.26409515	2037.419						
34130	WELD	147,675.5	34130	0.0	42.2	47.90788094	-103.26420536	2038.601						
34140	WELD	147,717.8	34140	0.0	42.2	47.90788722	-103.26437675	2037.820						
10000099	AGM 260, Sta. 1451+42, At aerial marker 112 -- Survey Point	147,746.5	34140	28.7	13.5	47.90789107	-103.26449318	2036.133						
34150	WELD	147,760.0	34150	0.0	42.3	47.90789368	-103.26454796	2036.597						
34160	WELD	147,802.3	34160	0.0	41.9	47.90789677	-103.26471924	2037.291						
11000079	WT CHANGE	147,844.2	34160	0.0	0.0	47.90789396	-103.26488938	2037.511			0.188	52000	0.72	
34170	WELD	147,844.2	34170	0.0	15.5	47.90789396	-103.26488942	2037.511						
34180	WELD	147,859.7	34180	0.0	48.5	47.90789461	-103.26495219	2038.116						
34190	WELD	147,908.2	34190	0.0	49.4	47.90789252	-103.26514958	2040.308						
34200	WELD	147,957.6	34200	0.0	49.3	47.90788449	-103.26534982	2040.525						
34210	WELD	148,006.9	34210	0.0	49.6	47.90787194	-103.26554913	2040.542						
34220	WELD	148,056.5	34220	0.0	49.3	47.90784931	-103.26574766	2040.799						
34230	WELD	148,105.8	34230	0.0	49.6	47.90781534	-103.26594152	2041.816						
34240	WELD	148,155.4	34240	0.0	49.7	47.90777378	-103.26613319	2042.756						
34250	WELD	148,205.1	34250	0.0	49.6	47.90773388	-103.26632591	2041.666						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
34260	WELD	148,254.7	34260	0.0	49.6	47.90770185	-103.26652163	2043.225						
34270	WELD	148,304.3	34270	0.0	49.6	47.90768158	-103.26672028	2044.610						
34280	WELD	148,353.9	34280	0.0	49.4	47.90767437	-103.26692180	2045.013						
34290	WELD	148,403.3	34290	0.0	49.5	47.90767772	-103.26712264	2045.991						
34300	WELD	148,452.7	34300	0.0	49.7	47.90768519	-103.26732308	2046.997						
34310	WELD	148,502.4	34310	0.0	49.6	47.90769459	-103.26752380	2047.726						
34320	WELD	148,552.0	34320	0.0	49.7	47.90770158	-103.26772498	2048.924						
34330	WELD	148,601.7	34330	0.0	49.4	47.90770749	-103.26792659	2050.292						
34340	WELD	148,651.0	34340	0.0	49.6	47.90771226	-103.26812684	2050.935						
34350	WELD	148,700.7	34350	0.0	49.6	47.90771640	-103.26832822	2050.666						
34360	WELD	148,750.3	34360	0.0	49.7	47.90772066	-103.26852976	2051.432						
34370	WELD	148,799.9	34370	0.0	49.4	47.90772540	-103.26873171	2050.667						
34380	WELD	148,849.4	34380	0.0	49.6	47.90773137	-103.26893232	2051.195						
34390	WELD	148,899.0	34390	0.0	49.6	47.90773737	-103.26913368	2052.661						
34400	WELD	148,948.6	34400	0.0	49.3	47.90774361	-103.26933510	2052.425						
34410	WELD	148,997.9	34410	0.0	49.5	47.90775071	-103.26953519	2052.048						
34420	WELD	149,047.4	34420	0.0	49.5	47.90775888	-103.26973620	2053.261						
34430	WELD	149,096.9	34430	0.0	49.4	47.90776709	-103.26993751	2054.163						
34440	WELD	149,146.3	34440	0.0	49.6	47.90777368	-103.27013791	2055.692						
34450	WELD	149,195.9	34450	0.0	49.6	47.90777846	-103.27033846	2058.112						
34460	WELD	149,245.5	34460	0.0	49.5	47.90778263	-103.27053908	2061.443						
34470	WELD	149,295.1	34470	0.0	49.6	47.90778679	-103.27074018	2062.372						
34480	WELD	149,344.7	34480	0.0	49.6	47.90779417	-103.27094174	2061.577						
34490	WELD	149,394.3	34490	0.0	49.2	47.90780126	-103.27114294	2059.229						
34500	WELD	149,443.5	34500	0.0	49.4	47.90780774	-103.27134294	2056.727						
34510	WELD	149,492.8	34510	0.0	46.9	47.90781395	-103.27154332	2057.311						
34520	WELD	149,539.7	34520	0.0	49.0	47.90782007	-103.27173457	2058.162						
34530	WELD	149,588.7	34530	0.0	49.5	47.90782533	-103.27193427	2059.286						
34540	WELD	149,638.2	34540	0.0	49.4	47.90782880	-103.27213533	2060.781						
34550	WELD	149,687.7	34550	0.0	49.5	47.90782808	-103.27233644	2062.786						
34560	WELD	149,737.1	34560	0.0	49.5	47.90782309	-103.27253752	2065.136						
34570	WELD	149,786.6	34570	0.0	49.5	47.90781564	-103.27273883	2066.551						
34580	WELD	149,836.0	34580	0.0	49.5	47.90780486	-103.27293960	2068.815						
34590	WELD	149,885.5	34590	0.0	49.4	47.90779218	-103.27314027	2069.913						
34600	WELD	149,934.9	34600	0.0	49.4	47.90777467	-103.27334033	2069.617						
34610	WELD	149,984.3	34610	0.0	42.8	47.90775423	-103.27353965	2068.840						
34620	WELD	150,027.1	34620	0.0	49.4	47.90773620	-103.27371195	2069.309						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
34630	WELD	150,076.5	34630	0.0	49.4	47.90771843	-103.27391109	2070.850							
34640	WELD	150,125.9	34640	0.0	49.5	47.90770285	-103.27411146	2072.327							
34650	WELD	150,175.5	34650	0.0	49.6	47.90769387	-103.27431274	2073.804							
34660	WELD	150,225.1	34660	0.0	49.4	47.90769738	-103.27451431	2074.672							
34670	WELD	150,274.5	34670	0.0	30.7	47.90771185	-103.27471406	2074.370							
11000080	WT CHANGE	150,305.2	34670	0.0	0.0	47.90772395	-103.27483699	2072.700				0.322	52000	0.72	
34680	WELD	150,305.2	34680	0.0	42.0	47.90772396	-103.27483703	2072.700							
34690	WELD	150,347.2	34690	0.0	42.2	47.90773329	-103.27500577	2068.106							
34700	WELD	150,389.5	34700	0.0	42.2	47.90773249	-103.27517683	2065.609							
34710	WELD	150,431.7	34710	0.0	42.2	47.90773355	-103.27534857	2065.704							
34720	WELD	150,473.9	34720	0.0	42.3	47.90773683	-103.27552004	2067.250							
34730	WELD	150,516.2	34730	0.0	42.2	47.90774484	-103.27569114	2068.823							
34740	WELD	150,558.4	34740	0.0	42.3	47.90775630	-103.27586087	2073.432							
34750	WELD	150,600.6	34750	0.0	42.3	47.90776931	-103.27603083	2077.229							
34760	WELD	150,642.9	34760	0.0	42.3	47.90778565	-103.27620017	2080.102							
34770	WELD	150,685.2	34770	0.0	42.2	47.90780988	-103.27636789	2081.465							
11000081	WT CHANGE	150,727.4	34770	0.0	0.0	47.90783813	-103.27653427	2082.522				0.188	52000	0.72	
34780	WELD	150,727.4	34780	0.0	8.1	47.90783814	-103.27653431	2082.522							
34790	WELD	150,735.5	34790	0.0	43.7	47.90784372	-103.27656579	2082.714							
34800	WELD	150,779.2	34800	0.0	49.6	47.90787514	-103.27673710	2083.537							
34810	WELD	150,828.8	34810	0.0	49.6	47.90790791	-103.27693220	2084.691							
20000043	Seam Variation	150,831.8	34810	2.9	46.7	47.90790971	-103.27694399	2084.741	202	6:30	-	0.82	0.61		
20000044	Seam Variation	150,832.3	34810	3.5	46.1	47.90791004	-103.27694614	2084.750	202	6:30	-	0.71	0.59		
34820	WELD	150,878.4	34820	0.0	49.7	47.90793550	-103.27712958	2085.638							
34830	WELD	150,928.1	34830	0.0	49.6	47.90796178	-103.27732718	2087.211							
34840	WELD	150,977.7	34840	0.0	49.4	47.90798911	-103.27752437	2089.210							
34850	WELD	151,027.0	34850	0.0	48.2	47.90801470	-103.27772100	2089.889							
34860	WELD	151,075.2	34860	0.0	49.5	47.90803904	-103.27791338	2091.629							
34870	WELD	151,124.8	34870	0.0	49.5	47.90806353	-103.27811179	2092.228							
34880	WELD	151,174.3	34880	0.0	49.4	47.90808863	-103.27830940	2094.174							
34890	WELD	151,223.7	34890	0.0	49.3	47.90811487	-103.27850644	2096.060							
34900	WELD	151,273.0	34900	0.0	49.6	47.90814213	-103.27870310	2096.935							
34910	WELD	151,322.6	34910	0.0	49.3	47.90817088	-103.27890007	2097.152							
34920	WELD	151,371.8	34920	0.0	49.4	47.90819904	-103.27909576	2098.677							
34930	WELD	151,421.2	34930	0.0	49.5	47.90822519	-103.27929293	2099.911							
34940	WELD	151,470.7	34940	0.0	49.4	47.90824962	-103.27949044	2101.643							
34950	WELD	151,520.1	34950	0.0	49.4	47.90827307	-103.27968853	2103.417							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
34960	WELD	151,569.4	34960	0.0	49.3	47.90829671	-103.27988681	2102.619						
34970	WELD	151,618.7	34970	0.0	49.4	47.90832263	-103.28008336	2103.580						
34980	WELD	151,668.1	34980	0.0	49.5	47.90835052	-103.28027963	2106.178						
34990	WELD	151,717.6	34990	0.0	49.5	47.90837938	-103.28047691	2107.152						
35000	WELD	151,767.1	35000	0.0	49.5	47.90840715	-103.28067334	2108.427						
35010	WELD	151,816.6	35010	0.0	49.4	47.90843341	-103.28087043	2111.257						
35020	WELD	151,866.0	35020	0.0	49.4	47.90845703	-103.28106764	2113.265						
35030	WELD	151,915.4	35030	0.0	49.3	47.90847839	-103.28126523	2118.267						
35040	WELD	151,964.6	35040	0.0	46.9	47.90849661	-103.28146350	2121.181						
35050	WELD	152,011.6	35050	0.0	49.6	47.90851160	-103.28165390	2122.418						
35060	WELD	152,061.2	35060	0.0	51.0	47.90852688	-103.28185399	2125.528						
35070	WELD	152,112.2	35070	0.0	50.8	47.90854474	-103.28205978	2128.869						
35080	WELD	152,163.0	35080	0.0	49.5	47.90856455	-103.28226419	2131.442						
35090	WELD	152,212.4	35090	0.0	49.5	47.90858543	-103.28246326	2134.265						
35100	WELD	152,262.0	35100	0.0	49.2	47.90860859	-103.28266162	2137.556						
35110	WELD	152,311.1	35110	0.0	45.3	47.90863035	-103.28285908	2140.790						
35120	WELD	152,356.4	35120	0.0	49.1	47.90864620	-103.28304152	2143.480						
35130	WELD	152,405.5	35130	0.0	49.0	47.90866800	-103.28323849	2146.284						
35140	WELD	152,454.5	35140	0.0	49.0	47.90869398	-103.28343375	2150.241						
35150	WELD	152,503.5	35150	0.0	49.0	47.90871760	-103.28363013	2153.867						
35160	WELD	152,552.5	35160	0.0	48.7	47.90874358	-103.28382579	2157.208						
35170	WELD	152,601.3	35170	0.0	49.2	47.90877416	-103.28401783	2162.579						
35180	WELD	152,650.5	35180	0.0	49.4	47.90880551	-103.28420967	2170.915						
35190	WELD	152,699.9	35190	0.0	49.4	47.90883650	-103.28440182	2180.878						
35200	WELD	152,749.3	35200	0.0	49.4	47.90886532	-103.28459552	2188.731						
35210	WELD	152,798.6	35210	0.0	49.3	47.90889205	-103.28479170	2193.612						
35220	WELD	152,847.9	35220	0.0	49.1	47.90891691	-103.28498888	2196.942						
35230	WELD	152,897.1	35230	0.0	49.6	47.90894144	-103.28518539	2199.805						
35240	WELD	152,946.7	35240	0.0	49.5	47.90896673	-103.28538402	2202.706						
35250	WELD	152,996.1	35250	0.0	49.5	47.90899574	-103.28558055	2204.682						
35260	WELD	153,045.7	35260	0.0	49.6	47.90903253	-103.28577454	2205.428						
35270	WELD	153,095.3	35270	0.0	49.6	47.90907916	-103.28596385	2206.302						
35280	WELD	153,144.8	35280	0.0	49.5	47.90913473	-103.28614798	2206.600						
35290	WELD	153,194.4	35290	0.0	44.8	47.90919549	-103.28632755	2205.403						
35300	WELD	153,239.2	35300	0.0	49.4	47.90925269	-103.28648783	2201.402						
35310	WELD	153,288.6	35310	0.0	49.4	47.90931583	-103.28666473	2197.052						
35320	WELD	153,338.0	35320	0.0	49.3	47.90937709	-103.28684287	2192.009						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
35330	WELD	153,387.3	35330	0.0	49.2	47.90943736	-103.28702170	2186.716							
35340	WELD	153,436.5	35340	0.0	49.2	47.90949822	-103.28719928	2181.795							
35350	WELD	153,485.7	35350	0.0	49.5	47.90955978	-103.28737615	2176.684							
35360	WELD	153,535.2	35360	0.0	49.6	47.90962291	-103.28755360	2172.049							
35370	WELD	153,584.8	35370	0.0	41.2	47.90968512	-103.28773209	2168.527							
35380	WELD	153,626.0	35380	0.0	1.5	47.90973364	-103.28788200	2165.001							
10000100	Bend left - 50 deg., 1.5D	153,626.7	35380	0.1	1.4	47.90973351	-103.28788483	2164.959	0	12:00					
35390	WELD	153,627.4	35390	0.0	12.5	47.90973291	-103.28788768	2164.933							
35400	WELD	153,639.9	35400	0.0	48.9	47.90971877	-103.28793521	2164.684							
35410	WELD	153,688.8	35410	0.0	49.2	47.90966477	-103.28811779	2162.818							
35420	WELD	153,738.1	35420	0.0	45.7	47.90960588	-103.28829805	2159.971							
35430	WELD	153,783.8	35430	0.0	49.2	47.90955037	-103.28846491	2157.859							
35440	WELD	153,833.0	35440	0.0	48.8	47.90949009	-103.28864438	2158.635							
35450	WELD	153,881.8	35450	0.0	49.5	47.90943080	-103.28882211	2160.214							
35460	WELD	153,931.3	35460	0.0	49.2	47.90937213	-103.28900350	2160.768							
35470	WELD	153,980.5	35470	0.0	49.5	47.90931529	-103.28918445	2163.132							
35480	WELD	154,030.0	35480	0.0	49.5	47.90925800	-103.28936666	2164.913							
10000101	AGM 270, Sta. 1514+41, 48' off two track -- Survey Point	154,054.5	35480	24.5	25.0	47.90923007	-103.28945698	2165.743							
35490	WELD	154,079.5	35490	0.0	49.0	47.90920064	-103.28954881	2166.100							
35500	WELD	154,128.5	35500	0.0	49.5	47.90914432	-103.28972911	2165.387							
35510	WELD	154,178.0	35510	0.0	49.4	47.90908720	-103.28991109	2165.685							
35520	WELD	154,227.4	35520	0.0	49.3	47.90902895	-103.29009209	2168.983							
35530	WELD	154,276.7	35530	0.0	49.4	47.90897021	-103.29027135	2174.218							
35540	WELD	154,326.0	35540	0.0	49.4	47.90891110	-103.29044993	2180.826							
35550	WELD	154,375.4	35550	0.0	49.1	47.90885331	-103.29062841	2188.283							
35560	WELD	154,424.5	35560	0.0	49.3	47.90879717	-103.29080602	2197.971							
35570	WELD	154,473.8	35570	0.0	49.5	47.90874126	-103.29098458	2207.326							
35580	WELD	154,523.3	35580	0.0	49.5	47.90868595	-103.29116426	2216.487							
35590	WELD	154,572.8	35590	0.0	49.4	47.90863006	-103.29134276	2226.264							
35600	WELD	154,622.2	35600	0.0	49.5	47.90857619	-103.29152203	2236.174							
35610	WELD	154,671.6	35610	0.0	49.6	47.90852279	-103.29170519	2241.655							
35620	WELD	154,721.2	35620	0.0	49.7	47.90847103	-103.29189117	2244.824							
35630	WELD	154,770.9	35630	0.0	49.3	47.90841953	-103.29207735	2247.792							
35640	WELD	154,820.2	35640	0.0	49.6	47.90836983	-103.29226366	2248.276							
35650	WELD	154,869.8	35650	0.0	49.4	47.90832488	-103.29245314	2244.506							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
35660	WELD	154,919.1	35660	0.0	49.6	47.90828741	-103.29264520	2240.932							
35670	WELD	154,968.7	35670	0.0	49.1	47.90826182	-103.29284302	2239.101							
35680	WELD	155,017.9	35680	0.0	49.4	47.90824895	-103.29304250	2238.302							
35690	WELD	155,067.3	35690	0.0	49.1	47.90824165	-103.29324291	2239.160							
35700	WELD	155,116.4	35700	0.0	49.5	47.90823678	-103.29344191	2240.542							
35710	WELD	155,165.9	35710	0.0	49.6	47.90823387	-103.29364275	2241.603							
35720	WELD	155,215.5	35720	0.0	49.5	47.90823094	-103.29384338	2242.424							
35730	WELD	155,265.0	35730	0.0	49.5	47.90822744	-103.29404393	2243.833							
35740	WELD	155,314.5	35740	0.0	49.6	47.90822167	-103.29424389	2247.573							
35750	WELD	155,364.1	35750	0.0	49.4	47.90821390	-103.29444324	2253.922							
20000045	Seam Variation	155,405.1	35750	41.0	8.4	47.90820683	-103.29460798	2259.836	227	7:30	-	0.82	0.58		
35760	WELD	155,413.5	35760	0.0	49.4	47.90820558	-103.29464171	2261.123							
35770	WELD	155,462.9	35770	0.0	49.3	47.90819974	-103.29483949	2269.182							
35780	WELD	155,512.3	35780	0.0	49.3	47.90819290	-103.29503915	2274.465							
35790	WELD	155,561.6	35790	0.0	49.1	47.90818413	-103.29523913	2276.759							
35800	WELD	155,610.7	35800	0.0	49.4	47.90817421	-103.29543866	2276.404							
35810	WELD	155,660.1	35810	0.0	49.4	47.90816613	-103.29563940	2275.817							
35820	WELD	155,709.5	35820	0.0	49.4	47.90815862	-103.29584048	2275.267							
35830	WELD	155,758.9	35830	0.0	49.4	47.90815090	-103.29604143	2274.298							
35840	WELD	155,808.3	35840	0.0	49.3	47.90814528	-103.29624232	2273.412							
35850	WELD	155,857.5	35850	0.0	49.4	47.90813791	-103.29644287	2272.864							
35860	WELD	155,906.9	35860	0.0	49.4	47.90813017	-103.29664374	2273.947							
35870	WELD	155,956.3	35870	0.0	49.3	47.90812374	-103.29684459	2276.215							
35880	WELD	156,005.6	35880	0.0	49.4	47.90811778	-103.29704447	2279.775							
35890	WELD	156,055.0	35890	0.0	49.4	47.90811181	-103.29724429	2285.327							
35900	WELD	156,104.4	35900	0.0	49.4	47.90810528	-103.29744329	2292.238							
35910	WELD	156,153.8	35910	0.0	49.6	47.90809992	-103.29764147	2300.691							
35920	WELD	156,203.4	35920	0.0	49.6	47.90810405	-103.29784001	2309.041							
35930	WELD	156,253.0	35930	0.0	49.7	47.90812107	-103.29804004	2310.772							
35940	WELD	156,302.7	35940	0.0	49.2	47.90815203	-103.29823557	2306.274							
35950	WELD	156,351.9	35950	0.0	49.7	47.90819393	-103.29842401	2300.511							
35960	WELD	156,401.6	35960	0.0	49.6	47.90823848	-103.29861316	2294.148							
35970	WELD	156,451.2	35970	0.0	49.0	47.90828064	-103.29880431	2289.327							
35980	WELD	156,500.2	35980	0.0	49.2	47.90832197	-103.29899304	2284.812							
35990	WELD	156,549.5	35990	0.0	49.3	47.90836453	-103.29918210	2280.324							
36000	WELD	156,598.7	36000	0.0	49.4	47.90840839	-103.29937052	2274.652							
36010	WELD	156,648.1	36010	0.0	49.5	47.90845279	-103.29955757	2267.358							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
36020	WELD	156,697.7	36020	0.0	49.6	47.90849647	-103.29974593	2260.371						
36030	WELD	156,747.3	36030	0.0	49.6	47.90853878	-103.29993439	2252.250						
36040	WELD	156,796.9	36040	0.0	49.4	47.90857939	-103.30012444	2245.162						
36050	WELD	156,846.3	36050	0.0	49.5	47.90862263	-103.30031264	2238.461						
36060	WELD	156,895.8	36060	0.0	49.2	47.90867677	-103.30049426	2231.251						
36070	WELD	156,945.0	36070	0.0	49.5	47.90874474	-103.30066438	2224.591						
36080	WELD	156,994.6	36080	0.0	49.4	47.90882353	-103.30082610	2219.096						
36090	WELD	157,043.9	36090	0.0	49.7	47.90890905	-103.30098056	2215.916						
36100	WELD	157,093.6	36100	0.0	49.5	47.90900191	-103.30112680	2212.192						
36110	WELD	157,143.1	36110	0.0	49.5	47.90910103	-103.30126280	2208.638						
36120	WELD	157,192.6	36120	0.0	49.4	47.90920288	-103.30139407	2204.407						
36130	WELD	157,242.0	36130	0.0	49.3	47.90930382	-103.30152718	2200.936						
36140	WELD	157,291.4	36140	0.0	49.4	47.90940366	-103.30166082	2196.863						
36150	WELD	157,340.8	36150	0.0	49.5	47.90950373	-103.30179533	2192.414						
36160	WELD	157,390.2	36160	0.0	49.5	47.90960358	-103.30192977	2187.881						
36170	WELD	157,439.7	36170	0.0	49.5	47.90970357	-103.30206481	2183.860						
36180	WELD	157,489.1	36180	0.0	49.6	47.90980318	-103.30219955	2179.972						
36190	WELD	157,538.8	36190	0.0	49.3	47.90990265	-103.30233562	2177.435						
36200	WELD	157,588.1	36200	0.0	49.4	47.91000197	-103.30247175	2175.984						
36210	WELD	157,637.5	36210	0.0	49.3	47.91010204	-103.30260641	2175.116						
36220	WELD	157,686.8	36220	0.0	49.4	47.91020221	-103.30274006	2173.954						
36230	WELD	157,736.1	36230	0.0	49.4	47.91030348	-103.30287239	2171.629						
36240	WELD	157,785.5	36240	0.0	49.4	47.91040506	-103.30300327	2168.658						
36250	WELD	157,834.9	36250	0.0	49.5	47.91050623	-103.30313502	2166.065						
36260	WELD	157,884.4	36260	0.0	49.3	47.91060798	-103.30326700	2163.331						
36270	WELD	157,933.6	36270	0.0	49.2	47.91070846	-103.30340061	2160.435						
36280	WELD	157,982.8	36280	0.0	49.2	47.91080727	-103.30353590	2156.229						
36290	WELD	158,032.1	36290	0.0	49.3	47.91090368	-103.30367482	2151.288						
36300	WELD	158,081.4	36300	0.0	49.6	47.91099521	-103.30382146	2148.409						
36310	WELD	158,131.0	36310	0.0	49.4	47.91108179	-103.30397614	2145.822						
36320	WELD	158,180.4	36320	0.0	48.9	47.91116325	-103.30413619	2143.369						
36330	WELD	158,229.2	36330	0.0	49.5	47.91123903	-103.30429984	2143.250						
36340	WELD	158,278.8	36340	0.0	49.5	47.91131135	-103.30447008	2144.218						
36350	WELD	158,328.3	36350	0.0	49.4	47.91137674	-103.30464568	2146.952						
36360	WELD	158,377.6	36360	0.0	49.5	47.91143603	-103.30482588	2146.630						
36370	WELD	158,427.1	36370	0.0	49.2	47.91149643	-103.30500562	2146.768						
36380	WELD	158,476.3	36380	0.0	43.7	47.91155361	-103.30518649	2147.113						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
11000082	WT CHANGE	158,520.0	36380	0.0	0.0	47.91159979	-103.30534977	2145.879				0.322	52000	0.72	
36390	WELD	158,520.0	36390	0.0	42.2	47.91159980	-103.30534981	2145.879							
36400	WELD	158,562.2	36400	0.0	42.2	47.91164700	-103.30550535	2142.580							
36410	WELD	158,604.4	36410	0.0	42.3	47.91169806	-103.30565936	2139.841							
36420	WELD	158,646.7	36420	0.0	42.3	47.91175064	-103.30581213	2139.436							
36430	WELD	158,689.0	36430	0.0	42.2	47.91180376	-103.30596445	2139.041							
36440	WELD	158,731.2	36440	0.0	42.2	47.91185678	-103.30611682	2138.049							
36450	WELD	158,773.5	36450	0.0	42.2	47.91191219	-103.30626717	2139.596							
36460	WELD	158,815.7	36460	0.0	42.3	47.91196626	-103.30641662	2145.735							
36470	WELD	158,858.0	36470	0.0	42.3	47.91202395	-103.30656247	2152.683							
36480	WELD	158,900.3	36480	0.0	42.3	47.91208418	-103.30670729	2157.820							
36490	WELD	158,942.5	36490	0.0	20.3	47.91214608	-103.30685134	2161.696							
11000083	WT CHANGE	158,962.8	36490	0.0	0.0	47.91217538	-103.30692116	2162.550				0.188	52000	0.72	
36500	WELD	158,962.8	36500	0.0	48.9	47.91217539	-103.30692119	2162.550							
36510	WELD	159,011.8	36510	0.0	49.1	47.91224501	-103.30708980	2163.564							
36520	WELD	159,060.9	36520	0.0	49.2	47.91231520	-103.30725953	2164.468							
36530	WELD	159,110.0	36530	0.0	49.1	47.91238528	-103.30742997	2166.302							
36540	WELD	159,159.2	36540	0.0	48.9	47.91245463	-103.30759940	2170.788							
36550	WELD	159,208.1	36550	0.0	49.5	47.91252292	-103.30776655	2178.918							
36560	WELD	159,257.6	36560	0.0	49.5	47.91259279	-103.30793765	2184.349							
36570	WELD	159,307.1	36570	0.0	49.5	47.91266236	-103.30810995	2185.588							
36580	WELD	159,356.6	36580	0.0	49.1	47.91273249	-103.30828186	2185.659							
36590	WELD	159,405.7	36590	0.0	48.8	47.91280333	-103.30845137	2184.469							
20000046	Seam Variation	159,426.3	36590	20.5	28.3	47.91283373	-103.30852154	2183.319	337	11:00	-	0.82	0.63		
36600	WELD	159,454.5	36600	0.0	49.2	47.91287579	-103.30861760	2182.469							
36610	WELD	159,503.7	36610	0.0	49.4	47.91294830	-103.30878603	2183.101							
36620	WELD	159,553.1	36620	0.0	49.4	47.91302042	-103.30895577	2185.858							
36630	WELD	159,602.5	36630	0.0	49.1	47.91309253	-103.30912517	2189.883							
36640	WELD	159,651.6	36640	0.0	49.5	47.91316414	-103.30929257	2195.638							
36650	WELD	159,701.1	36650	0.0	49.6	47.91323581	-103.30946241	2200.135							
36660	WELD	159,750.7	36660	0.0	49.5	47.91330765	-103.30963318	2199.784							
36670	WELD	159,800.2	36670	0.0	49.5	47.91338082	-103.30980204	2197.722							
36680	WELD	159,849.7	36680	0.0	49.5	47.91345429	-103.30997090	2194.972							
36690	WELD	159,899.2	36690	0.0	49.4	47.91352791	-103.31014040	2193.979							
36700	WELD	159,948.6	36700	0.0	49.2	47.91360159	-103.31030895	2196.576							
36710	WELD	159,997.9	36710	0.0	49.2	47.91367456	-103.31047696	2200.106							
36720	WELD	160,047.1	36720	0.0	49.2	47.91374769	-103.31064450	2203.736							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
36730	WELD	160,096.3	36730	0.0	49.4	47.91382075	-103.31081204	2208.035						
36740	WELD	160,145.6	36740	0.0	44.9	47.91389366	-103.31098004	2213.014						
36750	WELD	160,190.6	36750	0.0	49.4	47.91396014	-103.31113280	2216.923						
36760	WELD	160,240.0	36760	0.0	49.4	47.91403383	-103.31130050	2220.492						
36770	WELD	160,289.4	36770	0.0	49.2	47.91410773	-103.31146784	2224.479						
36780	WELD	160,338.6	36780	0.0	49.5	47.91418232	-103.31163409	2227.687						
36790	WELD	160,388.2	36790	0.0	49.3	47.91425730	-103.31180127	2230.467						
36800	WELD	160,437.4	36800	0.0	49.2	47.91433113	-103.31196815	2233.566						
36810	WELD	160,486.6	36810	0.0	49.3	47.91440290	-103.31213648	2236.695						
36820	WELD	160,535.9	36820	0.0	49.4	47.91447467	-103.31230475	2240.376						
36830	WELD	160,585.3	36830	0.0	49.1	47.91454768	-103.31247284	2243.587						
36840	WELD	160,634.4	36840	0.0	49.5	47.91462026	-103.31264021	2247.170						
36850	WELD	160,683.9	36850	0.0	49.5	47.91469410	-103.31280787	2250.919						
36860	WELD	160,733.4	36860	0.0	49.5	47.91476788	-103.31297567	2254.787						
36870	WELD	160,782.9	36870	0.0	49.5	47.91484102	-103.31314373	2258.933						
36880	WELD	160,832.3	36880	0.0	49.4	47.91491407	-103.31331173	2263.218						
36890	WELD	160,881.7	36890	0.0	49.5	47.91498842	-103.31347880	2267.132						
36900	WELD	160,931.2	36900	0.0	49.5	47.91506276	-103.31364548	2271.743						
36910	WELD	160,980.7	36910	0.0	49.1	47.91513711	-103.31381212	2276.515						
36920	WELD	161,029.7	36920	0.0	49.5	47.91520888	-103.31397939	2280.161						
36930	WELD	161,079.2	36930	0.0	49.2	47.91528066	-103.31414908	2282.230						
36940	WELD	161,128.4	36940	0.0	49.6	47.91535155	-103.31431854	2283.789						
36950	WELD	161,178.0	36950	0.0	49.5	47.91542206	-103.31449006	2284.843						
36960	WELD	161,227.6	36960	0.0	49.4	47.91549235	-103.31466170	2285.667						
36970	WELD	161,277.0	36970	0.0	49.2	47.91556284	-103.31483290	2286.563						
36980	WELD	161,326.2	36980	0.0	49.6	47.91563626	-103.31500026	2288.109						
36990	WELD	161,375.8	36990	0.0	21.9	47.91571129	-103.31516773	2289.976						
37000	WELD	161,397.7	37000	0.0	6.1	47.91574457	-103.31524157	2290.857						
37010	WELD	161,403.8	37010	0.0	0.9	47.91575414	-103.31526136	2290.990						
10000102	Bend right - 50 deg., 1.5D	161,404.2	37010	0.1	0.8	47.91575512	-103.31526212	2291.019	0 12:00					
37020	WELD	161,404.7	37020	0.0	6.1	47.91575624	-103.31526254	2291.059						
37030	WELD	161,410.8	37030	0.0	17.0	47.91577370	-103.31526332	2291.811						
37040	WELD	161,427.8	37040	0.0	49.0	47.91581977	-103.31526495	2293.823						
37050	WELD	161,476.9	37050	0.0	49.4	47.91595318	-103.31526610	2298.076						
37060	WELD	161,526.2	37060	0.0	49.8	47.91608732	-103.31526520	2301.477						
37070	WELD	161,576.0	37070	0.0	49.7	47.91622294	-103.31526430	2301.834						
37080	WELD	161,625.7	37080	0.0	49.7	47.91635805	-103.31526410	2298.879						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
37090	WELD	161,675.4	37090	0.0	49.6	47.91649266	-103.31526624	2293.718						
37100	WELD	161,725.0	37100	0.0	49.6	47.91662579	-103.31526830	2284.812						
37110	WELD	161,774.6	37110	0.0	49.8	47.91675940	-103.31526906	2276.921						
37120	WELD	161,824.3	37120	0.0	49.7	47.91689339	-103.31526850	2269.173						
37130	WELD	161,874.0	37130	0.0	49.4	47.91702802	-103.31526776	2263.148						
37140	WELD	161,923.4	37140	0.0	49.0	47.91716174	-103.31526570	2257.011						
37150	WELD	161,972.4	37150	0.0	49.0	47.91729459	-103.31526470	2251.429						
37160	WELD	162,021.4	37160	0.0	26.7	47.91742749	-103.31526605	2246.102						
37170	WELD	162,048.1	37170	0.0	48.4	47.91750120	-103.31526964	2242.416						
11000084	WT CHANGE	162,096.5	37170	0.0	0.0	47.91763269	-103.31527637	2238.407			0.322	52000	0.72	
37180	WELD	162,096.5	37180	0.0	41.7	47.91763272	-103.31527637	2238.407						
37190	WELD	162,138.2	37190	0.0	42.3	47.91774596	-103.31528171	2234.187						
37200	WELD	162,180.5	37200	0.0	42.3	47.91786030	-103.31528520	2227.768						
37210	WELD	162,222.8	37210	0.0	42.3	47.91797456	-103.31528720	2221.535						
37220	WELD	162,265.2	37220	0.0	42.2	47.91808918	-103.31527670	2217.977						
37230	WELD	162,307.4	37230	0.0	42.3	47.91820245	-103.31527929	2225.240						
37240	WELD	162,349.7	37240	0.0	35.7	47.91831384	-103.31528408	2236.234						
11000085	WT CHANGE	162,385.4	37240	0.0	0.0	47.91840903	-103.31528867	2243.530			0.188	52000	0.72	
37250	WELD	162,385.4	37250	0.0	19.1	47.91840906	-103.31528868	2243.531						
37260	WELD	162,404.5	37260	0.0	49.0	47.91846060	-103.31529035	2246.419						
37270	WELD	162,453.5	37270	0.0	49.6	47.91859179	-103.31528693	2256.371						
37280	WELD	162,503.1	37280	0.0	49.1	47.91872669	-103.31528100	2260.251						
37290	WELD	162,552.2	37290	0.0	49.3	47.91886104	-103.31527880	2255.718						
37300	WELD	162,601.5	37300	0.0	49.7	47.91899569	-103.31527840	2250.844						
37310	WELD	162,651.2	37310	0.0	49.0	47.91913131	-103.31527870	2246.592						
37320	WELD	162,700.2	37320	0.0	49.5	47.91926588	-103.31527880	2245.929						
37330	WELD	162,749.7	37330	0.0	49.6	47.91940133	-103.31528115	2245.615						
37340	WELD	162,799.3	37340	0.0	49.7	47.91953639	-103.31528626	2242.022						
37350	WELD	162,849.0	37350	0.0	48.9	47.91967075	-103.31529230	2235.069						
37360	WELD	162,897.8	37360	0.0	49.5	47.91980386	-103.31529580	2229.974						
37370	WELD	162,947.3	37370	0.0	49.4	47.91993878	-103.31529595	2224.970						
37380	WELD	162,996.7	37380	0.0	49.5	47.92007333	-103.31529178	2221.267						
37390	WELD	163,046.2	37390	0.0	48.4	47.92020828	-103.31528990	2216.908						
37400	WELD	163,094.5	37400	0.0	48.3	47.92034064	-103.31529107	2216.596						
37410	WELD	163,142.9	37410	0.0	48.1	47.92047206	-103.31530143	2220.978						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
10000118	AGM 280, Sta. 1604+70, On fence line -- Survey Point	163,154.9	37410	12.0	36.1	47.92050479	-103.31530537	2221.864							
37420	WELD	163,191.0	37420	0.0	12.0	47.92060262	-103.31532004	2224.713							
37430	WELD	163,203.0	37430	0.0	7.7	47.92063523	-103.31532514	2225.583							
10000103	Bend left - 82 deg., 5D	163,206.0	37430	0.1	7.6	47.92064183	-103.31533180	2225.609	0	12:00					
37440	WELD	163,210.8	37440	0.0	49.1	47.92064409	-103.31535044	2225.696							
37450	WELD	163,259.9	37450	0.0	37.6	47.92064483	-103.31554996	2225.070							
37460	WELD	163,297.5	37460	0.0	48.0	47.92064539	-103.31570282	2225.124							
37470	WELD	163,345.5	37470	0.0	49.1	47.92064763	-103.31589785	2225.007							
37480	WELD	163,394.6	37480	0.0	49.2	47.92064998	-103.31609760	2226.534							
37490	WELD	163,443.8	37490	0.0	49.5	47.92065260	-103.31629740	2229.137							
37500	WELD	163,493.3	37500	0.0	49.4	47.92065646	-103.31649766	2232.650							
37510	WELD	163,542.6	37510	0.0	49.1	47.92066151	-103.31669764	2235.945							
37520	WELD	163,591.7	37520	0.0	49.4	47.92066908	-103.31689618	2240.028							
37530	WELD	163,641.1	37530	0.0	49.6	47.92067758	-103.31709594	2243.436							
37540	WELD	163,690.8	37540	0.0	49.4	47.92068507	-103.31729564	2249.336							
37550	WELD	163,740.2	37550	0.0	49.4	47.92069139	-103.31749346	2257.415							
37560	WELD	163,789.6	37560	0.0	49.3	47.92069770	-103.31768983	2267.162							
37570	WELD	163,838.9	37570	0.0	49.6	47.92070403	-103.31788604	2276.582							
37580	WELD	163,888.5	37580	0.0	48.8	47.92070911	-103.31808666	2280.904							
37590	WELD	163,937.3	37590	0.0	49.5	47.92071206	-103.31828480	2281.957							
37600	WELD	163,986.8	37600	0.0	49.4	47.92071426	-103.31848635	2282.385							
37610	WELD	164,036.3	37610	0.0	49.5	47.92071846	-103.31868715	2283.158							
37620	WELD	164,085.8	37620	0.0	49.5	47.92072370	-103.31888848	2283.459							
20000047	Seam Variation	164,108.1	37620	22.2	27.3	47.92072601	-103.31897892	2283.434	169	5:30	-	0.82	0.63		
37630	WELD	164,135.3	37630	0.0	49.5	47.92072877	-103.31908947	2283.083							
37640	WELD	164,184.8	37640	0.0	49.6	47.92073269	-103.31929037	2282.634							
37650	WELD	164,234.4	37650	0.0	49.6	47.92073703	-103.31949176	2281.950							
37660	WELD	164,284.0	37660	0.0	45.4	47.92074235	-103.31969316	2282.208							
37670	WELD	164,329.4	37670	0.0	49.4	47.92074786	-103.31987726	2282.887							
37680	WELD	164,378.8	37680	0.0	49.3	47.92075435	-103.32007773	2284.885							
37690	WELD	164,428.2	37690	0.0	49.5	47.92076126	-103.32027725	2288.121							
37700	WELD	164,477.7	37700	0.0	49.4	47.92077041	-103.32047744	2291.641							
37710	WELD	164,527.1	37710	0.0	49.6	47.92078023	-103.32067553	2298.043							
37720	WELD	164,576.7	37720	0.0	49.5	47.92078874	-103.32087395	2305.977							
37730	WELD	164,626.2	37730	0.0	49.3	47.92079353	-103.32107471	2308.212							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
37740	WELD	164,675.5	37740	0.0	49.4	47.92079699	-103.32127399	2305.740							
37750	WELD	164,724.9	37750	0.0	49.5	47.92079978	-103.32147380	2301.113							
37760	WELD	164,774.4	37760	0.0	49.5	47.92080321	-103.32167438	2297.595							
37770	WELD	164,823.9	37770	0.0	49.5	47.92080739	-103.32187481	2294.548							
37780	WELD	164,873.4	37780	0.0	49.6	47.92081138	-103.32207554	2292.894							
37790	WELD	164,923.0	37790	0.0	49.7	47.92081649	-103.32227668	2291.880							
37800	WELD	164,972.6	37800	0.0	49.4	47.92082303	-103.32247796	2290.796							
37810	WELD	165,022.0	37810	0.0	49.4	47.92082992	-103.32267814	2290.292							
37820	WELD	165,071.4	37820	0.0	49.6	47.92083634	-103.32287830	2290.587							
37830	WELD	165,120.9	37830	0.0	49.6	47.92084187	-103.32307937	2291.590							
37840	WELD	165,170.5	37840	0.0	49.5	47.92084457	-103.32328058	2292.757							
37850	WELD	165,220.0	37850	0.0	49.4	47.92084395	-103.32348140	2294.368							
37860	WELD	165,269.4	37860	0.0	49.2	47.92083676	-103.32368166	2296.415							
37870	WELD	165,318.7	37870	0.0	49.5	47.92082236	-103.32388014	2298.156							
37880	WELD	165,368.1	37880	0.0	49.4	47.92080615	-103.32407908	2299.487							
37890	WELD	165,417.5	37890	0.0	49.5	47.92078990	-103.32427787	2301.031							
37900	WELD	165,467.1	37900	0.0	49.7	47.92077169	-103.32447686	2302.830							
37910	WELD	165,516.8	37910	0.0	49.4	47.92075337	-103.32467633	2306.030							
37920	WELD	165,566.2	37920	0.0	49.6	47.92073669	-103.32487522	2307.865							
37930	WELD	165,615.8	37930	0.0	49.5	47.92072225	-103.32507546	2309.493							
37940	WELD	165,665.2	37940	0.0	49.6	47.92070928	-103.32527438	2313.762							
37950	WELD	165,714.9	37950	0.0	49.5	47.92069519	-103.32547253	2320.900							
37960	WELD	165,764.4	37960	0.0	49.5	47.92067941	-103.32566919	2329.137							
37970	WELD	165,814.0	37970	0.0	49.6	47.92066420	-103.32586495	2339.554							
37980	WELD	165,863.6	37980	0.0	49.5	47.92065355	-103.32606298	2347.745							
37990	WELD	165,913.1	37990	0.0	49.6	47.92064916	-103.32626399	2349.473							
38000	WELD	165,962.7	38000	0.0	49.1	47.92064894	-103.32646553	2348.905							
38010	WELD	166,011.8	38010	0.0	49.4	47.92065041	-103.32666515	2348.165							
38020	WELD	166,061.2	38020	0.0	49.7	47.92065100	-103.32686564	2344.582							
38030	WELD	166,110.9	38030	0.0	49.6	47.92065234	-103.32706766	2342.273							
20000048	Seam Variation	166,138.4	38030	27.5	22.1	47.92065295	-103.32717953	2342.939	21	12:30	-	1.53	0.41		
38040	WELD	166,160.5	38040	0.0	47.5	47.92065336	-103.32726913	2344.056							
38050	WELD	166,208.1	38050	0.0	49.4	47.92065450	-103.32746168	2347.469							
38060	WELD	166,257.5	38060	0.0	49.4	47.92065668	-103.32766205	2350.222							
38070	WELD	166,306.8	38070	0.0	49.6	47.92065963	-103.32786255	2350.398							
38080	WELD	166,356.4	38080	0.0	49.6	47.92065984	-103.32806382	2348.440							
38090	WELD	166,406.1	38090	0.0	49.4	47.92065829	-103.32826488	2345.553							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
38100	WELD	166,455.5	38100	0.0	48.8	47.92065768	-103.32846553	2342.934						
38110	WELD	166,504.3	38110	0.0	49.4	47.92065727	-103.32866392	2343.728						
38120	WELD	166,553.7	38120	0.0	49.3	47.92065761	-103.32886400	2346.687						
38130	WELD	166,603.0	38130	0.0	49.6	47.92065905	-103.32906430	2351.076						
38140	WELD	166,652.6	38140	0.0	49.5	47.92066075	-103.32926503	2355.422						
38150	WELD	166,702.1	38150	0.0	49.6	47.92066102	-103.32946562	2359.472						
38160	WELD	166,751.7	38160	0.0	49.4	47.92066193	-103.32966645	2364.413						
38170	WELD	166,801.1	38170	0.0	49.4	47.92066337	-103.32986574	2370.211						
38180	WELD	166,850.6	38180	0.0	49.5	47.92066637	-103.33006478	2377.105						
38190	WELD	166,900.1	38190	0.0	49.5	47.92066767	-103.33026431	2382.575						
38200	WELD	166,949.5	38200	0.0	47.7	47.92066656	-103.33046476	2385.225						
38210	WELD	166,997.2	38210	0.0	49.6	47.92066593	-103.33065823	2387.136						
38220	WELD	167,046.8	38220	0.0	49.6	47.92066663	-103.33085987	2387.977						
38230	WELD	167,096.4	38230	0.0	49.6	47.92066767	-103.33106119	2388.866						
38240	WELD	167,146.0	38240	0.0	49.6	47.92066633	-103.33126264	2390.220						
38250	WELD	167,195.6	38250	0.0	33.0	47.92066353	-103.33146381	2388.853						
38260	WELD	167,228.6	38260	0.0	6.1	47.92066300	-103.33159748	2387.310						
38270	WELD	167,234.7	38270	0.0	1.3	47.92066256	-103.33162229	2387.098						
10000104	Bend left - 45 deg., 1.5D	167,235.3	38270	0.1	1.2	47.92066186	-103.33162460	2387.081	0 12:00					
38280	WELD	167,236.0	38280	0.0	47.8	47.92066083	-103.33162680	2387.071						
38290	WELD	167,283.9	38290	0.0	49.6	47.92057530	-103.33177501	2386.349						
38300	WELD	167,333.4	38300	0.0	49.5	47.92048888	-103.33192901	2382.877						
38310	WELD	167,383.0	38310	0.0	49.4	47.92040569	-103.33208461	2374.694						
38320	WELD	167,432.3	38320	0.0	49.7	47.92032450	-103.33224216	2367.330						
38330	WELD	167,482.0	38330	0.0	49.4	47.92024418	-103.33240327	2361.967						
38340	WELD	167,531.4	38340	0.0	49.3	47.92016410	-103.33256468	2360.292						
38350	WELD	167,580.7	38350	0.0	49.6	47.92008339	-103.33272518	2359.839						
38360	WELD	167,630.3	38360	0.0	49.4	47.92000064	-103.33288460	2360.585						
38370	WELD	167,679.7	38370	0.0	49.0	47.91991789	-103.33304242	2362.974						
38380	WELD	167,728.7	38380	0.0	49.5	47.91983604	-103.33320028	2363.561						
38390	WELD	167,778.1	38390	0.0	49.4	47.91975419	-103.33335992	2363.124						
38400	WELD	167,827.6	38400	0.0	49.5	47.91967244	-103.33351932	2362.228						
38410	WELD	167,877.1	38410	0.0	49.4	47.91958996	-103.33367914	2362.510						
38420	WELD	167,926.5	38420	0.0	49.5	47.91950775	-103.33383833	2364.339						
38430	WELD	167,976.1	38430	0.0	49.5	47.91942573	-103.33399832	2366.427						
38440	WELD	168,025.6	38440	0.0	49.3	47.91934377	-103.33415775	2368.304						
38450	WELD	168,074.8	38450	0.0	49.4	47.91926086	-103.33431550	2370.064						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)	Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
38460	WELD	168,124.3	38460	0.0	49.5	47.91917710	-103.33447283	2371.736						
38470	WELD	168,173.8	38470	0.0	49.4	47.91909421	-103.33463142	2372.527						
38480	WELD	168,223.2	38480	0.0	49.6	47.91901167	-103.33479014	2372.943						
38490	WELD	168,272.8	38490	0.0	49.5	47.91892865	-103.33494917	2371.545						
38500	WELD	168,322.2	38500	0.0	49.1	47.91884623	-103.33510880	2370.266						
38510	WELD	168,371.3	38510	0.0	49.4	47.91876450	-103.33526708	2370.330						
38520	WELD	168,420.7	38520	0.0	49.3	47.91868211	-103.33542636	2371.299						
38530	WELD	168,470.0	38530	0.0	49.1	47.91860285	-103.33558837	2371.568						
38540	WELD	168,519.1	38540	0.0	49.2	47.91852986	-103.33575580	2372.770						
38550	WELD	168,568.3	38550	0.0	46.6	47.91846915	-103.33593412	2373.927						
38560	WELD	168,614.9	38560	0.0	49.4	47.91843011	-103.33611426	2374.502						
38570	WELD	168,664.3	38570	0.0	49.5	47.91840924	-103.33631284	2375.129						
38580	WELD	168,713.8	38580	0.0	49.5	47.91840274	-103.33651367	2375.449						
38590	WELD	168,763.3	38590	0.0	49.5	47.91840320	-103.33671473	2375.917						
38600	WELD	168,812.8	38600	0.0	49.5	47.91840460	-103.33691539	2376.556						
38610	WELD	168,862.3	38610	0.0	49.6	47.91840574	-103.33711640	2377.469						
38620	WELD	168,911.9	38620	0.0	47.5	47.91840572	-103.33731768	2377.717						
38630	WELD	168,959.4	38630	0.0	49.6	47.91840650	-103.33751066	2378.302						
38640	WELD	169,009.0	38640	0.0	49.6	47.91840724	-103.33771189	2379.553						
38650	WELD	169,058.6	38650	0.0	49.4	47.91840752	-103.33791304	2381.460						
38660	WELD	169,107.9	38660	0.0	49.6	47.91840777	-103.33811340	2381.964						
38670	WELD	169,157.6	38670	0.0	49.6	47.91840896	-103.33831509	2381.779						
38680	WELD	169,207.1	38680	0.0	49.2	47.91841084	-103.33851630	2382.319						
38690	WELD	169,256.3	38690	0.0	49.5	47.91841350	-103.33871653	2382.973						
38700	WELD	169,305.8	38700	0.0	49.6	47.91841477	-103.33891753	2383.835						
38710	WELD	169,355.4	38710	0.0	48.6	47.91841523	-103.33911885	2384.126						
38720	WELD	169,404.0	38720	0.0	49.6	47.91841614	-103.33931624	2384.712						
38730	WELD	169,453.6	38730	0.0	49.3	47.91841745	-103.33951732	2386.971						
38740	WELD	169,502.9	38740	0.0	49.3	47.91841812	-103.33971764	2389.728						
38750	WELD	169,552.3	38750	0.0	49.3	47.91841736	-103.33991806	2392.162						
38760	WELD	169,601.6	38760	0.0	49.5	47.91841712	-103.34011855	2393.172						
38770	WELD	169,651.1	38770	0.0	49.5	47.91841698	-103.34031978	2392.305						
38780	WELD	169,700.6	38780	0.0	49.4	47.91841667	-103.34052092	2391.646						
38790	WELD	169,750.1	38790	0.0	49.5	47.91841642	-103.34072180	2391.025						
38800	WELD	169,799.5	38800	0.0	49.5	47.91841730	-103.34092242	2390.985						
38810	WELD	169,849.1	38810	0.0	49.5	47.91841937	-103.34112347	2391.187						
38820	WELD	169,898.6	38820	0.0	49.0	47.91842121	-103.34132448	2391.891						

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
38830	WELD	169,947.6	38830	0.0	49.7	47.91842158	-103.34152369	2392.060							
38840	WELD	169,997.3	38840	0.0	49.5	47.91842225	-103.34172520	2392.224							
38850	WELD	170,046.8	38850	0.0	49.3	47.91842247	-103.34192588	2392.614							
38860	WELD	170,096.1	38860	0.0	48.8	47.91842268	-103.34212568	2393.451							
38870	WELD	170,144.9	38870	0.0	49.6	47.91842243	-103.34232355	2394.831							
38880	WELD	170,194.5	38880	0.0	48.1	47.91842205	-103.34252482	2395.898							
38890	WELD	170,242.5	38890	0.0	49.4	47.91842152	-103.34271969	2397.995							
38900	WELD	170,292.0	38900	0.0	49.1	47.91842077	-103.34292021	2400.089							
38910	WELD	170,341.1	38910	0.0	49.5	47.91841928	-103.34311924	2401.789							
38920	WELD	170,390.6	38920	0.0	49.7	47.91841912	-103.34332017	2403.177							
38930	WELD	170,440.3	38930	0.0	49.7	47.91842118	-103.34352177	2403.734							
38940	WELD	170,490.1	38940	0.0	49.5	47.91842389	-103.34372344	2403.503							
38950	WELD	170,539.5	38950	0.0	49.4	47.91842536	-103.34392401	2403.655							
38960	WELD	170,588.9	38960	0.0	49.7	47.91842584	-103.34412401	2404.009							
38970	WELD	170,638.5	38970	0.0	49.4	47.91842741	-103.34432517	2404.432							
40000026	Metal Loss - EXTERNAL	170,676.2	38970	37.6	11.8	47.91842869	-103.34447746	2405.611	321	10:30	11%	0.58	0.73	1760	100%
38980	WELD	170,688.0	38980	0.0	49.3	47.91842901	-103.34452515	2405.911							
38990	WELD	170,737.3	38990	0.0	49.4	47.91842975	-103.34472494	2407.355							
39000	WELD	170,786.7	39000	0.0	49.5	47.91842660	-103.34492524	2408.650							
39010	WELD	170,836.2	39010	0.0	49.6	47.91841881	-103.34512579	2410.529							
39020	WELD	170,885.8	39020	0.0	49.4	47.91840649	-103.34532653	2411.018							
39030	WELD	170,935.2	39030	0.0	48.2	47.91839105	-103.34552593	2411.720							
39040	WELD	170,983.4	39040	0.0	48.8	47.91837446	-103.34572072	2413.462							
39050	WELD	171,032.2	39050	0.0	49.5	47.91836084	-103.34591806	2414.630							
39060	WELD	171,081.7	39060	0.0	46.1	47.91835051	-103.34611885	2415.914							
39070	WELD	171,127.8	39070	0.0	48.6	47.91834101	-103.34630546	2417.257							
39080	WELD	171,176.4	39080	0.0	48.9	47.91832889	-103.34650219	2415.622							
39090	WELD	171,225.3	39090	0.0	25.7	47.91832003	-103.34670012	2414.878							
11000086	WT CHANGE	171,251.0	39090	0.0	0.0	47.91831300	-103.34680356	2415.929				0.322	52000	0.72	
39100	WELD	171,251.0	39100	0.0	1.7	47.91831300	-103.34680360	2415.929							
39110	WELD	171,252.7	39110	0.0	1.5	47.91831243	-103.34681039	2416.111							
10000105	Bend up - 45 deg., 3D	171,253.4	39110	0.1	1.4	47.91831222	-103.34681288	2416.491	0	12:00					
39120	WELD	171,254.2	39120	0.0	4.6	47.91831201	-103.34681525	2416.956							
39130	WELD	171,258.8	39130	0.0	4.1	47.91831077	-103.34682838	2420.198							
39140	WELD	171,262.9	39140	0.0	4.3	47.91830961	-103.34683988	2423.016							
10000119	Pipe Exiting Ground -- Survey Point	171,263.2	39140	0.3	4.1	47.91830952	-103.34684076	2423.238							

ID#	Description	Distance (ft)	Joint #	U/S Weld	D/S Weld	Latitude	Longitude	Altitude	Orientation (Deg / O'Clock)		Depth (%)	Length or WT	Width or YS	P' or SF	(P'/P)
39150	WELD	171,267.2	39150	0.0	1.6	47.91830842	-103.34685170	2425.824							
10000106	Bend down - 45 deg., 3D	171,268.0	39150	0.1	1.6	47.91830817	-103.34685434	2426.053	0	12:00					
39160	WELD	171,268.9	39160	0.0	0.9	47.91830790	-103.34685749	2426.119							
10000107	Flange	171,269.3	39160	0.5	0.5	47.91830776	-103.34685914	2426.109	0	12:00					
39170	WELD	171,269.8	39170	0.0	2.5	47.91830761	-103.34686087	2426.098							
10000108	Pipe Support	171,271.9	39170	1.9	0.5	47.91830699	-103.34686877	2426.048							
39180	WELD	171,272.3	39180	0.0	1.3	47.91830690	-103.34687008	2426.041							
10000109	Tee at 270 deg.	171,272.9	39180	0.3	1.0	47.91830672	-103.34687242	2426.028	258	8:30					
39190	WELD	171,273.5	39190	0.0	7.0	47.91830654	-103.34687475	2426.016							
10000110	Pipe Support	171,277.2	39190	3.5	3.4	47.91830543	-103.34688854	2425.929							
39200	WELD	171,280.5	39200	0.0	1.2	47.91830444	-103.34690079	2425.851							
10000111	Tee at 270 deg.	171,281.0	39200	0.1	1.0	47.91830428	-103.34690284	2425.835	257	8:30					
39210	WELD	171,281.7	39210	0.0	3.0	47.91830410	-103.34690520	2425.816							
10000112	Flange	171,282.1	39210	0.5	2.6	47.91830396	-103.34690690	2425.802	0	12:00					
10000113	Valve (Receiver), Sta. 1684+96, East Camp Creek	171,283.2	39210	1.5	1.5	47.91830357	-103.34691126	2425.774							
10000114	Flange	171,284.3	39210	2.6	0.4	47.91830358	-103.34691101	2425.775	0	12:00					
39220	WELD	171,284.7	39220	0.0	-	47.91830358	-103.34691101	2425.775							
12000001	End Run Tickle	171,326.8	39220	42.1	-	47.91830358	-103.34691101	2425.775							

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General Inline Inspection Terms

AGM (Aboveground Marker)	A portable device placed at an above ground reference point that both detects and records the passage of an in-line inspection tool. AGMs are typically reported using a marker number followed by the aboveground reference point description of the location device (box) placement.
ABOVE-GROUND REFERENCE POINTS	The above ground reference point is a permanent reference on or above the pipeline, which can be used to locate features in the pipeline. Reference points can be valves, fences, test stations, markers posts, or other permanent features.
ACCELEROMETERS	Part of the INS package of the in-line inspection tool. Each TDW tool contains 3 axis-aligned accelerometers measuring orientation and shock.
ANCHOR, WEIGHT OR HANGAR	Non-welded full encirclement pipeline features typically evenly spaced across water crossings. These are usually not detrimental unless associated metal loss is detected.
ANOMALY	Any kind of imperfection or defect that may be present in the wall of the pipe. This includes coating or welding.
APPURTENANCE	A component that is attached to the pipeline; e.g., valve, tee, casing, instrument connection.
ASME B31G, MODIFIED ASME B31G, or DNV RP-F101	Commonly used analysis criterion for metal loss anomalies in a pipeline. TDW software may use ASME B31G, MODIFIED ASME B31G, or DNV RP-F101 to calculate the safe maximum allowable operating pressure or failure pressure at an area of metal loss. These formulas utilize only length and depth - they do not take into consideration the width of the anomaly. The MODIFIED ASME B31G more closely approximates the values obtained via the RSTRENG calculations, which is less conservative than the standard ASME B31G calculation. See also DNV RP-F101.
BEND	A physical pipe configuration that changes pipeline direction.
BEND RADIUS	The radius of the bend in the pipe as related to the pipe diameter (D). Example: A 3-D bend would have a radius of 3 times the diameter of the pipe measured to the centerline of the pipe.
BORE RESTRICTION	Any reduction of the cross-section of the pipe that may restrict the passage of an ILI pig.
BUCKLE	A condition where the pipeline has undergone sufficient plastic deformation to cause permanent wrinkling or deformation of the pipe wall or the pipe's cross section.
BURST PRESSURE	The pressure at which the nominal hoop stress in the wall of a pipe equals the specified minimum yield stress of the pipe grade. It is calculated by 2st/D where s = SMYS, t = nominal wall thickness, D = nominal outside diameter of pipe.
CALIBRATION DIG	An exploratory excavation to compare findings of an in-line inspection system to actual conditions with the purpose of improving data analysis.
CASING ANOMALY	When the casing is not welded, or when a gap occurs in the weld, this signature is detected by the tool, and identified with a miscellaneous remark.
CHARACTERIZATION	The process of quantifying the size, shape, orientation, and location of an anomaly, defect, or critical defect after it has been detected.
CHECK VALVE	A valve that prevents reverse flow.
CLAMP	Non-welded full encirclement pipeline feature not located at a bridge or water crossing, in some cases a type of temporary repair.
COMPONENT	Any physical part of the pipeline , other than line pipe, including but not limited to valves, welds, tees, flanges, fitting, taps, branch connections, outlets, supports and anchors.

General Inline Inspection Terms

CONTROL POINT	Control points are know locations used to provide coordinate updates to aid the final processing of the inertial data gathered from the instruments onboard the inspection vehicle.
CORROSION (External)	Metal loss due to electrochemical, galvanic, microbiological, or other attack on the pipe due to environmental conditions surrounding the pipe.
CORROSION (Internal)	Metal loss due to chemical or other attack on the steel from liquids on the inside of the pipe. Electrochemical attack can also occur in local cells, but this is less frequent.
DATA ANALYSIS	The process through which indications are evaluated to classify, characterize and size them as non-relevant conditions, pipeline components, anomalies, imperfections, or defects.
DATUM	A datum is a set of reference points on the earth's surface against which position measurements are made. Horizontal datums are used for describing a point on the earth's surface, in latitude and longitude or another coordinate system. While hundreds of reference datums exists some examples of horizontal datums include, NAD27, NAD83, and WGS84. Vertical datums are tidal, based on sea levels referencing geodetic datums such as NAVD88, or geodetic, based on the same ellipsoid models of the earth used for computing horizontal datums.
DNV RP-F101	An analysis procedure that differs from the commonly used ASME B31G criterion. Developed by the Norwegian company Det Norske Veritas, this method is employed for European and Asian pipelines. The DNV algorithm is generally considered to be more conservative than ASME B31G.
DEFECT	An anomaly for which an analysis, such as ASME B31G, would indicate that the pipe is approaching failure as the nominal hoop stress approaches the specified minimum yield stress (SMYS).
DEFORMATION PIG	A pig designed to record conditions such as dents, wrinkles, ovalities, bend radius and angle by making measurements of the inside surface of the pipeline.
DENTS	Dents are depressions in the pipeline that may be detected by the inline inspection tool. MFL tools may be able to detect dents, but may not be able to accurately size them.
DETECTION THRESHOLD	A characteristic dimension or dimensions of an anomaly that must be exceeded to achieve a stated probability of detection.
DOT192	Part 192 of the Code for Federal Regulations (CFR) Title 49 that addresses Gas Transmission Pipelines.
DOT195	Part 195 of the Code for Federal Regulations (CFR) Title 49 that addresses Transportation of Hazardous Liquids by Pipeline.
ECCENTRIC CASINGS	TDW tools detect when a casing is not centered on the pipeline. These casings are referred to as being eccentric. The closer the casing is to the pipeline, the stronger the signal seen by the inspection tool. The tool may not detect if the casing is shorted to the pipe wall. The tool might see evidence of a short, such as metal loss.
ESTIMATED REPAIR FACTOR (ERF)	The ratio of pipeline design pressure or in some cases MOP to the safe maximum operating pressure (P').
ERW (Electric Resistance Weld)	Describes a process used to form steel from a sheet into tubular form (pipe). Welds are formed by resistance heating of two edges of a metal sheet and then forcing them together to create a solid-state weld.
EXPANSION	Local increase of pipe diameter during service which indicates the yield stress of the pipe at that location has been surpassed.

General Inline Inspection Terms

FAILURE PRESSURE RATIO (FPR)	The ratio of the predicted failure pressure calculated by an analysis criterion (e.g. ASME B31G, RSTRENG, etc.) to the MAOP
FEATURE	Any physical object detected by an in-line inspection system. Features may be anomalies, components, or some other item.
FITTING	A branch connection attached to the pipeline which is smaller than the nominal pipe size that alters flow or diverts product (e.g. tap, offtake, split-tee, weld-o-let, thread-o-let).
GAIN (Metal in Close Proximity)	The inspection tool may detect ferrous metal objects located close to or touching the pipeline. They appear as additional metal added to the pipe and are referred to as gains. Clamps or anchors are considered gains as well as features such as puddle welds or CP connections. Generally, repairs such as patches or sleeves are called out as repairs even though they show appear in the data as gains.
GIRTH WELD	A circumferential weld joining two joints of pipe.
GIS	Geographic Information System is any system that captures, stores, analyzes, manages, and presents data that are linked to location. GIS is the merging of cartography and database technology.
GOUGE	Elongated grooves or cavities caused by mechanical removal of metal.
GPS (Global Positioning System)	The navigational system utilizing satellite technology to provide a user an exact position on the earth's surface. When coupled with known surface locations such as valves and AGMs, an ILI tool's INS or IMU can approximate or calculate the centerline of a pipeline.
GYROSCOPES (Gyros)	Electronic sensors used to measure change in direction of in-line inspection tool during inspection process. Displayed as pitch and yaw in PIGTRAP.
GROUP	A group is several pits that are grouped together using specific interaction rules. If a pit is a mountain peak, then a group is a mountain range. The reason for groups is so that the overall extent of the metal loss area can be evaluated. Most formulas for calculating the strength of the pipe wall around metal loss look at the overall length of metal loss after interaction rules have been applied to pits.
HALF SOLE	A device used to repair a pipeline by welding a small section over half the circumference of the pipe over the defect, literally half of a sleeve.
HALL SENSORS	A sensor that directly measures the remaining magnetic field strength not absorbed by the pipe.
HCA (High Consequence Area)	A criterion for pipelines designed by the Code of Federal Regulations which define what program and practices operators must use to manage pipeline integrity if the pipeline is located near a commercially navigable waterway, a high population area, or an unusually sensitive area.
HEAT AFFECTED ZONE (HAZ)	The region around a weld which has been metallurgically affected during the welding process.
HEAVY WELD	A girth weld in which the root pass or a portion of the root pass intrudes further than normal into the ID of the pipe. Not usually considered detrimental.
HIGH RESOLUTION	A term used to describe the function of TDW tools for use in MFL or Deformation analysis schemes. Both MFL and Deformation tools are considered high resolution.
IMPERFECTION	An anomaly with dimension and characteristics that do not exceed acceptable limits.

General Inline Inspection Terms

IMU (Inertial Measurement Unit)	Inertial measurement unit, or IMU, is the main component of inertial guidance systems. An IMU works by sensing motion including the type, rate, and direction of that motion using a combination of accelerometers and gyroscopes.
INCLUSION	An anomaly in the cross section of the pipeline caused by manufacturing processes. Inclusions may be detrimental if they protrude through the pipe wall. Refer to mill anomaly.
INDICATION	Any measured signal or response from an inspection of a pipe different than the normal baseline signal.
INS (Inertial Navigation System)	Refers to a system of accelerometers and gyroscopes to track the movement and orientation of the inspection tool through bends, turns, etc.
INTERACTION RULES	Specifications that establish spacing criteria between anomalies or defects (pits). If the indications or defects are proximate to one another within the criteria , the anomaly or defect is treated as a single larger unit or group for engineering analysis purposes.
INSPECTION	The use of a non-destructive inspection technique.
JOINT	A single section of pipe that is welded to others to make up a pipeline.
LACK OF FUSION (LOF)	In a weld, any area or zone that lacks complete melting and coalescence of a portion of the weld.
LAUNCHER	Refers to the beginning of the inspection; an oversize section of pipe equipped with sealing door through which the inspection tool is loaded into the pipeline.
LOCATION	A location is a feature in the pipeline that can be used to correlate the inspection tool data to above ground references. Common location features include valves, fitting, flanges, tees, casings, repairs and AGMs. For example, a metal loss area could be referenced as being 200 feet downstream from a valve. Not all locations can be easily found from aboveground.
LATITUDE & LONGITUDE	Latitude is the angular distance north or south from the earth's equator measured through 90 degrees. Longitude is the arc or portion of the earth's equator intersected between the meridian of a given place and the prime meridian and is expressed either in degrees or in time. Latitude and longitude are reported as GPS coordinates. Predicted GPS for features are provided in the Pipeline Listing section.
MAOP (Maximum Allowable Operating Pressure)	(or Design Pressure) The maximum internal pressure permitted in the operation of a pipeline as defined by the Code of Federal Regulations.
MAPPING PIG	An ILI tool that uses an IMU to collect data that can be analyzed to produce an elevation and plan view of the pipeline route.
MEASUREMENT THRESHOLD	A characteristic's dimension or dimensions above which anomaly measurements can be made.
MECHANICAL DAMAGE	A generic term used to describe combinations of dents gouges, and/or cold work caused by the application of external force. Damage includes coating, movement of metal and high residual stress.
METAL LOSS	Any of a number of types of anomalies in pipe in which metal has been removed from the pipe surface, usually due to corrosion or gouging.
MFL (Magnetic Flux Leakage)	An inspection technique in which a magnetic field is applied to a pipe section and measurements are taken of a magnetic flux density at the pipe surface. Changes in measured flux density indicate the presence of a possible defect.

General Inline Inspection Terms

MILL ANOMALY	The process of manufacturing pipe can often leave indications in the pipe wall. Typically these anomalies are not detrimental, and are identified for the benefit of the client.
MINIMUM BORE	The minimum measured Internal Diameter of the pipe at any particular point. Also referred to as minimum cross-section.
MISALIGNMENT	A girth weld anomaly where the two joints of pipe were not aligned properly prior to welding. Sometimes referred to as a hi-lo.
MOP (Maximum Operating Pressure)	The established maximum internal pressure expected during the operation of a pipeline, which cannot normally exceed the maximum allowable operating pressure (MAOP).
ODOMETER	Wheels on in-line inspection tool, which rotate along the pipe to measure the distance the tool has traveled.
ORIENTATION	The location of the reference around the circumference of the pipe, as viewed in the direction of flow (downstream). The value is represented in degrees 0-360° rotating clockwise around pipe. (0° = top of pipe, 90° = 3:00)
OVALITY	A condition in which a circular pipe forms into an ellipse, usually as the result of external forces.
P	Calculated pressure rating for the pipe. Per ASME B31G, it is the greater of either the established MOP for liquid lines (MAOP for gas lines), or 2stFT/D, where S = SMYS, F = appropriate design factor from ASME B31G, T = Temperature derating factor, D = nominal outside diameter of pipe, and t = nominal wall thickness. See ASME B31G. In application, this variable is identical per DNV RP-F101, however it is calculated using different formulas and factors.
P' (Calculated safe maximum operating pressure)	Calculated safe maximum operating pressure for the pipeline segment as calculated based on information provided by the Customer. TDW software uses ASME B31G, MODIFIED ASME B31G, or DNV RP-F101 to calculate the safe maximum allowable operating pressure (P') of the pipeline at a metal loss area for liquid lines. The calculation also takes into consideration a temperature factor, for use when the line is at elevated temperature, and a safety factor. The default values used in calculations are a temperature factor of 1, and a safety factor of 72% (80% for Canada).
Pfail (Calculated failure pressure)	Calculated maximum operating pressure for the pipeline segment as calculated based on information provided by the Customer. TDW software uses ASME B31G, MODIFIED ASME B31G, or DNV RP-F101 to calculate the failure pressure (Pfail) of the pipeline at a metal loss area for gas lines. The calculation also takes into consideration a temperature factor, for use when the line is at elevated temperature, and a safety factor. The default values used in calculations are a temperature factor of 1, and a safety factor of 100%.
P'/P	Percent of maximum established pressure, this is calculated by dividing the calculated safe pressure of the defect (P') by the current established maximum operating pressure of the pipeline (P). For TDW reporting, P is either established MOP provided by the customer or the calculated pressure rating for the pipe (P). Percentages less than 100% are considered pressure-reducing.
Pfail/MAOP	Percent of MAOP, this is calculated by dividing the calculated failure pressure of the defect (Pfail) by the current MAOP of the pipeline (P). For TDW reporting, P is either established MAOP provided by the customer or the calculated pressure rating for the pipe (P).
PATCH	A device used to repair a pipeline by welding a small section of pipe on top of the defect.
PIG	A generic term signifying any independent, self-contained device, tool or vehicle that moves through the interior of the pipeline for purposes of inspecting, batching, dimensioning, or cleaning.

General Inline Inspection Terms

PIGTRAP	Pipeline Inspection Graphical Test Reporting and Analysis Program (PIGTRAP). Proprietary software developed by TDW Inc. for viewing data collected by the inspection tool.
PIPE SUPPORT	Any device used to support an aboveground pipeline.
PIT	Localized concentrated-cell corrosion on the external or internal surfaces that results from generation of a potential (voltage) difference set up by variations in oxygen concentrations within and outside the pit. The oxygen-starved pit acts as anode and the pipe surface acts as the cathode. If several pits are in close proximity to each other, they may be grouped together using interaction rules as one group.
PLANAR	An NDT term indicating a feature has two-dimensional characteristics like a fissure. Sometimes referred to as crack-like.
RSTRENG	A computer program designed to calculate the calculated safe maximum operating pressure (P') of corroded pipe. RSTRENG results are approximated when Modified B31G criteria is used.
REBOUNDING	The process of changing the dent depth and shape by internal pressure in the pipe. Generally, dents due to third-party contact will re-round, while dents due to rocks will not unless the rock causing the dent is removed.
RECEIVER	Refers to the ending of the inspection; an oversize section of pipe equipped with sealing door through which the inspection tool is retrieved from the pipeline.
REPORTING THRESHOLD	A parameter that defines whether or not an anomaly will be reported. The parameter may be a limiting value on the depth, width, or length of the anomaly or feature.
RESIDUAL DENT DEPTH	The dent depth measured under a particular set of conditions, e.g., in pressurized or un-pressurized pipeline. While maximum dent depth does not change, the residual or measured dent depth changes with pressure and loading. Also referred to as the measured dent depth.
RUPTURE PRESSURE RATIO (RPR)	The ratio of the predicted failure pressure calculated by an analysis criterion (e.g. ASME B31G, RSTRENG, etc.) to the pressure at specified minimum yield strength (SMYS)
SAFETY FACTOR	(or Design Factor) Typically 0.72 for liquid lines per ASME B31G (0.80 in Canada) . In setting the safety factor, due consideration has been given to and allowances made for the manufacturing tolerance and maximum allowable depth of imperfections provided for in the specifications. DNV RP-F101 uses a slightly different Total Usage Factor, which is entered as the Safety Factor in PIGTRAP. The typical 0.72 factor becomes 0.648 when applying the DNV modeling factor of 0.9.
SEAMLESS	Pipe that is manufactured by means of extrusion. This process typically creates significantly more variation in pipe wall thickness than ERW pipe.
SEAM VARIATION	Non-detrimental irregularity due to the manufacturing of the seam weld. An example is excess or variance in trim.
SEAM WELD (or SEAM)	The longitudinal or spirally-oriented weld in pipe connecting two edges of a formed plate which was created at the pipe mill.
SLEEVE	A device used to repair a pipeline by welding a small section of pipe over the full circumference of the pipe over the top of the defect.
SpirALL™ Magnetic Flux Leakage	A tool system that unites a conventional axial MFL and a unique spiral MFL tool section into one tool combining the benefits of each for enhanced defect characterization and sizing.

General Inline Inspection Terms

Spiral MFL (SMFL)	A unique type of MFL tool section that creates an oblique, near-45 degree magnetic field within the pipe wall. This allows detection and characterization of long and narrow metal loss or seam features on par with circumferential or transverse MFL tools.
SPACER	A device used to maintain space between a casing and a pipeline.
SMYS (Specified Minimum Yield Strength)	A required strength level that measured yield stress of a pipe material must exceed, which is reported as pipe grade. The measured yield stress is the tensile stress required to produce a total elongation of 0.5 percent of a gage length as determined by an extensometer during a tensile test.
STITCHING	Intermittent or repeating lack of fusion in a seam weld.
TEMPERATURE FACTOR	Typically 1.0 unless the metal temperature is expected to exceed a normal temperature range of -20°F (-30°C) to 250°F (120°C).
THIRD PARTY DAMAGE	Damage to a pipeline system by an outside party. See mechanical damage.
TRACKING	The process used to monitor the progress of the inspection tool through the pipeline. AGM boxes are placed at aboveground marker reference locations to record the passage of the inspection tool.
TRAP	Pipeline facility for launching and receiving tools and pigs.
VOLUMETRIC	A term indicating a feature has three-dimensional characteristic similar to a typical corrosion pit.
WELD ANOMALY	Any area or zone in a weld that lacks complete melting and fusion of a portion of the weld which could have occurred during the welding process or caused by corrosion.
WRINKLE	A smooth and localized bulge visible on the outside wall of the pipe.
WRINKLE BEND	A field bend that contains smooth and localized bulges on the inner radius of the bend, sometimes formed when pipe is cold bent.

1. The Graphs, Dig Sheets, and Tables used in this report were generated using a standalone reporting engine from data contained in a Microsoft Access™ database.

2. If the end user has Microsoft™Access on their computer, they have complete access to the inspection database. The database file which has an extension of *.mdb (Microsoft™ database) is stored in the same directory as the tool data. Although the printed reports and report spreadsheet were generated by a standalone reporting engine, using Access the user can customize some basic graphs or tables contained in the database. Alternatively, the data can be exported to a spreadsheet if preferred.

3. The PigTrap™ software, included with this report, provides the user with an easy way to view the data collected by the TDW in-line inspection tool and can also be helpful when trying to locate certain features or specific sections of pipe. The software can be run off various media or installed onto a network or hard drive. Please refer to Appendix B for installation requirements and instructions.

4. For dig sheet creation, please refer to Appendix C.

5. TDW inspection tools are designed to detect various features and anomalies within a pipeline. These various features and anomalies are added to the database using PigTrap™ software by qualified Data Analysts.

6. Database Numbering System: All entries in the database have a unique number assigned to them. The table below lists the number range of each category of database records.

7. All records are numbered sequentially from the beginning of the pipeline section to the end of the pipeline section. By default Welds begin at 110 and are incremented by 10 from one weld to the next. This can be altered to match customer weld or joint numbering by request.

Welds	110	to	9,999,999
Locations	10,000,000	to	10,999,999
Pipe	11,000,000	to	11,999,999
Misc	12,000,000	to	12,999,999
Gains	13,000,000	to	13,999,999
Deformations	14,000,000	to	14,999,999
Bore Restrictions	15,000,000	to	15,999,999
Pits or Other Defects	20,000,000	to	39,999,999
Groups (of Pits)	40,000,000	to	49,999,999
Seam Welds	51,000,000	to	51,999,999

8. All other records are incremented by 1 from one record to the next. For example, the first Location record would be numbered 10,000,000, the second record would be 10,000,001, and the third record would be 10,000,002, etc. Depending on information sent out previous to the final report, numbering may change during analysis of the run.

The PigTrap™ software allows the user to view all of the data collected during the Magpie/TDW inline inspection survey. Installation requires the disk(s) or external drive that accompany the inspection report.

System Requirements

Before you install and run PigTrap™ please verify that the computer you are installing to meets the minimum requirements needed to successfully open and operate PigTrap™.

Windows OS

- Microsoft® Windows 7, Vista®; Windows® XP Professional, Home Edition
  - o Administrator rights required
- 2.0 GHz Intel® Core™ 2 Duo Processor or higher
- 2 GB RAM or more
- 1 GB available hard drive space plus additional necessary for the run size.
- Qualified hardware-accelerated OpenGL graphics card, 32-bit color, and 256MB of VRAM (latest manufacturer drivers strongly recommended also).
- Microsoft® Access 2003 or higher
- Microsoft® .NET Framework 3.5 Service pack 1
- Microsoft® Visual C++ 2008 SP1 Redistributable Package (x86)
- Microsoft® Report Viewer 2008 SP1

What electronic data accompanied the inspection report

The CD, DVD, or external drive supplied by T.D. Williamson, Inc. for this PigTrap™ inspection of your pipeline contains the following types of files. For CD or DVDs the first disk will contain these files while accompanying disks (if any) contain raw tool data only. External drives will contain this information in the Final Report folder on the external drive under the run name folder.

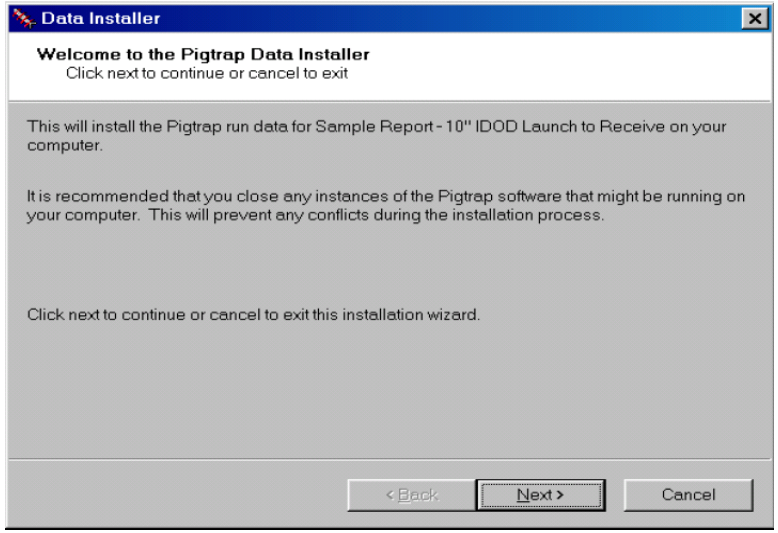
- Database – .MBD (Microsoft Data Base) Files of this type may be viewed through Microsoft Access. This file contains the analysis of the inspection.
- .rsf – This is a PigTrap™ reference file which holds specific settings for the run to be viewed.
- Spreadsheet – .XLS (Microsoft Excel) A Pipeline Listing is generated for your run in an Excel spreadsheet format. Each event at a particular location is identified and described. You may use Copy and Paste techniques to build your own custom formatted report.
- Setup.exe file – This file executes the installation of the data for the specific run contained on the disk(s) or external drive.
- h*.nnn, c*.nnn, i*.nnn, p*.nnn, t*.nnn, l*.nnn & o*.nnn – The raw tool data created on-board the inspection tool. These files are necessary for PigTrap™ to function properly. CD and DVDs have the option to install these files onto your computer, if chosen not to install them to your computer the disks must be used to view the run.

Run Data and PigTrap™ Installation

The inspection report will be accompanied by either CDs, DVDs, or an external drive containing all files necessary for installation. Installation for CDs and DVDs differs from external drives, if an external drive accompanied your final report please skip to PigTrap™ Installation.

CDs and DVDs

1. Insert Disk 1 from the report binder into your computer's CD/DVD drive.
2. Access the Setup.exe program located on the CD or DVD. This can be done by browsing to your computer's CD/DVD drive and double clicking Setup.exe. This will launch the Data Installer program.

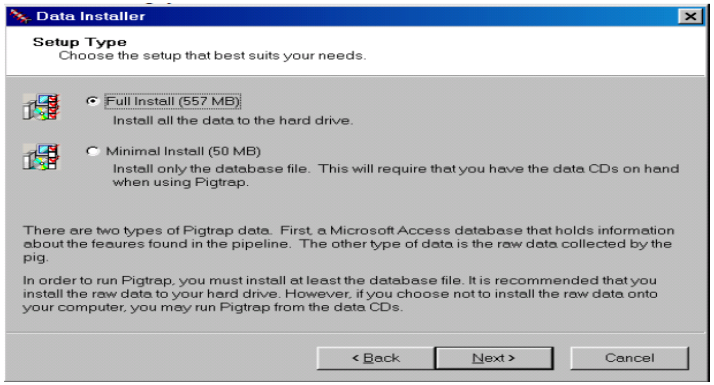


Note: If you want to install only the Pigtrap™ software and not the run data (advanced users only), choose Cancel and go to the Pigtrap™ Installation steps on page 3.

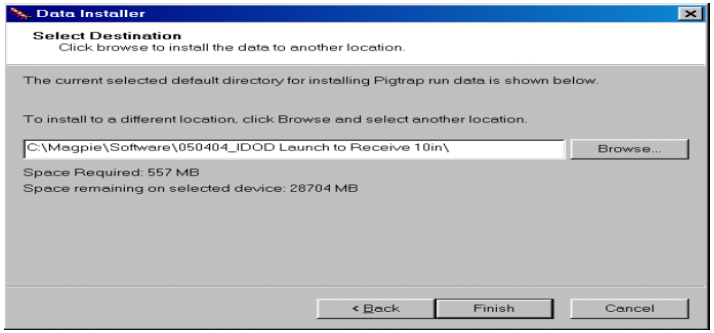
3. Click Next to continue installing the run data.

Appendix B

4. Choose the type of install you would like to perform: Full Install (recommended) or Minimal Install. The size of the installation is shown next to each type of installation. The database file must be installed for PigTrap™ to operate properly, but you may choose to not install the raw data. If you choose to not install all the data, you may need to change disks while viewing the data in PigTrap™. Click Next to continue after making your choice.

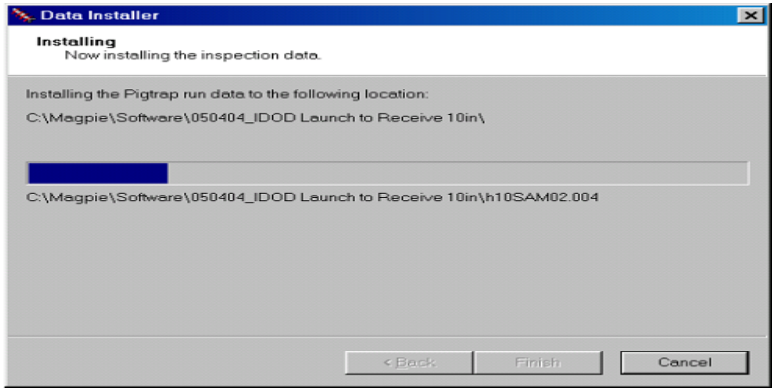


5. Choose the installation location on your computer for the data files. The default and recommended location is C:\Magpie\Software. The location inside this folder is based on the trap date, name, and size of the run. If you would like to specify another location, click the Browse... button. Click Finish to continue.

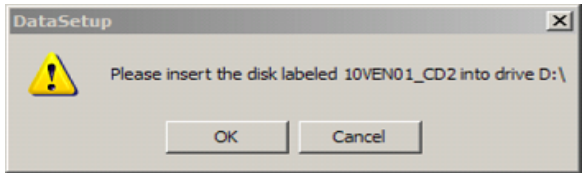


6. If the installation folder does not already exist, then you will be prompted to create it. Click Yes to create the new folder.

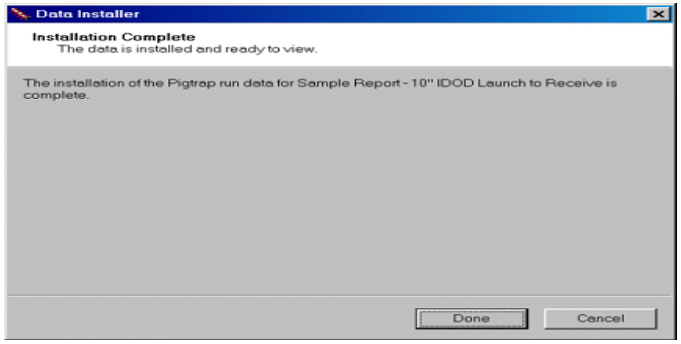
7. The following progress bar will appear. There may be a short delay while the database is being copied. Be patient, this is normal.



8. You may be prompted to insert other disks from the run distribution if data was supplied on more than one disk. Insert the required disk and click OK to continue. Repeat until all disks have been copied.



9. Click Done to complete the run data installation.



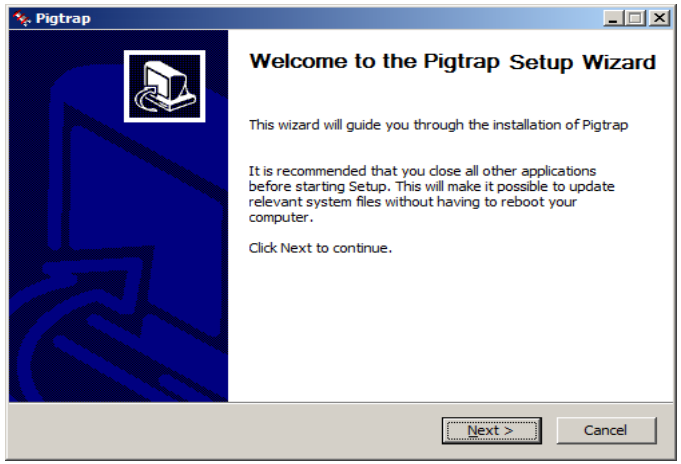
10. After clicking Done in the Data Installer PigTrap™ Installation will automatically launch.

Appendix B

PigTrap™ Installation

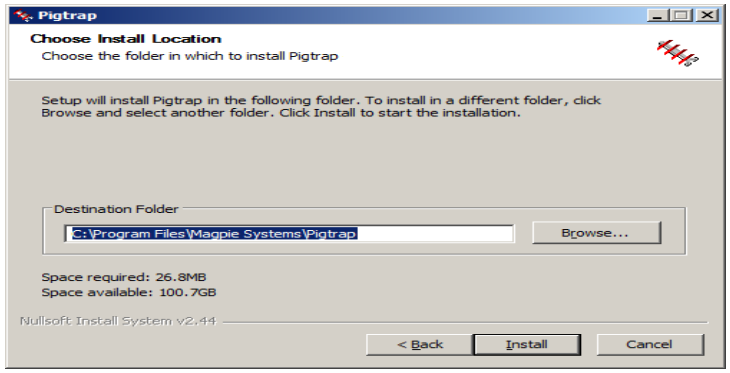
Note: CD and DVDs follow a slightly different installation process. Steps 1 and 2 are for external drives, if you are installing from CDs or DVDs please skip to step 3.

1. Plug the external drive into your computer.
2. Access the PigTrap™ setup.exe located on the external drive. This can be done by browsing to external drive and double clicking PigTrap™ setup.exe.
3. PigTrap™ Setup Wizard will launch. This will guide you through the installation of PigTrap™. Click Next to continue.

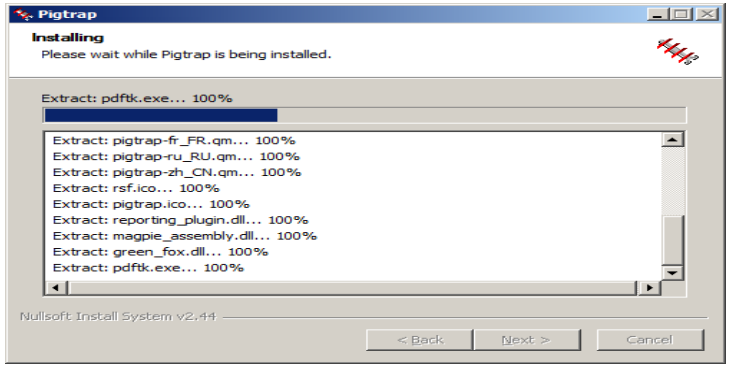


4. The Software License Agreement will appear. Read the agreement select I Agree to continue. You must accept the agreement to install PigTrap™.

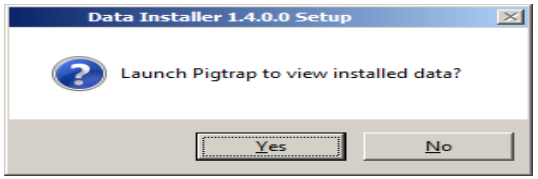
5. Choose the installation location on your computer for the PigTrap™ software. The default and recommended location is C:\Magpie\Software. Click Install to continue.



6. The following progress bar will appear while PigTrap™ installs all the necessary files. Once the installation has completed click Finish to close the wizard.



7. When prompted whether you would like to view the run data, click Yes to launch PigTrap™. Shortcuts are now on the desktop to the run and to PigTrap™. Once PigTrap™ opens with the data, choose save in the upper left of the data view.



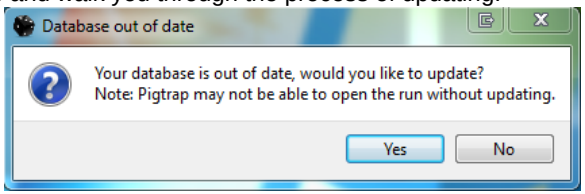
Appendix B

Opening and Viewing the Inspection Data

Viewing the inspection data in PigTrap™ can be done by using one of three different methods.

1. Double click on PigTrap™ .exe icon. Click on the Open Folder icon , then browse to the installed inspection data folder and select the desired .rsf or .mrsf file.
2. Double click on a run settings file (.rsf or .mrsf) that is associated with PigTrap™.
3. Drag and drop a run settings file (.rsf or .mrsf) on top of the PigTrap™ .exe file.

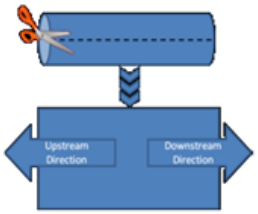
PigTrap™ was designed so you would have the ability to review previous TDW/Magpie inspection data when needed. However, you may need to acquire an updated Microsoft Access Data-base from one of our TDW representatives. When opening previous data in PigTrap™ you may encounter the message, "Your database is very old. You may need to update it." If this happens, don't panic. Chances are you will be able to view the data without any problems. If you can't, just contact your TDW representative and we can send you a newer database and walk you through the process of updating.

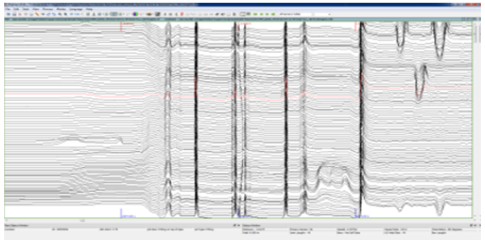


We packed so much into the new PigTrap™ the older reference files just couldn't hold it all so a new one may need to be created. Once the new reference file finishes, you will be able to freely navigate around in PigTrap™.

What am I looking at?

The data viewed in PigTrap™ is a 360 degree snapshot of the inside of the inspected pipe. This captured data is sliced down the middle and laid flat in the PigTrap™ main display. The horizontal lines represent sensor data collected from the pigging tool. Each line is one sensor. The left side of the screen is "upstream" while the right side of the screen is "downstream". So, as you scroll from left to right you are moving downstream from the launch valve.





Basic Navigation

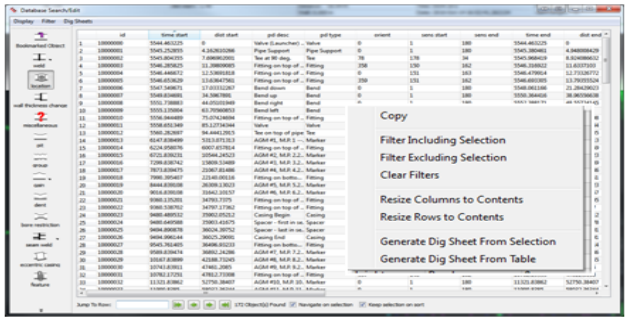
The horizontal scrollbar at the bottom of the main view moves the view upstream or downstream. Clicking on the left arrow moves upstream while clicking on the right arrow moves downstream.

The vertical scrollbar at the right side of the main view rolls the data vertically to a desired orientation of the view.

Zooming IN/OUT on the data is easily performed by clicking on the Zoom buttons.

Select the "Jump to Distance" icon from the run toolbar to enter a desired distance point to navigate in the inspection data. The option "View Width" sets how much viewable area to display (time based).

Click on the binoculars to open the Database/Search Edit (DSE). This displays a table of the pipe objects marked by the Data Analysis personnel. The buttons in the DSE allow for a high level filtering of specific types of marked pipe objects in the table. Right click on any pipe object to display a context menu of filtering, resize columns/rows and generate dig/feature sheets.



For example: Launch and Receive Valves can be found under "location" button, you'll also find Bends, Tees, Markers, etc.

For additional information regarding dig/feature sheet creation, see Appendix C.

Training

For detailed Pigtrap training, contact your TDW representative.

Appendix B

Trouble Shooting

Issue	Possible Cause	Possible Solution
"Data files missing" message displayed on the Main view.	PigTrap™ is not able to load the necessary data file(s) because they are missing, not installed correctly, media/hardware damage (Dirty or scratched CD/DVD, drive failure).	Please reinstall the inspection data, check the run setting has the correct path to the files (Run Settings>Files>Data File Directory), clean the CD/DVD.
"Generate Dig Sheet" is not available from the DSE.	PigTrap™ is not installed correctly.	Please reinstall PigTrap™.
Main window title bar is not visible.	Full screen is enabled.	Press "F11" on the keyboard.
Not able to highlight pipe objects.	The color bit depth is not set correctly.	PigTrap™ requires a 32 bit color depth, please contact IT to assist in changing to the correct setting.
	One of the task specific modes is enabled.	Press the "Done" or "Cancel" buttons from the bottom left.
REF error message.	If this is the first time opening a run with PigTrap™ , it may attempt to create a reference file (.ref2). This message appears because a .ref2 file does not exist or it is corrupt.	Select OK to create a new ref2 file.
Can't see the sensor data.	Zoomed in very close.	Click on the Zoom OUT button.
	Sensors are not enabled.	Turn on the sensors from the Run Toolbar.
Can't find the Status/Database Window.	The Status/Database windows are not enabled	Go to View>Status Window and toggle the option ON
Crashes while opening.	The video card drivers are out of date.	Update the graphic card drivers. Note: Before installing the latest driver, you may need to uninstall the current drivers while in Windows safe mode. Can also turn off shaders.
	The .rsf is corrupt and needs replacing.	Reinstall the inspection data.
	Microsoft Visual C++2010 redistributable is corrupt or not installed.	This is typically installed the TDW Inspection data. It is possible to have a corrupt install and additional help may be required to correct the issue. Please contact your local IT department to assist with the prerequisite install.

Appendix B

Tool Bar Layouts and Functions

Run Toolbar

The run toolbar will contain button that will toggle different views, traces and features on and off. Some of the features will be technology specific, such as IDOD as proximity sensors are only present on MFL tools. The arrows next to some buttons will provide additional options related to the specific button. Each window can be undocked by clicking and dragging the dotted left side of the toolbar.

Main

The main toolbar contains navigation buttons that will aid in viewing run data and seeking to specific distances or locations.

Database Navigation

These buttons navigate to features listed in the DSE.

Sensor Visibility

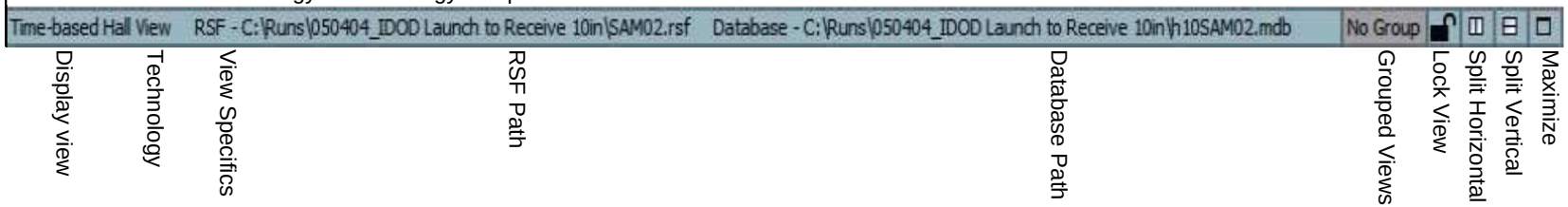
PigTrap™ allows user to zoom in on specific set of sensors, this dialog will display what sensors are currently being viewed. To return to viewing all sensors simply zoom out (-).

Quick Search

The quick search allows users to quickly search for features by typing in a certain criteria, such as '+valve' this will jump to the next downstream valve.

Run Details Status Bar

The run details status bar displays information regarding the view-type (time or distance), the location of the RSF and database and allows for the splitting of multiple views. Additional views can be split vertically or horizontally and even un-docked into a separate window using the button that appears after a view has been split. Locking a view will keep the current view in place. This feature will allow for multiple runs to be open in the same PigTrap™ for easier run to run or technology to technology comparison.

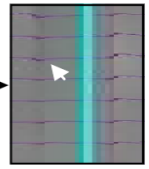


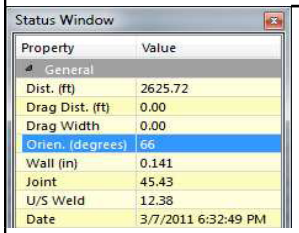
Displayed Information and Shortcuts

Pipe Object and Status Windows

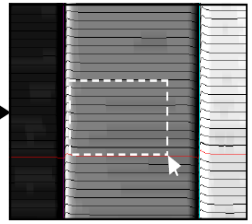
The Pipe Object and Status Windows will be defaulted to the right side of PigTrap™. Both windows can be docked and undocked by double clicking the title bar, left clicking and dragging or clicking the undock button located in the top right corner. As PigTrap™ has the ability to display multiple datasets the Status Window will update each section depending on which tool technology is selected (refer to the Run Details Status Bar on the Tool Bar Layout and Functions page). The information contained in each section of the Status Window can also be customized by right clicking on the desired section and selecting what data to display.

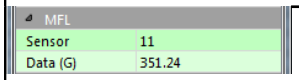
The pipe object window will display information about a highlighted feature, such as a weld, providing the weld ID and Distance. Features are highlighted when the cursor is placed upstream of an object and the object becomes highlighted with a teal color.



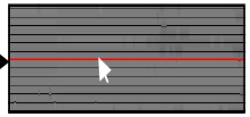


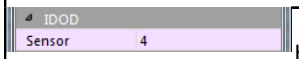
The General section of the Status Window will display information pertaining to all datasets. The information is dependent on the cursor location, displaying the current distance, orientation, wall thickness, joint length, up stream weld and date and time. The drag distance and drag width is populated when a box is drawn and can be useful when manually measuring lengths and widths.





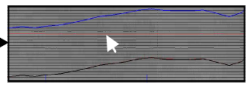
The MFL window will display information for the current highlighted sensor. The highlighted sensor will be a red line over the entire sensor. These sensors can be turned on and off using the Esc key.





The IDOD window will display information for the current highlighted IDOD sensor. The IDOD sensors can be turned on by pressing the tilde (~) key.

The odometer section displays information about the speed for the current cursor location.



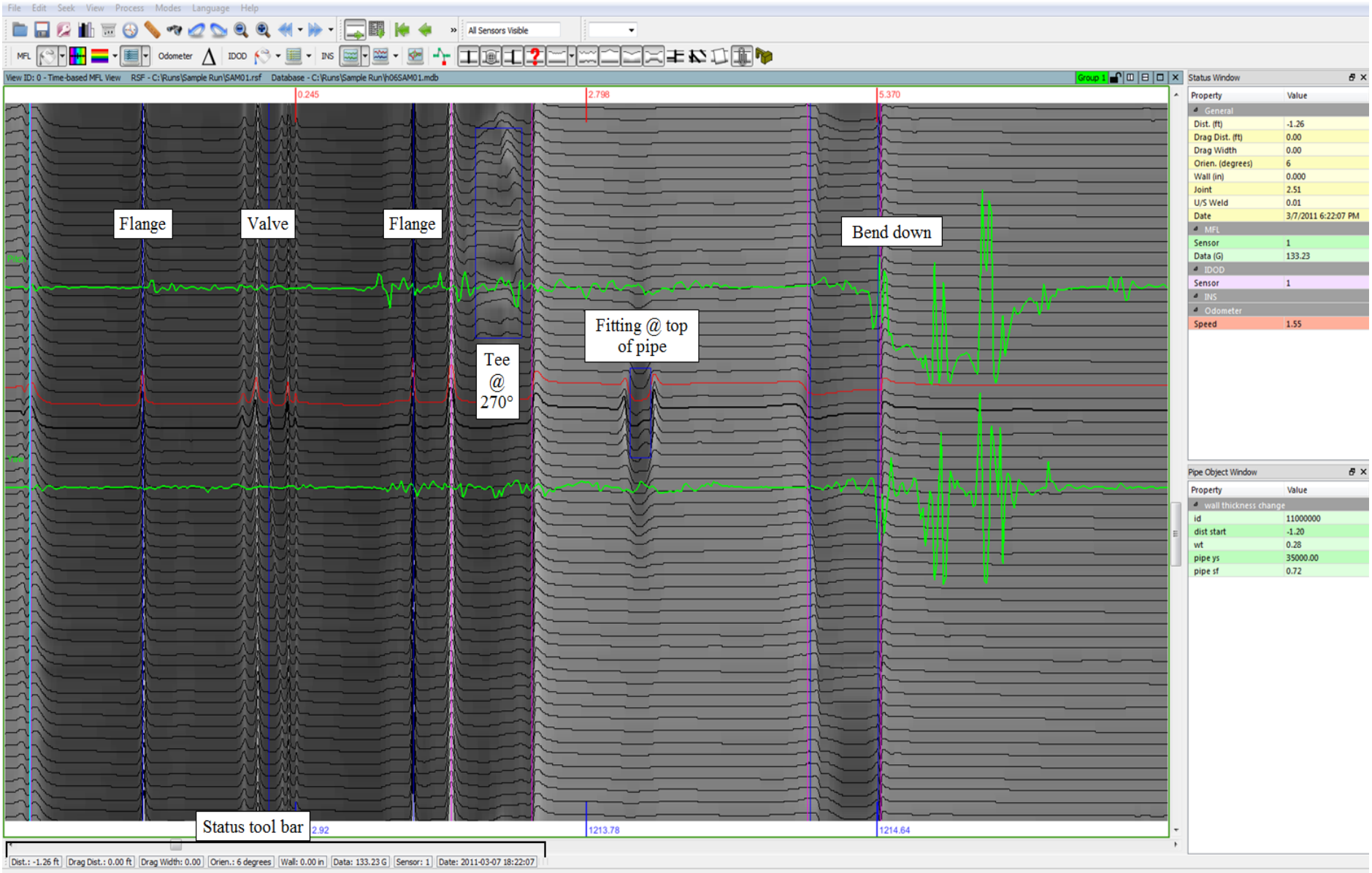
Status Bar

The Status Bar is located at the bottom left of PigTrap™ and contains much of the same information as the General section of the Status Window. It can also be customized by right clicking and selecting what information to display. The order can also be adjusted by clicking and dragging a section above or below other rows.

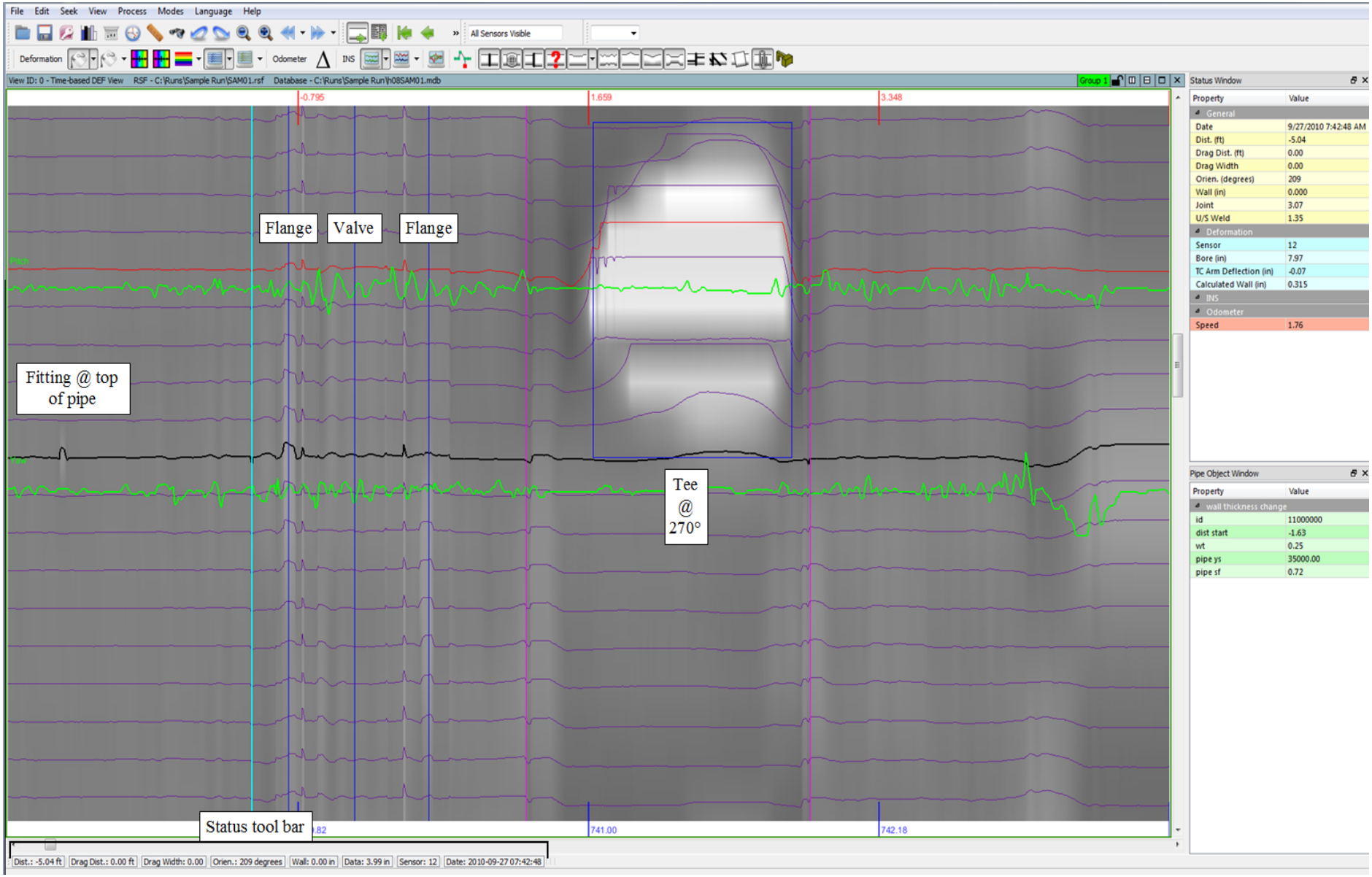
Keyboard Shortcuts

Ctrl + ŷ	Jump to Launch Valve
Ctrl + Ź	Jump to Receive Valve
Ÿ	Move Half Screen Downstream
Ŷ	Move Half Screen Upstream
Page Down	Move Full Screen Downstream
Page Up	Move Full Screen Upstream
ŷ	Rotate Orientation Up
Ź	Rotate Orientation Down
Mouse Wheel	Rotate Orientation
Ctrl + F	Open Database Search Edit (DSE)
Spacebar	Repeat Last DSE Find
Ctrl + Z	Undo Last View
Ctrl + Shift + Z	Redo Last View
Ctrl + D	Jump to Distance
Ctrl + T	Jump to Time
Ctrl + H	Open Deformation Cross Section
Ctrl + Ÿ	Jump to Downstream Marker Trip
Ctrl + Ŷ	Jump to Upstream Marker Trip
Alt + Double Click	Hide Status Windows
Esc	Turn Hall sensors on/off
Tilde (~)	Turn IDOD sensors on/off
M	Measure dragged box

PigTrap™ MFL Runs



PigTrap™ DEF Runs

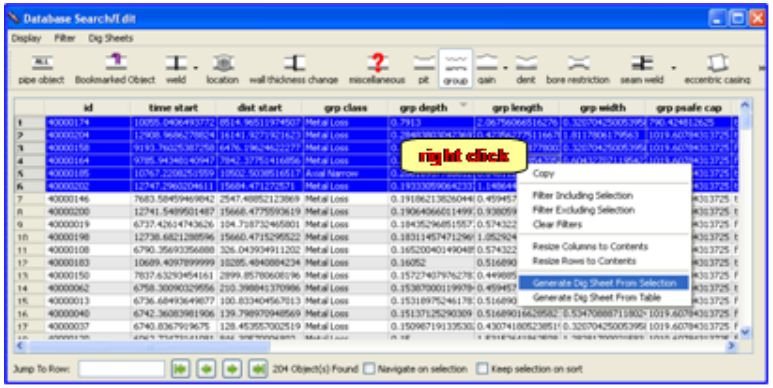


The user can view and print dig sheets for any anomaly or feature detected in the pipeline including Metal Loss (Groups or Pits), Dents, Locations, Gains, Wall Thickness changes, Welds, Miscellaneous notes, etc.

1. Open PigTrap™ to view the inspection data for the run. Please consult Appendix B if you need instructions on installing and viewing the raw data.

2. Click on the Database Search/Edit option either by clicking on the small binoculars icon in the toolbar or choosing the option under the Seek toolbar.

   a. This will bring up the Database Search/Edit (DSE) window.



3. You can choose what type of feature you want to list in the window by clicking on the icon in the margin.

4. Once the list populates with that type of object, you can filter or sort the data to find the object(s) for which you want to create dig sheets.

   a. Clicking on the header of the column will sort either ascending or descending. Click again to reverse the order.

   b. You may also use or create various filters by clicking on one of the two Filters buttons.

   c. There is also a Displayed Columns button which allows you to hide or show the various columns of data.

5. Right clicking in the table or choosing the Dig Sheets option in the top toolbar will allow you to create dig sheets one of two ways:

   a. Generate Dig Sheet From Selection – This will create a separate dig sheet for each of the highlighted rows in the list. Using the Ctrl key or the Shift key and clicking rows will allow for multiple row selection.

   b. Generate Dig Sheet From Table – This will create a separate dig sheet for every item in the list whether highlighted or not. Note that if the list contains a lot of features, this could lead to numerous dig sheets being created and may impact the short term performance of your computer while they are being generated.

6. The dig sheets you requested will automatically be previewed for easier printing as well as saved to a directory as a pdf file for printing later.

   a. To choose which directory the dig sheets are saved into, choose Report Creation Settings under the Dig Sheets option in the top toolbar.

7. Also under the Dig Sheets toolbar in the DSE window, you may change various dig sheet formatting preferences by clicking on Dig Sheet Settings option.